



Research on Writing: Multiple Perspectives

Edited by Sylvie Plane

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RESEARCH ON WRITING: MULTIPLE PERSPECTIVES

INTERNATIONAL EXCHANGES ON THE STUDY OF WRITING

Series Editors, Terry Myers Zawacki, Magnus Gustafsson, and Joan Mullin

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RESEARCH ON WRITING: MULTIPLE PERSPECTIVES



Introduction. Teaching Writing, Understanding How It Works and Evolves, Across Borders

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In February 2014, some 1200 researchers from 60 countries assembled in Paris for the third edition of the conference *Writing Research Across Borders*. Its wide-ranging contributions offered a vast perspective on the current state of research in the field of writing. This book is the fruit of that congress. It does not claim to document the rich diversity of the gathering, however: how could it possibly reproduce, with only about thirty chapters, the content of more than 500 presentations and some 100 symposiums? Notwithstanding this, it aims to highlight the key questions which are drawing the particular attention of researchers today.

This compilation includes contributions from researchers who work in very different contexts. We chose this approach partly to point out the diversity among the angles of attack used in the study of how writing works and how to make it an effective topic of instruction. But we also chose it to underscore convergences beyond boundaries.

Most of us think first, of course, of national borders, because the contributions come from countries far from each other. But the borders which interest us most of all are epistemological and linguistic in nature. The epistemological borders arise from the fact that writing is a complex and polymorphic organism which resists holistic undertakings that claim to represent all of its facets. For this reason, we must resolve not to settle for a piecemeal grasp, nor to apply the methodological filter of any one approach in particular. Thus the subject “writing” studied by anthropology or paleography has neither the same contours nor the same characteristics exhibited by the same subject in linguistics, literature or psychology. The borders are also linguistic in nature, because what constitutes the unity of a learned community are not merely the subjects that it adopts or the concepts that it mobilizes. Rather, that unity also derives from its *archives*, to use Foucault’s term, because the language employed in the community is constitutive of its archives, the shared history

which establishes it and structures it. That's why research on writing can have somewhat different emphases depending on whether English or French is the working language of the intellectual sphere whence it originates—and why we chose to present the contributions in the print edition of this collection in their original language as a reflection of the epistemological context in which the research results reported by these contributions were produced. For this digital version, however, we have presented all the articles in English for accessibility.

The objective of this collection is not to present a panoptic vision of research on writing, but rather to create a dialogue among its different facets, whose theoretical and methodological choices differ. That dialogue is possible because this research is unified by a single purpose, explicitly expressed in some chapters, left unspoken in others: it is all aimed at developing our understanding of writing in order to enable more effective learning and more competent usage. These chapters range therefore along a line extending from the unabashed expression of a pedagogical concern to the pure analysis of how writing and texts work. In order to illustrate the full breadth of that range, this work is laid out in three parts, the first two of which share the subject of writers: primary and secondary school-aged students in the first section and then adults—students or professionals—in the second. The third part considers writing from a linguistic and cognitive perspective.

This division into three parts, however, serves only to point out the vast centers of interest common among the chapters grouped therein, while finer threads interconnect the chapters irrespective of their grouping. In fact, most of the chapters resonate with one or more of the other chapters, or even with the collection a whole, thereby contributing to an overall picture. Here I will mention just a few of the threads that link the chapters to each other and sketch a cartographic outline by focusing particular attention on the convergent themes.

The influence of context on writing as taught and practiced is an area of common interest to all of the contributions. The topic is examined explicitly in chapters which, from different points of departure, illustrate the connection between the institutional, cultural and epistemological conditions of writing instruction and show that those conditions configure the practices. The contribution by Arthur Applebee, “What Shapes School Work? Examining Influences on School Writing Tasks over Time in U.S. Secondary Schools,” turns our attention to the institutional context. The chapter describes the evolution of tasks assigned to secondary school students in the USA from the 1979-1980 school year to the 2009-2010 school year. It shows how tests condition scholastic writing practices, reducing them to minimal

forms, and this despite advancements in didactic reflection. In “Les ancrages culturels de l’écriture des étudiants chinois à l’université: culture d’apprentissage et traditions académiques,” (“Chinese students writing in university: Learning culture and academic traditions”), Agnès Pernet-Liu treats the contradictory cultural influences to which Chinese students are subjected when learning French. She reveals how these students are torn between the traditions conveyed by the culture, school, and coded writing of China on the one hand and by the influences of western university-style rhetoric and the international scientific community on the other. Both contributions analyze the epistemological aspects of context. In “intellectual orientations of studies of higher education writing in Latin America,” the point of departure for Charles Bazerman and his colleagues, Natalia Avila, Ana Valéria Bork, Francini Poliseli-Corrêa, Vera Lúcia Cristovão, Mónica Tapia Ladino, Elizabeth Narváez, is the development of writing instruction measures in Latin America—measures they welcome for their vitality. The authors examine the heterogeneity of those measures, which they attribute to several factors: the dispersion of the structures in which this instruction takes place, and above all the absence of shared theoretical benchmarks and of a common editorial base. The question of unity and diversity is also treated in the chapter by Olga Dysthe, Frøydis Hertzberg, Ellen Krogh, Birgitta Norberg Brorsson, “Writing in the content areas—a Scandinavian perspective combining macro, meso, and micro levels,” in which they show not only the importance of Scandinavian tradition relative to writing but also the diversity of its operationalization in instructional programs and practices with regard to writing in the scholastic disciplines.

Examination of writing in the disciplines lies at the core of the chapters by Charles Bazerman and Olga Dysthe and constitutes a key element of the collection. These questions apply equally to schools and universities. Together they point up not only the stakes but also the difficulties arising from the linkage between the different types of learning. Angela Kohnen, Wendy Saul and Nancy R. Singer, in “Where’s the science? Developing writing criteria for secondary science Classrooms,” present a research program designed to help secondary school teachers coordinate science instruction and training in texts specific to that field by introducing students to scientific journalism. They analyze the process which begins with the establishment of criteria for the scientific article by specialists to its imperfect implementation in the classroom. The chapter by Annie Camenish and Serge Petit, “Écrire en mathématiques: Le rôle des écrits intermédiaires,” (“Writing in mathematics: The role of intermediate texts”), examines the difficulties that students experience in reading problem descriptions where the factual elements are not organized

Introduction

in chronological order. To help the students process those statements, they propose to have the students rewrite them using a system of symbols, thereby establishing an explicit chronology. The chapter by Carolina Roni and Paula Carlino, “Writing for reading in science classes. The teacher’s actions,” compares two reading-writing systems in high school biology courses that incorporate the projection of a documentary film. Their analysis shows that when the formal presentation of the subject matter by the teacher precedes the research that the students are to perform, it discourages them from reading and writing to complement their understanding of the documents provided. In “Learning specialists working with faculty to embed development of academic literacies in discipline subjects,” Kate Chanock demonstrates the important role of specialists in academic literacies when training students in academic writing. She also discusses the challenges of collaborating with disciplinary specialists, however, and nonetheless favors classroom instruction over competing online instruction programs.

The effect of digital media described by Kate Chanock has fueled debate: as if in response to her arguments, several chapters emphasize either the interactivity between learners and trainers that those media enable or the kinds of development that they are apt to foster among learners. In “Commenting with Camtasia: A descriptive study of the affordances and constraints of peer-to-peer screencast feedback,” for example, Mary Lourdes Silva explores the way students use audiovisual feedback provided by their peers in order to determine whether they successfully seize the information for the purpose of improving low or high level elements and take advantage of training designed to help them process the information received. In “Apports du tutorat en ligne pour la production écrite dans un dispositif de télécollaboration” (“Contributions of online tutoring for written production in a telecollaborative system”), Catherine Muller analyzes how subjects learning a foreign language and their tutors—advanced students themselves—interact while editing a blog, wherein they play complementary roles, and then goes on to examine the effects on these two types of writers. Patricia Richard-Principalli, Georges Ferone and Catherine Delarue-Breton, in “L’écriture dans les forums de discussion entre genre premier et genre second” (“Writing in discussion forums: Between primary genre and secondary genre”), show that the forums in which students interact with their trainers can favor the process of secondarization by means of which the objects treated become objects of knowledge. The authors also draw a distinction between two profiles of learners according to whether that secondarization process is more or less successful. Two chapters, one by Roxane Joannidès and Marie-Claude Penloup and one by Cristina Marín Alia-gas, offer a fresh perspective on the heretofore negative influence ascribed to

digital media, which some claim alters the writing of adolescents. The first, entitled “La littéracie numérique et l’orthographe dans les écrits adolescents: Des contacts conflictuels entre variétés de l’écrit?” (“Digital literacy and spelling in teenagers’ writing: Possible conflicts among written varieties?”), studies spelling changes in middle school students by comparing two bodies of text collected fifteen years apart. It shows that segmentation problems are growing worse but that the practice of electronic writing has not caused the significant degradations generally attributed to it. The second, entitled “Schooled literacy in teenagers’ online writing,” takes a look at the Facebook profiles and blogs of adolescents, examining how the writers’ personalities are constructed in a hybrid space between one that imparts culturally valuable literacy and one steeped in vernacular usages. And finally, in “Écrire avec le Web social: Quel type de sites pour quel étayage?” (“Writing and social media: Which website types for which scaffolding?”), François Mangenot provides a system for classifying websites and examines how they are best suited in the context of teaching French as a foreign language.

Questions relative to writing in a foreign language, highly present in the chapters dealing with digital media, are also the subject of chapters which examine the activity of writing and editing practices specifically associated with the use of a language other than the writer’s native tongue. Maarit Mutta, in “Pausal behavior in the writing processes of foreign and native language writers: The importance of defining the individual pause length,” compares the behaviors of Finnish-speaking and French-speaking writers. Based on a chronometric study and stimulated recall verbalization, she shows that members of the former group pause for longer periods in L₂, revealing a lower level of confidence, and demonstrate more varied behavior in L₁, while members of the latter group are more stable but exhibit significant differences from individual to individual.

The difference between L₁ and L₂ is considered from another perspective by Ivana Mirović and Vesna Bogdanović, who compare the discursive characteristics of scientific articles in Serbian and English in “Use of metadiscourse in research articles written in L₁ and L₂ by the same authors.” Having demonstrated that English turns more to metadiscourse, they draw conclusions about this in regard to training. Maria Lim Falk and Per Holmberg, in “Paths to academic writing in a globalized world. A longitudinal study of Content and Language Integrated Learning in upper secondary school in Sweden,” compare maternal-language academic texts written by high school students, only some of whom receive bilingual English-Swedish instruction. The authors show that bilingual instruction has little effect on the academic dimension of the texts written in the mother tongue, but that mastery of the

lexical components and mastery of the epistemic and rhetorical aspects are interdependent. As for Olga Anokhina, in “Multilingual writers and metalinguistic awareness: Can we use manuscripts as a basis for a typology of scriptural practices?” she looks at the practices of writers who make use of multiple languages. Applying genetic criticism methods, she uses manuscripts to establish a topology of usages by authors in several different languages during the production of their text.

Scriptural practice is also examined by considering the units treated during the writing process. Different approaches can be used here: psychologists want to determine which units are in play for each type of cognitive processing; education specialists want to find which types of unit can serve as a hook for the pedagogical process; linguists want to identify how the writer goes about organizing the units in order to form “text.” Two chapters focus on the cognitive dimensions of the language activity. The one by Markus Damian and Qingqing Qu, “Syllables as representational units in English handwritten production?” reports on research designed to verify if the syllabic structure plays a role in the preparation and execution of the graphic act, as some studies of French and Spanish suggest. The authors conclude that in languages where the syllabic border is less clear, as in English, syllabic structure has little effect on written production. In “Informative differences: An argument for a comparative approach to written and spoken language research,” Ariel Cohen-Golberg also examines syllables to support his thesis, the aim of which is to establish the theoretical and methodological foundations of a comparison between behaviors in written and oral production. He follows two lines of questioning, one dealing with the comparison between people with and without severely impaired hearing, and the other dealing with the grammatical calculations in the two modes of production. Among education specialists and linguists, the small units are viewed in their relation to the larger units. In her chapter, “Rééducation de l’orthographe lexicale auprès du scripteur présentant une dysorthographie” (“Rehabilitation of lexical orthography in writers with dysorthographia”), Nathalie Chapleau considers morphological units. She examines the effects of teaching morphology in dysorthographic students who were trained to identify suffixes, the meanings of which were explained to them, as a means of facilitating recuperation from memory during writing. Claudine Garcia-Debanc and Myriam Bras, in “Vers une cartographie des compétences de cohésion et de cohérence textuelle dans une tâche-problème de production écrite réalisée par des élèves de 9 à 12 ans” (“Mapping coherence and cohesion skills in written texts produced by 9- to 12-year-old French-speaking learners: Indicators of proficiency and progress”), consider the linguistic tokens used by students to resolve prob-

lems of anaphora and to ensure the temporal cohesion and coherence of a text, with the aim of providing the elements of a semi-automated analysis. Punctuation is the subject of two chapters. Dolores Amira Dávalos Esparza, in “The incidence of speech modalizers on children’s reflections about the use of expressive punctuation,” shows that primary school children use clues of a semantic or declaratory nature in the statements to be punctuated in order to choose the signs that seem suitable to them. In “Ajout après le point et hiérarchisation de l’énoncé: une tendance de l’écriture contemporaine” (“Additions after the full stop and hierarchical sentence organization: A new trend in contemporary writing”), Bernard Combettes and Annie Kuyumcuyan describe a phenomenon that characterizes contemporary writing, the continuation of the sentence after the full stop. They offer a typology of semantico-syntactic relationships linking the linguistic segments on either side of the full stop and attribute the development of these constructions to the writers’ search for an alternative to the complex sentence. In “L’enjeu de la rédaction professionnelle” (“The issue of professional writing in the 21st century: multidisciplinary tools for a high-level writing”), Christina Romain, Véronique Rey and Marie-Emmanuelle Pereira show that writing professional documents requires the writer to combine the manipulation and ordering of linguistic units together with the mastery of an enunciative system ensuring the establishment of a relationship with the addressee. The chapter by Louis Hay, “La critique génétique, une autre approche de l’écriture?” (“Genetic criticism: another approach to writing?”), examines questions of both methodology and semiotics. It essentially shows how genetic criticism attempts to trace the writer’s path by studying the graphic traces of their mental operations, revealing the link between the material and the symbolic.

This attention to writing dynamics extends to chapters that underscore their role in the personal or social construction of individuals. Bruno Hubert, in “Écrire pour donner à voir et entendre sa compréhension du monde” (“Writing to transmit and share one’s understanding of the world”), and Eduardo Calil, in “Writing, memory and association: creation processes of poems by newly literate students,” examine the way a system allows primary school students to construct themselves as authors. The first treats the linkage between reading and writing and how writing offers a path for conciliation with the world through the effort of representation and comprehension that it solicits. The second describes the process of creation established by a dyad of young children who undertake to write a poem. It shows how the written record is only an imperfect re-creation of the associations underlying the ideas and the fertile terms established by the children during their oral exchanges. With regard to adults and their training, the emphasis is on the more or less

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successful changes that writing provokes. In “Faire écrire pour construire des connaissances: accompagner la construction d'une posture d'apprenti-chercheur” (“Building knowledge through writing workshops: How to accompany the gradual building of an apprentice-researcher posture”), Jacqueline Lafont-Terranova and Maurice Niwese describe a widespread system used in writing seminars as an initiation to writing research papers while developing the relationship to students’ writing at the same time. The assessment by Marie-Hélène Jacques is more pessimistic. In “Écriture et reconstruction identitaire au cours des transitions professionnelles. Le cas de la Validation d'Acquis de l'Expérience,” (“Writing and reconstructing identity through professional transitions”), which examines the texts that people must write during the course of professional reorientation, she shows that the task rekindles initial socio-cultural inequalities.

Thus, through the chapters collected in this book, which sketch the landscape of current writing research, we can see how our knowledge about writing is still growing, and appreciate the positive effect of educational research. But, at the same time, these chapter show, by what they don't cover, wide areas that remain in the shadows. This body of work offers not only results and conclusions well worth retaining, but also paths of future inquiry well worth pursuing.

Part 1. Writing by Primary and Secondary Students

1

What Shapes School Writing? Examining Influences on School Writing Tasks Over Time in U.S. Secondary Schools

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Two national studies of writing instruction in secondary schools in the United States over 30 years apart reveal the changes in the kinds of work students are asked to do. Findings indicate that in both the 1979-80 and the 2009-2010 studies nearly half of lesson time involved pencil on paper, but only a small percent of that was devoted to paragraph-length writing; nonetheless, there was a significant increase from 3.8% of the time devoted to paragraph-length writing in the earlier study to 7.7% in the current. There was also an increase in instruction of such practices as generating ideas, writing strategies, or peer planning and revision. Although students write more for English than for any other subject, they actually write more for their other subjects combined than they do for English. Much of the observed current patterns in writing education can be attributed to the high stakes examination system put in place since the previous study. Effective practices of successful curriculum and instruction were identified.

Deux études distantes de 30 ans ont révélé des changements majeurs aux Etats Unis dans le type de travail que les élèves de l'enseignement secondaire devaient fournir en écriture. Les résultats de la recherche menée en 1979-80 tout comme de la recherche de 2009-2010 montrent que les élèves passent presque la moitié du temps des cours la plume à la main, mais que seul un faible pourcentage du temps est consacré à la rédaction d'écrits de la longueur d'un paragraphe. Toutefois, il s'est produit un accroissement significatif du pourcentage de temps consacré à l'écriture de paragraphes puisque celui-ci est passé de 3,8% lors

de la première étude à 7,7% lors de l'étude la plus récente. Il y a eu également un développement de la formation à certaines pratiques scripturales telles concernant la recherche des idées, les stratégies d'écriture ou la planification et la révision menées avec les pairs. Bien que les élèves écrivent plus dans le cours d'anglais que dans les autres cours, ils totalisent en fait plus d'écrits dans l'ensemble des cours que dans le seul cours d'anglais. La plupart des phénomènes qui ont été observés dans l'enseignement de la production d'écrit peuvent être attribués au système d'examens à forts enjeux qui a été mis en place depuis l'étude la plus ancienne. L'article signale également les pratiques efficaces qui conduisent au succès du programme d'étude.

1. Introduction

This chapter presents two national studies of writing instruction over 30 years apart to examine the kinds of work students are asked to do in school. It considers not just the books they read or the topics they study, but what students are asked to do with the material they encounter in their subject coursework. The nature of this work, in turn, shapes what they are learning to know and be able to do. Should they prepare for business, reflect on personal experience, argue for social justice, or engage in storytelling? All are important, but each leads to the development of a different set of knowledge and skills.

These issues are important in today's world because of workplace and social globalization. Success in 21st century work and communication endeavors call for writing skills and instruction that foster not only sharp and critical minds, but facility in the various forms of writing and expression that are associated with success in present-day commerce and the workplace. In the United States, tests such as those being revised by the National Assessment of Educational Progress (NAEP) and those being developed to align with the new Common Core State Standards attempt to focus on students' growing ability to use writing as a way to think deeply and express themselves clearly. The Common Core calls for writing in each of the main curriculum areas and expects students to be able to write thoughtfully about what they are learning in ways that reflect the norms of modern writing. Despite well-intended goals, how these benchmarks are being interpreted and translated into action has been problematic. Our research team wanted to learn about the kinds of writing students are being asked to do as well as the kinds of writing they are actually doing in their subject classes. We saw this study as an appropriate opportunity to sketch a baseline for the next decade of writing research and reform needed in middle and high school subjects.

The more recent of the two studies, a collaboration between the Center on English Learning & Achievement at the University at Albany and the National Writing Project at the University of California-Berkeley, had 4 stages, each of which took about a year (Applebee & Langer, 2013).

2. Methods

The first stage was an inventory of what we already knew about the state of writing instruction in the United States. This involved primarily a series of re-analyses of background questions that accompany the National Assessment of Educational Progress, which assesses reading, writing, and other subjects on a regular basis in the U.S. and also gathers information from teachers, students, and administrators about the kinds and amounts of writing that are taught in particular grades and disciplines. With this as background, stage 2 followed with a year-long series of in-depth studies of instruction across the disciplines in 6 diverse middle and high schools in New York State, developing procedures for the next phases of the study and refining our sense of issues in teaching and learning across all subject areas.

The final two stages, which provide the majority of the data presented here, began with a close examination of “best practice” in 20 schools selected for their reputations for excellence in the teaching of writing. These related best practice to curriculum and instruction in more typical settings (stage 3), followed by a survey of middle and high school teachers in schools across the nation (stage 4).

In stage 3, schools with local reputations for excellence were selected through a process of soliciting nominations from state and national experts on the teaching of writing; their suggestions were validated against school-level achievement data on reading and writing performance. Each of the schools we studied does noticeably better than demographically similar schools on tests of writing achievement. In developing the sample, our emphasis was on diversity in successful practice rather than “representativeness.” Our selection criteria were also weighted towards schools and communities with historically underperforming populations, primarily schools serving the urban poor and the culturally diverse.

For this stage, we selected schools in 5 states that illustrate the diversity of approaches to assessment in the United States. Of the five states, California and Texas required essays on their state exams in English, but not in any other subject. Michigan similarly required essays in English, but also when we began the study required essays in social studies/ history. Kentucky used a portfolio assessment, where students were required to include writing from

subjects other than English, but could choose the subject area. And finally New York State continued a long tradition of requiring at least short explanatory writing in each of the major subject areas.

Once the sample was in place, teams of trained observers visited each school for at least three days. They interviewed 220 teachers and administrators, observed over 250 classes, and gathered a semester's worth of all of the written work completed for English, math, history, and science classes, from each of 138 case study students.

For the fourth stage, the national survey, we contacted potential survey respondents a total of five times in different formats (e.g., telephone, postcard, letter). We obtained useable responses from 1520 randomly selected public school teachers in Grades 6-12 (ages 11 to 17), in the four core academic subjects: English, history, science, and math. Teachers in our sample were comparable on a variety of background characteristics with National Center on Education Statistics data on teacher demographics in the U.S., as well as with non-respondents from our sampling frame.

The current study described above was designed to reveal changes in writing instruction since 1979-80, when I carried out a similar national study (Applebee, 1981). Because so much has changed in the teaching of writing, the current study did not attempt a replication of the earlier work, but to investigate instead issues that are relevant today, including, for example, the spread of digital technologies and the advent of high stakes assessments. These everyday tools of writing were unavailable to the largest portion of the student population in the late 1970s, and process approaches to writing instruction were nascent. In fact, this earlier study helped to prompt related research and changes in school policy and practice.

3. Results

3.1. Comparisons

Looking across time, there are some broad and noticeable changes in writing instruction. In 1979-80, some 44% of lesson time involved pencil on paper, but only 3% of that time included attention to paragraph-length writing (Applebee et al, 1981, p. 79). When students were asked to write at some length, the typical writing assignment was a page or less, begun in class and finished up for homework. The presentation of the task took approximately 3 minutes from the time the teacher began to give the assignment until the students were expected to start work. Instruction, to the extent it took place at all, typically occurred through teacher comments on completed work—which

students usually ignored.

Much research and pedagogical innovation in the teaching of writing has taken place in the intervening years and, based on survey and interview data, we can see that teachers' knowledge about writing instruction has changed accordingly. Interview and survey data suggest that teachers' views of writing instruction look very different today. They report being more likely to use a workshop format where students are encouraged to spend time prewriting, sharing drafts, and revising what they have written. They also report significant attention to formal writing instruction, offering a mix of traditional structural approaches and more constructivist cognitive strategies that may help in prewriting, drafting, and revision. Analyses of classroom observations, assignments, and student writing suggest, however, that the context for writing instruction has limited the changes that have actually taken place.

As in the earlier study, nearly half of lesson time (49%) involved pencil on paper (or fingers on keyboards), but again only 7.7% of the time focused on paragraph-length writing (Applebee & Langer, 2011: 15–16). (This is actually a significant increase from the 3.8% in the earlier study.) Although little writing was still being assigned, when it was, the typical assignment had grown to two pages, completed over as much as six days.

If we look just at English teachers, who focus most intently on writing instruction, over half report that they frequently spend class time generating ideas, providing instruction in writing strategies, or organizing peer planning and revision. Almost half report creating workshop environments for writing, or basing instruction around inquiry-based tasks. Reports from teachers in other subject areas are lower than those from English, but the general pattern of increased attention to instruction is clear across subjects.

Another feature that has changed across the 30 years between these studies is the attempt to provide more authentic audiences. Whereas in 1979–80 virtually all of the writing was to the teacher in the role of examiner, in the recent study significant numbers of teachers reported establishing a teacher-learner dialogue in which they reacted to at least some drafts without assigning grades. Teachers also reported creating opportunities for students to share writing among themselves, which also rose noticeably compared with similar data from 1979–80. Some 41% of high school English teachers today reported frequently encouraging such sharing, compared with only 16% in the earlier study.

Many of the more substantial changes are captured in two writing assignments, one collected in the earlier study (Figure 1.1) and the other collected in the present one (Figure 1.2).

Western Europe on the eve of the Reformation was a civilization going through great changes. In a well-written essay describe the political, economic, social, and cultural changes Europe was going through at the time of the Reformation. (25 points)

Figure 1.1 Ninth-grade social studies

The assignment in Figure 1.1 is in one sense an impossible task—books have been written on the changes in Western Europe at the time of the Reformation, and scholars will continue to find new themes to explore. But in the context of the classroom the task is a quite straight-forward request to report back to the teacher information that has been presented in class or in the textbook, most probably in a mix of both. For the student, it is a work of memory presented in a format that has been well-rehearsed.

Historical Context:

The French Revolution of 1789 had many long-range causes. Political, social, and economic conditions in France contributed to the discontent felt by many French people—especially those of the third estate.

The ideas of the intellectuals of the Enlightenment brought new views of government and society. The American Revolution also influenced the coming of the French Revolution.

Directions: The following question is based on the accompanying documents in Part A. As you analyze the documents, take into account both the source of the document and the author's point of view. Be sure to:

Carefully read the document-based question. Consider what you already know about this topic.

How would you answer the question if you had no documents to examine?

Now, read each document carefully, underlining key phrases and words that address the document-based question. You may also wish to use the margin to make brief notes. Answer the questions which follow each document.

Based on your own knowledge and the information found in the documents, formulate a thesis that directly answers the question.

Organize supportive and relevant information into a brief outline.

Write a well-organized essay proving your thesis. The essay should be logically presented and should include information both from the documents and from your own knowledge outside of the documents.

- Question: What were the most important causes of the French Revolution? (Discuss three.)

Figure 1.2 Tenth grade social studies

The assignment in Figure 1.2 seems much more ambitious. It begins with a similar catalog of conditions influencing the French Revolution, but it complicates this with a set of new materials for the students to analyze and synthesize, incorporating the new information into their response. These ma-

terials and the ways they are presented reflect changes we have seen in classroom instruction, with more time given to writing, together with extensive scaffolding of how to go about the task. Though clearly a more sophisticated task than the one from 30 years ago, this task too has limitations. Students do not really have time in an examination context to develop original theories of the origins of the French Revolution. They are urged instead in step one to develop a template for their response, a template which they can enrich with new details from the documents provided. There is an inherent tendency for writing of this type to become highly formulaic, as Hillocks (2002) has noted in his own study of writing assessments. In asking students to discuss 3 causes of the Revolution, this task even nudges students toward a variation on a 5 paragraph theme.

3.2. Writing in U.S. Schools Today

I want to turn now to other issues in writing instruction in the United States today, again from the perspective of the work are students learning to do.

One of the first things we found about student writing is that although many write more for English than for any other subject, they actually write more for their other subjects combined than they do for English (Applebee & Langer, 2011: 15). This means that a great deal of what students know and are able to do with writing is shaped by their experiences in other classes—particularly science and history.

The second striking fact about the work students do for school is how little of it requires writing at all. Students spend almost half their time in class with pencil to paper (or fingers to keyboard), but most of it is exercise work, copying from the board, or filling in information that has been organized by the teacher or textbook. Work that requires any composition—creating even the possibility of constructing new knowledge—represents around 18% of the work middle and high school students are doing.

Why is this?

In U.S. schools, the high stakes examination system drives curriculum and instruction to an even greater extent than we thought when we began the study. In any given year, nearly 76% of middle school students and 47% of high school students are likely to face a high stakes exam in English; the percentages are even higher in math. Schools and students face up to 3 sets of external exams that are “high stakes”—that is, they can determine whether a student passes or fails, a teacher gets a raise or loses a job, or a school gets closed.

Because the stakes are high, teachers pay close attention to the exams,

which come from three different sources. Across subject areas, teachers reported that between 61% and 91% of U.S. classes are shaped in important ways by state examinations, and another 49% to 73%, depending on subject area, by district exams (primarily a phenomenon of large urban school system). Finally, Advanced Placement and International Baccalaureate exams affect curriculum and instruction in another 19% to 27% of classes, figures that rise further in the upper grades.

Unfortunately, the importance of high stakes testing does not bode well for writing instruction. When we looked at the high stakes tests these classes were facing, very little writing was required to do well. Even in English classes, only 17% of the grade in middle school and 29% in high school required any open ended response; the percentages were lower for essay writing. Classroom-based testing is no more encouraging; its emphases follow the lead of the high-stakes exams. The bottom line is that students can do well in all subjects by learning to do well on multiple-choice items.

The tests we give are perhaps the strongest indicator of what is valued by society-at-large, and what we want students to know and be able to do. In our study, the teachers report that the tests have a very direct effect on classroom instruction. Some 75%, for example, report asking students to practice on similar items, and 62% use old exams as the basis for some of their classroom instruction.

Tests shape school work in at least 3 ways: whether to include writing in the curriculum; what kinds of writing to include; and whether to structure writing tasks around in-depth exploration of topics or as preparation for on-demand assessments. We saw evidence of all three of these influences in our study.

First, in classes facing exams that required a paragraph or more of writing their teachers required them to complete significantly more pages of writing than in classes with no writing on the exams. Further, teachers in these classes reported a significantly greater range of types of writing were important for their students' success (Applebee & Langer, 2013: 18-20). Interestingly, simply having open-ended items on the exam was not significantly related to pages of writing required, or range of types of writing considered important.

Second, there were clear differences among states in the importance that teachers placed on different types of writing. New York and California, for example, both include writing about literature in their examination systems, and teachers of English in those states rated writing about literature as more important to success in their individual classes than did teachers from other states (Applebee & Langer, 2011: 18-19). Similarly, New York is the only state in our sample to include document-based questions on the state history exams, and New York teachers rated analysis and synthesis across texts as more

important for success in their classes than did their peers in other states.

On the one hand such associations should seem obvious—decide that something is worth testing in a high stakes context, and it will be more valued. But on the other hand, teachers have very little awareness of the variation from state to state, and little opportunity to use these variations to ask what we really want students to know and be able to do.

Teachers are, however, very aware of the impact that high stakes tests have been having in their own contexts, and our interviews and questionnaires are filled with their worries. As revealed in the following comments, their concerns range from what is being pushed out of the curriculum, to a pressure toward formulaic writing and lowered standards of language use.

I used to do a research project but don't do it anymore because of the emphasis on tests. Research projects are so much more time intensive—go to bare bones to prepare for tests.
(Grade 8 history teacher)

The exams have made me get rid of more writing . . . it gets to the point where you're testing on your curriculum . . . we stick to the unit, do the problems . . . a lot of the processing is skipped. They have to learn the answers, not the steps . . . and I have to address the curriculum. (Middle school math teacher)

There is not an emphasis on writing in the science state exams. . . .They aren't checking how the sentence is written or structure. Spelling is not counted . . . length doesn't count.
(Grade 8 science teacher).

We tend to be repetitive of what we want them to write, . . . this is what you have to write, this is what has to be included, you have to include this number of quotes, you have to respond to your quote, so I think our essays become the same thing. (Grade 12 English teacher)

The work samples we collected from students in schools with reputations for excellence suggest the writing students are doing is limited in other ways, skewed heavily toward argument and explanation, with little room for imaginative writing. Story-writing makes up only about 3% of the extended writing students were doing.

These data are aggregated across classes, but there is also evidence of a move away from literature even in English classes. Although writing about

literature still dominates the high school English curriculum, it has declined by some 11 percentage points since 1979–80, when there were no national tests and only some states had lower-stakes subject-based exams, without general skills or competency assessments. Both trends reflect a utilitarian view of the values of reading and writing that has been pushing schools toward more emphasis on argumentative and informational texts, and away from literary experience and personal response.

3.3. Teaching to the Test

Another way to think about these results is an old one—they are a current version of teaching to the test, but with a twist: Whereas teaching to the test used to be a sign of weakness and a narrow curriculum, the accountability movement in which these tests are embedded explicitly seeks to couple curriculum, instruction, and assessment. This has produced another odd indicator of current trends—the number of published articles on teaching to the test, which has ballooned from 422 in the 1990s to 2710 in the 2000s, and is well on the way to more than double again in the 2010s.

One quick note on technology.

We had begun the study excited about the possibilities of new technologies to support and enrich writing instruction, which were non-existent issues in 1979–80. From social media to new instructional platforms, the possibilities seem endless for supporting collaborative knowledge development.

But, it isn't happening. Although we found technology deeply embedded in many schools, it has been assimilated into older approaches to teaching and learning. In our observations of classroom instruction, for example, the technologies that dominated were all designed to support the presentation of information, replacing the blackboard with higher-tech alternatives. Word processing, which can be a powerful support for individual writers (see Graham & Perin, 2007), was observed in only 5% of the classrooms—and is actually banned by some schools and districts fearful that their students will do less well on paper-and-pencil high stakes exams if they have grown used to the powers of word processing software.

4. Conclusions

Ironically, the results from our study suggest that this version of accountability is reinforcing the inequities it was meant to address. Poorer districts, which tend to be under-resourced and underperforming in the U.S., are focusing most narrowly on test items and seeking short-term boosts in test scores.

While richer districts, which tend to be well funded and higher performing, are integrating test content into a richer and more challenging curriculum, widening the performance gap.

So, what makes writing work? Stepping back from the details of our study, there are at least four important characteristics of successful curriculum and instruction:

1. Involving students in extended exploration of ideas that matter, not limiting their focus to strategies for answering multiple-choice or “selected-response” questions.
2. Embedding authentic reading and writing experiences in each of the academic disciplines, not isolating them as skills to be studied and assessed out of normal contexts of use.
3. Providing rich curriculum and instruction supporting student knowledge building, not focusing attention on formulaic responses to predictable examination item formats.
4. Supporting school-wide initiatives to change the nature of school writing, and not expecting reform to take hold out of the work of individual teachers working alone.

Changes in classroom practice across this time span have been important, reflecting many of the dimensions of successful practice prominent in both research and policy statements on the teaching of writing. Students today seem to write somewhat more, at somewhat greater length, and to a wider variety of audiences in each of the central academic subjects (English, science, mathematics, and history).

At the same time, the overwhelming majority of school work continues to be limited in scope and shallow in the depth of understanding required to do well. As Hillocks (2002) found in his study on testing, the power of tests to reshape what teachers consider necessary to teach and the kinds of writing students actually experience at school is widespread, even in the face of strong contradictory research and practice. There is a great deal more work for us to do in supporting writing instruction that will help make schools more exciting as well as more effective places for teachers to teach and students to learn.

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Mapping Coherence and Cohesion Skills in Written Texts Produced by 9- to 12-Year- Old French-Speaking Learners: Indicators of Proficiency and Progress

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The present work is part of a crossed study of a large corpus of pupil texts ($n=400$, 9–12 years old, 16 years old, students) triggered by a common instruction. It aims at establishing a cartography of indicators of textual competencies. In this chapter, we analyze 6 texts of 9 to 12 years old pupils responding to a sentence integration task: three sentences including pronominal anaphora and demonstrative noun phrases have to be integrated in a narrative text without modifications. The first results show that the integration of pronominal anaphors is easier than the integration of lexical expressions including a demonstrative determinant. The texts which succeed in integrating Demonstrative NP including lexical anaphora are the longest ones and have a title. Then, we study temporal structuration of the same 6 texts: we list the different verbal tenses used in each text, connectors and adverbial frames. These analyses show that the hierarchy of the texts from a coherence/ cohesion point of view correspond to the scholar levels: younger pupils use cohesion markers better than older ones. Then, we compare two texts written by pupils of the same scholar level. They show very different competencies on using cohesion markers. The methodology experimented here on a small number of texts will serve as a guide to a bigger annotation campaign on a large corpus of pupil texts ($n=400$).

La présente étude constitue l'un des volets d'une analyse croisée d'un ensemble de textes d'élèves (400 textes rédigés par des élèves de 9 à 12 ans, de 16 ans et par des étudiants adultes), en réponse à une même consigne, en vue d'établir une cartographie des compétences textuelles de gestion de la cohésion. Nous analysons ici 6 textes d'élèves de 9 à 12 ans en réponse à une tâche-problème d'intégration dans un texte narratif de trois phrases comportant des anaphores pronominales ou des groupes nominaux avec des déterminants démonstratifs. Les marques linguistiques choisies par les élèves sont recensées. L'étude s'attache ensuite aux marques de cohésion temporelle à travers l'étude des temps verbaux, des adverbiaux cadratifs, des connecteurs et de la présence de subordonnées temporelles. Le faisceau de ces marques permet de hiérarchiser les divers textes analysés du point de vue de la cohésion textuelle. La méthodologie ainsi mise au point sur un échantillon limité de textes prépare une annotation d'une grande quantité de textes pour établir une cartographie d'indicateurs de complexité dans la gestion des marques de cohésion textuelle.

Learner texts have been studied by linguists and researchers in the teaching of French for about fifty years (Charolles 1978, 1988; Beguelin, 1988; Apotheloz, 1995; Masseron, 1981). These analyses, conducted within the tradition of the “grammar of errors” (Frei, 1929), aim to “seek the regularities underlying language errors” (Béguelin, 1988) and the “anomalies” indicative of the cognitive processes involved in oral and written production (Béguelin, 1992), in order to identify the production mechanisms involved in the encoding of written text (Béguelin, 1995). Deviations from the norm are thus interpreted not as errors but as traces of the writing process (Hayes and Flower, 1980; Schneuwly, 1988) and the gradual construction of writing skills. The mapping of indicators showing the implementation of the components of writing expertise is more advanced in the area of spelling (Geoffre, 2013, 2014) than in that of textual cohesion. The analysis of a sample of texts written by primary and secondary school students (Masseron, 1981, 2005; Garcia-Debanc, 2010, 2013; Roubaud, Garcia-Debanc, 2014) brought many textual cohesion problems to the fore: referential ambiguities, contradictions in reference chains, and too many inferences to be made by the reader to re-establish overall coherence.

This study is part of a broader project that aims to build large corpora of learner texts to map the acquisition of textual cohesion by French primary and secondary school students. At present, such corpora, considered here as “large” because they contain hundreds of texts produced in response to the

same writing instruction, although “small” compared with the corpora usually used in NLP, only exist for French as a Foreign Language (Granger, 2007, 2009) or English as a Foreign Language. They are beginning to be compiled for French as an Instruction Language (Elalouf et al., 2005; Elalouf, 2011; Leblay, Auriac, 2010; Gunnarson-Largy, Auriac-Slusarczyk et al., 2013). Their development appears essential to conduct precise studies to highlight the invariants and factors of progression in the establishment of indicators of textual competence and, as a second step, to outline possible teaching applications.

In the present study, we analyze the strategies used by 9- to 12-year-old students to handle temporal coherence and textual cohesion in anaphoric chains when carrying out a task of integrating sentences in a narrative. Charolles (1988) identified the cohesion markers that ensure textual continuity: verb tense and person, pronouns, lexical substitutes, etc. However, students at these levels of education have difficulty managing these ties cohesively in their own writing. We investigate here the resolution modes chosen by students aged 9 to 12, with a view to identifying their level of proficiency. By analyzing their erasures, we also searched for clues as to how young writers solve potential difficulties for the reader, in order to avoid costly inferential processing.

After a review of some landmark studies on this issue, we will discuss the methodology (the writing instruction and the processing of the student texts) and we will present an analysis of a sample of six texts by students (two per grade, i.e. the last three years of French primary school), considering first nominal anaphora and then temporal coherence.

1. Linguistic Markers of Textual Cohesion and Their Acquisition by Schoolchildren

1.1 Coherence and Cohesion

Ever since the seminal work by Halliday and Hasan (1976), textual cohesion has been defined as a set of cohesive ties between text elements. These ties are established when the interpretation of one element depends on another element in the text. Cohesive relationships within and between sentences are organized in a taxonomy of five types of relationship: reference, substitution, ellipsis, conjunction and lexical cohesion. We will focus here on anaphoric relations, whether temporal or not, and on conjunctive relations expressed either by connectives or by temporal adverbials.

Textual coherence is defined here from the viewpoint of comprehension: a coherent text is a text for which it is possible to build an interpretation. In theoretical frameworks such as Segmented Discourse Representation Theory,

or SDRT (Asher & Lascarides, 2003), a text is considered to be coherent if the contribution of each text segment can be linked to the contribution of another text segment in the discourse context. Coherence and cohesion are not equivalent properties; they act at different levels (semantic content vs explicit surface relations). Coherence can result from the existence of cohesive links (*Marie was sick, so she didn't go to work*), but can also hold without any cohesive ties (*Mary is sick, it's cold*). Conversely, the existence of cohesive ties between two segments does not necessarily entail the coherence of the whole (*Mary is sick but Albert has been learning to play the piano for two years*. Adapted from Charolles, 1995).

Coherence is expressed by coherence relationships between text segments. Here we will use SDRT coherence relations: Narration, Result, Explanation, and Background (Bras et al., 2009). We will consider that, when building the representation of a text, it is the possibility to attach the representation of any text segment to a segment representation already introduced in the whole text representation with one of these coherence relations that ensures the coherence of the whole text.

In this chapter, we will also make use of Kamp and Rohrer's (1983) analysis of tenses to treat narrative sequences. In their approach, tenses such as the French *Passé Simple* and *Passé Composé* can be considered as instructions to let the narrative proceed, while the *Imparfait* tense describes a state of affairs backgrounding the salient event of the narration represented by the reference point. This discourse semantics of tenses is close to the textual function of tenses developed by Benveniste (1974) and Weinrich (1974), that distinguishes between "story tenses" (*Imparfait, Passé Simple, Plus-que-parfait*) and "commentary tenses" (*Présent, Passé Composé, Futur*), and attributes a textual function to each tense in each system.

1.2. Textual Cohesion in Learner Texts

While a large number of studies have been carried out in linguistics and psycholinguistics on anaphora (Cornish, 1999) and the processes in understanding anaphora from the comprehension standpoint, work on cohesion in texts written by young students is scarce. Charolles (1988), in a study of the linguistic traces of writing processes, analyzed the language markers used by 10- to 13-year-old students (the last two years of French primary school and the first year of secondary school) to anticipate confusion in the identification of characters in a written narrative. The writing task proposed was based on a protocol used in psycholinguistic experiments (Bartlett 1984, cited by Charolles, 1988): students were presented with two versions of a comic

strip, one considered “easy” in which the three characters to be included in the story are differentiated (hair color, clothing), the other one “difficult” in that no visible signs distinguished the protagonists (Charolles 1988, p. 81). The study, which was both quantitative and qualitative, analyzed the distribution patterns of the characters’ initial names and the ratio of contrastive constructions and drew up a typology of typical difficulties: contextualizing the scene, introducing dialogues, introducing proper names, confused anaphora, and ambiguities.

Similarly, Béguelin (1988) aimed to “seek the regularities underlying language errors.” She analyzed argumentative anomalies (Béguelin, 1992) and co-reference errors in matrimonial advertisements and letters to the editor published in the press (Béguelin, 1988) and in texts written by schoolchildren and foreign university students (Béguelin, 1995). By analyzing these different corpora, Béguelin showed how these errors can be grouped into a typology which then allows didactic treatment. In particular, she demonstrated the importance of discursive memory for the interpretation of some occurrences of ambiguous anaphora or anaphora without textual references.

2. Methodology: Presentation of the Corpus Analyzed

2.1. Research Question

The present study aims to assess the problems encountered by primary school pupils with temporal cohesion and textual cohesion in a written narrative production task, and the language resources they mobilize to avoid costly inferential processing for their potential reader. To this end, we investigate the resolution modes chosen by the students and define indicators of proficiency in the management of textual cohesion. The convergence of various indicators of proficiency is examined at different levels of analysis: spelling, syntax, text segmentation into sentences, textual cohesion, particularly from the perspective of the management of anaphora and temporal expressions. The methodology designed for analyzing and testing a sample of texts will subsequently be applied to quantitative studies on the entire corpus.

2.2. Writing Instruction and *A Priori* Analysis of the Writing Task

The writing instruction proposed is based closely on the one used by Charolles (1988). However, while Charolles (1988), in the psycholinguistic tradition, chose a set of images from comics as the stimulus in order to avoid linguistic priming, we preferred to use a set of sentences, to see how some linguistic

markers are included by students in solving this task. To focus students' attention on textual cohesive ties, we designed a writing task, considering that the problems of textual cohesion that students have to solve to meet the target are, to some extent, of the same nature as those observed in their own writing. The task could be described as epilinguistic, since it draws students' attention to a dimension of the functioning of the language, without using linguistic terminology. The writing instruction was as follows:

Racontez une histoire dans laquelle vous insérerez séparément et dans l'ordre donné les trois phrases suivantes:[Tell a story in which you insert separately and in the order given the following three sentences]

Elle habitait dans cette maison depuis longtemps. (P_a)

[She had been living in this house for a long time]

Il se retourna en entendant ce grand bruit. (P_b)

[He turned round when he heard this loud noise]

Depuis cette aventure, les enfants ne sortent plus la nuit. (P_c)

[Since this adventure, children no longer go out at night]

To avoid any changes being made to the three sentences, they were printed on strips of paper that students could paste in wherever they wanted in the text. This method was chosen to avoid imposing the drafting of a given length of text, which would have been the case if the sentences had been separated by dots.

The proposed task leads students to manage cohesive ties by resolving several referential anaphora: personal pronouns (*she, it*), noun phrases with an anaphoric demonstrative (*this house, this loud noise, this adventure*), and noun (*children*). However, the writing instruction gives no indication about the characters, who may be a witch, a mother or a daughter, an adult or a child. Similarly, the choice of narrative genre is left quite open. It is indicated by the closing sentence with the words *night* and *adventure*, which may be considered as the moral of the tale, suggesting danger and fear. These linguistic elements are thus both linguistic constraints to be taken into consideration and elements that trigger the writing process, sparking the imagination. Thus the last sentence is important for text planning (Hayes & Flower, 1980), insofar as it constrains the time frame of the key episode of the story (the night), and creates the general atmosphere: if the children no longer go out at night, it is because one or several of them have experienced terrifying and dangerous

adventures at night. Writers must also decide if the *children* mentioned in the last sentence is a generic term referring to the characters previously designated by *she* or *he* or if it refers to only one of them and consider that this moral is a generalization from the adventure of only one child. Furthermore, the use of tenses, the French *Imparfait* in the first sentence, the French *Passé Simple* in the second sentence and the present as a general truth in the third sentence, induces the *Passé Simple / Imparfait* opposition in French, while the present of the final sentence is justified by the generic nature of the moral. The writer must also take into account the spatial and temporal information present in the writing instruction: *in this house, for a long time, at night*. Despite these constraints, the writing instruction is open, since it allows a wide variety of solutions concerning the genre of the story and the type of characters. Indeed, the writing instruction does not indicate whether the final text is an adventure story, a news story, a fairy tale or a fantasy story. All these possibilities are permitted by the writing instruction.

Analysis of the task also reveals the need for backward planning (Schneuwly, 1988): the final sentence induces the construction of a story that requires the presence of children, appears as an “adventure” and puts an end to nighttime excursions, probably due to a frightening scene.

For each occurrence of an anaphoric marker in the sentences of the writing instruction, writers have to clarify the reference by inserting additional sentences before the occurrence. However, the distance between an anaphoric term and a reference-source can vary. The resolution can be achieved by making local ties between successive sentences or may require a greater distance between them.

2.3. Corpus

The complete corpus comprises 400 texts by 9- to 16-year-old students (third to last year of primary school and first and last years of lower secondary school) and 40 texts by master's students (students training to become primary school teachers and students training to become writers). These texts and manuscripts are being transcribed.

Given the limited space available, we will compare a small sample of six student texts, two per grade level.

2.4. Text Processing Methodology

The texts were transcribed respecting the original spelling and spatial organization used by the students. Strikeouts were transcribed according to the

conventions of the ITEM (Fabre-Cols, 2002). The three sentences given in the writing instruction were written in italics.

We performed a word count, excluding the words in the sentences of the writing instructions. In the event of segmentation problems, we counted the words according to standard spelling (*sapeler* = *s'appelait* = 2 words).

The text was then segmented using semantico-referential criteria following the segmentation rules of the ANNODIS project (Muller et al., 2012): a minimal segment (Elementary Discourse Unit, henceforth EDU) describes an event or a state of affairs, described by a clause, be it finite or not, independent or not, elliptical or not. Some elements, such as frame introducers or frame adverbials (Charolles, 1997) were segmented because they have a discursive autonomy (Vieu et al., 2005). We give below the texts segmented along these lines, regardless of the punctuation or syntactic segmentation used by the students. Following these rules, two of the sentences to be integrated in the texts, P_b and P_c, must also be segmented into EDUs. We segmented them, while grouping them into a complex segment corresponding to the sentence to be introduced, to allow easier reference to these sentences in our analysis:

[[Il se retourna] [en entendant ce grand bruit.]]

[[He turned round] [when he heard this loud noise.]]

[[Depuis cette aventure,] [les enfants ne sortent plus la nuit.]]

[[Since this adventure] [children no longer go out at night.]]

Text 1: text by Joanne (3rd yr Primary)

(i) [Il étaie une fois une petite fille]₁ [elle sapeler *lisa liza*]₂, [elle aitai trai janti]₃, [*Elle habitait dans cette maison depuis longtemps.*]_{4=a} [elle avais des jantil voizain]₅, et ses voizain [[*Il se retourna*]₆ [en entendant ce grand bruit.]]_{6=b} [*C'aitai un arbre qui tonbaie*]₇ [[*Depuis cette aventure,*]₈ [*les enfants ne sortent plus la nuit.*]]_{8=c}

(i) [Once upon a time there was a little girl]₁, [her name was *lisa liza*]₂, [she was very nice]₃, [She had been living in this house for a long time.]_{4=a} [she had nice neighbors]₅, and her neighbor [[He turned]₆ [when he heard this loud noise.]]_{6=b} [[It was a tree that was falling]₇, [[Since this adventure] [children no longer go out at night.]]_{8=c}

Text 2: text by Clara (3rd yr Primary)

(2) [L'étrange voisine en Bretagne]_i

[Il était une fois, une petite fille qui s'appelait Lola.]₂ [Elle avait deux frère, Nicolas et Jérôme.]₃ [Maintenant ils avait l'âge de vivre seule:]₄ [Lola alla habiter en Bretagne,]₅ [car elle aimait cette région.]₆ [Elle n'avait encore pas beaucoup d'argent] ₇ [et n'avait pas asser de sous]₈ [pour s'acheter un habita.]₉ [elle pouvait que s'acheter une cavane à la l'orée d'un bois.]₁₀ [Elle avait une voisine très mystérieuse.]₁₁ [Elle La voisine avait une maison ancienne.]₁₂

[Elle habitait dans cette maison depuis longtemps.]_{13=a}

[Un jour,]₁₄ [la voisine mystérieuse invita Lola pour mieux la connaître.]₁₅ [Lola rêvait que ses frère vienne en Bretagne.]₁₆ [La vieille voisine lui proposa de louer sa maison gratuitement.]₁₇

[- Vraiment! Gratuitement! Merci!]₁₈ [Mes frère vous remercient.]₁₉ [Je vous l suis d'accord!]₂₀

[Donc, un mois après]₂₁ [elle invita ses deux frère dans la chaumière de la voisine.]₂₂ [Ils était d'accord.]₂₃ [Une nuit]₂₄ [Jérôme n'arriva pas à dormir]₂₅ [la maison de cette vieille femme était étrange.]₂₆ [Tout d'un coup]₂₇ [[Il se retourna] [en entendant un grand bruit].]_{28=b} [Un bruit très bizarre comme "SCRABATOIMADOU!"]₂₉ [Car aucun objets ne pouvait faire se son en tombant.]₃₀ [Nicolas entandit le bruit]₃₁ [il alla reiveiller Lola.]₃₂ [Tout deux coururent retrouver Jérôme.]₃₃ [A leur surprise il avait disparut!]₃₄ [Ils sont rentrer dans un grand chagrin,]₃₅ [quand plus vite que l'éclaire la vieille voisine était là.]₃₆ [C'était une sorcière]₃₇ [et dit:]₃₈

[- J'adore me nourrir des pleurs et des peurs infernales!]₃₉

[- Ou est Jérôme!]₄₀ [crie Lola.]₄₁

[- Ah, Ah vous ne le serez jamais!]₄₂

[Ils l'on chercher pendant deux jours;]₄₃ [Le deusième jours]₄₄ [ils le retrouva ligoter dans un placard.]₄₅

[- C'est une méchante sorcière!]₄₆ [leur dit Jérôme.]₄₇

[- On sait,]₄₈ [et c'est elle qui t'à ligoter?] ₄₉

[- Non,]₅₀ [cesont trois yéti horiblement méchant.]₅₁ [dit Jérôme.]₅₂ [Lola voulu tout de suite déménager à Toulouse.]₅₃ [Là aussi elle a une voisine;]₅₄ [mais le jour ou elle à voulu l'inviter,]₅₅ [la voisine s'est contenter d'un grand et fort "Non!!!!!!"]₅₆

[[- Depuis cette aventure,] [les enfants ne sortent plus la nuit.]]_{57=c}

[- Car ils avait bien trop peur de rencontrer la sorcière et ses trois yétis.]₅₈

(2) [The strange neighbor in Brittany],

[(Once upon) a time (there was) a little girl called Lola.], [She had two brothers, Nicolas and Jérôme.], [Now they were old enough to live alone:] [Lola went to live in Brittany,]₄ [for she loved this region]₅ [She had not much money]₆ [she had not enough money]₇ [to buy a home.]₈ [she could only buy a caravan on the edge of a wood.]₉ [she had a very mysterious neighbor.]₁₀ [She The neighbor had an old house.]₁₁

[She had been living in this house for a long time]_{13=a}

[One day,]₁₄ [the mysterious neighbor asked Lola in to get to know her better.]₁₅ [Lola was longing for her brothers to come to Brittany.]₁₆ [The old neighbor offered to rent the house for free.]₁₇

[- Really! For free! Thank you!] ₁₈ [My brothers thank you.]₁₉ [I agree!] ₂₀

[So, a month later]₂₁ [she invited her two brothers to the neighbor's cottage.]₂₂ [They agreed.]₂₃ [One night]₂₄ [Jerome couldn't fall asleep]₂₅ [the house of this old woman was strange.]₂₆ [suddenly]₂₇ [*He turned round when he heard this loud noise*]_{28=b} [A very strange sound like "SCRABATO-IMADOU!"]₂₉ [For nothing could make this sound when falling.]₃₀ [Nicolas heard the sound]₃₁ [he went to wake Lola.]₃₂ [Both ran back to Jerome.]₃₃ [To their surprise, he was gone!]₃₄ [They returned to the house in great sorrow,]₃₅ [faster than lightning, the old neighbor was there]₃₆ [She was a witch]₃₇ [and she said.]₃₈

[- I love to feed on tears and infernal fears!]₃₉

[- Where is Jerome!]₄₀ [Lola yells.]₄₁

[- Ah, Ah, you'll never know!]₄₂

[They searched for two days;]₄₃ [the second day]₄₄ [they found him tied up in a closet.]₄₅

[- She's a wicked witch!]₄₆ [Jerome said.]₄₇

[- We know,]₄₈ [and she tied you up?]]₄₉

[- No,] ₅₀ [it was three horribly evil yetis.]₅₁ [Jerome said.]₅₂

[Lola immediately wanted to move to Toulouse.]₅₃ [Again she has a neighbor;] ₅₄ [but on the day she wanted to invite him,] ₅₅ [the neighbor merely shouted a loud "no!!!!!!!"]₅₆

[[Since this adventure] [children no longer go out at night.]]]_{57=c}

[Because they were too afraid to meet the witch and her three yetis.]₅₈

Text 3: text by Karim (4th yr Primary)

(3) [Marie Gorge et Merlin.]₁

[Elle habitait dans cette maison depuis longtemps.]_{2=a}

[La nuit tomba] ₃ [et puis Gorge se leva] ₄ [[et

[Il se retourna] [en entendant ce grand bruit.]]_{5=b}

[Il enfile son manteau] ₆ [et sort de la maison,] ₇ [il vat regondre] ₈ [c'est un copin dans la foruit,] ₉ [soudain ils entandis des

bruits terifiant,] ₁₀ [Gorge se demanda] ₁₁ [o que se que sait]₁₂

[c'est peutaitre un mostre]₁₃ [se dit Emilie.]₁₄ [Basqual dit] ₁₅

["a sait pas vrai"]₁₆ [c'est peutaitre une chouete"]₁₇ [Le mon-

stre comensa a parler]₁₈ ["e non se nait pas une chouette"]₁₉

[Gorge et Balsqua puis Emili il couurent]₂₀ [irentra vite chez eux.]₂₁ [H raconta cette histoire a leur parent]₂₂ [et

[Depuis cette aventure,] [les enfants ne sortent plus la nuit.

]]_{23=c}

(3) [Marie Gorge and Merlin.]₁

[She had been living in this house for a long time] _{2=a}

[Night fell] ₃ [and then Gorge get up]₄ [[and

[He turned round when he heard this loud noise]_{5=b}

[He puts on his coat]₆ [and goes out of the house]₇ [he goes to meet]₈ [it's a friend in the forest]₉ [suddenly they heard terrifying noises]₁₀ [Gorge wondered]₁₁ [what is it?]₁₂ [perhaps it is a monster]₁₃ [Emilie said.]₁₄ [Basqual said]₁₅ ["it is not true]₁₆ [it might be an owl. "]₁₇ [The monster started talking]₁₈ ["no it's not an owl."]₁₉ [Balsqua and Gorge and then Emili they ran]₂₀ [they went home quickly.]₂₁ [He HE told this story to their parents]₂₂ [and]

[Since this adventure, children no longer go out at night]]_{23=c}

Text 4: text by Rebecca (4th yr Primary)

(4) [La bergère.]₁

[Il était une fois une petite bergère qui vivaient près des bois.]₂ [Elle avait une toute petite maison.]₃

[Elle habitait dans cette maison depuis longtemps.]_{4=a}

[Elle avait huit enfants]₅ [elle en prenai bien soin.]₆ [Le plus jeune fesai le plus de bêtise;]₇ [La petite bërgère envoyer ses sept s'autres enfants à l'école]₈ [et elle restai s'occuper du bebe]₉ [au fur et à mesure des années]₁₀ [l'enfant grandi]₁₁ [au débu à sa naissance]₁₂ [elle voulut l'appeler Perssée]₁₃ [mais à l'âge de huit ans]₁₄ [le petit garnement désida de s'appeler Mohamed]₁₅ [sa mère accespetta.]₁₆ [Mais il ne savait pas qu'un voleur d'enfant]₁₇ [la bergère protégét ses sept enfant]₁₈ [le plus jeune se fis avoir]₁₉ [le fais tout pour l'atraper]₂₀ [et il entendu un brui]₂₁

[[Il se retourna] [en entendant ce grand bruit.]]_{22=b}

[Le père de Mohamed tua le voleur]₂₃ [les sept enfant se fis capturer]₂₄ [le père les sauva]₂₅ [un fentôme supreme surgi]₂₆ [il le tue]₂₇ [et les enfant désidére de]₂₈

[[Depuis cette aventure,] [les enfants ne sortent plus la nuit.
]]_{29=c}

(4) [The shepherdess.]₁

[Once upon a time there was a little shepherdess who lived

near the woods.] ₂ [She had a very small house.] ₃

[She had been living in this house for a long time.] _{4=a}

[She had eight children] ₅ [she looked after them well.] ₆
 [The youngest was the most unruly] ₇ [The little shepherdess sent her seven other children to school] ₈ [and she was left to look after the baby] ₉ [Over the years] ₁₀ [the child grew up] ₁₁ [early in his birth] ₁₂ [she wanted to call him Perssd] ₁₃ [but at the age of eight years] ₁₄ [the little rascal decided to be called Mohammed] ₁₅ [his mother agreed.] ₁₆ [but he did not know that a child-snatcher] ₁₇ [the shepherdess protected her seven children] ₁₈ [the youngest was caught] ₁₉ [he does everything to catch him] ₂₀ [and he heard a noise] ₂₁

[He turned round] [when he heard this loud noise] _{22=b}

[Mohamed's father killed the thief] ₂₃ [the seven children were captured] ₂₄ [the father saved them] ₂₅ [a supreme ghost arises] ₂₆ [he kills it] ₂₇ [and the children decided

[[Since this adventure], [children no longer go out at night]] _{29=c}

Text 5: text by Lucie (5th yr Primary)

(5) [La fillette et le bandit]₁

[Il était une fois une fillette de 11 ans qui vivait avec sa mère dans une petite maison à la lisière d'une forêt.] ₂ [Elle habitait dans cette maison depuis longtemps.] _{3=a}

[La fillette aimait beaucoup aller se balader dans la forêt.] ₄ [Mais sa mère avait très peur de cette forêt] ₅ [car on la surnommait "La forêt du bandit."] ₆

[Une nuit,] ₇ [comme sa mère refusait toujours aussi catégoriquement de la laisser aller dans la forêt,] ₈ [la petite fille sortit pour aller dans la forêt.] ₉ [Elle se baladait tranquillement] ₁₀ [quand elle entendit un fin bruit de pas.] ₁₁ [Elle regarda derrière elle] ₁₂ [mais ne vit rien.] ₁₃ [Le bruit s'était arrêté.] ₁₄ [Soudain,] ₁₅ [un jeune homme vêtu de noir et armé d'un pistolet apparut devant elle.] ₁₆ [Elle se mit à courir à toute vitesse.] ₁₇ [L'homme s'arrêta] ₁₈ [car la fillette avait dis-

paru de son champ de vision.]₁₉ [La petite fille jeta un gros caillou dans la rivière.]₂₀

[[Il se retourna] [en entendant ce grand bruit.]]_{21=b} [Le temps que l'homme sorte de sa torpeur,]₂₂ [la petite fille courut chez elle]₂₃ [et se couchat rapidement.]₂₄

[[Depuis cette aventure,] [les enfants ne sortent plus la nuit.]]_{25=c}

(5) [The girl and the bandit]₁

[Once upon a time there was a 11-year-old girl who lived with her mother in a small house on the edge of a forest.]₂

[She had been living in this house for a long time.]_{3=a}

[The girl loved wandering around the forest.]₄ [But her mother was very scared of this forest]₅

[because it was nicknamed “The bandit’s forest .”]₆

[One night]₇ [as her mother always refused categorically to let her go in the forest]₈ [the little girl went out into the forest.]₉ [She was walking quietly]₁₀ [when she heard a light footprint.]₁₁ [She looked behind her]₁₂ [but saw nothing.]₁₃ [The noise had stopped.]₁₄ [Suddenly]₁₅ [a young man dressed in black and armed with a gun appeared in front of her.]₁₆ [She ran away at full speed.]₁₇ [The man stopped]₁₈ [because the girl had disappeared from his field of vision.]₁₉ [The girl threw a big stone into the river.]₂₀

[He turned round] [when he heard this loud noise.]_{21=b} [By the time the man wakes up,]₂₂ [the little girl ran to her home]₂₃ [and went to bed quickly.]₂₄

[Since this adventure], [children no longer go out at night.]_{25=c}

Text 6: text by Yassim (5th yr Primary)

(6) [Il était une fois une petite fille qui s'appeller appellait Laura]₁ [qui voulez se rendre allez à The Voice pour chanter.]₂

[Sur le chemin,]₃ [elle voit son ancienne maison. où elle habi-tait.]₄

[Elle habitait dans cette maison depuis longtemps.]_{5=a}

[Elle entendit un bruit]₆ [elle se retourna tout]₇ [c'était tout simplement un voiture qui venait de faire un accident.]₈
 [Son papa qui l'accompagnier eu très peur.]₉ [[*Elle se retourna*] [*en entendant ce grand bruit.*.]]_{10=b}

[Puis arriver à The Voice pour chanter devant le public;]₁₁
 [Auretour]₁₂ [son père lui fait vraiment peur.]₁₃ [Elle lui pardonneras plus jamais.]₁₄ [Sur le chemin du retour,]₁₅ [elle lui parle pas]₁₆ [dès est arriver chez elle pour sortir]₁₇ [Elle lui demande aux enfants de sortir.]₁₈

[Le ~~coucher du soleil~~ soleil se couche]₁₉ [et ils sont au plein milieu d'une forêt]₂₀ [et un loup-garou arrive.]₂₁ [Les enfants et Laura sont arriver à la maison vivant.]₂₂

[[Depuis cette aventure,] [les enfants ne sortent plus la nuit.
]]_{23=c}

(6) [Once upon a time there was a little girl who was called Laura]₁ [who wanted to go to The Voice to sing.]₂
 [On the way]₃ [she sees the former house where she lived previously.]₄

[She had been living in this house for a long time.]_{5=a}

[She heard a noise]₆ [she turned round]₇ [it was just a car that had caused an accident.]₈ [Her dad who accompanied her was very frightened.]₉ [[*She turned round*] [*when she heard this loud noise.*.]]_{10=b}

[Then they got to The Voice to sing in front of the audience]₁₁ [On the way back home]₁₂ [her father really scares her.]₁₃ [She will never forgive him.]₁₄ [On the way back,]₁₅ [she does not speak with him]₁₆ [as soon as she arrived home]₁₇ [She asks the children to go out.]₁₈
 [The ~~sunset~~ sun sets]₁₉ [and they are in the middle of a forest]₂₀ [and a werewolf arrives.]₂₁ [The children and Laura arrived at home alive.]₂₂

[[Since this adventure], [children no longer go out at night.]]_{23=c}

We can see that these texts differ considerably in length, both in terms of

word count and of number of segments (EDU), even within the same grade level: thus, the two texts written by third-year primary school pupils contain respectively 26 and 346 words, and 5 and 54 segments. These differences reveal a great diversity of skills for the same grade level. Note that the shortest text and the longest one are both written by third-year primary school students (9 years old).

3. Linguistic Markers Used by Students for Anaphora Resolution

Following Charolles (2002) and Corblin (1987), we will consider successively the linguistic markers used for the resolution of pronominal anaphora (*he, she*) within the six texts, those corresponding to demonstrative NPs (*this house, this loud noise*), and lastly the integration of the elements of the final sentence.

3.1. Pronominal Anaphora Resolution (*He, She*) in the Six Texts of the Study Corpus

The resolution of anaphoric ambiguity is involved in the construction of the characters (Tauveron, 1995). It should be mentioned that nothing in the writing instructions constrained the students to produce a particular textual genre.

The solutions proposed by students may differ in the nature and volume of information given about the character before the sentence to be integrated, the linguistic markers used for the first mention of the character, and the reference chain in which the given pronoun fits.

In texts 1 (3rd yr Primary) and 6 (5th yr Primary), the same strategy is used to introduce the character: a noun phrase, a brief characterization of the character and a first name (Schneedecker, 1997):

Text 1 (3rd yr Primary):

Il étaieunefoisunepetitefilleellesapelerlalizaelleaitaitrajantiliza
Once upon a time there was was a little girl her name was
liza she was very nice

Text 6 (5th yr Primary):

Il était une fois une petite fille qui s'appeller appellait Laura

Once upon a time there was a girl named Laura

In texts 4 and 5, the character is not given a proper name, only a charac-

terization by age or social function:

Text 4 (4th yr Primary):

[Il était une fois une petite bergère qui vivaient près des bois.]₂ [Elle avait une toute petite maison.]₃

Once upon a time there was a little shepherdess who lived near the wood. She had a very small house.

Text 5 (5th yr Primary):

[Il était une fois une fillette de 11 ans qui vivait avec sa mère dans une petite maison à la lisière d'une forêt.]₂

Once upon a time there was a 11-year-old girl who lived with her mother in a small house on the edge of a forest.

It is interesting to note here both the structural parallelism—*Once upon a time there was* and a noun phrase with an indefinite article (*a little shepherdess, a girl*)—and an expansion in the form of a relative subordinate clause (*who lived near the woods, who lived with her mother*). Note also that the first mention of the house is accompanied by an expansion of the name (*a small house, a small house on the edge of a forest*).

Among the six selected texts, text 3 (4th yr P) is the only one that does not introduce a female character: it places P_a as the first sentence in the text, which is common in a novel but is not necessarily tolerated by writing norms at school. The status of the three names written at the beginning of the text is unclear: it does not seem to be a title. However, we may consider that the female name *Mary* corresponds to this character. However, in the following text a character named *Emily* appears. So here we see an ambiguity about the name of the character corresponding to the pronoun *she*.

Texts 2 and 5 are characterized by the presence of two female characters who can both be referred to by the personal pronoun *she*. In text 5, topicalization dispels any ambiguity, making it easy to choose *the girl* and not *the mother*, but the situation is more complex in text 2 in which two female characters are successively brought in: a girl called *Lola* and her mysterious neighbor. *Lola* is the theme of segments 3 and (4-11), but the thematization of segment 12 unambiguously selects *neighbor*, on the criterion of proximity. Moreover, the title, *The strange neighbor in Brittany*, already thematizes this character in relation to the main character, *Lola*. The referential chain corresponding to this second character contains, in turn, *a very mysterious neighbor* (segment 11), *the neighbor* (12), *the mysterious neighbor* (15), *the old woman* (26), *the old neighbor*

bor (36), *a witch* (37), *a wicked witch* (46), and *she* (49). The identification of the character as a witch is performed first by the narrator (segment 37: *she was a witch*) and in the dialogue, by the character named Jerome (*she is a wicked witch*: segment 46). The gradual revelation of the evil nature of the neighbor is an important element of the plot. The implicit moral of the story is to beware of neighbors (segments 54 to 56).

The strategies used to introduce the pronoun *he* as a male character are quite similar. Identification can be realized by proximity, as in texts 2, 3, 4 and 6. The characterization of the character picked up by the personal pronoun *he* is very basic: it operates by a proper name. The absence of punctuation to delimit clauses sometimes complicates the reading. The lack of mastery of punctuation marks may also explain why the boundaries of the sentence to be integrated are not respected in texts 2 and 3, because of the presence of a textual time organizer *suddenly* before the second sentence of the writing task in text 2 (segment 24) and the presence of connector *and* twice in text 3 (segments 5 and 23).

In text 1, there is no male character who could be the potential referent of *he*, unless the antecedent is *a neighbor*. In this case, there is an error as the noun is plural, while the pronoun is a singular form: *nice neighbors/he*.

The most complex case is found in text 5. This text involves two characters, the female character (the girl transgressing her mother's prohibition) and the bandit. Referential expressions that precede and follow the personal pronoun *he* match the perspective of the female character when the bandit appears in the wood: *a young man dressed in black and armed with a pistol* (segment 16), *the man* (2 occurrences: segments 18 and 22). But the character has already been introduced in the title (*the girl and the bandit*) and in the name of the forest, *the bandit's forest*, which motivates the mother's prohibition.

The referential anaphora with a personal pronoun are generally correctly resolved. Only two major problems were noted in texts 1 and 3.

Anaphora resolution in the case of the use of demonstrative NPs (*this house, this loud noise*) is more difficult.

3.2. Anaphora Resolution in a Demonstrative SN (*this house, this loud noise*)

In texts 1 and 3, no referent is mentioned prior to the NP *this house*. In texts 4 and 5, *this house* is announced by a noun phrase in the preceding sentence: *a small house* (Text 4), *a little house on the edge of a forest* (text 5). Less than 10 words are used to define the discourse object.

In text 2, on the contrary, many segments are devoted to the house of

the main character (segments 5-10), a caravan on the edge of a wood, before resolving the anaphora *this house* by attributing *an old house* to the neighbor. This referent is gradually clarified with the NP *the cottage* (segment 22). Can one discern here the trace of the gradual development of the textual world: Lola's recent arrival in Brittany precludes the use of the temporal expression (*a long time*), so the house is attributed to a more sedentary, older character? The caravan is not mentioned in the rest of the story, except to explain the lack of room to accommodate her brothers (segments 17 and 19) and to justify their immediate removal from Brittany to Toulouse (53).

Therefore, the strategies for resolving *this house* do not differ much from those discussed in the previous section: the reference is usually clarified by the presence of a textual segment placed in the immediately preceding sentence.

This procedure is much less frequently used for *this loud noise*. We have excluded text 2 from our study, as the teacher mistakenly wrote *a loud noise* instead of *this loud noise*: in this case the presence of the indefinite article does not require an earlier mention of *noise*.

In text 1, an explanatory clause follows the sentence to be introduced: *it was a tree falling*. This strategy is dominant throughout the entire corpus of texts. In texts 4 and 6, the occurrence is preceded by an NP including an indefinite article *a noise* without any specification as to the type of noise. It is only in text 5 that the source of the noise is specified: *the girl threw a big stone into the river* (segment 20). It can be pointed out that in text 5 there is a double mention of a previous alert heard by the character: *a light footstep* (11), *the noise had stopped* (14), as if the student had fumbled in the search for a solution to the problem of anaphoric resolution.

3.3. Overview of Results on Anaphora Resolution

Table 2.1 shows that the integration of pronouns is more successful than that of referential demonstrative NPs. It also shows that the texts that manage to ensure the resolution of anaphoric markers are longer and have a title.

Table 2.1: Overview of markers used to solve anaphoras

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	
Number of Words	26	346	112	145	178	133	Average 156
Number of Segments	5	54	20	26	22	20	Average 24
Title	-	+	?	+	+	-	3

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6	
Resolution of <i>elle</i>	+ NP + first name + charac- teriza- tion	+ NP with charac- teriza- tion	? ? First name	+ NP	+ NP	+ NP + first name	5
Resolution of <i>il</i>	-	+ first name	+ first name	+ NP	+ NP with expan- sion	- (<i>elle</i> instead of <i>il</i>)	4
Resolution of <i>cette maison</i>	-	+ NP with expans- sion	-	+ NP with expans- sion	+ NP with expans- sion	- contra- diction	3
<i>ce grand bruit</i>	? (cata- phora)	/	-	+ un bruit	+ + la petite fille jeta un gros caillou dans la rivi.ng	+ elle entendit un bruit	3
<i>la nuit</i>	-	+	+	-	+	+	4
<i>les enfants</i>	?	?	?	+	+	+	3
Number of +	1	5	2	6	7	4	

4. Temporal Coherence

Analyzing the limited sample of students chosen for this chapter will lead us to list a set of criteria to measure the degree of proficiency acquired in the production of temporally coherent texts. We will first compare two 3rd-year primary school texts which are very different from this point of view. Then, based on the criteria resulting from this initial analysis, we will examine the whole sample of 6 texts.

4.1 Contrastive Analysis of the Two 3rd yr Primary Texts

An initial survey of texts (1) and (2) reveals a very different distribution of temporal cohesion markers:

- Use of only one tense in (1), the *imparfait* vs. use of a range of six tenses in (2): *imparfait*, *passé simple*, *plus-que-parfait*, *présent*, *passé composé*, *future*.
- No connector or temporal subordinating clause in (1) vs. use of causal or contrastive connectors in (2): *donc*, *car* (2 times), *mais*, and presence of a subordinating clause introduced by *quand* which proves to be a “*quand inverse*” clause where *quand* plays the role of a temporal connector linking segments 35 and 36.
- No temporal adverbial in (1) vs. presence, in (2), of temporal framing adverbials as defined by Charolles (1997), i.e. temporal adverbials in sentence initial position, whose scope may extend beyond their host sentence, in segments 14, 21, 24, 27, 44 (Bras et al., 2001).

The author of (1) adopts a minimalist strategy: he uses only one temporal marker to produce a text which is, nevertheless, not that incoherent from the temporal viewpoint. The *imparfait* is used in the right way to describe the initial background in segments 1-5, including P_a, which are thus correctly attached to their left context. The use of the *imparfait*, in 7, allows the establishment of a coherence relation, the explanation relation, between the state of affairs described in 7 and the event described in 6 (P_b). But it is the lack of ties between P_b and its left context that results in an incoherent text. This lack of ties was already observed above in section 3 for pronominal and nominal anaphora resolution: from the semantico-temporal perspective, the introduction of at least one event, described using either the *passé simple* or the *passé composé*, is expected. The event described in P_b would then be a reaction to this event.

The author of (2) perfectly succeeds in inserting P_a and P_b in their contexts, thanks to the command of a richer range of markers:

- As far as tenses are concerned, we note a good command of past tenses: of the *passé simple* in narrative parts (and of the *passé composé* in 43), which enables the narration to move forward; of the *imparfait* which supports backgrounding or explanations in descriptive parts; and the *plus-que-parfait* (in 34). The *présent* and the *passé composé* in 54-56 are also used properly, in order to bring the reference point back to the present and prepare the insertion of P_c. Nevertheless, there are a few flaws: the last segment, 58, is in the *imparfait*, whereas a *présent* is expected; in the segments 35-36, the *imparfait / passé simple* (or *passé composé*) pair, usually used in cases of inverse subordination with *quand* (cf. *j'étais tranquillement allongé dans l'herbe quand la sirène retentit*), here for example *They returned to the house in great sorrow, when faster*

than lightning, the old neighbor was there.

- Text (2) is well structured; it can be seen in particular that:
 - It gives some initial background information (2-4), which is the description of the story protagonists, then it gives an event description in 5, followed by an explanation in 6,
 - P_a closes the description of the second background (7-13),
 - The move to the “problem step” is marked by the framing adverbial *un jour* (segment 14), which has scope over the segment (15-20). It is followed by two other segments also introduced by frame adverbials *un mois après* (segment 21, scoping over (22-23)), *une nuit* (segment 24, scoping over (25,26)), *tout à coup* (segment 27) introducing P_b,
 - The use of the connectors *donc, car, mais* provides an explicit indication of the coherence relations between the segments they connect.

4.2 Inventory of Temporal Cohesion Markers in the Six Texts

In the light of this contrastive analysis, we drew up an inventory of the markers of temporal cohesion used in the six texts.

Table 2.2: Inventory of temporal cohesion markers

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6
Command of Tenses	+	+	+ (but no IMP)	10 IMP	+	-
IMP	6 IMP	16 IMP	0 IMP	10 PS	7 IMP	6 IMP
PS		11 PS	0 IMP	0	10 PS	3 PS
PQP		1 PQP	8 PS	0	2 PQP	0
PC		4 PC	0	1 PRES	0	2 PC
PRES		7 PRES	0	0	0	8 PRES
FUT			11 PRES		1 Pres Subj.	1 FUT
Connectors	-	+	+	+	+	+
		car, mais (2), donc	et puis, et (3), soudain	et (3), mais (2)	mais (2), car (2), soudain	et (2), puis

	Text 1	Text 2	Text 3	Text 4	Text 5	Text 6
Framing adverbials	-	+(5: temporal)	-	+(3: temporal)	+(1: temporal: une nuit)	+(3: spatio-temporal)
Temporal subordinate clauses	-	+ <i>quand</i> inverse	-	-	+ 1 with <i>le temps que</i> , 1 causal with <i>comme</i> , 1 <i>quand</i> inverse	-
Insertion of P_a	+	+	-	+	+	-
Insertion of P_b	-	+	?	+	+	-
Number of P +”	2	6	2	5	6	2

Counting the “+” in the table gives an overview of the presence or command of these markers. It also reveals two groups of texts: texts 2, 5 and 4, with a high score, on the one hand; texts 1, 3, 6, with a low score, on the other hand. The ranking can be formalized as follows, where T_i represents the score of text T_i:

$$(a) T_2 = T_5 > T_4 > T_1 = T_3 = T_6$$

4.3 Correlating the Presence of Temporal Cohesion Markers and the Degree of Temporal Coherence

Before making the inventory of markers and counting them as shown in Table 2.2, we first sorted the six texts intuitively according to their degree of temporal coherence. Here is the ranking obtained:

$$(b) T_5 > T_2 > T_4 > T_1 > T_3 > T_6$$

If we compare the ranking in (b) with the one obtained as a result of the inventory in section 4.2, (a), we can conclude that the inventory of the markers occurring in texts and the measure of their command helps to assess the degree of temporal coherence, at least in a first step. It is worth noting that:

- The use of temporal subordinate clauses is, in this small sample of texts, directly correlated with a good command of temporal coherence (texts 2 and 5),
- The use of connectors, explicit markers of causal or contrastive rela-

tions (*car, donc, mais*), corresponds here to a good command of coherence (texts 2, 4, 5), while it is not the case for connectors expressing a simple enumeration or temporal succession (*et, et puis, puis*) in texts 3 and 6,

- The well-balanced use of all the “story tenses” (*passé simple, imparfait, plus-que-parfait*) ensures a better temporal coherence: this is the case for text 5, and, to a lesser extent, in texts 2 and 4 where they occur with “commentary tenses” (Weinrich, 1974). In the three less coherent texts, we note, in text 1, that the only tense used is the *imparfait*, in text 3, that no *imparfait* is used, and, in text 6, we observe an unbalanced use of tenses in favor of the “commentary tenses.”

4.4 Contrastive Analysis of the 5th yr Primary Texts

In order to illustrate this correlation between cohesion markers and temporal coherence, we now analyze texts 5 and 6.

- Text 5, which can be considered as the best answer to the writing instruction, reveals, as we said, a very good command of “story tenses” and of connection tools. The only frame adverbial used, *une nuit*, in segment 7, is used in the right way to introduce the complication in the story, thus structuring the whole along the background/problem scheme. We have also pointed out the use of three connectors *mais, car, soudain*, which are respectively, argumentative, causal and narrative, as well as three temporal or causal subordinate clauses.
- Text 6, on the other hand, reveals a weaker command of tenses: event description in the *present* tense in 4, among a group of sentences in the *imparfait* in 1-5; incomplete *present/futur* narrative sequence in 11-22 ending with a *passé composé* sentence. We can also note the absence of temporal subordinate clauses. As far as connectors are concerned, the narrative connectors *puis* and *et* are used, but no causal or argumentative connectors. Three spatio-temporal frame adverbials are used: *sur le chemin, au retour, sur le chemin du retour*, but their scope is limited to their host sentence and they do not really structure the text. Lastly, we have in this text a nice illustration of the fact that cohesion does not entail coherence: at first sight, it is possible to solve the anaphoras *elle* and *cette maison* in segment 5, because discourse referents of the right type, resp. “female character” and “house,” are salient in segment 4. From the temporal viewpoint, segment 5 (P_a) is not a continuation of the background description, as it is in texts 1 and 5, but a kind of

backgrounding of the event described in segment 4, which is perfectly possible. But this linking process the use of the adjective “ancienne” (former) in the NP “son ancienne maison” (her former house) implies that the house referred to is no longer the protagonist’s house. This contradicts the meaning of the VP *habiter dans cette maison depuis long-temps* in 5, which implies that the protagonist still lives in this house at the reference point (the event described in 4). To sum up, in this text, the insertion of P_a and P_b fail in spite of the presence of cohesion markers.

The comparison of these two texts shows that the presence of cohesion markers used in a relevant way can give rise to a coherent interpretation (text 5), but that the presence of cohesion markers is not the only condition for textual coherence (text 6).

Conclusion

This study is the first step in a contrastive analysis of a large collection of student texts responding to the same common instruction. It aims at mapping textual skills in cohesion and coherence. These skills will be compared to the ability of the same students to handle morphological spelling and to segment syntactic and graphic clauses. The aim is to develop a methodology and to put it to the test on a small number of texts in order to pave the way for an annotation campaign on a larger corpus of student texts (n = 400), with an automatic pre-annotation phase of the specific markers brought to the fore in this preliminary phase of the study.

We have listed a set of cues that can be used to assess the quality of a text with respect to cohesion and coherence: presence of a title, many elements to describe a character, compatibility between anaphoric terms and their antecedents, range and relevance of tenses, variety of temporal connectors and temporal adverbials.

The presence of these elements enables us to organize the texts in a hierarchy from more cohesive texts (5, 2, 4) to less cohesive ones (1, 3, 6). These cohesion markers need to be associated to the judgement of coherence made by the reader during the interpretation process. Is this coherence judgement correlated with the abundance of cohesive markers? The observation of this sample of texts shows that it is often the case but that the presence of cohesive ties in a text does not always guarantee its coherence.

This hierarchy in text cohesiveness does not completely correspond to the grade level: text 5 (5th yr P) is the text that appears as the most cohesive and

coherent, but the next one, text 2, is written by a 3rd yr P student, before text 4, written by a 4th yr P student. We have also observed considerable heterogeneity among students within a single grade level: among 9-year-old writers, productions vary considerably, in length, the use of a reference chain including different types of linguistic elements, the way in which the imposed sentences are integrated, and the use of tenses or framing adverbials.

These different markers have to be collected and compared in order to map the cues of textual cohesion/coherence proficiency. These observations have to be made on a larger collection of texts from each grade level concerned. The present work thus aims at preparing the annotation campaign of a corpus of hundreds of texts by students from school to university.

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3

The Incidence of Speech Modalizers On Children's Reflections About the Use of Expressive Punctuation¹

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This chapter presents findings that are part of a wider investigation which aims to understand how children use punctuation to organize publicity discourse. The results presented in this chapter show the influence of discursive marks of axiological modality on punctuation use. The data was obtained by interviewing 60 children (30 pairs) of second, fourth and sixth grade children (Mexican primary education). They were asked to introduce punctuation, where there was none, into the headlines of a children's magazine cover. The first activity was individual punctuation. This task was followed by paired discussion and explanation of the punctuation marks used by each child. The analysis of the children's discussions leads to the following results: some categories of words are clues used to guide decisions about children's use of expressive punctuation marks that best reflects the semantic and / or discursive function in the text; or the opposite, children identify some words that indicate that punctuation is unnecessary in a textual space because the text shows the enunciator's attitude. These results suggest that children's conceptualizations about punctuation evolve in terms of other graphic and semantic aspects of writing.

Cet article présente des résultats qui s'inscrivent dans le cadre d'une enquête plus large visant à examiner comment les enfants utilisent la ponctuation. Il se concentre sur l'acquisition de la ponctuation expressive et sa possible relation avec la présence de modaliseurs de discours dans le genre publicitaire. Les résultats montrent l'influence des marqueurs de modalités axiologiques. Les données ont été obtenues en interrogeant 60 élèves de seconde, quatrième et sixième années de

l'école primaire mexicaine. Ces élèves ont travaillé en binôme. Ils ont été invités à ponctuer les gros titres de la couverture d'un magazine pour enfants, de manière individuelle. Cette tâche a été suivie d'une discussion par deux et de l'explication des signes de ponctuation utilisés par chacun. L'analyse des discussions conduit aux résultats suivants: certaines catégories de mots sont des indices utilisés pour orienter les décisions sur l'utilisation de signes de ponctuation expressifs qui reflètent le mieux le choix discursif repéré dans le texte ; à l'inverse, les enfants identifient des mots qui indiquent que la ponctuation n'est pas nécessaire parce que le texte explicite déjà l'attitude de l'énonciateur. Ces résultats montrent que les conceptualisations des enfants sur la ponctuation évoluent non seulement en fonction des aspects graphiques et mais aussi des aspects sémantiques de l'écriture.

1. Introduction

Punctuation marks are an integral part of written language. However, there is still a limited amount of research into children's learning of these marks at different stages of education, which leads to many unanswered questions: what are children's ideas about the different marks (syntactic ones such as commas, periods and semi-colon and expressive ones like exclamation marks, question marks and three periods)? How do children understand the role of each one of these marks in a text? Under which premises do children decide which mark to use in a specific type of text? Do other elements of written language play a role in understanding punctuation? Does it vary depending on genre?

The use of punctuation in a text is fundamentally linked to text organization. In order to understand its acquisition, it is necessary to consider at least two important aspects related to its use: its historical development and the psychological implications within its learning process.

In their studies, Ferreiro (1996, 1999a, 1999b) and Zamudio (2003, 2004) have shown that the development of the knowledge of the history of writing has been essential in understanding the cognitive processes involved in the acquisition of the conventions of writing.

The history of writing shows clearly that the normalization of punctuation happened late and gradually in the written languages of Western Europe (Parkes, 1993). Its origins are closely tied to the contexts of reading and producing texts; to the needs of the one who produces, edits or reads the text; to the diverse conditions of instruments and writing materials; to the control of

how the reader should interpret the text, and to the diversity of textual genres (Parkes, 1993; Chartier, 1997; Saenger, 1997; Petrucci, 1999).

Currently, we have not managed to define a field or area that studies the phenomenon of punctuation. It has been studied by traditional linguistics by means of analysis of syntactic structures (Nunberg, 1990; Pan and Snow, 1999 in Galeote, 2002), mostly describing the use of punctuation marks in specific sentence context. Other approaches are rule-related like those of Marsá (1986), Gómez Torrego (1995), Benito Lobo (1992) and Martínez de Sousa (2007). These approaches tend to enlist punctuation marks used in specific languages (English and Spanish) dividing them into those which delimit syntactic units and those which entail a prosodic function.

Studies made from the historical perspective such as Catach (1994), Gautier (2010), Lavrentiev (2011) and from the pragmatic perspective (Sperber and Wilson, 1986; Escandell 1994; Jones, 1991; Reyes, 1995) have caused debate between the grammatical and normative approach to punctuation and a contextual approach where communication is the driving force.

From the psychological point of view, when children interact with written language, they confront the use and interpretation of punctuation: they read punctuated texts and they are expected to introduce punctuation marks in their written texts. However, the process is not linear. We know that the acquisition of the writing system and its resources involves cognitive activity (Ferreiro and Teberosky, 1979) which leads to a long series of metalinguistic reflections that allow children to understand the interrelationship between written textual units and communicative intentions across the use of graphical resources (punctuation, typography and blanks).

2. General Description of the Problem of Investigation

When studying the learning of writing resources, the characteristics of the different types of texts should be taken into account, namely:

- their communicative purpose
- the publishing/editing resources of each one of the textual types
- the discursive style
- the media in which they circulate in society

It should be clarified that the above mentioned elements respond to different cultural contexts and to historical conventions. As Chartier (1993) indicates, these aspects affect the decisions of an author or publisher, as well as the reader's interpretation of a particular text.

The present research focuses on the acquisition and mastery of expressive

punctuation and its possible relationship with the presence of discourse modalizers in the genre of publicity. The task consists of introducing punctuation in a children's magazine cover presented without punctuation but with the typical graphical format of children's magazines. The research was applied to children who attend public primary education in the Mexican system.

We assume that for children punctuation is an object of knowledge. The action—a central concept in Piaget's theory—is conceived as the interaction between subject and object. In this interaction the subject (child) exerts an action on the object (punctuation). Knowledge about this object (punctuation in this case) is the result of the child's interpretation when looking for regularities, similarities and differences of its use in various written contexts. To incorporate the object, children transform their interpretations according to their intellectual tools. So, in an effort to interpret the use and function of punctuation, children construct hypotheses which they test, and reformulate when they are not useful for interpreting a situation or when they are inconsistent with other hypotheses that they have produced.

Psychogenetic based researches led by Ferreiro (1996) show that the acquisition of punctuation comes late in the process of learning written language. This author gives some reasons:

- The heterogeneity of the system and the lack of fixed rules.
- The interaction with other elements of writing (lexicon, syntax, discourse genre).
- The function of “instruction for the reader” implies an ability to take the point of view of the author and the reader.

However, some important results of her study on children's narratives (Ferreiro, 1996:156) made evident that “punctuation begins at the external borders of the text and proceeds towards the internal parts.” In other words, there is a way to say the text begins here and this is where it finishes. From early stages children use punctuation marks to differentiate direct speech and to separate elements of a list—though their use is not always the conventional one.

Other research done from the same perspective (Ferreiro, 1996; Dávalos, 2008; Rodriguez, 2009; Moller, 2011; Espinoza, 2011) has shown that children's use of punctuation reflects their sensitivity to certain grammatical and lexical resources to help them make decisions about how to segment a text in readable units or to perform other functions of textual organization such as to show the hierarchy of ideas.

Specifically, the study developed by Espinoza (2011) became a starting point for our research as it refers to certain words that turned out to be clues that induced (or not) the use of expressive punctuation, meaning exclamation

and question marks. The absence of a detailed analysis of the role that lexical elements play in children's hypotheses on punctuation use led us to consider this as a pertinent topic of research.

We want to know if expressive punctuation interacts with the available lexicon in the text. That is, if there are words that offer sufficient information to express the semantic and/or discursive function in the text making punctuation unnecessary for children. Or the contrary, if there is lexicon that triggers the use of expressive punctuation for adding information not explicitly contained in the texts. In this context, the use of expressive punctuation would fulfil the function of emphasizing and completing the message in the text contents.

3. Method

To find out if there is a relationship between expressive punctuation and evaluative speech modalizers, we designed a children's magazine cover with six headline boxes, a header with the name of the magazine and the type of edition, as well as a bar code that includes the price.

The headlines were taken from magazines known to Mexican children in the age range delimited and then adapted for the aims of the study. The adjustments consisted of the introduction of speech modalizers and the position and typography of the text according to the relevance of the information. The most relevant appears at the beginning with bigger letters, whereas that at the end in smaller type is complementary. We also removed punctuation marks.

The texts are encased in boxes, just like in real magazine covers, as we wanted to avoid a predetermined reading sequence. Typography (text), images and text distribution are fixed. This helps children focus on the task of introducing punctuation.

We are interested to know if children use expressive marks due to the modalizers, or if they use other criteria. Therefore, we designed a "neutralized" version that preserves the format, but has a reduced presence of explicit modalizers directed at the reader. We refer to the first version as A (Figure 3.1), and the second one as B (Figure 3.2). We offer a translation of each version.

Explicit evaluative speech modalizers are words that show axiological subjectivity—the implicit or explicit value-judgment that the speaker states about a situation. Table 3.1 shows the focal modalizers introduced to version A and their translation in English; Table 3.2 those focal modalizers common in versions A and B².

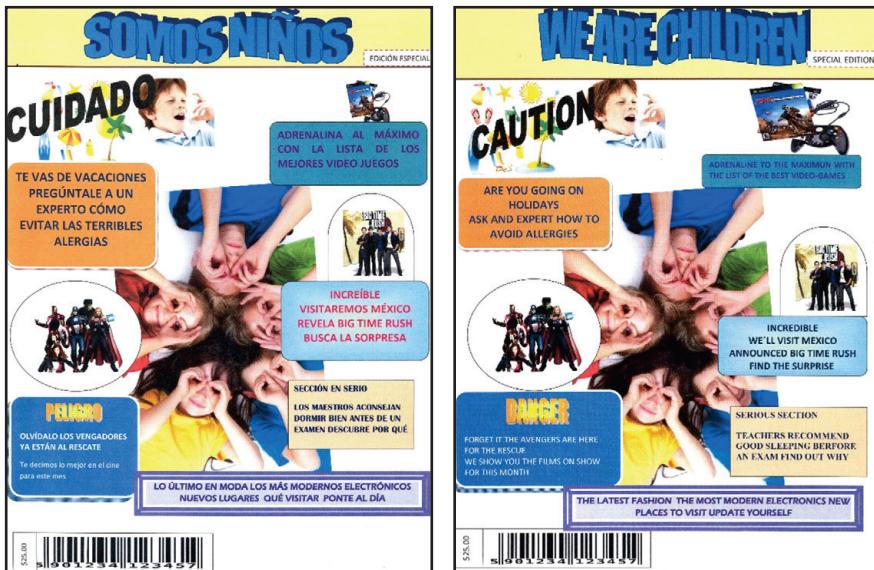


Figure 3.1 Original magazine cover (Version A) in Spanish and its translation (right)

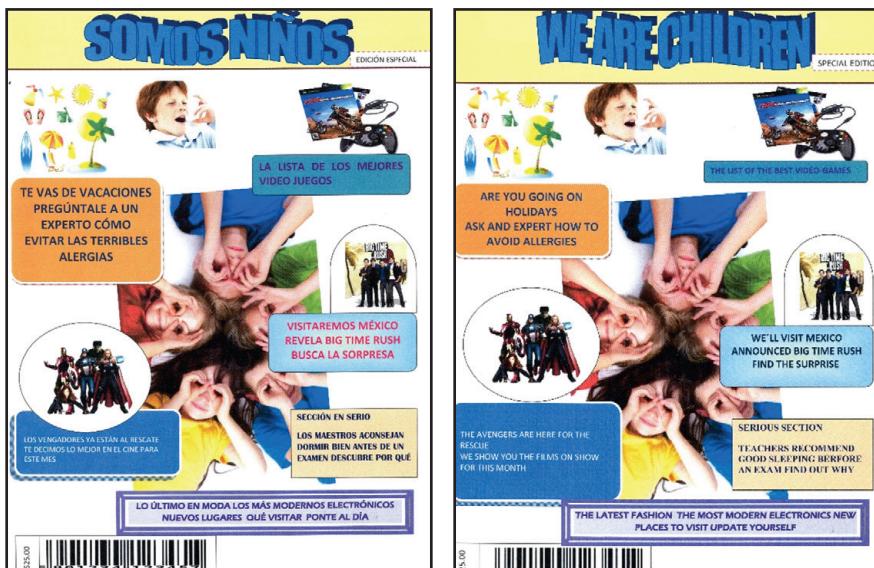


Figure 3.2 Original magazine cover (Version B) in Spanish and its translation (right)

Table 3.1. Explicit focal modalizers used in version A

Speech modalizer (Mexican Spanish)	Translation in English
cuidado	caution
peligro	danger
adrenalina al máximo	adrenaline to the maximum
increíble	incredible

Table 3.2. Common focal modalizers used in version A and B

Speech modalizer (Mexican Spanish)	Translation in English
especial	special
moderno	modern
nuevo	new
serio	serious
lo mejor	the best
lo último	the newest

For ease of identification, we named the headlines with texts longer than two words as shown in Table 3.3. This is important as it will help to understand the results we will present later.

The data was obtained by interviewing 30 pairs of second, fourth and sixth grade children (Mexican primary education). They were asked to introduce punctuation, where there was none, into the headlines the magazine cover.

The first activity was individual punctuation following this instruction: “Here is a cover of a magazine without punctuation. I want you to help me by introducing punctuation where you think necessary. First, you will take turns reading the titles to ensure that you understand the text, and then introduce the marks.”

This task was followed by paired discussion and explanation of the punctuation marks used by each child after this instruction: “Please show each other your results. Compare them and explain to each other why you think punctuation is needed there or why it isn’t.”

This discussion was part of the critical-clinical method of exploring children’s notions through a dialogue in which the researcher asks questions that explore the reasons for the child’s responses (punctuation used or not used). Every interview was audio recorded. We obtained a corpus of 60 individual punctuated magazine covers (30 per version) and 30 paired interviews (15 per version).

Table 3.3. Names given to headlines to ease their identification

Headline	Name
ARE YOU GOING ON HOLIDAYS ASK AND EXPERT HOW TO AVOID ALLERGIES	HOLIDAYS
THE AVENGERS ARE HERE FOR THE RESCUE WE SHOW YOU THE FILMS ON SHOW FOR THIS MONTH	AVENGERS
WE'LL VISIT MEXICO ANNOUNCED BIG TIME RUSH FIND THE SURPRISE	BIG TIME RUSH
SERIOUS SECTION TEACHERS RECOMMEND GOOD SLEEPING BEFORE AN EXAM FIND OUT WHY	TEACHERS
THE LATEST FASHION... THE MOST MODERN ELECTRONICS NEW PLACES TO VISIT UPDATE YOURSELF	FASHION
THE LIST OF THE BEST VIDEO-GAMES	VIDEOGAMES

4. Results and Discussions

We are mainly interested in a qualitative analysis of children's reflections about expressive punctuation and lexicon. Nevertheless, we present some quantitative data in order to give an overall idea of the quantitative distribution and variety of punctuation marks in both versions.

4.1. A Quantitative Look

When counting punctuation marks we noticed that periods at the end of the texts were very common in both versions. When analyzing the number of children that used final period (FP) in at least one of the headlines we observed very little differences between grades. The use of final period is common from second grade onwards. A typical justification was "the text is finished." Therefore, we will not consider this use of final period in our counting. It is worth saying that the headlines with the least presence of final period were: WE ARE CHILDREN, SPECIAL EDITION, CAUTION and DANGER. The reason being is that they received other punctuation marks or none.

Table 3.4. Number of children who used final period in the magazine cover

VERSION	N	2 nd	4 th	6 th
A	30	9 (90%)	8 (80%)	9 (90%)
B	30	10 (100%)	8 (80%)	7 (70%)
Total % in both versions		95%	80%	80%

We registered every mark introduced in each version in terms of: exclusive use of basic punctuation (BP) such as periods and commas; exclusive use of expressive punctuation (EXP) such as exclamation and question marks, and mixed use of BP and EXP (MIX). However, our analysis is centered in the frequency of EXP, as well as other marks like quotation marks, colon or ellipses used with expressive intentions (OTHER).

We found out that the Version A is the one with the most expressive marks, used mostly with the words CAUTION, DANGER, INCREDIBLE and ADRENALINE TO THE MAXIMUM. In Table 3.5 we present the complete list of headlines and the differentiated punctuation marks received in each one. We use the generic name in English shown in Table 3.3 to refer to each headline.

Looking at Table 3.5, it is possible to observe that there are no significant differences in quantity and variety of punctuation between versions A and B. However, if we analyze differences within each version, we see that the highest numbers of EXP and OTHER are in CAUTION (20 EXP and 3 OTHER); INCREDIBLE (22 EXP), ADRENALINE TO THE MAXIMUM (15 EXP and 1 OTHER) and DANGER (14 EXP and 2 OTHER).

These words demonstrate the attitude of the enunciator and are the same four modalizers we included intentionally. Nevertheless, in version A we can see that the headlines with these words have also got a considerable absence of punctuation: DANGER (14), ADRENALINE TO THE MAXIMUM (10). This absence is particularly notable in SPECIAL EDITION (26).

Presence and absence of punctuation related to modalizers or other lexicon in the texts are very important in this study considering our hypothesis. However, the pure frequency does not help us to know if children established a relationship between lexicon and their use (or lack of) expressive punctuation. Therefore, interviews are important as they provide information about children's text interpretation and their punctuation choices.

Table 3.5. Frequency and variety of punctuation marks used by children in both versions of the magazine cover

N=30								
Headline	Ver sión	EXP	MIX	BP	NO PUNCTUATI ON	ONL Y FP	OTHER	
WE ARE CHILDREN	A	9	-	-	15	4	2 ""	3 0
	B	17	-	-	12	1	-	3 0
SPECIAL EDITION	A	1		2	26	1	-	3 0
	B	4	-	-	19	6	1'''	3 0
CAUTION	A	20	-	-	7	-	3'''	3 0
	B							
HOLIDAYS	A	15	3	7	2	3	-	3 0
	B	18	3	6	-	3		3 0
DANGER	A	14	-	-	14	-	2'''	3 0
	B							
AVENGERS	A	16	-	12	-	-	2...	3 0
	B	13	3	5		8	1...	3 0
ADRENALINE TO THE MAXIMUM	A	15	-	4	10	-	1'''	3 0
	B							
VIDEOGAMES	A	3	-	-	19	8		3 0
	B	13	1	-	-	16	-	3 0
INCREDIBLE	A	22	-	3	5	-		3 0
	B							
BIG TIME RUSH	A	10	2	13	-	2	1'''	3 0
	B	10	5	10	-	4	1:	3 0
SERIOUS SECTION	A	4	-	4	18	-	3: 1'''	3 0
	B	1	-	2	21	2	4:	3 0
TEACHERS	A	10	3	4	5	8		3 0
	B	11	1	7	1	7	2: 1...	3 0
FASHION	A	7	4	12	-	6	-	3 0
	B	7	5	8	1	9	-	3 0

4.2. A Qualitative Look: With or Without Expressive Punctuation

The interviews provided have very interesting data because they offer some hints as to the different principles for establishing if punctuation marks were needed. This is the case of the interview of Miguel and Abigail (6th grade, Version A). With ADRENALINE TO THE MAXIMUM they just introduced a FP. From their discussion (translated below), an interesting insight into the criterion used emerges.

We present their results in the original language³ (Spanish) highlighting punctuation marks in bold. We will keep this format in all the examples given.

6th grade Version A	
ABIGAIL	MIGUEL
ADRENALINA AL MÁXIMO CON LA LISTA DE LOS MEJORES VIDEO-JUEGOS.	ADRENALINA AL MÁXIMO CON LA LISTA DE LOS MEJORES VIDEO-JUEGOS.

Miguel: There is no need for expressive signs / I just saw it as a simple sentence that carries the emotion in ADRENALINE TO THE MAXIMUM

Abigail: It could have exclamation marks to make it more interesting

Miguel: Maybe / but it is not needed / when they see it is about video games they will be interested in this because we / children like video games/ and the words / by themselves are attractive and exciting / they don't need a push.

Abigail: If you really want to draw attention to stress the excitement you put them / but it would be very repetitive

In this case, the absence of EXP is linked to two types of justifications in which the interaction between lexical aspects plays an important role. For Miguel the phrase ADRENALINE TO THE MAXIMUM offers enough emotional information (the words / by themselves are attractive and exciting), therefore there is no need for EXP. Abigail recognizes the emotional information but suggests that EXP could reinforce the attractiveness though the use of exclamation marks might be redundant.

The same pair of children did not punctuate SPECIAL EDITION arguing that the word SPECIAL is "enough":

Miguel: Where it says SPECIAL EDITION/ it made me think that it is just a simple description

Abigail: It is not that it isn't/ the word SPECIAL already makes the information very important

Miguel: Yes/ it is not necessary to put punctuation marks although exclamation marks could be used/only if the people of the magazine want to highlight it a bit more/and if they consider to be relevant that children should read this header/ I wouldn't use any as it informs sufficiently.

The latter example shows how different principles may lead to the same graphic results. Abigail focuses on a lexical level—the meaning of SPECIAL—whereas Miguel on a pragmatic one as he considers the publisher's point of view in the possible use of EXP. Cases like the above were found in other school grades and especially in those identified with the most EXP and those with a lack of punctuation marks.

Second graders Regina and Alberto debate about the punctuation marks used in EDICIÓN ESPECIAL.

2nd grade version A	
REGINA	ALBERTO
EDICIÓN ESPECIAL.	;EDICIÓN ESPECIAL!

Regina: I used a period here/her/and here (meaning the headlines HOLIDAYS, VIDEOGAMES, TEACHERS and FASHION)

Interviewer: Why a period?

Regina: Because the sentence is finished

Interviewer: Do you agree Alberto?

Alberto: No/ I put SPECIAL EDITION (read with happy intonation)/ with admiration marks (sic) so that they (the readers) realize that this is special/otherwise it wouldn't say SPECIAL/ that is a word that grown-ups use for important things like your birthday/and by the way Regina/ periods are only used at the end of long sentences not with few words

Regina: But I have seen them like that/ but I can't remember where

These children are learning in school settings, but we cannot exclude that they are building their hypotheses influenced by the experience they have as written language users in non-school contexts. Alberto, Miguel and Regina recognize the dialogical discourse of this type of text. Their justifications show a logical coordination of the knowledge of the genre, the lexical devices and punctuation.

We found a consistent association between the chosen modalizers and the use of punctuation. Tables 3.6 and 3.7 present a synthesis of the punctuation marks that were associated with the explicit modalizers in children's justifications.

Table 3.6. Introduction of expressive punctuation marks associated with the explicit modalizers in version A

MODALISER	N=30					
	Number of children who related the modaliser with their use of expressive punctuation in a headline			Total	Punctuation marks used	
	2nd	4th	6th		2nd	4th
DANGER	1	1	4	6	¡!	¡!
CAUTION	2	2	2	6	¡!	¡!
INCREDIBLE	-	3	5	8	-	¡!
ADRENALINE TO THE MAXIMUM	1	3	1	4	¡!	¡!

Table 3.7. Lack of punctuation marks associated with the explicit modalizers in version A

MODALISER	N=30		
	Number of children who related the modaliser with the lack of use of expressive punctuation		
	2nd	4th	6th
DANGER	-	-	1
CAUTION	1	4	-
INCREDIBLE	-	-	-
ADRENALINE TO THE MAXIMUM	-	3	3

These tables allow us to observe that the modalizers exclusive to version A are words influencing expressive punctuation especially by children in 4th and 6th grade.

The use of EXP in these headlines is plausible given the appellative modality of the non-verbal phrases DANGER and CAUTION, words that

fulfil a double function: attracting attention and indicating action. The same goes for the evaluative modalizers INCREDIBLE and ADRENALINE TO THE MAXIMUM which indicate intensity. The cases where questions marks were used (DANGER, one case in 6th and ADRENALINE TO THE MAXIMUM, one case in 2nd) followed an imagined dialogue between the magazine and the reader “Do you think there is DANGER around?” / “Do you want to feel ADRENALINE TO THE MAXIMUM?” Again, children’s knowledge of the genre is also playing a role in their mark choice.

Nevertheless, it is worth pointing out that DANGER and INCREDIBLE are mostly associated with introducing punctuation than with its absence. Once more this is more common in 4th and 6th grade.

As for the common lexicon in both versions, we identified that children took into account the focal modalizers. The discussion between Karla and Margarita (6th, version B) is an example of the reflections triggered by the evaluative modalizer SERIOUS.

6th, version B	
Margarita	Karla
SECCION EN SERIO	;SECCION EN SERIO!
LOS MAESTROS ACONSEJAN DORMIR BIEN ANTES DE UN EX- AMEN DESCUBRE POR QUÉ.	LOS MAESTROS ACONSEJAN DORMIR BIEN ANTES DE UN EX- AMEN, DESCUBRE ¿POR QUÉ?

Margarita: This section looks very boring because it says SERIOUS /not even introducing exclamation marks like this SERIOUS SECTION (emphasizing) will make it fun / nothing that is serious is fun/ I used a period.

Karla: I used exclamation marks because it is talking about something serious that you must pay attention to/ something that must be taken as important/ otherwise it would not say SERIOUS/ then question marks for asking WHY (¿POR QUÉ?).

We also noticed that other lexical elements were related to punctuation choices. The word SURPRISE in the Big Time Rush headline for example led to a very interesting situation for Fernando which was quickly solved by Carlos, his partner.

2nd, Version A	
Carlos	Fernando
¡INCREÍBLE VISITAREMOS MEXICO REVELA BIG TIME RUSH BUSCA LA SORPRESA!	INCREÍBLE ¡VISITAREMOS MEXICO! REVELA BIG TIME RUSH ¿BUSCA LA SORPRESA?

Carlos: With marks for surprise (meaning exclamation marks) to let women who like that music band to go and see them and buy the tickets/ it says the word SURPRISE / then yes/ those marks go.

Fernando: I used them (exclamation marks) to let them see (the readers) that they (Big Time Rush) will go to Mexico in VISITAREMOS MEXICO.

Interviewer: And these marks? (question marks)

Fernando: At the end it says FIND THE SURPRISE / and I wonder what they give away.

Carlos: I'm sure it's a ticket

The word SURPRISE is associated with the unexpected and with predicted anticipation. Fernando was caught in this anticipation as he assumed the role of a reader instead of the role of an editor. We found similar results linked to the words VIDEOGAMES, ALLERGIES, TERRIBLE and ADVICE.

Table 3.8 is a synthesis of the common lexicon interacting with expressive punctuation. We divided the focal modalizers from the rest of the lexical elements available in the headlines. The Table shows the predominance of exclamation marks no matter the school grade, also that question marks are clearly linked to those words associated with a question (ASK, WHY, HOW). It is clear that, as previously shown with explicit focal modalizers in version A, that the majority of children establishing a relationship between lexicon and punctuation belong to 4th and 6th grade.

Knowing how to use punctuation means knowing how to coordinate several criteria: comprehension of the message of the text, the set of punctuation marks, the position of the mark within the text according to the function they accomplish and the interpretation expected by the reader. This coordination is especially difficult for the younger ones.

Table 3.8. Common lexicon in version A and B interacting with expressive punctuation

FOCAL LEXICON	Number of children who related to the modaliser with their use of expressive punctuation in a headline			Total	Punctuation marks used		
	2nd	4th	6th		2nd	4th	6th
SPECIAL	2	-	2	4	i!	-	i!
MODERN	-	-	-	-	-	-	-
NEW	-	1	2	3	-	i!	i!
SERIOUS	-	2	2	4	-	i!	i!
THE BEST	-	-	-	-	-	-	-
THE NEWEST	-	1	-	1	-	i!	-
WHY	2	6	6	14	i?	i?	i?
HOW	-	3	2	5	i?	i?	i?
NON FOCAL LEXICON							
SURPRISE	1	1	1	3	i!	i!	i!
VIDEOGAMES	-	2	2	4	-	i!	i!
ALLERGIES	2	1	-	3	i!	i!	-
ASK	1	3	5	9	i?	i?	i?
FORGET IT	-	2	1	3	-	i!	i!
TERRIBLES	-	1	-	1	-	i!	-
UPDATE	1	1	1	3	i!	i!	i!
	9	24	24	57			

It is also evident that the lexical elements found in versions A and B (e.g. SURPRISE) are more related to the need for punctuation than its omission. This could be because they are:

- nouns related to contextual connotations that are familiar to the children and associated with their emotions (allergies-illness; videogames-fun; surprise-happiness; serious-boredom) and where exclamation marks are linked to subjectivity
- interrogative words clearly associated to question marks (WHY, HOW)
- imperatives (FIND OUT, DISCOVER THE SURPRISE, UPDATE YOURSELF) usually linked to oral appellations, commonly said loudly; children might be trying to represent this aspect of orality with exclamation marks.

In version B, we also found some children did not introduce EXP when they felt the headlines did not fulfil their expectations of the genre. They expressed the need for a certain type of words common in magazines. For example, Regina (6th, version B) explained to Synai that, for her, the most important thing in the BIG TIME RUSH headline is the fact that the music band will visit Mexico. However, she says, "I didn't use exclamation marks because there

is something missing/I don't know/ it should say something like MAGNIFICENT NEWS/ or something like that to show what BIG TIME RUSH is revealing."

5. Conclusions

We obtained this data by asking children to punctuate an already existing text and by asking them to explain their punctuation choices. We were aware that asking them to adopt the role of an editor would present them with difficulties. Ferreiro (1999) has explained that when revising a text a change of enunciative position is needed because of the writer's need to assume an external perspective as a critical reader of someone else's text. This decentration involves a simultaneous and complex coordination of a variety of aspects of written language. We have also seen that the role children assume when managing texts influences their choice of punctuation marks.

The analysis of the children's discussions leads to the following results:

- some categories of words are clues used to guide decisions about children's use of expressive punctuation marks that best reflects the semantic and / or discursive function in the text; or the opposite, children identify some words that indicate that punctuation is unnecessary in a textual space because the text (or a word) already indicates "how it's said" (speaker's attitude)
- children—in the position of editors—identify viewpoints considered as modalities of the enunciator's involvement (attitude, opinion, subjective appreciation); the space where they place the expressive punctuation mark responds to a logic based on age and experience with the genre
- the data suggests that the exclamation marks used by children add more information for the reader than just that provided by the semantics of the words; this means that children double-mark the sense of a sentence when they feel what is written needs to be emphasized.
- children's justifications of question marks used point to two main functions:
 - indicating to the reader the presence of a dialogic process regardless of the enunciation structure,
 - indicating their own doubts or questions regarding the content of a text.

These results suggest that children's conceptualisations about punctuation evolve according to other aspects of writing such as lexical choice. Oral exchanges between children also show that when learning to punctuate, expressive marks can either supplement or modify the information provided by

these words. This may mean that the process of appropriation of expressive punctuation is linked to discursive and communicative purposes of specific types of speech.

Our findings raise the need to explore if the relationship between lexicon and punctuation exists in other discursive genres (i.e. narrative), as well as focusing on other lexical categories used to transmit communicative intentions such as verbs (i.e. saying verbs, performative verbs) adjectives and adverbs.

Notes

1. Partial results of a Ph.D. dissertation study (CINVESTAV-IPN, Mexico City) conducted under supervision of Emilia Ferreiro.
2. We keep the use of capital letters and type of font from the headlines throughout this chapter.
3. We followed the criteria for transcription of orality suggested by Blanche-Benveniste (1988). When transcribing children's interventions, no punctuation is used. Capital letters are used for names and texts from the magazine cover. We use brackets to introduce comments about the context of the interview. We also used the following code:
 - ? at the end of a phrase to indicate interrogative intonation
 - / to indicate short pauses

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4

Rehabilitation of Lexical Orthography in Writers with Dysorthographia

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This chapter presents the guiding principles of a program centered on the morphological structure of the words. This intervention was carried out with pupils, from 10 to 12 years of age, presenting a writing disability. The interventions implemented took several aspects into account: 1) teaching approaches of the read-write effectiveness to support the development of the specific processes of identification and production of the written words; 2) certain cognitive characteristics of the apprentice, in particular its capacities of morphological awareness; 3) morphological characteristics of the French orthography. In order to systematically follow the evolution of their orthographical representations, a single case design with multiple subjects comprising the taking of continuous measurements is used. The results of one participant are analyzed via a “control chart.” The intervention had beneficial effects on the written production of plurimorphemic words, particularly for the representation of studied suffixes.

Cet article présente les principes directeurs d'un programme de rééducation centré sur la structure morphologique des mots. Cette intervention a été réalisée auprès d'élèves, âgés de 10 à 12 ans, présentant une dysorthographie. Dans cette étude, un protocole individuel avec sujets multiples comportant la prise de mesures continues a été mis en œuvre. Afin de suivre systématiquement l'évolution des représentations orthographiques et de démontrer l'effet des interventions, l'analyse des résultats d'un des participants a été effectuée par l'entremise de la carte de contrôle. De façon générale, l'intervention a eu des effets bénéfiques sur la production écrite de mots plurimorphémiques, particulièrement pour ceux présentant des suffixes auxquels les élèves ont été entraînés.

Lexical spelling or orthography is a significant challenge for writing beginners. Indeed, in alphabetic writing systems, phonemes correspond to graphemes, but the associations are not always transparent. French spelling has many complexities (Catach, 2008; Ferrand, 2007; Ziegler & Montant, 2005), and the relationship between phonemes and graphemes is often opaque. For example, the French phoneme /E/ can be spelled differently (è, ê, ai, est, et, etc.). Consequently, in French, in orthographic production, writers must develop not only specific knowledge related to rules for translating phonology into orthography (Mousty & Allégria, 1999), but also knowledge related to lexical orthography (Martinet, Valdois & Fayol, 2004) and the regularities of morphology (Pacton, Fayol, & Perruchet, 2005).

1. Developing Orthographic Skills

Learning lexical orthography involves processes specific to writing (Fayol & Jaffré, 2008; Torrance & Galbraith, 2006). To account for reading-writing acquisition and the development of phonological, orthographic, and morphological representations, Seymour (2008) developed a theoretical framework presenting the cognitive processes used to identify and produce written words. The author uses a cognitive and interactive information-processing model.

One of the bases of the model, logographic recognition, involves the process of identifying and directly producing familiar words. The second basis of the model, the alphabetic process, establishes a link between phonemes and graphemes during written word production. This sequential processing is used to represent less familiar words and pseudo-words.

Orthographic structure is multileveled since orthographic representations follow a progression from simple to complex (e.g., *pr*, *oigt*, etc.). According to Seymour (2008), this ability to construct complex orthographic representations is based on logographic recognition and the alphabetic process. Orthographic structure provides direct access to orthography and phonology and, consequently, the efficient processing of regular words with spelling rules or regularities, as well as irregular words.

Multisyllabic words composed of a base word and affix are treated by morphographic structure. This process allows direct access to orthographic representations and small pre-stored units of meaning (e.g., in French, *ette* means “a diminutive,” so *chambrette* means “small room”). This learning is dependent, among other things, on the completion of orthographic structure (Seymour, 2008).

Such processing depends on and generates lexigraphic memory (Seymour, 2008). Stored representations in this memory allow for the abstraction of or-

thographic principles and the use of analogies for spelling. Lexigraphic memory is essential for identifying and producing written words.

As emphasized by Torrance and Galbraith (2006), writers must automate these processes to focus their cognitive resources on discursive capacities such as choosing and organizing ideas. Students with difficulties using these processes have a specific difficulty in producing written words.

2. Students with Dyslexia-Dysorthographia

The specific difficulty related to reading-writing acquisition is a severe deficit in the processes for identifying and producing written words (Sprenger-Charolles & Colé, 2013; Tunmer & Greaney, 2010). Considering chronological age, cognitive abilities, and education, students with dyslexia-dysorthographia have a delay in transforming phonological information into orthographic codes (Connely et al., 2012). This causes difficulties in identifying and producing written words accurately and automatically. Thus, in writing, dysorthographic students produce lower quality texts than their oral discourse abilities reveal (Berninger et al., 2008).

Casalis et al. (2003) found that students with dyslexia have a higher level of morphological awareness compared to phonological awareness. Furthermore, non-specific processes of language comprehension of these students are efficient (Connelly et al., 2012). Therefore, readers-writers with a specific reading-writing difficulty should be able to use graphomorphological codes to identify and produce written words. Indeed, the use of morphemes could be an effective compensatory strategy, because they are the smallest units of meaning in alphabetic languages (Baumann et al., 2002; Bryant & Bindman, 2006; Kemp, 2006; Pacton, 2005).

3. The Contribution of Morphology

Morphology is the study of word structure and formation (Béguelin, 2000; Cat-ach, 2008). Most words in French are composed of several morphemes. Indeed, according to Rey-Debove (1984), about 75% of French words are constructed or multi-morphemic. Derivational morphemes result in the creation of new lexical units (Béguelin, 2000). The significance of derivational morphemes is that they alter the semantics of a word and thus increase the lexicon of students.

According to Pacton (2005), morphological knowledge is necessary to spell correctly. Fayol (2008) states that morphological rules must be learned systematically since few learners discover these intuitively. Therefore, separate interventions must be proposed to promote the development of this read-

ing-writing process. In this study, the interventions involve derivational morphemes since they promote the formation of new words by using orthographic representations of multi-morphemic words.

4. The Objective of the Study

According to Troia (2006), students with learning difficulties in writing require, among other things, intensive, individualized, and specific instruction in writing strategies. It is in this perspective, i.e., the use of interventions promoting the development of lexical spelling skills, that this study was conducted. Consequently, the study aims to demonstrate the effect of remedial interventions^r using the morphological structure of words, on morphographical processing during the orthographic production of isolated words, in students with dysorthographia.

5. Methodology

In this study, a single-case ABA-type design was used to determine the effect of intervention on learning in students with a distinct learning profile. According to Horner et al. (2005) and Neuman (2011), this type of design helps to better understand the response to intervention and define educational practices at the individual level.

The timeline of the study, lasting 20 weeks, began with a preparatory session that helped familiarize the students with the remedial intervention program (vocabulary and material). It continued with the establishment of the baseline. For four weeks, the baseline conditions of the subjects with regard to the production of polymorphemic words were identified through ongoing measurements. While no interventions regarding morphological knowledge or strategies were conducted, students were given two dictations containing polymorphemic words each week during this phase. The intervention phase followed the baseline phase. Lasting 12 weeks, it included 36 rehabilitative sessions spread over 6 intervention periods. Each period was held over two weeks and focused on a different suffix. The periods consisted of six rehabilitative sessions. Thus, each week during the intervention, students participated in three rehabilitative sessions and one evaluation session to conduct ongoing measurements. Finally, to verify learning stability, the study concluded with an observation phase. This phase lasted four weeks, during which ongoing measurements continued.

6. Participants

The study was conducted with nine participants with dyslexia-dysorthograph-

ia, aged 10 to 12 years. The extent of their difficulties with lexical orthography was demonstrated by their results well below those expected for their chronological age, obtained through assessments measuring their use of processes specific to reading-writing. In addition, to reflect the persistent nature of these difficulties, students had to have participated in special education workshops at school. Regarding exclusion criteria, general cognitive capacities had to have been above 85 (Wechsler, 2006). Furthermore, no severe sensory impairments and no behavioral problems were to have been reported by parents or school staff. Finally, the mother tongue of the participants had to be French. The students participating in the study attended schools in the greater Montreal area, in the province of Quebec.

7. Instructors

Five fourth-year Bachelor of Education students in School and Social Adaptation implemented the rehabilitation program during their final teacher training internship. Before beginning the interventions, the student instructors received six hours of training from the researcher on implementing the intervention program and conducting ongoing measurements. In addition, two observational meetings were held to check the quality of implementation of the program by each student instructor. Three group supervision meetings were also held during the experiment.

8. Intervention Program

The remedial actions proposed by the intervention program emphasized explicit instruction and direct intervention for the teaching of strategies, since a significant effect has been shown in research for students with learning difficulties (Chard et al., 2002; Swanson et al., 1999, 2000; Wanzek et al., 2006). In addition, a cumulative review of the concepts, as well as exercises providing immediate feedback by the instructors, were proposed. Furthermore, the intervention was conducted individually or in small homogenous groups of two students matched by their type of difficulty.

Each rehabilitative session consisted of three phases: preparation, implementation, and incorporation. These phases facilitated the development of knowledge and new strategies (Laplante et al., forthcoming). The preparation phase included activities to help make connections between previous sessions and classroom activities. In addition, the review of concepts led to automatic recognition of the suffixes taught. During the implementation phase, several activities allowed the students to manipulate concepts related to morphology,

using mono- or polymorphemic words or pseudo-words. The final phase enabled students to incorporate their knowledge and demonstrate their ability to produce polymorphemic words in writing, particularly those words practiced in the rehabilitative sessions.

The intervention program consisted of 20 “typical” activities, some of which were performed during each rehabilitative session, while others were performed during two sessions of a same period. This variety of activities called upon different abilities related to morphological awareness and the identification and production of morphemes, words, and pseudo-words (see Table 4.1). Furthermore, the nature of the words and the meaning of the morphemes were taught explicitly. The morphemes used were derivational suffixes forming nouns or adjectives.

The lexicon consisted of 30 polymorphemic words. Each period focused on a minimum of five words containing a target morphograph. These words then corresponded to items used in the activities of subsequent periods. In this way, the students became familiar with the suffixes *-ette*, *-age*, *-tion*, *-ance*, *-aire*, and *-esse*. These morphemes presented a certain level of complexity because of their orthographic neighbours (*-ette* > *-ète*). Therefore, using the meaning of a morpheme was helpful in choosing the morphograph that produced the polymorphemic word accurately.

Table 4.1. Activities of the remedial intervention program

Activities	Morphological awareness				Identification			Production			
	Categorization	Isolation	Segmentation	Fusion	Morpheme	Base word	Polymorphemic word	Pseudo word	Morpheme	Base word	Polymorphemic word
Preparation and review phase											
3 “typical” activities			①	①	①	①	①	①			
Implementation phase											
16 “typical” activities	③	①	②	①		②	③		②	①	④
Incorporation phase											
1 “typical” activity											①

9. Measurements

Assessment tools are crucial in single-case-study designs. According to Kazdin (2011), they are key to this type of research and methodology for evaluating the effects of an intervention. As part of this study, in order to observe student learning regarding lexical orthography, two tests were devised. These measurements allowed determining the effect of the intervention on processing used in the production of written words.

To measure the production of written words, an exhaustive lexicon containing the target morphemes was created using the MTannulex database (Lété et al., 2004). Lexical frequencies were identified according to first to grade five word categories. Since words qualified as “frequent” in this study had low frequency, morphographic processing had to be used to produce the suffixes contained in these words. Indeed, using the meaning of the morphographs facilitated memory recall of the written representation of the polymorphemic words (Pacton et al. 2012). To create the two tests (word dictations), base words with low lexical frequency corresponding to polymorphemic words with low frequency were drawn from the lexicon created for the intervention program (e.g., *tolérer*: 0.00; *tolérance*: 0.47). Subsequently, two lists of words were created and matched, as best as possible, based on their lexical frequency and their syllabic and graphemic structures (e.g. *tolérance* was matched with *dominance*). The first list included polymorphemic words practiced during the intervention, while the second list consisted of control words not practiced but which contained the target suffixes. Since remedial interventions increase the occurrence of the lexicon used in a rehabilitation program, students could use logographic processing when producing the practiced words (Seymour, 2008). As such, the dictation of non-practiced polymorphemic words would demonstrate the use of morphographic processing in the production of written words.

A correction sheet accompanied each test. Students received two points for each correctly spelled item for a maximum of 60 points. If the root of the word was spelled correctly, one point was given, and if the target morpheme was spelled correctly another point was given (e.g., *tolér-* = 1 point, *-ance* = 1 point). A total of 60 points could thus be obtained.

10. Data Analysis Method

In single-case-study designs, experimental control depends on the measures taken throughout the study on the dependent variables. Since this study was part of an approach focused on the participant and the influence of the intervention context, the data analysis plan related to methods reflecting intra-in-

dividual variability in the production of written words. As part of this study, in order to present changes in the behavior assessed by ongoing measurements of a single participant, a control chart was created. The control chart reported the raw data of the ongoing measurements. It was thus similar to the visual analyses used in this type of research design, but it consisted of a confidence interval in which the upper and lower limits were within two standard deviations of the mean of observations. For this study, the center line of confidence interval was established from the mean of the baseline results, and the upper and lower limits were established from data of the baseline and intervention phases. In this method, a parameter is considered to have changed when two observations are outside the confidence interval or when one observation is three standard deviations away from the mean (Juhel, 2008; Satake et al., 2008). In this study, a positive effect of the intervention was statistically significant when the result was outside the upper limit of the confidence interval, i.e. more than two standard deviations from the mean of baseline observations.

11. Results

The participant whose results are presented in this study was a boy from a middle-low socioeconomic background from the South Shore of Montreal. At the beginning of the intervention, he was 12 years and four months old and in the second year of the third cycle (Grade 6). The boy was an only child living with his mother. According to the latter, the participant had reading-writing difficulties since the second year of the first cycle (Grade 2). He repeated that year and began special education workshops. In the second cycle (Grade 4), following assessment of his reading and writing skills, he was diagnosed with dyslexia by a speech-language pathologist.

To verify what he had learned regarding production of the practiced words, the experimental test was administered to the participant each week during the study. In the first evaluation, he correctly spelled fourteen base words (14/30) and three suffixes (3/30). To represent the morphographs studied in the rehabilitation program, the student used various orthographic neighbors or groups of letters (*-ette* → *-ait*, *-age* → *-aje*, *-tion* → *-llon*, *-ance* → *-ans*, *-aire* → *-er*, *-esse* → *-ais*).

From the first session of the intervention phase, the participant incorporated the orthographic representation of the morphemes studied. Subsequently, after two weeks of intervention, the student obtained a result of 34 (34/60). Remarkable progress was made in the third week of the intervention (41/60), which was also attributed to an improvement in writing affixes. However, the three next results were significantly lower (35/60, 36/60, 35/60). Analysis of the

student's answers revealed that this decrease was associated with the spelling of the morphographs *-aire* and *-esse*, which were not taught at that time. The student completed the intervention phase with a result of 50 points (base words: 20/30, suffixes: 30/30). The threshold of 30 correct answers for the suffixes was reached for the first time in the last evaluation of the sixth intervention period.

The observation period revealed that the student maintained what he learned (49/60, 50/60, 50/60, 51/60). At the conclusion of the experiment, observation of the results showed greater progress for the production of suffixes compared to base words.

Visual analysis showed substantial progress for this student regarding the words presented in the rehabilitation program. Indeed, the six results above the upper limit of the confidence interval, i.e., more than two standard deviations (19, 32) and thus significant, attest to this progress.

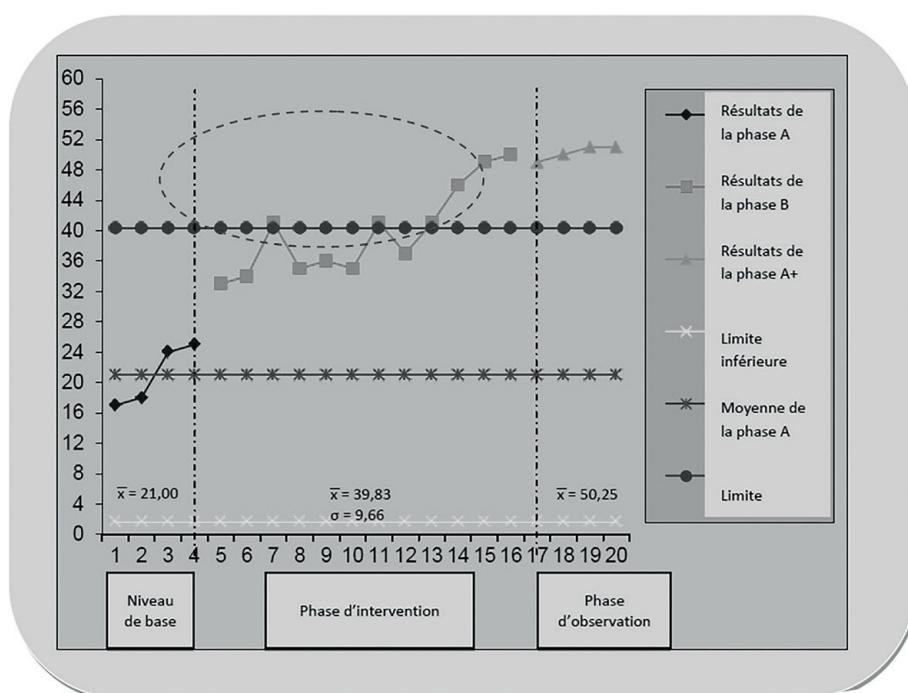


Figure 4.1. Experimental test results for the production of practised words

Experimental dictations of non-practiced words were given to the participant to verify the effect of the intervention on the use of morphographic processing. The results observed at baseline were unstable (13/60, 20/60, 18/60, 26/60). As with the practised words, the morphemes studied in the rehabilitation program were represented using various groups of letters and

not correctly spelled by the student until after the intervention. Moreover, at the end of the fifth intervention period, the student's results showed significant progress since correct representation of the affixes increased by 12 points (Week 13: 18/30; Week 14: 30/30). Few improvements were observed in the production of base words. Thus, the improvement in results was due to the performance of the participant in the production of suffixes. At the end of the experiment, despite some variation in the results, the student maintained what he had learned (44/60, 44/60, 48/60, 47/60).

Observation of spelled items in the experimental dictations revealed that the student substituted (*boutonnage* → *doutonaje*) or omitted (*militaire* → *millter*) graphemes. Such occurrences are due to difficulties in representing both acontextual graphemes, i.e. using the alphabetic process, and contextual graphemes, which are produced using orthographic processing. The intervention helped to reduce some of the difficulties in representing base words and promoted the use of segmentation to associate graphemes with the phonemes of non-practiced words. However, a few words, even among the practiced words, showed errors at the end of the experiment (*sitation*, *lamontation*, *boutonage*). Thus, even logographic processing cannot compensate for certain difficulties. However, in the last dictation, morphographic processing for producing suffixes was used properly in the 60 target words produced by the student. Therefore, for this participant, instruction targeting morphographic processing improved the production of suffixes.

12. Discussion

Lexical orthography is specific to writing. Given the latter's multidimensional form, the learning writer must use a variety of cognitive processes involved in the accurate production of written words. Thus, in reference to the cognitive and interactive model of reading-writing acquisition (Seymour, 2008), orthographic representations are actualized through a complex management of logographic, alphabetic, orthographic, and morphographic processes. In the context of this study, remedial interventions were focused on teaching the orthographic dimensions associated with morphology. The proposed interventions are thus compensatory in nature. This type of rehabilitation allows the special educator to focus on the development of new knowledge and strategies based on the functional processes of the student. As such, the proposed activities emphasized semantic units, i.e. morphemes.

At the end of the intervention, the results obtained through ongoing measurements of the written production of practiced and non-practiced words revealed that the remedial intervention was beneficial for the participant with

dysorthographia as well as the eight other students participating in the study. Indeed, the control chart for each participant demonstrated the positive effects of the intervention and revealed that a significant improvement in the orthographic representation of the practiced suffixes was observed. Thus, despite their difficulties in lexical orthography, the writers were able to correctly use morphographic processing, which allows for the retrieval of orthographic representations of morphemes and their meanings. These findings corroborate what Quémart et al. (2011) observed in their study on reading skills, in which students with morphological knowledge accessed orthographic representations more easily. As proposed by Arnbak and Elbro (2000), the segmentation of polymorphemic words into units of meaning allows the writer to focus on the transcription of the words and put less load on working memory. In this way, the orthographic representation of the base words is facilitated. However, according to the results of this study, progress was less marked for the production of base words than for suffixes. This trend was observed in the production of both the practiced and non-practiced words. In addition, the same analysis demonstrated that the writers participating in the study made analogies during orthographic production of the non-practiced words by reusing the knowledge they developed about the practiced words and the composition of polymorphemic words. This observation is consistent with what Pacton (2008) has reported on writer sensitivity regarding infralexical knowledge when learning written words. Indeed, being aware of the morphological structure of the non-practiced words, the participants were able to retrieve from their lexicographic memory the information they learned for representing the morphemes. Moreover, research suggests that, in reading, morphographic processing facilitates the decoding of polymorphemic words, which have low lexical frequency, by contributing to the recognition of word components (Carlisle & Stone, 2005; Colé et al., 2011). Implementing rehabilitation programs that focus on functional procedures thus promotes the development of orthographic representations; however, specific interventions are needed to reduce the various deficits observed in dysorthographic students.

In addition, the organizational parameters were optimal in this study. Moreover, a fundamental element of the rehabilitation program was explicit instruction. The effectiveness of this educational intervention model among students with learning difficulties is well documented (Gauthier et al., 2004; Swanson et al., 1999; Wanzeck et al., 2006). Indeed, this type of instruction allows special educators to guide students toward gradual acquisition of the targeted knowledge and strategies. According to some studies (Bowers et al., 2010; Kemp & Bryant, 2003; Pacton et al., 2005), writers do not use morphological rules systematically to spell words. Thus, explicit instruction of morphographic structures is neces-

sary to encourage writers with difficulties to use this processing when retrieving the orthographic components of the words to produce, since for dysorthographic students, this strategy allows compensating for marked deficits.

In sum, the possibility of improving morphographic processing, despite significant difficulties in lexical orthography, is clearly established in this study since the intervention led to improvements in the ability to use suffixes accurately, even after the intervention concluded. Future research efforts could be geared toward determining whether certain types of instruction or learning activities are more effective than others in developing orthographic representations of morphemes.

Note

1. Remedial intervention refers to instruction given by a specialist in evaluating and responding to learning difficulties in reading, writing, and mathematics. Usually conducted outside the classroom, remedial intervention is done individually or with a small group of students.

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5

Writing, Memory and Association: Newly Literate Students and Their Poetry Creation Processes

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Derived from textual genetics and the linguistics of enunciation, this study analyzes the creative processes of newly literate dyads writing poetry in the classroom context. Data point to types of associative relations (Saussure, 1987; Suenaga, 2004) made by students and the ways in which these relations are articulated through memory. The co-enunciative process suggests the formation of complex and interrupted associative networks that indicate the genesis of the written poems. The final manuscript cannot retrieve the dynamics of this network, but preserves its result, erasing, in part, the connections between the elements that constituted it. Even though the properties of the textual genre and the possibilities of syntagmatic concatenation may impose limits to what will be written, the subjectivity of the writer (even of a new student), carries within it the unpredictable, inescapable dimension of what words say.

Cette étude, inspirée par la génétique textuelle et la linguistique de l'énonciation, analyse le processus créatif de deux dyades d'enfants ayant récemment appris à lire et à écrire qui écrivent de la poésie dans le contexte de la classe. Les données permettent de voir quels types de relations d'associations (Saussure, 1987; Suenaga, 2004) sont faites par les élèves et la manière dont ces relations s'articulent entre elles grâce à la mémoire. La procédure de co-énonciation favorise la formation d'un réseau complexe et interrompu d'associations qui renseigne sur la genèse des poèmes. Le manuscrit final ne peut restituer la dynamique de ce réseau mais il en préserve le résultat, faisant disparaître en partie les connections entre les éléments qui l'ont constitué. Même si les propriétés du genre textuel et les possibilités de concaténation syntagmatique

imposent des limites à ce qui va être écrit, la subjectivité du scripteur, fût-il un jeune élève, apporte avec lui l'imprévisible et incontournable dimension de ce que disent les mots.

Dans une foule de cas, il est difficile de classer une combinaison d'unités, parce que l'un et l'autre facteurs ont concouru à la produire, et dans des proportions qu'il est impossible de déterminer.

-- Saussure, *Tullio de Mauro*, p. 173

Textual Genetics (Grésillon, 1994; Biasi, 2011) argues that the literary manuscript is a semiotic object of double order, whose scriptural essence makes it, at the same time, a verbal and non-verbal object. Unity is achieved through the interaction of, on the one hand, what the writer has read, studied, lived, as well as his notes and designs, which are arranged in the successiveness of the linguistic elements linked in the syntagmatic chain of each word, each sentence, and each line, and on the other hand, the visual and fixed simultaneity of what was already written, the traces, scribbles, arrows, blurs, colors, and erasures.

This process implies that the writing is influenced by the actions of language and memory. Further, the manuscript is shaped by the special and recursive condition of its process—even processes through which a writer's intentions may not necessarily be fully realized. Yet, despite this ephemeral and heterogeneous character, every manuscript has in its horizon, essentially, an arrival point at which “textual” unity is achieved, simultaneously, through recursive and non-linear dimensions.²

The investigation of this processual character of the “text in construction” (Fenoglio, 2007; Maher, 2009) has been the focus of many studies on the written text at school (Boré, 2010; Doquet, 2011; Fradet, 2010; Fiad, 2013, among others) in Textual Genetics. Of particular interest, is the work of Fabre (1990), who highlighted the importance of the manuscript (*brouillon*) and of the erasure (*rature*) of the student in the context of school writing, has more recently been extended to include literary manuscripts (Fabre-Cols, 2004).

Our study aims at advancing this perspective, highlighting newly literate students' creative processes in writing poetry. Through a less common methodological procedure, we have elected to study the writing “in situ.” Specifically, we have aimed to capture the dual nature of the literary manuscript through the observation and analysis of its process and production with recently alphabetized authentic writers in an authentic classroom context.

With this methodological approach, we will treat the process of school writing and its product as a unified object of study, existing within the dimensions of here (space) and now (time) during the enunciative process of talking

and writing in the classroom. To show how the dimensions of this object inter-relate, we will analyze the processes of the literary text creation through the associative relations (Saussure, 1987) as proposed by Suenaga (2004) and the speaker's memory.

1. Associative relations and their types

From the linguistic point of view, Saussure, when discussing the matter of the arbitrary and the value, addresses the relationship between language and memory. The "limitation of the arbitrary," according to the author, depends on the associative syntagmatic relation and the associative association, as far as the first is delimited by the syntagmatic chain (horizontal associative relations), and the second one by the memory of the speaker (vertical associative relations). If the first delimits the arbitrary through the enchainment of the linguistic elements in the syntagma, the second delimits it from what is "in the brain" of the speaker.

The horizontal and vertical associative relations, in turn, are responsible for delimiting the arbitrary in the language, as demonstrated by Saussure through several examples. Maybe the most famous is the one represented on page 126, which uses the word *enseignement*.

Suenaga (2004), from this example, reinterprets these relations, proposing three types of combinations between signified and signifier:

Type 1, association by signifier and signified: the syntagmatic associative relation elapses from a morphologic movement in which there is a community or grouping of morphemes. This type of association may be exemplified³ by:

"Enseigner," "enseignons" . . . which makes an association by sharing the same roots.

"Teaching," "carrying," "acting" . . . are associated by the suffix "ing" which nominalizes a verb.

Type 2, association by signified: when there is an association on the plan of the signified, which is when there is a relation of semantic contiguity between the terms:

"Teaching," "apprenticeship," "education," "school," "university" . . . are associated by synonymy or by part-whole relations.

Type 3, association by signifier: an association at the level of the signifier, when there is a community, or grouped by phonic similarities.

“Tent,” “element,” “circumvent,” “invent,” “descent” . . . when the association occurs only at the level of sonority.

We will not advance towards the delicate question of the “absolute arbitrary” and “relative arbitrary,” but I emphasize that delimiting the value of a term is given by:

- a) The relations of type 1 (syntagmatic delimitation) and of type 2 (associative delimitation), restricted to the “grammatical” character of the system, limitative of the arbitrary;
- b) The type 3 (phonic delimitation) has a “symbolic” character, allowing, according to the proposal of Suenaga, from the deliberation of Gadet (1989), the “widening” of the arbitrary.

From these considerations of the associative relations and the types of combinations between signified and signifier, we will discuss the role of memory in the new writers’ textual creation processes.

2. Processes and manuscripts in two poem productions proposals

The aforementioned affirmation on the double dimension of the investigation object chosen, involving the articulation between the process in real space and time and its product—the school manuscript—is mainly justified by the ethnographic method, developed and adopted since the early 1990s (Calil, 1994). Through the filming of the proposed text production in the classroom, when the students organized in dyads are solicited by their teachers to write a single text, we were able to recover the daily and spontaneous interactional dynamics between the speaker and what we characterize as “oral manuscript” (Calil, 2008, p.47). This oxymoron preserves one of the main properties of our object of study, mixing the apparent and delusive dichotomy of what is “written” and what is “spoken.”

2.1. “Poem of Each Day” and Its Collection

The didactic project “A Poem Every Day” was developed between 2000 and 2001, in a school situated in Maceio’s periphery, with 11-year-old students of very limited economic resources, who had already failed one or two school years. During the execution of this work, as part of the Portuguese Language classes, about 40 poems of diverse styles were read, recited, and interpreted (Calil, 2001). Every two weeks, on average, the teacher grouped the 2nd grade

elementary school students in dyads and requested the production of a poem.

Using a hand held camcorder we recorded 13 text production prompts. Each one of these prompts resulted in a text of an invented poem.

We have chosen two of these text productions (1st and 6th) to illustrate how the associative relations and the elements recovered from the memory are articulated during these students' textual creation.⁴

2.1.1. One verse from one poem

Valdemir and Antenor produced the first poem on 09/14/2000. The first four lines of the manuscript below were copied from the poem "Raridade," written by José Paulo Paes (2000), written on the blackboard by the teacher, but unknown to the other students. The prompt was that they continue writing the poem, creating other verses.

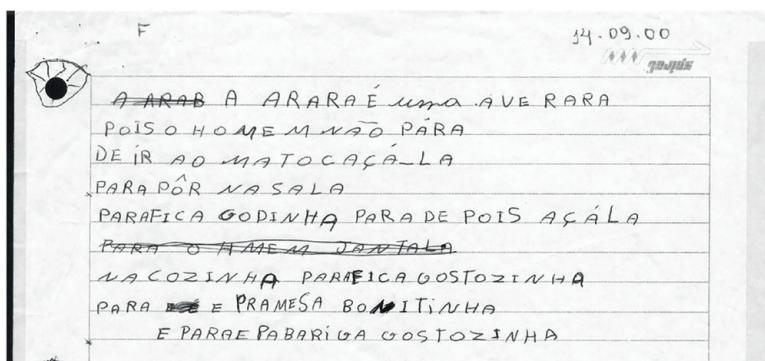


Figure 5.1. Manuscript "Raridade," from Valdemir and Antenor⁵

Valdemir wrote the verses created by the dyad. Some elements of this manuscript's creation process, for example, the erasure on the verse "para o homem jantá-la" (for man to have it for dinner) were analyzed in Calil (2008). Here, what interests us is the moment when the term "assá-la" (to roast it) and the associative relations generated prior to being written. What was said by other students and the teacher before its enunciation which could be related to the kinds of relations proposed by Suenaga? Who said "assá-la" for the first time? After enunciated, how was it written on the sheet of paper?

We will start with the last point. "Assá-la" was written as a single word and with "ç," composes the verse "para depois açála" and was graphed by Valdemir between 08:02 and 08:23. It rhymes with "caçá-la" and "na sala" presented respectively by the 3rd and 4th verses copied. The verse it belongs to was preceded by "para ficar gordinha" (to fatten up). The first oral occurrence of "assá-la" is not even after "gordinha" as the reading of the manuscript might suppose, nor did it coincide with the occurrence of its effective writing on the paper.

It was right at the start of the presentation proposed by the teacher to the class, that this student, Valdemir, established a first form for this verse and its rhyme. Next, we will describe the dialogue between the teacher and the students, which will activate different associative series, culminating in the association between the poem that was being written on the board and the verse created by Valdemir. In this case, it can be considered that when the prompt was presented, the process of collaborative writing actually began.

Dialogic Text 1. Beginning of the presentation of the proposal "Raridade"

CONTEXT 00:00 - 02:36	
CT1 00:00 - 01:07	TEACHER Now ... (The teacher is facing the students organized in a semi-circle, looking at them and walking in the classroom with a sheet of paper that contains the poem "Raridade") <i>I will show you another poem ... another poem ... all right? Then we will discuss this poem ... then we will again ... I mean ... then we go to another writing activity, ok? This poem ... I will start ... I will read the beginning of the poem ... and you will continue writing the poem. All right?</i> (Going towards the board. Writing and speaking what he is writing. Some students repeat what the teacher says). A[a]’ .. .a arara[arara] ... é[é] ... uma[uma] ... ave[ave] ... [rara] (Reading the verse written on the board.) <i>A arara é uma ave rara</i> 'The arara is a rare bird' (Initiating the second verse on the line below) <i>Pois[pois].. Because[because], o homem[o homem]... man [man] pois o homem não para[não pára]... pois o homem não para ...</i> (Going to write the third verse in another line). <i>De ir[de ir]... de ir ... pois o homem não para de ir ao mato[ao mato] ...</i> (Small pause. Stop writing, asking how he could end this verse). . . . to do what? . . . “
CT2 01:08 - 01:11	STUDENT 1 [Inaudible, but the teacher retrieves what the student said.]
CT3 01:12 - 01:25	TEACHER (Retrieving and repeating what the student said and writing 'caçá-la') ... <i>caçá-la[caçá-la]. Very good</i> (Commenting on the rhyme). <i>Tô match, yeah?</i> (Rereading) ... <i>pois o homem não para de ir ao mato caçá-la ...</i> “because man doesn't stop going to the woods to[para] ... (Repeating) <i>para ... to ...</i> . . . <i>pôr[pôr na]</i> ‘put it [put it in] ...
CT4 01:26 - 01:27	STUDENT 2 <i>Na gaiola (In the Cage) . . .</i>
CT5 01:27 - 01:32	TEACHER (Asking) <i>Does it match? In the cage?</i> ? (Brief pause) <i>Para pôr?</i> (To put)
CT6 01:33 - 01:34	VALDEMIR AND STUDENT 2 (Answering) <i>In the cage.</i>

CT7 01:35 - 01:36	TEACHER	<i>The poet used another word.</i>
CT8 01:37 - 01:39	STUDENT 3	<i>Comê-la. Caçá-la. (Eat it, Hunt it)</i>
CT9 01:40 - 02:00	TEACHER	(Repeating.) <i>Comê-la ... caçá-la?</i> He put ... (Reading.) <i>para pôr na ... sala</i> [sala] (<i>to put in the living-room</i>). <i>Sala</i> . (Rereading the verses written on the board.) <i>A arara é uma ave rara ... pois o homem não para ... de ir ao mato caçá-la ... para pôr na sala.</i> "The arara is a rare bird ... because the men don't stop going to the woods to hunt it" (Asking.) You know the arara, don't you?
CT10 02:01 - 02:03	STUDENTS	<i>I know. I know. We know.</i>
CT11 02:03 - 02:04	STUDENT 4	<i>It's that blue bird, right?!</i>
CT12 02:05 - 02:06	TEACHER	<i>Yeah. Yeah. It's a big colorful bird, right? Beautiful.</i>
CT13 02:07 - 02:10	STUDENTS AND TEACHER	(Students talking and teacher repeating.) <i>Blue ... red ... yellow ... green ...</i>
CT14 02:11 - 02:15	TEACHER	<i>Cool, cool, cool. And the hunters go hunt it ... To?</i>
CT15 02:16 - 02:17	STUDENT 1	(Answering.) <i>Put it in the living-room.</i>
CT16 02:18 - 02:21	TEACHER	(Repeating.) <i>Put it in the living-room.</i> (Suggesting) <i>To adorn the living-room. To put in the cage ... to entrap ...</i>
CT17	STUDENT 3	<i>To eat.</i>
CT18 02:22 - 02:23	TEACHER	(Repeating.) <i>To eat.</i> (Commenting.) <i>I don't know if arara's meat is good</i>
CT19 02:24 - 02:25	VALDEMIR	(Proposing a verse.) <i>Botar na sala para assá-la.</i> (<i>Put it in the living-room to roast it</i>)
CT20 02:26 - 02:27	TEACHER	(Looking and pointing to Valdemir.) <i>To put ... Hub, what do you mean?</i>
CT21 02:28 - 02:30	VALDEMIR	(Repeating. Teacher looking and imitating the rhythm of the student's speech with his arm.) <i>Botar na sala ... para ... assá-la.</i> <i>'Put it in the living room, to roast it'</i>
CT22 02:31 - 02:36	TEACHER	(Surprised.) <i>Frankly. Very good.</i> (Repeating.) <i>Botar na sala ... para assá-la.</i> (<i>Praising.</i>) <i>Cool.</i>

Notes: CT = Clocked time; The terms between brackets indicate what the teacher writes on the board, while he speaks with the students.

The teacher read, out loud, the initial verses of the poem "Raridade," while he wrote it on the board. After he copied the third verse, just after he had said and written "pois o homem não para de ir ao mato" (because man doesn't stop going to the woods), the teacher asked "To do what?", initiating an associa-

tive and creative game with the students. At 01:12 minutes (TC₃) the teacher repeated the word “caçá-la” (“hunt it”), which seemed to have been said by a student coinciding with what the poet wrote [“de ir ao mato caçá-la”]. What we observed in this verse were two kinds of association that may be interfering simultaneously with his articulation: a semantic association between “caçar” (to hunt) and the terms “ave” (bird), “arara” and “homem” (man). The second association is phonic, in which the phoneme /a/, present in the words “arara,” “rara” and “para” is repeated in “caçá-la.” We also observed that the verb-noun form “caçá-la” keeps the syntagmatic solidarity with “ir ao mato” “going to the woods,” which could be associated with a form of association between a grammatically aligned signified and signifier.

The teacher continued to copy the poem on the board and spoke the beginning of the following verse “para por . . .” (“to put . . .”). Another student, keeping the previously initiated associative game, completed the verse proposing “na gaiola” (in the cage). At this point another associative series was opened, again with the terms “ave” and “arara” as a semantic stabilizing axis.

We emphasize that the associative relations formed by the types of relations around “caçá-la” (“hunt it”) and “na gaiola” (“in the cage”) retrieve a cultural practice that is common among students. Both “caçar” and “gaiola” are terms connected to the semantic memory of these students in Maceio’s periphery who customarily “hunt birds” to lock them in “cages.” This practice is illustrated below with images captured in the streets of Maceio.



*Figure 5.2. Boys walking around with birds in the city of Maceió
(images registered by the author)*

The teacher refused this semantic association saying that it “doesn’t match,” followed by: “the poet used another word.” One student reframed the

associative series with “caçá-la” adding “comê-la” (eat it). By keeping the use of the pronoun “la” (it), there is not only a signified associative relation (type 2) between “caçar” (hunt) and “comer” (eat), but also an associative relation by signified and signifier (type 1), in which there is a syntagmatic solidarity between the verb-noun form “caçá-la” (hunt it) and “comê-la” (eat it).

At the end of this TC9 (01:40—02:00), the teacher highlighted the term “arara,” and, right after, its characteristics: “big bird,” “colorful,” and “beautiful.” This semantic association with “arara” opens a new series of associations, which occurred between the TC11 and the TC13, with all the students giving continuity by saying the colors of the “arara,” a well-known Brazilian bird: blue, red, yellow, green.

Right after repeating what the students said, the teacher replaced “homem” (man) by “caçador” (hunter), resuming the associative game from “caçá-la para.” This enunciation was completed by a student and by the teacher until TC18, by terms that maintained the ongoing associative series which culminated in the enunciation “I don’t know if arara meat is good.” This leads to the following associative series:

- Associative series a: “ave” (bird), “arara”
- Associative series b: hunt/catch it, capture it, eat/eat it, meat ...
- Associative series c: in the living room, in the cage ...
- Associative series d: colorful, beautiful, decorate ...

These associative series cannot be interpreted separately, as if they were established term by term, or in a single direction. To understand the process that generated them, the ongoing enunciative and textual process has to be taken into account. They are constituted from the flux of words and undergo the simultaneous interaction of three types of association. The last association we will analyze illustrates this assertion in a particular manner.

Lingering on the meaning between “comer” (to eat) and “arara” the teacher highlights the semantic association with “food”: “I don’t know if arara meat is good,” an enunciate that seems strange compared to the association made by the student. At this moment, at 02:23 (TC19) Valdemir (the student whose manuscript process we will analyze), proposes a continuation of the poem, from what is being said by the teacher and his colleagues: “E os caçadores vão caçá-la para ... botar na sala ... para assá-la.” (And the hunters will hunt it to ... put in the living room ... to roast it), the student, contrary to what the teacher has previously suggested, does not seem to be proposing that it must “roast” and “eat” the arara—let alone “assar a arara na sala” (roast the arara in the living room), which clearly would not make much sense.

This verse, and particularly, “assá-la” (roast it) concentrates the associa-

tive series established previously, with the creative gain of having a phonic association with “na sala” and “caçá-la,” answering not only to the semantic literacy of the action of “assar a arara” (roasting the arara) but to one of the most important characteristics of this textual genre: the homophony. The syntagma “para assá-la” (to roast it) was registered during the constitution of this “oral manuscript” still in the first minutes of the presentation of the proposal made by the teacher and the interaction with his students. However, it was graphed almost 6 minutes later, practically with no alteration: “par depois assá-la.”

It is the associative relation of type 3, association by signifier that seems to impose itself in the enunciation of this term. Otherwise, this relation, just like types 1 and 2, does not occur disjointedly or separately. It seems to be the result of the articulation between the previous associative series, integrating itself in the syntagmatic chain and preserving, to a certain extent, the sense of text unity.

2.2. Two Poems in One Poem

The filming of May 31, 2001, registered the 6th writing process of an invented poem, in which Valdemar and Roberto participated. In the production proposal, as suggested by the didactic project “A Poem Every Day,” the teacher retook the poem “A Traça” from Guto Lins (1999), already known by the students, and copied in on the blackboard. This poem served as reference to the poem to be created.

THE MOTH

Guto Lins

The moth gnaws everything
 That it finds on his way
 Your velvet pants
 Your overall coat
 And what there is to gnaw
 It only does not gnaw you dirty sock
 That weird stuff
 You forgot to wash

At 04:44 Valdemir and Robert told the teacher they had chosen “The ant.” A sheet of paper and a pen was given to the dyad. By 17:56 Valdemir, with Roberto’s help, had written:

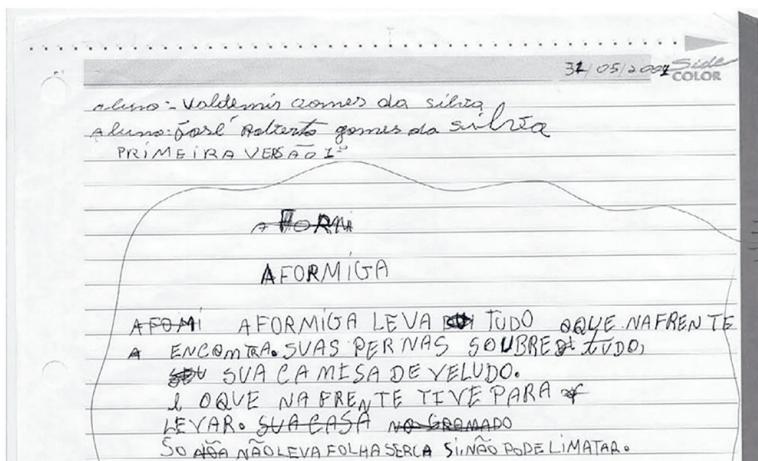


Figure 5.3. Fragment 1 of the manuscript "A Formiga," by Valdemir and Roberto
The items underlined in the normative transcription below and in the reference poem cited highlight the similarity between these two poems.

A FORMIGA

Valdemir e Roberto

A formiga leva tudo
O que na frente encontrar
Suas pernas sobretudo
Sua camisa de veludo
E o que na frente tiver para levar
Só não leva folha seca
 Senão pode lhe matar.

THE ANT

Valdemir and Roberto

The ant takes everything
 It finds
 Especially your legs
 Your velvet shirt
 And all that is there to take
 It just doesn't take dry leaves
 Because it can kill it

The relations between the poems "A traça" and "A formiga" are evident.

Besides repeating many lexical elements and syntactic structures, there are semantic relations between “traçar” (to trace) and “levar” (to take), between “calça” (pants), “pernas” (legs) and “camisa” (shirt), as well as homophonic relations between “só não” (not only) and “senão” (if not) and between the verbs “traçar” and “lavar” (to wash) from the students’ poem. To some degree, the unity of the poem “A formiga,” is still sustained by the presence of the term “folha” (leave), in the next to last verse, which maintains a relation of semantic contiguity between these terms. Lastly, what the school manuscript shows until this moment is a paraphrase of the reference-poem.

After writing the last verse, Valdemir and Roberto reread out loud the whole poem, as if they had already finished writing it. However, an unexpected association arose right after its reading, which concluded at 18:22, highlighting the creativity of the writing process and the entry of a song in the poem “A formiga.” We will show the moment this happened and its effects on the final configuration of the manuscript.

Dialogal Text 2. The little ant

CONTEXT 18:25-19:15		After finishing reading the poem they wrote “A formiga” (The ant), the students decide to continue by inserting other verses.
CT1 18:2518:27	ROBERTO	(With emphasis.) <i>It's finished!</i>
CT2 18:2518:28	VALDEMIR	(Rereading the last verse.) <i>If not . . . if not it can kill me.</i>
CT3 18:2918:33	ROBERTO	Put it like this . . . the . . . the ant cuts the leaves and carries it.
CT4 18:3318:36	ROBERTO E VALDEMIR	(Pause.)
CT5 18:3718:42	VALDEMIR	(Repeating.) <i>And the ant cuts the leave . . . and carries it inside the hole. One leaves . . .</i>
CT6 18:4318:45	ROBERTO	. . . the other takes.
CT7 18:4418:46	VALDEMIR	One leaves . . . and the other takes . . .
CT8 18:4618:49	ROBERTO	And nobody can . . . and nobody can leave.
CT9 18:5018:57	VALDEMIR	(Rereading the last two verses) <i>I only doesn't take dry leaves . . . if not it can kill it . . .</i>
CT10 18:5818:59	ROBERTO	If not . . .
CT11 18:5919:01	VALDEMIR	E quando uma . . . formiguinha deixa . . . (And when . . . the little ant leaves . . .)
CT12 19:0219:05	ROBERTO	. . . when one leaves . . . when one leaves . . . the other takes.

CT13 19:0619:11	VALDEMIR	(Looking and pointing with his pen to the line below the last written verse) <i>The little ant . . .</i> (Rereading the previous verse.) . . . if not it can kill it . . . (Looking to Roberto) <i>The little ant . . . cuts the leave and carries it.</i>
CT14 19:1219:13	ROBERTO	When one leaves . . .
CT15 19:1219:15	VALDEMIR	<i>When one leaves . . .</i> (Looking to Roberto.) . . . the other takes. . .

Soon after his classmate Valdemir read the poem they had written at TC₁ Roberto said “*It’s finished*,” which seemed to constitute enough unity to conclude the poem. However, it is Roberto himself who proposed the poem’s continuity, enunciating “*Then put it like this . . . the . . . the ant cuts and carries the leave,*” as if it were the proposal of a new verse to be added in the already written poem. The repetition of the nominal syntagm “the ant” is related to the semantic and syntactic parallelism characteristic of poetry generally. The entering of “cut” would have, in turn, an associative syntagmatic relation with “leave” and also a relation by semantic continuity with “cutting leaves,” one of the insect’s characteristics clearly known by these students.

However, what is surprising at this instant (TC₃) is the entry of a fragment of another known text. When Roberto proposed “. . . cut the leave and carry it,” the content of a religious song was retrieved from memory. Valdemir, after a brief pause (TC₄) recast the verse and complemented it with “*And the ant cuts the leave . . . and carries it down the hole. One leaves . . .*” and Roberto finished “. . . the other takes.” Both students knew the children’s religious song that was being remembered.⁶

A formiguinha
(The little ant)

A formiguinha corta a folha e carrega,
(The little ant cuts the leaves and carries it)

Quando uma deixa a outra leva! (bis)
(When one leaves the other takes!)(2 times)

Coro (Chorus)

Deus não quer preguiçoso em sua obra,
(God does not want the lazy in his work) (3 times)

Porque se não, o tempo sobra!
(Because if not, time is wasted!)

Oh! que mistério glorioso,
(Oh, what a glorious mystery)

A formiguinha ensinando ao preguiçoso! (bis)

(The ant teaching the lazy) (2 times)

When the teacher approached, Valdemir reread what they had written and told the teacher what he would continue to write. (These verses are written between 20:02 and the 25:45.) The excerpt “inside the hole,” despite being semantically associated with the students’ knowledge of ant behavior, and having syntagmatic continuity with the term “carries,” in a manner similar to the relations between “leave” and “cut” indicated above, was excluded from the final poem, leaving only the known verses of the gospel song. At this time, the verse “The little ant cuts the leave and carries it,” was erased 3 times, before being, finally, written. “The little ant cuts the leave and carries it / One leaves, the other takes.”

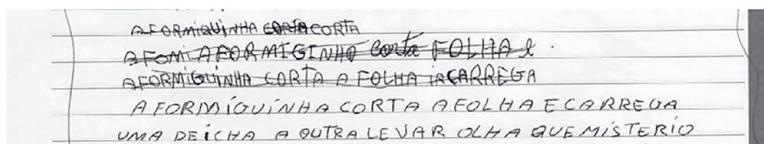


Figure 5.4. Fragment 2 of the manuscript “The ant,” by Valdemir and Roberto⁷

The presence of the word “ant,” despite being written in its diminutive form, strengthens the imposition of this association between “the ant” from the poem’s title and the “little ant” of the gospel song. It is necessary to call the attention to the fact that these two verses have emerged “in block,” between TC₁₁ and TC₁₂, without hesitation, reinforcing our interpretation that they were already part of these students’ repertoire. The retrieval of the gospel song continued until 27:35, when Valdemir, singing it, concluded the writing of the last two verses “look what a glorious mystery / the ant helping the lazy,” as the fragment below shows:

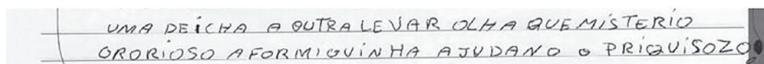


Figure 5.5. Fragment 3 of the Manuscript “The Ant,” by Valdemir and Roberto⁸

In the school writing of the poem “The ant,” given to the teacher at the end of the textual production assignment, what is observed is the presence of two poems known by the students. In the first part there is a paraphrase of the poem “A traça,” retrieving elements of the verses written on the blackboard. In the second part, it was written after setting the semantic and homophonic associative relations introduced by the term “ant,” causing the dyad to retrieve from the shared long-term memory, the verses of the gospel song “The little ant,” taught at their church.

Conclusion

In the creative dynamics of these poems, some points deserve to be highlighted:

- The importance and complexity of the associative relations in the cultural universe and of the writer's memories in the textual creation process in the classroom.
- The ways how types of associative relations interact between themselves, suggesting the impossibility of there being only one type or an associative series during these textual production processes.
- The co-enunciation created during the collaborative writing in pairs, in the school context, which inter-subjectively establishes associative links that are distanced, approximate, are interrupted, change the textual direction . . . through the types of relations that overlap over the others.
- The final manuscript cannot retrieve the dynamics of this network, but preserves its result, erasing, in part, the connections between the elements that constituted it.

Finally, even though the properties of the textual genre and the possibilities of syntagmatic concatenation may impose limits to what will be written, the subjectivity of the writer (even of a new student), carries within it the unpredictable (Felipeto, 2008), inescapable dimension of what words say.

Notes

1. Text translated to the English language by Bruno Jaborandy, brunojaborandy@gmail.com. Later revised by B. V. Young bv2@terra.com.br.
2. Since the early 1980s (Lebrave, 1983), the status, the difference and the border between "manuscript," "draft," and "text" have been put into question. More recent discussions can be found in Fenoglio (2007) and Mahrer (2009). In this work, following the argumentation presented in Calil (2008), we will treat the text produced in the classroom as "school manuscript."
3. We have decided to preserve some of these examples in French, when a corresponding example is not available in the English language.
4. We have chosen these processes, because they illustrate, in a significant manner, the objectives of this chapter.
5. Normative transcription, without the erasure marks:

"A arara é uma ave rara / pois o homem não para / de ir ao mato
caçá-la / para por na sala / para ficar gordinha / para depois
assá-la / na cozinha / para ficar gostosinha / para ir para mesa

bonitinha / para ir para barriga gostosinha.”

(The arara is a rare bird / because man doesn't stop / to go to the jungle to hunt it / to then roast it / in the kitchen / to be yummy / to go to the table yummy / to go to the belly yummy.)

6. These lyrics, accompanied by its song, can be found in many websites of children's gospel music: <http://letras.mus.br/musica-infantil-gospel/1988191/>; <http://musica.com.br/artistas/musica-infantil-gospel/m/a-formiguinha/letra.html>; <http://www.ouvirmusica.com.br/musica-infantil-gospel/1988191/#-mais-acessadas/1988191>. It was not possible to find the author of these lyrics but they are sung by different interpreters (Sandrinha e a Garotada; João Neto & Frederico; Lélia & Sônia), whose repertoire includes several children's gospel songs. Many of these interpretations can be found in these websites, and also on YouTube.

7. Normative transcription:

“A formiguinha corta corta / A formiguinha corta a folha e / A formiguinha corta a folha e carrega / A formiguinha corta a folha e carrega / Uma deixa, a outra leva.”

(The little ant cuts cuts / ~~The little ant cuts the leave and~~ / ~~The little ant cuts the leave and carries~~ / The little ant cuts the leave and carries it / One leaves, the other takes.”)

8. Normative transcription:

“uma deixa a outra leva / olha que mistério glorioso / a formiguinha ajudando o preguiçoso”

(One leaves the other takes / look what a glorious mystery / the little ant helping the lazy).

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6

Writing to Transmit and Share One's Understanding of the World

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The over-valorization of the study of language at the expense of learning does not create in students the conviction that language constructs a relation to reality. Students know how to use language to act in their spheres (family, friends, neighborhood ...) but it is necessary to build bridges between these forms of language and school activities. The results show that using writing in that perspective to move between oral and written and to compare interpretations among peers not only makes pupil writings more consistent: it improves the quality of language knowledge and reduces the importance of the writing for children who have trouble learning.

La survalorisation de l'étude de la langue aux dépens de l'apprentissage de celle-ci ne crée pas chez les élèves la conviction que la langue construit un rapport au réel. Les élèves savent se servir du langage pour agir dans leurs sphères (famille, copains, quartier ...) mais il est nécessaire de construire des liens entre ces formes de langage et les activités scolaires. Le dispositif met l'accent sur un travail de représentation de textes d'auteurs ou des enfants mené conjointement à des activités d'écriture dans des classes françaises de l'école élémentaire afin de faciliter tant l'appropriation de ces textes que l'acquisition de compétences discursives. Les résultats tendent à montrer que le mouvement d'objectivation que permet le passage par l'écriture a non seulement pour conséquence d'améliorer la cohérence des écrits produits mais aussi de faire découvrir des fonctionnements de la langue et de relativiser les difficultés de l'écriture pour des élèves qui sont peu familiers avec le monde de l'écrit.

1. Context of the Research

The current research was carried out in the CREN laboratory (Centre de Recherches en Education de Nantes, or Nantes Center for Education Research) and originated with an observation made during visits to primary classrooms in France in the context of teacher training. In terms of classroom time spent, French language teaching practices tend to overvalue the formal study of language and associated exercises, relative to applied language learning exercises, in particular the use of reading and writing situations which are more conducive to activating language knowledge in real-life situations (Crahay, 2006). This material includes vocabulary, grammar, and spelling as defined in the French national education system's Official Instructions. Moreover, as noted by numerous studies (Giasson, 1990; Tauveron, 2002), French grammar manuals used in classrooms lead systematically to overly literal questions concerning minor points in written questionnaires about reading. In addition, it is always the content of the student's answer which is corrected, rather than the way the student arrived at the answer (Cèbe & Goigoux, 2006). In short, all of these practices fail to develop the students' belief that language has a connection with their reality, activities, and experience—in other words, *"Bringing order to an inner world or even taking ownership of it, creating links between 'what I am' and 'what I know,' putting emotion into words, and revealing what is important to me"* (Bucheton & Chabanne, 2002, 32). Of course, the students know to use oral language to interact within their spheres of activity (family, friends, neighborhood), but there is a clear need to build links between these forms of language and language activities at school (Bautier & Rochex, 2007). The aim of the current research is to explore how the use of writing can promote these links.

A dual task centered on children's representation of texts was carried out in ten ordinary second and third grade classes (ages 7–8) in the Le Mans area, with the goal of increasing textual comprehension. (In the French system, these class levels are known as "cycles 2 and 3." These levels follow the "preparatory course"—the first year of primary school—during which the main work of internalizing the cultural code occurs.) The children were asked to perform written and oral texts—both by authors and by the children themselves—and to write individually about these texts. This resulted in a corpus of student writings from a total of around 200 children, which we have collected and analyzed qualitatively. In addition to gathering the written work, we also recorded and transcribed the exchanges between the children during the oral performance phases. We will present the individual stages of the research process during which the children were alternately led

to perform external authors' texts before writing about them, and to write their own stories that they then performed. These situations combined the goals of encouraging children to adopt the world as their own and to practice learning to write.

2. From Performance to Writing

In the first part of the research, we wanted to find out what children understood from a text read aloud to them. We approached the question by having the children give a theatrical performance of the text before asking them to interpret it through a short writing exercise.

2.1 Choosing a Folktale

We consulted with the teachers of the classes involved and agreed on the choice of a folktale, a familiar genre for children and consistent with French educational programs which place a great emphasis on including heritage texts from around the world. We selected an adaptation of a Korean folktale (appendix 1) which had been used by the French National Education system in 2012 for evaluating student comprehension in second grade classes (age 7), and which the teachers remembered as having been challenging for the children.¹ This tale is quite interesting because it turns out to be both accessible for students of this age and at the same time to involve a certain density of meaning. The spatio-temporal framework fits into the folktale tradition: a forest, a pond, a mountain in China—a foreign country conducive to stimulating the imagination—and an unidentified era that nonetheless seems to belong to a distant past. The protagonist is characterized by his trade, as a woodcutter, and his Chinese-sounding name, Li Chang. The other character is an old white-bearded man who goes unnamed, which creates a challenge in terms of anaphora and pronouns to distinguish the two agents. The folktale's structure also follows a common pattern with the loss of the axe marked by “one day,” the encounter with the magical character, and the three successive events corresponding to three different axes, highlighted by the formulaic nature of the text with its mantra-like repetition of “that is not my axe.” The major role of dialogue in the story should facilitate the staging of the folktale, which presents itself as an apologue delivering a lesson of honesty, the human value emphasized here.

For the purposes of the research protocol, the story was cut short at “is this your axe, woodcutter?” when it was first given to the children so that they could take a more active role in the comprehension process.

2.2 Choice of Protocol to Allow the Students to Make the Story Their Own

The protocol called for six steps:

5. The students listen to the teacher read the beginning of the folktale a first time.
6. The students listen to the beginning of the folktale a second time and try to imagine the situation in their heads.
7. In pairs, they try to act out the beginning of the folktale.
8. One of each pair presents the play in front of the others.
9. The students discuss the presentation as a group.
10. Individually, each student writes down the sentence that Li Chang will say next.

First, we noticed the great difficulty that a majority of the children had in acting out the scene (exchanges between children in steps c, d and e): imagining the two characters, since they have no idea what a woodcutter is,² they have a hard time visualizing the axe as an object, and they don't have a very clear image associated with the word "pond"; steps d and e allowed them to make the situation more explicit. Here are some of the children's suggestions for the question (step f) all from one class:

No, it's not my axe, but I can use it. (Enzo)

No, it's not my axe. (Martine)

Thank you so much, you found my golden axe. (Octavien)

No, that's not my axe since it's not made of gold. (Tahia)

No that is not my axe but thank you for finding it. (Clovis)

No that's not my axe but I'll take it. (Caroline)

That might be my axe, thank you. (Assyäna)

I don't know if that's my axe. (Aubane)

Writing this single sentence uttered by the woodcutter compels the children to give meaning to this scene in the folktale and to think about different but possible conceptions of the world. In the cited examples, even though Martine and Tahia respond in the negative, the other children—and the entire corpus (200 children's responses) goes along the same lines—would happily accept the golden axe, with a few variants: Enzo, Clovis, and Caroline speak frankly, while Assyäna et Aubane are much more evasive as suggested

by the “might” and the use of “I don’t know if”; as for Octavien, he claims the axe outright, as only a fool would refuse such an object! Passing through the step of writing brings each student’s spoken (but now recorded) sentence into confrontation with that of the others and that provided by the text; in the discussion phase that follows, students can individually justify their points of view based on their personal experience. This phase is part of the construction of the notion of a literary genre with its typical characteristics: in folktales, speaking the truth means being honest, which is sometimes much more complicated in real life, and which often turns out to be a source of misunderstanding for the students with more distance from the common literary and cultural codes (Bautier & Rochex, 2007). In this way, the chronology of the story is prepared: the golden axe, the silver axe, the ordinary axe, a scale of decreasing values which is not obvious *a priori* for a child of this age, although it corresponds to a hierarchy of values in the world.

2.3 Writing as a Route to Problematization

Let us now compare this mode of testing children’s representations of a text with the questions used in the 2012 national assessment, even if the assessment document provided children with the full text, and question 4 can only be understood if this is the case:

Answer the questions:

1. What is Li Chang’s trade?
2. What does Li Chang see appear next to the pond?
3. Where does Li Chang live?
4. How does the white-bearded man reward Li Chang’s honesty?

This type of questionnaire, which is justified as a means of evaluation, but which then establishes a model for teaching practices, places the child at the level of responses to the text rather than that of the questions it raises. The idea that Li Chang is honest and that his honesty is rewarded is so much integrated into the implicit assumptions of the genre that it is not worth questioning. Here we agree with the Michel Fabre’s (2011) position which advocates teaching a problematic world. In his view, in order for young people to find their way in our society, it is important that they learn to place themselves at the level of questions rather than answers, and it is precisely the function of the school to provide this orientation—or compass—in the form of open questioning, doubt, problematization. To expand on Michel Fabre’s metaphor, the use of writing as a route to problematization can be the magnet

in this compass, aiming to provide the keys to a complex environment.

3. Writing to Imagine and Present One's Own Story

After presenting the classes with several situations, all designed with the same goals of problematization, a second research protocol was applied. The students were to write a story in which something very pleasant or very unpleasant happened to them; before or after writing their stories, they also had to illustrate them.

The protocol was as follows:

- One or two texts were chosen by the teacher, cleaned up for spelling, and put up on the board.
- The children had to read each story silently and create a mental representation of it.
- A few children perform the text in front of their classmates, who narrate based on what they see.

Here we report and discuss two significant examples from a second-grade class.

3.1 A Story that is Non-Transparent in Meaning

We first take the example of Angel's text because it illustrates the first category of exchanges that will arise during the performance stage.

One day I got on a horse and it's called Fanfan. I walked with Fanfan, and we go for a ride. It's great because I felt big. And then we came back. (Angel, 2nd grade, age 7)

Julien comes up to perform the scene as he understands it. He says: "I'm getting on my horse" and pretends to mount a horse. During the exchange which follows, Robin reacts immediately: "I don't think you say 'I'm getting on my horse' when you get on your horse." His remark is interesting because, while language encodes reality, writing has its own way of functioning that we never discuss explicitly with the children. Léa raises her hand to say that she had a problem imagining the scene: "*I don't know what Angel meant when she wrote "I feel big"—is she big because she's up high, or is it because she has the impression of no longer being a little girl?*" Léa raises an excellent question, and one that the group is only able to settle by asking Angel, who will explain that it was not the position on the horse but that she was expressing her feeling of doing a grown-up activity. This is how children approach the fact that writing

transcribes their reality, but also that their messages can sometimes include unintended polysemy, like any text, a realization that will help them open to the plurality of meaning while reading.

3.2 An Awareness of Linguistic Choices Related to Writing

We now consider a prime example of the second type of interaction which comes up among the children based on representations of their own texts.

One day, we went for a walk. And on the way back, I was running and I wasn't looking in front of me. So I banged right into a mailbox. And another day, during summer vacation, I banged into a glass door trying to go outside from an auntie's house. (Adrien, 2nd grade, age 7)

In this second example, the students are confronted with two challenges to representing Adrian's text. First "*there's no talking, it's not easy to act out*" notes Théo, which suggests the idea that a story unfolds in the declarative form of a narrative, but also that the use of discourse allows participants' words to be reported, which somehow makes the text more alive. The children will gradually, in their own words and through interactions generated by such situations, clarify the act of writing and what underlies it. If we provide them with the conditions for genuine involvement, even very young children are capable of developing an acute awareness of such fundamental learning processes (Hubert, 2014). Another comment about this text was made by Pierre: "*It is not clear when we're acting because we think it's the next part . . . and it's actually not on the same day.*" "*We could make a signal to say we slept in between*" suggests Clémence—at the same time, she joins her hands together and puts them against her cheek. "*Or say Another day' out loud, because in his text it says And another day*" added Clara. Through the interplay between writing and representation, the children not only make such strategies explicit (Cebe & Ghosh, 2006) in order to access an understanding of a text—whether their own or literary—but they do the same for the workings of language in its complexity. In the written form, the reader perceives that there are two different scenes involving the same character, because a group of words placed between the two mark this. It doesn't matter for now that this noun phrase is a temporal adverbial phrase, while the child is beginning to express a need for it to communicate; the role of grammar in second grade with seven-year-old children should surely be to help them develop awareness of the mechanisms of the language. Debra Myhill and Susan Jones (2013) condemn the learning of rules for developing language proficiency, and favor concentrating on lin-

guistic choices for writing; this is precisely what the current research explores. In the previously cited case, many academically struggling children had not at all understood from reading the text alone that it actually related two anecdotes; it was only after seeing the scene unfold before their eyes that they understood it.

3.3 Sets of Representations

This approach positions children as receivers of texts, but also as producers and receivers of their own writings, allowing them to experience the complete communication loop (Ferreiro, 1990). Some children were most challenged by writing a short text about themselves, and they took refuge in familiar formulas, such as “There was once a King . . .” or “One day the robot . . .” This is no doubt because for some, it still seems impossible to write their own story on paper, if their daily lives are too painful to take on, or simply that writing, especially at school (Barré-De Miniac, 2000), is not seen as a means to express who they are, what they do, what they experience: “

School-based writing is thus produced with an orientation toward compliance with what is assumed to be expected by the grader. Like all school writing exercises, the pieces they write about themselves are subjected to this double paradox, but the request for use of the autobiographical material reinforces it: in writing something based on their experience, students must first prove their linguistic skills. (Bishop, 2006, p. 23)

By promoting free writing, Freinet was already concerned with not disconnecting the child’s world and the world of school, the child’s writing and the student’s writing:

We are restoring the unity in the children’s lives. They will no longer leave the most intimate part of their lives at the classroom door to wear rags which, even if embellished and modernized, will still only be garments for schoolchildren. (Freinet, 1960, p. 19)

Moreover, in previous work we have shown that many adults treasured their first grade notebooks because they enjoyed rediscovering their first sentences, recording childhood experiences with which they felt they were reconnecting (Hubert, 2012). A lasting engagement on learning necessarily raises the question of the relationship of these learning experiences with the

lives of the students; this is the dimension of “reference” developed by Gilles Deleuze (1969) and insufficiently put into practice by the educational system, particularly in France.

The concept of representation as we envision it in our research proves to be polysemic. The representation is a mental image in the brain, but in our approach it is also at once performance, dramatization, projection, and an obstacle to overcome—we have already shown this through the examples discussed. Writing as representation is part of an exchange with other minds and makes our reality understandable:

Social representation is an organized body of knowledge and psychic activities whereby men make physical and social reality intelligible, fit into a group or an everyday exchange, and release the powers of their imagination. (Moscovici, 1961, pp. 27-28)

For some, discovering that their classmates could tell a very short story featuring them in a way, just themselves in their daily lives, was a real revelation and many asked if they would be able to do it again another day. As for Angel, who happens to be a fairly shy girl, she felt particularly valued seeing the class interested in her text the same way as with authors’ texts:

There is a sweetness in knowing that out of the details of one’s own very ordinary life, one can bring out forms where others will find meaning and will recognize themselves. (Lejeune, 2006)

According to her teacher, this experience has fueled her involvement in writing situations. We observed the same phenomenon with other children whose writings were included in the corpus.

4. Writing to Make the World One’s Own

Students were alternately asked to write about situations related to their own experiences and other situations from literary or cinematographic works. We will now discuss the second part of the research protocol in which children were asked to write after reading folktales.

4.1 Choosing Another Folktale: A Gift for the Sky

In consultation with the teachers, the choice of the next base story (see Appendix 2) settled on a folktale in the oral tradition with an unknown author.

For second and third grade students, this story's plot creates a poetic image of the rainbow as a natural phenomenon, which proves to be appropriate for the children's age. One of the obstacles to comprehension lies in the large number of participants in the story, all of which are named using common noun phrases rather than having proper names to designate them. Furthermore, the characters are of different types: various animals, like in many folktales, but also the sky, which appears to be more abstract for the children. It therefore seemed predictable that confusion would arise between the different characters—and as we will see, such confusion does not fail to occur. A further difficulty inherent in this text is linked to the few instances of direct reported speech: the repetitive nature of the Bird of Paradise's request to the different birds is not directly expressed and is thus implied. In addition, the Bird of Paradise who, along with the sky, is a key character in the course of story, never speaks in direct discourse, which requires the students to mentally represent what he actually says. Moreover, the Bird of Paradise is an imaginary bird; in contrast to the others in the story, it is not actually a bird but rather a bush whose spectacular flower resembles a bird. Finally, the color of the feathers reflects that of each bird, most of which the children probably do not know, hence the idea of using photographs of the different birds. This tale therefore seemed particularly appropriate because for second and third grade students, being able to understand it at all requires a significant effort in terms of mental representation.

4.2 The Second Research Protocol

The goal of this third phase to use writing as a means of understanding, and understanding as a stimulus for writing, with both activities fed by the set of representations.

The protocol was as follows:

- The teacher reads the whole tale aloud once.
- The teacher reads the tale aloud again, but puts a photograph of each bird on the board, in order of appearance in the text, as a comprehension aid.
- The teacher asks the children to observe a period of silence during which "we all try to imagine the story in our heads."
- The teacher asks the children to "rewrite the story with their own words" referring to the photographs lined up on the board with the name of each bird below.
- The teacher asks some children to read what they've written, and it is

matched with a theatrical performance.

We will comment below on three such examples of writing by students, two in second grade, and one in third grade: the first two were chosen because they are characteristic of obstacles to comprehension that the children encountered, and the third because it illustrates the perspectives shaped by the interactions as aids to representation and writing.

4.3 Text 1: Nayara (age 7)—who is King of the Animals?

It's the story of a sky that was crying because he felt all alone.
One day the King of the animals went to visit the sky. And
since the sky was crying, the bird and his friends gave him
some feathers that made him stop crying.

Nayara's text shows a fairly good overall understanding of the story and a strong ability to focus on the essentials: she doesn't list the various birds but her three sentences represent the minimal narrative outline. Only one element was not grasped—it is the periphrastic form “the King of the animals” that she has confused with the Bird of Paradise; writing makes explicit the knowledge that falls within culture and literary codes. In tales, the King of the animals, if nothing else is mentioned, is the lion, which some of the students also perceived in the sentence, “the King of the animals assigned the most beautiful of them, the Bird of Paradise, to go visit the sky.” For others, though, writing provides an opportunity for learning these literary codes which are often less familiar to children from less privileged backgrounds. These codes play a role in the comprehension of texts whose subjects belong to a foreign cultural imaginary world which is reinforced in school. Some children will only realize that there are two different characters by seeing it staged and hearing the mission entrusted to the Bird of Paradise.

4.4 Text 2: Simon (age 7)—the Lexical Stumbling Block

The sky is sad because he's all alone. And one day a bird
comes with some feathers and a bird had a scarecrow. And
when the sky is sad he takes out the scarecrow.

There is no trace of the animals for Simon who, rightly, doesn't see in them any essential characters in the story, but rather focuses rather on the sky's sadness, which the gift will be responsible for alleviating. However, this time, the writing shows a confusion between the words “scarecrow” (*épouvantail*) and

“fan” (*éventail*), which opens the discussion to a lexical note about a word that is central in the story. Of course, the teacher had a fan on hand to establish the relationship between signifier and signified, and to show an object needed for the mental representation of the story, as the axe was in the first protocol.

4.5 Text 3: Yassine (age 8)—Writing as a Representation of Understanding

One day the sun was so sad that the animals of Earth couldn’t stand it anymore. So the King of the animals sends the bird of paradise. The parrot gives him a purple feather, the parakeet gives him a? feather, the peacock gives it a beautiful blue feather, the green woodpecker gives him a green feather, the chickadee gives him a yellow feather, the kingfisher gives him an orange feather and the robin gives him a red feather of course. And the bird of paradise puts them all together and makes a fan and he flies he flies flies flies and reaches the sky and says to him why are you sad? And he gives him the fan. And he’s happy and he makes a rainbow.

Yassine’s writing is presented as his own reconstruction of the original story, whose essential steps he covers well. He explains while reading it that he put a question mark for the parakeet because he does not remember the color, which he didn’t know—“indigo,” a little-known color among children. For the rest, Yassine goes beyond merely rewriting what he has memorized, as the end of his text is actually a revision of the tale in his own words, a sort of original writing. The repetition “he flies he flies flies flies” does not exist in the original story, it is nevertheless a pertinent writing choice to represent the length of the bird of paradise’s journey. Yassine’s teacher was very surprised by the quality of this text because this child had up until then been completely closed off to writing. The situations with which he was confronted for the research, perhaps because it presented a clearly defined creative activity, progressively gave him confidence that was not subsequently diminished. Yassine’s case is not isolated in our corpus. Comprehension of statements is not immediate, but is built by successive reformulations, and writing clearly has its place in this work of understanding. Classroom time for interactions about the writings provides an opportunity for exploration of the common code of written language, including lexical items (fan) or implicit knowledge (the lion is the King of the animals). Through writing, the children make the world their own at the same time as internalizing the common codes.

5. Image and Text: Other Sets of Representations

To conclude, we will take a final example following the same approach but this time using video, which is yet another form of representation. We watched two repetitions of the first scene of the animated film *Azur and Azmar* by Michel Ocelot, following exactly the same practice as with the written texts. In this scene, a woman with dark skin speaks with a white child on one knee and a dark-skinned child on the other: she teaches them in two different languages, to say *Mama* for one and *nanny* for the other. The children were asked to respond individually in writing to the following question: “Who is the woman?” Here we report on the writings of a mixed class of grades 2-3, which were written on the board to allow the children to see the variety of responses and discuss them.³

5.1 The Children’s Responses

The mother of both children.

She’s the mama of both children. (x4)

The woman is the children’s nanny. (x9)

She’s a woman who looks after the children. (x3)

The woman is Egyptian.

She’s a villager and a mama.

The mama has children.

She’s the children’s mama. She teaches them English.

She’s a child’s nanny.

The woman is a nanny.

The woman is the white child’s nanny and the brown child’s mama. (x2)

The woman is the blond boy’s nanny and the little brown-haired boy’s mama. (x2)

The woman is the little French child’s nanny and the little Arab child’s mama (x2)

The woman is one child’s nanny and the other one’s mama.

5.2 Writing as a Way to Perceive Reality

By facilitating participative feedback on all of the answers, the inclusion of writing as a step in the activity allows each of the children to question their own understanding of the fiction. In this way, they gradually see that there are different ways of expressing it, and that some are valid ("The woman is a nanny") while others not ("She's the mama of both children"). This decoding of the image is based on the children's personal knowledge of the world, built from each child's individual history but also from what has been learned. Few students of this age know that, in the past, a rich woman did not raise her child herself, and that she entrusted this task to a lower-class woman who had recently had a child and therefore had milk to feed the child. In this excerpt, the nanny teaches her son to say "Mama" and the other child to say "nanny" but he repeats "mama" like the other child. Some have clearly perceived the difference in status between the two children: "*The woman is one child's nanny and the other one's mama.*" while others still have the impression conveyed by the image: "*The mama has children.*" Others still have focused their attention on the foreign appearance of the character: "*The woman is Egyptian,*" which cannot be concluded from the excerpt; one student even perceived a language that he did not understand, which he expressed as "*She teaches them English.*" The two students who write "*The woman is the little French child's nanny and the little Arab child's mama*" are of North African origin and probably recognized the language in which the woman sings; they then interpret the text using their own reference grid.

It is also important to repeat this type of situation with the children because, as a socially developed and shared representation, writing contributes to the establishment of a common view of reality for a given group (Jodelet, 1991). This means taking into account the subject's relationship to the language, as well as working with different processes for representing statements (Dabène, 1990). It is in this context that we must place the different stages of our protocol, which were designed to build on interactions among peers to bring to light the multiple and complex sets of representation that the child must learn. The interplay between the use of diverse forms of staging of literary or cinematographic works on the one hand, and writing exercises on the other, is central to the approach. The only goal of this process is to "*make the objects of knowledge visible in the acquisition of discursive skills*" (Crinon & Marin, 2012), or to show what is hiding behind writing skills: "*Alternating between a writing practice, in which knowledge remains implicit, and developing an awareness of the knowledge which underlies ways of writing through a practice of reformulation and explanation contributed to the internalization of knowledge*

and language skills" (Crinon & Marin, 2012). The same complementarities are at work in our approach between writing and oral interactions based on the representations.

6. Conclusion

As a creative perceptual and mental process, writing transforms social objects (persons, contexts, situations) into symbolic categories, which activates the resources of the imagination and allows the child to become engaged as a singular subject in a collective entity, a society or a world whose codes are being internalized little by little. But the act of writing as a representation and path to "harmonization" with the world (Hubert & Poché, 2011) is a gradual process of adaptation and requires explicit instruction which is not provided in the majority of primary classes. Even if the research presented here should ideally be conducted over a longer span than a school year, it reflects the value of working on and examining the sets of representations that occur in the writing process: from the written form to the act of writing, from writing to speaking about writing, from speaking to writing, from the image to writing, from writing to drawing, and so on. Within this complex interplay, each representation may feed into the multiple readings of a given text, exposing the child to new possibilities while cutting off others.

It is by encouraging reflective distance within the context of school—through exchanges among peers around the problems that arise, the possible solutions, the strategies chosen, and the potential mistakes—that learning to write can take place. This requires a protected environment, conducive to open questioning of individual suggestions by the rest of the class, and in which the teacher promotes risk taking and attempts as safe and appropriate. A year later, throughout the set of 200 students observed, we noticed a sharp decrease in non-responses in situations of both written questioning about a text and writing exercises: only 4 students who experienced major "encoding" difficulties still had trouble producing writing. Another constant, although the differences among children remain significant: 85% of them now write more lines than they did last year in the same type of writing situation. Identifying characters in writing is the point showing the most significantly improvement, as well as grammatical agreement between the subject and verb. However, it is difficult to accurately measure the impact of such an intervention, as the children continued to grow and mature over the year, and of course benefited from other formal learning experiences including grammatical instruction and practice. As a direction for further research, another project would include closer examination of lexical expansion in such children.

At this stage in the research, we can say that the initial results tend to demonstrate that if the protocols put students in a position to interact with the process of literacy development, the use of writing for comprehension results in two important changes. In this study, it has not only led to improved coherence in the writings produced by students, as well as the quality of these writings in terms of language mastery, but it has also helped to reduce the pressure inherent in the relationship to writing for the students experiencing the greatest difficulty.

Notes

1. Up until 2012, the French National Education Ministry organized evaluative assessments in all second grade classes in order to measure student achievement at a key moment of their schooling (the end of a “cycle”).
2. The term in French, *bûcheron*, is much less transparent than its English equivalent containing *wood+cut*.
3. In this class, for reasons of class size, children in second and third grades are together.

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APPENDICES

Appendix 1: A Korean Folktale (French Adaptation by Georges Rémond)

Far, far away, on a mountain near China, lived a poor old man named Li Chang. He earned his living by cutting wood. He was a tireless worker.

One day, when he cut a tree, his axe flew out of his hands and landed in a nearby pond. Li Chang could not find it. He was desolate, being too poor to buy a new axe. What could he do to earn his living? While he was worrying, a thick fog covered the pond, and an old man with a white beard appeared and asked:

Why are you crying, woodcutter?

Li Chang told the old man of his misfortune. The bearded man said to him:

I will try to find your axe, and he disappeared into the fog.

After a little while, he reappeared holding a handsome golden axe, and asked:

Is this your axe, woodcutter?

Li Chang, disappointed, replied:

No, that is not my axe.

The man with the white beard once again disappeared and soon reappeared, this time holding a silver axe, and asked:

Is this your axe, woodcutter?

Li Chang, disappointed once again, replied:

No, that is not my axe. My axe is an ordinary axe with a wooden handle and a steel head.

The man with the white beard disappeared a third time and soon reappeared holding a steel axe.

There it is, my axe, my axe! cried Li Chang happily, that's the axe that I lost.

And he cried tears of joy.

Appendix 2: A Gift for the Sky

The sky was so sad that he could not stop crying. The giant tears that kept falling started to worry the animals who lived on Earth. In order to stop the flood that threatened them, the King of the animals assigned the most beautiful of them, the Bird of Paradise, to go visit the sky and try to console him.

He didn't want to make a visit without a gift and he asked each of his seven best friends to give him their most beautiful feather: the parrot gave him his most beautiful purple feather, the parakeet an indigo feather, the peacock a blue feather, the green woodpecker a green feather, the chickadee a yellow feather, the kingfisher an orange feather, and the robin, a red feather, of course.

The bird of paradise made a fan with the feathers that he carried with him. After a long journey, he finally reached the sky and asked him why he was so sad. "I feel so alone," replied the sky. Then the bird of paradise gave the fan of feathers to the sky, who was very happy and finally wiped away his tears.

He also promised to come see him often with all the other birds of the Earth. "What a beautiful gift" the sky said in thanks, "I will always keep with me, and I'll take it out when I feel alone and sad."

Since then, whenever the sky happened to feel sad, he would take out his fan, which would make him smile. At the same time, from the Earth, a beautiful rainbow could be seen unfolding in the sky.

Schooled Literacy in Teenagers' Online Writing

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This chapter explores the impact that schooled literacies have on teenagers' online communication, and shows that their online writing is sensitive to their school learning processes and identities. This study consists of an analysis of the Facebook profiles and blogs of four boys who were leaders of a school clique in an urban secondary school in Barcelona (Spain).

The analysis focuses on a set of 40 screen-shots captured from their online activity, wherein school social life and learning were central themes to their exchanges. The analysis draws on the concept of "dominant" and "vernacular" literacies (Barton and Hamilton, 1998) to look at spontaneous "third spaces" (Gutiérrez et al., 1999; Moje et al., 2004) that connect the core curriculum with the students' online peer-writing. It focuses on how students make sense of disciplined academic learning across time and space boundaries. It includes, therefore, a questioning of the widespread social and academic prejudice according to which school and online literacies compete in the lives of students.

Cet article évalue l'impact de l'apprentissage scolaire de l'écriture sur la communication en ligne des adolescents et montre que l'écriture de ces derniers est liée à leur propre processus d'apprentissage et à leur identité. La présente étude est fondée sur une analyse de profils Facebook et de blogs de quatre garçons meneurs de groupe dans un lycée urbain situé dans la banlieue de Barcelone (Espagne). Cette analyse se concentre sur un ensemble de 40 captures d'écran de leur activité en ligne, dans un contexte où la vie sociale scolaire et l'apprentissage étaient au centre de leurs échanges. L'analyse s'appuie sur le concept d'alphabétisation "dominante" et "vernaculaire" (Barton et Hamilton, 1998) pour évaluer le "troisième espace" spontané (Gutiérrez et al., 1999; Moje et al., 2004) qui relie le programme d'étude avec l'écriture en ligne du lycéen. Cette étude porte sur la façon dont les étudiants intègrent

l'apprentissage académique à travers les barrières spatio-temporelles. Elle questionne ainsi le préjugé social et académique répandu selon lequel l'alphabétisation scolaire et la littéracie électronique sont en conflit dans la vie des lycéens.

1. Introduction

Consider this vignette,¹ in which I represent with a literary voice a synchronic online written exchange between two 17-years-old classmates (all the names are pseudonyms). It happened one evening when they were at their homes studying for an exam and they suddenly switched their attention to *Facebook*:

It's Sunday evening. Jaime is in his bedroom studying for an exam on Philosophy. His computer is on, so he decides to check his Facebook for a while. After reading the latest new posts in his network, he decides to erase all the past activity on his Facebook wall. He is feeling awkward again with his life and by eliminating the tracked activity, metaphorically he feels he is purifying his mind. He has previously eliminated his Facebook friends' messages from his wall, and quietly suspects that, since it happened some weeks ago, they won't understand.

Rosalía, one of his classmates, is also at home, studying for the same exam. She is always online, so she quickly notices Jaime's peculiar activity. She opens a dialogue in Jaime's wall by typing, "Why are you erasing your messages?"² Jaime immediately replies, "I'm erasing all the messages, not just yours: you're a bad rat! xd." Suddenly, other classmates join the conversation and demand an explanation. Jaime takes a few minutes to elaborate the answer:

*and why shouldn't I delete them? <<memories cause pain
in the heart, being able to forget is a blessing>> Kung-fusion 2004*

(I know I'm weird, so what? Xd)

Rosalía is not happy with Jaime's pseudo-intellectual justification, building on a phrase from the film *Kung Fu Sion* (original title: *Kung Fu Hustle*, 2004) by Stephen Chow, about an unlucky crook in the chaotic pre-revolutionary China of the 1940s. Rosalía is angry with Jaime and hurls her thoughts:

look man, don't come up with theories cos your behavior isn't rational, just because painful memories exist don't mean that messages that other people leave you have to be deleted. and this thing about Kungfusion . . . it's a bit contrived, Jaime - Lol

Then, she types, "Since you've erased my messages I'm erasing yours, rat." Accordingly, she goes to her wall and hides some of Jaime's comments from her Facebook timeline. Then, she comes back to Jaime's wall and writes: "TO-DAY YOU-CAN STU-DY." Straightaway, she covers Jaime's wall with cultivated words from the Ancient Greek World that they should be learning for the next day's exam: "maslow," "mite," "logos," "physis arkhé," "chaos cosmos," "Pythagoras," "Gorgias." As a result, Jaime's timeline takes on the appearance of school notes, or maybe a blackboard, as shown in Figure 7.1.



Figure 7.1. Rosalía's "philosophical attack" on Jaime's Facebook

A bit later, Jaime types in the conversation:

bastard!! Xddd

I've spent a long time erasing them -- xDDDD

In a subsequent interview, Jaime explained to me that “Rosalía attacked me with thousands of words from the exam . . . when she’s pissed off with someone she likes to cast a spell as if she had a wand, like Hermione.” Thus, Rosalía was pretending to cast a kind of philosophical spell through the cheeky voice of Hermione, a character in the Harry Potter saga, by J. K. Rowling. Indeed, that snippet that I was able to gather at midnight was just the final small fraction of the larger “philosophical attack” that occurred that Sunday evening, as Jaime took his time to erase, one by one, those mysterious Greek words that he was supposed to be familiar with in time for the following day’s exam.

This vignette describes a moment in time when schooled literacies and online teenage writing intersected in the context of *Facebook*. The episode encapsulates a sort of personal appropriation of complicated terminology associated with the philosophical traditions of the Ancient World. Although it cannot be affirmed that Rosalía and Jaime knew the “official” meanings of these complex concepts, they were actually using them in creative ways that were meaningful to them. These philosophical concepts were contextualized in the space of an online conversation, where they became the magical riddles of a spell. In this particular interaction, teenage humor was the nexus fusing the academic terminology, the online writing and the narratives of fictional literary worlds that teenagers consume on the fringes of school.

The above vignette raises questions about how students make sense of school learning in extra-curricular contexts. What happens with the body of knowledge that students “have to” acquire at school, when they are outside school? How do they make sense (or not) of what they have learned at school, within their everyday lives? What is the role that written online peer-communication is playing in their processes of appropriation of knowledge acquired at school? This chapter explores the impact that schooled literacies have on the literacy practices that secondary school students informally develop within their private social networks, and depicts the central role that school social life and academic literacies have in teenage online communication. It draws on some findings of a 3-year ethnographic study (Aliagas, 2011) examining the complex interface between the in-and-out of school literacy practices of

a secondary school clique in Barcelona. Herein, I report upon some data that point to the continuities that tie some of the “things” that students learn at school and some of the “things” they do behind the scenes. Findings show some of the ways by which schooled literacies “infiltrate” the students’ online activity within their social networks, by triggering interesting “third spaces” (Gutiérrez et al., 1999; Moje et al., 2004) where school discourses, practices and knowledge are re-shaped.

2. Focusing on “Third-Spaces” in Teens’ Online Writing

Teenagers are particularly interesting when looking at how literacy and identity are complexly interwoven, as teenagers’ literacy practices are constructed in tension between vernacular and dominant literacies, discourses and practices. Their position as students moving in-and-out of school puts them in-between traditional and new literacies, in-between the hegemonic discourse on literacy that the educational institution encourages and the other literacy practices that they develop in their private lives.

The language developed within the New Literacy Studies framework (Street, 1984; Gee, 1990; Barton & Hamilton, 1999) has been essential for the study of literacy as a social practice, and in raising awareness of how people live in a world where certain ways of reading and writing are socially more visible and culturally more powerful than others. According to Barton and Hamilton (1999), “vernacular literacy practices” are those forms of reading and writing rooted in the everyday life, characterized as being self-generated by individuals, learned informally and not necessarily written in the standard language that defines school literacy. The concept of “dominant literacy practices,” by contrast, refers to those prestigious ways of reading and writing that serve the goals of formal institutions such as Education. To offer an example: writing/reading a teenager diary or a blog would be a vernacular literacy practice whereas writing/reading an exam or a literary poem would constitute a dominant literacy practice. People are used to dealing in their everyday life with dominant and vernacular literacies, and they switch from one to the other with astonishing ease.

The dominant/vernacular binary has been a useful analytical construct to trigger ethnographic data about the so-called “in-and-out of school gap,” even though it holds the two competing models of literacy to be opposing and competing; one culturally recognized by the academic world and the other, which is socially invisible. In a study examining examples of “official” and “unofficial” literacy activities from 10/11-year-olds in two British primary schools, Maybin (2007) shows to what extent official literacy activities are

not necessarily “schooled” and unofficial activities are not completely “vernacular.” Thus, Maybin argues that the dominant/vernacular division leads to a dichotomist description of something that is much more complex and heterogeneous:

I would suggest that a large part of children’s day-to-day learning in many schools is mediated . . . through an unstable hybrid mixture of schooled and vernacular exchange. . . . I would suggest that we need a more fluid and dynamic language of description for children’s ongoing meaning-making around texts which may, simultaneously or sequentially, invoke different complexes of institutionalised beliefs and values associated with reading and writing. (Maybin, 2007, p. 528)

The idea of literacy practices being hybrid in nature has been especially significant to some studies within the field of New Literacies (Mahiri, 2003; Thomas, 2007; Williams, 2009) that challenge the research on language socialization and schooling, which has traditionally conceptualised the in-school and out-of-school literacies in terms of difference, dissonance or discontinuity (Gilmore & Martin, 1982; Heath, 1983; Hull & Schultz, 2001; Dowdall, 2006). Looking at the “in-and-out of school gap” through the lenses of hybridity has pushed the research to focus on the dynamic and hybrid interplay where school and vernacular literacies, discourses and practices merge, cooperate and, as a result, unchain meaningful learning and ways of knowing.

Within Sociocultural Pedagogy, studies grounded on Third Space Theory (Moje et al., 2004; Gutiérrez, 2008) observe the continuities and discontinuities between the dominant and the vernacular in order to understand how young people learn by constantly crossing boundaries between practices, discourses and literacies. Originally, the concept of the “third space” comes from Bhabha’s (1994) post-colonial studies on cultural hybridity to point out the “place of dislocation” of the migrant experience, where the “in-between” subject is reconstituted. In Bhabha’s work, the third space is a liminal space of cultural production and therefore a “locus” where resistance and subversion spring up, especially in relation to cultural dominance. The concept of the third space has been borrowed by scholars within Sociocultural Pedagogy to refer to the “spaces” where the in-and-out of school spheres co-articulate from the point of view of learning. According to Moje et al. (2004), the third space is the “space” emerging as a result of a “melting process” between the “first space” of people’s home, community, and peer networks and the “second space” of discourses associated with more formalized institutions, such as work, school or church. In these interstitial third spaces, people’s ways of

knowing, thinking and doing, typically associated with different spheres of practices, learn to co-exist. This integration generates an alternative “third space” where the established cultural identifications of the “first space” and the “second space” are transgressed, subverted and transformed in creative, new ways.

Third Space Theory acknowledges the students’ “funds of knowledge” (González et al., 2005) that are developed within their families and communities as key resources for learning in the classroom. Thus, it challenges the idea of the student as a passive subject continuously shifting between different systems of knowing. On the contrary, the student is seen as the nexus that actively articulates the different discourses, practices and knowledge she or he encounters in everyday life. In other words, they are “in-between” systems of knowledge but conceptualized in terms of active meaning-makers.

An increasing body of research about teaching practice is challenging established education policies and rusty traditions in teaching practice, in order to bring the students’ vernacular literacies into formal learning and connect them with the school/dominant literacies of the curriculum (Alvermann et al., 1999; Pahl & Rowsell, 2005; Davies & Merchant, 2009; West-Puckett & Banks, 2014). Behind this teaching ideology lies the goal of creating “third spaces” in the classroom, in order to trace continuities between the dominant and the vernacular in the student’s life. These studies have focused on how to bring the vernacular into the dominant, but have not paid attention to how the dominant naturally shapes the vernacular, that is to say, how the dominant literacy practices internalized by students at school leave traces on the vernacular texts they produce beyond school. The data in this study show how students’ vernacular literacies in online sites are naturally interpenetrated by dominant literacies and “prestigious” ways of reading and writing. Herein, these data are used to problematize the assumption that school learning and online writing in social networks are disconnected, unbridgeable “languages.”

3. A Study of Students’ Dominant/ Vernacular Criss-Crossing

The vignette at the beginning of this chapter comes from a wider ethnographic study in which I investigated the adolescent lack of interest in reading, through the case-study of an urban secondary school clique in Barcelona (Aliagas, 2011). I particularly looked at how the resistant positioning towards reading of four of its male members had been socially and academically constructed during their adolescence. Over a 3-year period from 2007, I documented instances of this clique’s reading literacy practices over time (from 15

to 18 years old) and across social spaces (home, school, leisure, workplace, off-line and online peer-network; see Figure 7.2). Following a body of qualitative anthropological studies that have focused on the “in-and-out of school gap” (Gilmore & Martin, 1982; Heath, 1983; Mahiri, 2003; Cassany et al., 2008), I looked at the boys’ positionings towards reading, associated with different in-and-out of school literacy practices. I also examined how their literacy identities were “sedimented in artefacts of writing” (Pahl & Rowsell, 2005) that they produced within the context of their peer-relationships, both on paper (e.g. flirtatious letters, private writing, diaries) and on online sites (e.g. *Facebook* and blogs). Although my initial expectations were to analyse the discontinuities between the schooled discourse on literacy and the clique’s “vernacular literacy practices” (Barton & Hamilton, 1998), my data were particularly indicating some interesting in-and-out of school continuities, which led me to create a body of data with instances of this intersection in the range of social contexts I studied.

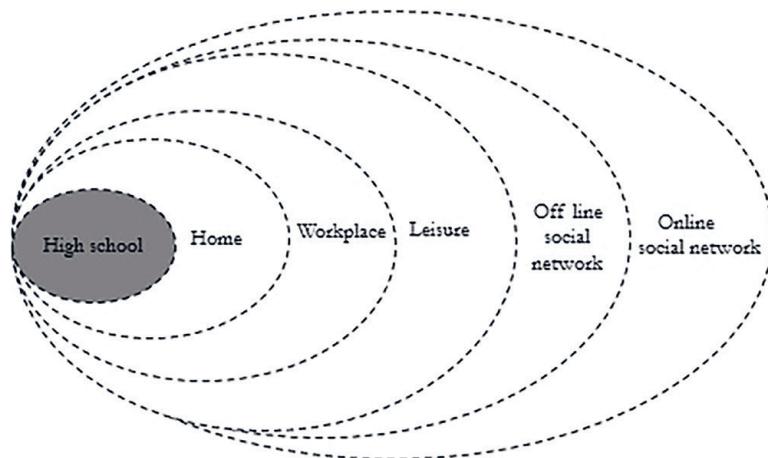
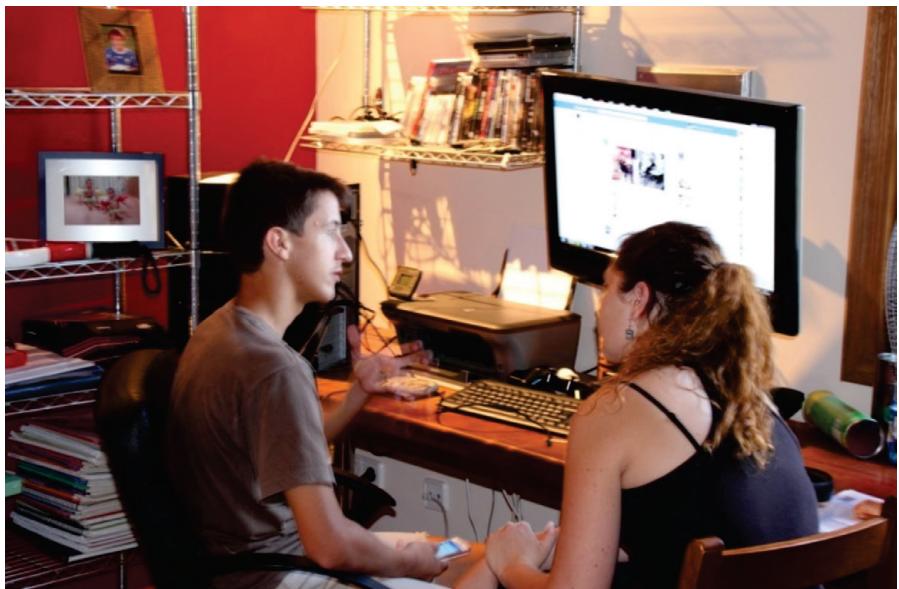


Figure 7.2. The social spaces of the school clique that were investigated

This chapter focuses on data gathered in the clique’s online contexts and examines the continuities between the informants’ school literacy practices and their online counterparts. Over three years I tracked the online communication of the clique in two digital spaces: their *Facebook* pages and blogs. They gave me access to these online contexts and they knew that I was tracking their online activity biweekly by storing screen-shots and taking field-notes. I focused the observation on the online writing where they made references to school learning, people, places or experiences. I combined this approach to the data based on the principles of participant observation (Spradley, 1980)

of the clique's interactions online with face-to-face conversations with the participants. I arranged interviews with the boys on a monthly basis, in different settings of their social life, sometimes individually, in pairs or in a group, resulting in a corpus of about 50 hours of interviews wherein they reflected on the role of literacy in their lives.

In the meetings where I interviewed the boys I used to bring some selected screen-shots and tried to prompt their narratives by asking questions such as: "What was happening here?" In other meetings, we sat at their bedroom desks and they showed me on the computer their recent *Facebook* posts and blogs (see Picture 7.1). They talked about what they usually did online and what they liked and disliked about that communicative practice, and a connection to school life or school learning sometimes emerged. In those particular cases, I would raise further questions on that point in order to unravel a narrative that might help me understand the school/online linkage. Whenever those narratives involved other members of the clique who were participants in the research, I also tried to triangulate the stories and interpretations with the others. Their spontaneous talk around the screen-shots became the cornerstone to understanding those online interactions in the frame of their life experiences and peer-relations.



Picture 7.1. Chatting about the clique's online literacy practices

When designing the methodological approach to be used for obtaining and interpreting data, I was inspired by Leander and McKim's (2003) con-

nective approach to ethnographical research into new literacy practices across spaces and times. The connective approach is based on what Hine (2000) broadly coined as “connective ethnography,” which involves an expansion of the classical place-based ethnography to encompass a “travelling” ethnographic practice that is more suitable for researching online interaction. The difference between classical ethnography and “connective ethnography” lies in the fact that the latter focuses on how things flow or circulate: how discursive material “travels” across spaces and how human beings give meaning to their experiences across online and offline spheres of practice. The connective approach is driven by the idea that online and offline practices are dynamically co-constructed, co-articulated and bounded in everyday life, and thus it seeks to blur the “virtual”/“real” binary by challenging the idea that the internet is a separate world, a representation widely spread in the media, in everyday practice and even in academic research.

4. Ways in Which Schooled Literacies “Infiltrate” the Students’ Online Writing

This chapter seeks to grasp what the relationship is between academic learning and the online writing of secondary students’ by addressing the following research questions:

- In what aspects do dominant/school literacies intersect with the students’ online writing?
- What are the general ways in which schooled learning can “infiltrate” online peer-communication?
- To what extent and how might online peer-writing support secondary school students’ processes of learning?

In order to analyse in more detail how the dominant literacy practices associated with the school’s sphere of practice intersected the teenagers’ online writing, I have selected 40 screen-shots from the wider body of online instances. I based my selection on two criteria:

- the boys’ confirmation that the selected online interaction included a genuine instance of intersection between school learning and online writing,
- the possibility of grasping the online conversation comprehensively, by tracing its history and contextual social meaning.

Four categories emerged from the corpus, where each category represents a general form by which schooled learning was “permeating” the online con-

versations of the clique. Herein, I will refer to these school/vernacular intersections as “marks of school,” meaning those layers of knowledge, skills and ways of doing associated with the school that can be traced in the vernacular literacies displayed by the youngsters. Marks of school in vernacular/online writing are analyzed within the framework of Third Space Theory (Moje et al., 2004; Gutiérrez, 2008). These general forms, whereby the school gained presence in the vernacular, were the following:

- Re-contextualizing words previously learnt at school
- Appropriating ideas personally
- Connecting writing to prestigious ways of writing/talking
- Exchanging practical/academic information

These marks of school are now discussed in further detail. Some illustrative instances are provided or integrated within the analysis.

4.1 Re-Contextualizing Words Previously Learned at School

The mark of school that was most frequent in the corpus was the location in an online conversation of concepts and terminology previously learnt in school activity. Occasionally, the students turned their attention to particular discipline-based words and used them within their communication online—in the interviews the boys reported doing the same within their face-to-face conversations. In this re-contextualization, words were infused with ironic or humoristic meanings, which sometimes reproduced and sometimes subverted the meaning that the word typically represented in the academic sphere.

On the one hand, an example of reproduction of the academic meaning of the word happened when one of the boys commented on a photograph uploaded in the blog where, according to him, his friends appeared with a non-attractive look. He criticized the picture for being “naff” (cutre) and argued that they could look sexier. As he realized he had spontaneously used a verbal periphrasis³ (“can manage to end up being”; original poder llegar a ser), he stated it in the next sentence (“big fat verbal periphrasis!”) and straight-away made it explicit in brackets in order to assure the reader’s understanding.

oooooooooooo

couldn't you find a naffer photo???????????

you don't even look sexy!!! (I mean, I've slept with you and I know you can manage to end up being sexy once in a while.)

by the way, big fat verbal periphrasis! (can manage to end up being)

On the other hand, the vignette that opened this chapter (see Introduction) is an example of subversion of the academic meaning associated with particular words. In that example, Rosalía, assuming her imagined role of Hermione, turned the Greek words she was studying into a “philosophical attack” made on Jaime’s *Facebook*. In that situation, those obscure Greek words were extracted from their philosophical meaning but their aesthetic was preserved in order to create the effect of witchcraft.

These amusing uses of school-based concepts also extended to pictures: for example, the moment when the boys discovered, in a documentary on marine fauna that they had watched in their Biology class, the existence of a species of fish called the “balloon fish,” which has the ability to inflate itself in situations where it feels threatened, thereby appearing bigger and more imposing. That afternoon, their blogs began to inflate with pictures of themselves blowing up their cheeks and twisting their eyes, pretending to be balloon fish.

4.2 Appropriating Ideas Personally

A second mark of school indicated instances where personal appropriations of the literacy of the school were occurring. This was particularly evident in relation to culturally prestigious genres such as poetry or literature, and it usually happened through music, since a large proportion of the boys’ *Facebook* postings dealt with songs. Music gained presence in their *Facebook* walls through the uploading of lyrics and other related items (e.g. clips, interviews, news). Sometimes, they even posted phrases of their favorite songs that would encourage *Facebook* friends to continue the song in the comment section. Since intertextuality is a fundamental condition of texts—as literary theorists such as Julia Kristeva, Roland Barthes and Jacques Derrida have argued—so it is also of music (Hatten, 1985). Consistently, some of the songs posted on the clique’s online sites embedded direct or indirect references to pre-existing poetry or, to a lesser extent, to other well-known literary works.

The intersection between music and poetry was especially salient in Arnaud’s *Facebook*. Interestingly, he was the one who, in the interviews, maintained a more strongly resistant position to reading literature, by saying things such as “although I don’t read very much, I know that I’m smart” (Aliagas, 2009; Aliagas et al., 2009). In the following example, Arnaud was at home listening to the song “Un tipo diferente” (*Someone different*) by Melendi, a popular singer-songwriter who combines classic rumba, pop and rock with a touch of flamenco. The song displays a creative reinterpretation of the classic poem “Retrato” (*Portrait*), by Antonio Machado, who was a key poet of the Spanish literary movement “Generation of 1898.” While Machado described himself

as a poet who deserved a place in the history of Spanish literature, Melendi describes himself as a mundane street poet, wandering around the city of Madrid. At the beginning of Melendi's song, the verse “voy cantando caminante no hay camino” (*I'm wandering along singing there is no path*) functions as a clue to pick up on the deeper intertextual references to Machado's work. That signal verse is an intertextuality to Machado's popular verse “caminante, no hay camino, sino estelas en la mar” (*wanderer, there is no road, only wakes upon the sea*) in his other poem “Camino” (*Path*). While listening to Melendi's song, Arnau posted a reformulation of it on his *Facebook* wall (see Figure 7.3): “voy caminando, kaminante no hay kamino” (*I'm singing along, walking there is no path*).

A , la fama me a kosido una kareta... k solo puedo kitarme en
karnavales
June 8 at 4:31pm · Comment · Like

Julia perdoni,
mr.famous
xD
June 8 at 4:41pm

Adri >ooooooooooooo!!!!!! es una fraseee k
magrada dura kansooool!!! vadionesa!! XDCCD!!!! k vgl be
maka XDOD!! k baa...
June 9 at 2:48pm

Julia :P
June 9 at 10:47pm

Write a comment...

A y la fama me a kosido una kareta k solo puedo kitarme en karnavales
June 8 at 2:49pm · Comment · Like

Adri voy kaminando, kaminante no hay kamino
June 8 at 2:42pm · Comment · Like

Sandra likes this.

Eduard ets un penjat xd
June 8 at 2:52pm

Write a comment...

Figure 7.3. Arnau's personal appropriation of a canonical verse of Machado

In an interview, Arnau reported that he connected personally with that verse because he was feeling that nothing in his life was yet decided. He felt himself to be “just walking” in an unknown direction:

I wrote this because at that moment I was feeling exactly like this: “walker there is no path.” We're always walking to get somewhere and there're particular moments in life when

the most important thing is the path you're walking on. For instance, I believe that I won't know exactly what to be until I'm . . . mmm . . . let's say twenty . . . five, so "walker there is no path" [because] I'm walking but I don't know where I'm walking to. I'm just . . . walking.

(Arnau, 18-years-old)

Arnau's narrative shows how he was "lending meaning" from within his own history to a verse from a canonical poem which has traditionally been a cornerstone of the study of Spanish literature. Although Arnau was not particularly conscious of the connection between Melendi's song and Machado's poem, that verse helped him to define his musings and share them with his *Facebook* community. That verse, which has historically accumulated many intertextual references, was being placed once again in a new, and potentially infinite, network of other texts.

4.3 Connecting Writing to Prestigious Ways of Writing/Talking

Other marks of school indexed connections between the teenagers' online writing and ways of writing or talking categorized within Education as prestigious, and which are usually linked to particular literary genres, such as poetry, literature or philosophy. In particular circumstances that the boys perceived as important (e.g. a statement of love, holiday goodbyes, special gratitude) and specifically in delicate matters (e.g. making up after an argument, jealousy), they tended to hand-write on paper and in a more formal register and conventional language. This brings their vernacular texts somewhat closer to canonical genres, while still being written in their own way, form, conventions and language. To a certain extent, they believed that conventional language can better guarantee self-expression and communication with others, as it is more fixed, socially shared and thus less ambiguous. This shift in their vernacular writing brings to the surface a particular creatively hybrid process of appropriation of the rhetorical devices associated with dominant literacies.

The emulation of known discursive styles, such as a literary one, was especially frequent in online dedicatory texts. In the following example (see Figure 7.4), Ferran posted on his blog a dedicatory note for his girlfriend, which showed marks of having been written with care. Ferran took trouble over:

- *the visual form*, by imposing double-line spacing,
- *the language*, by using idiosyncratic spelling and depicting metaphorical, naïve scenes of the couple, as when he envisioned themselves as a "married couple of gnomes with a gigantic mushroom-house" (*matri-*

monio de gnomos con una casa seta gigante),

- *the structure*, by tracing the trajectory of the relationship, articulating images of the past, the present and the future,
- *the audience*, by combining an omniscient voice with another in which he directly addresses the girlfriend.

He controlled these aspects because he wanted the dedication “to sound beautiful.”

Enlace permanente | Compartir Email Facebook Otro

29/09/08

Cuando conocí a esta niña hace unos años nunca pense q
compartiría tanto con ella, q la conocería tanto o k la kiera como
la kiero...pero pasó:) y desde entonces han pasado muxas cosas,
buenas y tb malas, pero yo me qdó con las primeras, con los
besos, las caricias, las conversas, los cines, las fotos, los viajes,
las cenás, las risas, las noches, los masajes, los paseos.....te kiero
muito mo siempre lo he hecho. Te tendría q haber dedicado esto
ace mucho tiempo...pro weno soy así de tonto. Aki tb sales mal
marion? jajajaj me gusta mucho esta foto en la playita ...
kiero q sepas q todo este tiempo a t lado a sido increíble, i ke
todavía tengo mucho mucho q darte ... marion q tu serás una
famosísima bióloga k descubrirá la vacuna del sida, y yo un
famosísimo ingeniero de sonido y seremos un matrimonio
famosísimo te acuerdas?;) jajajaj weno...o si lo prefieres un
matrimonio de gnomos con una casa seta gigante XD! (tu ya
sabes) lo q sea kn
pero a tu laditoooooo!!! un besito muy grande more espero q t
guste....)

Figure 7.4. Ferran's dedicatory note to his girlfriend, posted in his blog.

Translation: When i met this girl a few short years ago i'd never have thought that we'd have so much in common, that i'd get to know her so well or that i'd luv her like i do ❤ . . . but that's what happened:) and since then tons of stuff has gone down, good and bad too, but i just remember the good stuff, like the kisses ☺, the cuddles, the chats, the movies, the fotos, the travels, the meals, the laughs, the nites, the massages, the walks . . . i luv you so much Mo, and always have. i should've written

*this shit ages ago . . . but let's face it—i'm a wanker LOL. D'you come out too bad here M.? ROFL. I luv this pic on the beach . . . I want U 2 no that the whole time i've been with u really rocks, and i've still got shed loads of good stuff to give u . . . M. go and be a world famous biologist who discovers the cure for AIDS, and i'll be a hot shot sound engineer dude, u remember?? LMAO. Or if you'd rather we'll be a couple of married gnomes with a gynomus mushroom house XD! (you no it girl) whatever—long as its with you!!! a massive *muah* my luv. hope you like it . . . ('}{')*

4.4 Exchanging Practical/Academic Information

In two similar studies on students' education-related use of *Facebook* in higher education (Selwyn, 2009; Stirling, 2014), instances were found where students exchanged information about academic requirements of their courses and reflected critically on the goals of the assessment tasks. Herein, academic exchanges were also found, but these were not as elaborated. The exchanges tracked on the clique's online sites were limited to exchanges of logistic and basic information on assignments (e.g. scheduling homework or exams, titles of books) and usually arose in relation to particular students who, for some reason, had missed the class. In the interviews in the current study, the boys refer to more intellectual exchanges happening on the *Facebook* chat, which I could not document, where they presumably helped each other in studying. Therefore, it seems that students at both secondary and university levels see online social networks as appropriate channels for the flow of academic information, the difference between them lying merely in the profundity of the exchanges.

Occasionally, the boys' online writing reflected that they were studying at home. Academic tasks, such as an assignment, were usually reported as a justification for having to terminate the writing of a post, as in a post where Manuel stated "os dejo ke toi aciendo el puto treball de recerca!" (*I'm off cos I'm doing the fucking research assignment*). In this particular instance, the phrase is written in Spanish but includes the Catalan schooled expression "treball de recerca" (*research assignment*—which in Spanish would be *trabajo de investigación*). This is another kind of infiltration based on what linguists refer to as "codeswitching," the communicational phenomena where speakers mix language varieties in the same conversation. Manuel used the vehicular language of instruction (Catalan) where he might otherwise avoid it, giving the effect of poking fun at the institution and his "duty" to study. Actually, in many examples where they were reflecting that they were studying at home, the implicit norm was to show tedium over being obliged to study, as when

Jaime wrote the word “ESTUDIAR” (*STUDY*) twenty times on his *Facebook* wall. Thus, comments on academic tasks usually involved adopting a resistant positioning towards the ideal of “good student.”

Alongside these academically oriented comments, online sites were also used by teenagers for sharing photographs and commenting on ongoing school-based activities, such as trips or cultural events taking place at the school (e.g. Christmas, Carnival). Some of these comments focused on amusing anecdotes about something that had happened at school. An example is when Manuel posted in his blog a picture of two of them dressed up as Little Red Riding Hood and the wolf in the previous year’s Carnival, thereby opening the floor to a discussion of new ideas about the costumes for that year’s Carnival. Especially in the blogs, school-based pictures were used as artefacts to brush with the past, remember childhood, anecdotes or teachers from previous years with nostalgia. These comments on social life around school were the focus of their positive reflections on schooling.

Conclusion

In this chapter, I have examined how teenagers’ online writing is interpenetrated by formal practices that come from school. Based on a corpus of 40 instances, gathered in ethnographic fieldwork on a clique, I have shown to what extent secondary students spontaneously create channels for integration of school literacy discourses, practices and values into their online writing. In order to focus on these synergies, I have analyzed instances of school/online intersection within the framework of Third Space Theory (Moje et al., 2004; Gutiérrez, 2008). The categories emerging from the analysis indicated some of the general ways in which teenagers’ academic learning “infiltrates” their online writing. These include a) re-contextualizing academic words, b) appropriating ideas personally, c) connecting their writing to prestigious ways of writing/talking and d) exchanging practical/academic information. These marks of school are usually triggered by situations and sensations such as humor or melancholy, and constitute “third spaces” where dominant/schooled literacies and discourses are reproduced, resisted, subverted and even transformed.

Ethnographies of youth literacy practices have shown that teenagers import their literacies into school with or without the permission of their teachers (O’Brien 1998; Maybin 2007), and that they develop an “infra-literate life” to maintain the literacies they value (Finders, 1997; Aliagas, 2011). These works have informed pedagogy by pointing out the importance that linking the dominant with the vernacular has for students’ classroom learning (Alver-

mann et al., 1999; Pahl & Rowsell, 2005; Davies & Merchant, 2009). Moreover, a few studies have also examined to what extent online social networks, such as *Facebook*, contribute to shaping learning and increasing engagement with schooling (Selwyn, 2009; Stirling, 2014). Data analyzed in this chapter extend this line of research by showing how teenagers also “play” on the internet with some of the things that they learn at school, and how these “games with words” actually support young people’s learning at school.

The observation that schooled literacy “infiltrates” or “permeates” teenagers’ online writing within their social networks leads to the understanding that online peer-communication somehow supports secondary school students’ processes of learning at school. This is clearly a disruptive insight, inasmuch as it challenges the social and academic bias that views the internet as a world apart that promotes “bad” uses of the language and that distracts teenagers from their responsibilities as students. During the fieldwork, I was able to interview the boys’ mothers and some of their teachers, who talked about the internet as something incompatible with their school lives. However, if we think more deeply about the typical teenager’s life and culture, it makes more sense to see the internet and social networks as forming a continuum with their academic lives.

The hours spent at school, and all that goes on there, form a large part of the life of a teenager. At secondary school, students develop strong relationships with their classmates and these include shared experiences, shared anecdotes, shared goals, shared tasks, shared language and shared frustrations or thrills. Together they build, negotiate, resist and share the identity of being a High School Student as well as the endeavor such a position implies. Social networks—*Facebook*, blogs and suchlike—afford a means for students to keep in touch easily outside school and thereby maintain their shared world and mutual understanding, which involves both socializing and learning. This communal sense of the school reality grounds their communication and allows certain processes of identification with “stuff” associated with school to take place in the affinity spaces (Gee, 2004) they create across both on- and offline spheres of practice. Through these processes of identification, they share and explore the knowledge and language that comes from the school, and they do so along their own “safe” avenues that include music, photos, amusement, hilarious “games with words” or complex uses of the language such as the codeswitching phenomenon or the switch to the formal register.

It should not be surprising, then, that secondary school students “talk” about their school life and school tasks in oral conversations after class and beyond school, as well as by phone, on their online social networks (e.g. *Facebook*, *Twitter*, *Instagram*, *Myspace*) or through chat services that they have downloaded on their smartphones, such as WhatsApp instant messaging.

This is because, as others have argued (e.g. Hine, 2000; Leander & McKim, 2003; Stirling, 2014), online technologies extend rather than replace offline relationships and there is no reason to think that students cannot equally extend school learning into their peer-online writing.

In this regard, I have suggested that online social networks constitute interesting “liminal places” in-between dominant and vernacular literacies where trans-spacial aspects of school learning can be studied. Teenagers’ online writing is a vernacular literacy practice, in which some of the linguistic, discursive and genre literacy skills learnt at school converge and blend with “freer” self-expression. This fusion generates what I see as “spontaneous third-spaces” between established literacy and the literacy of the teenager’s own voice. In vernacular/online literacy practices, teenagers sometimes imitate the style of those canonical discourses that they have partly picked up in secondary education, such as poetry, literature or philosophical essay writing. These instances testify to the idea that young people have their own “comfortable” ways to explore, use and play with rhetorical devices and school-based learning in order to express their feelings and musings, and thus we find academic, literary and even poetical “marks” in their vernacular/online writing.

Notes

1. Vignettes are short narrations consisting of descriptive sketches, moments or scenes. According to Hull and Schultz (2001), these are used in ethnographic works to highlight representations of real people and their activities by hinting at their richness. Herein, italics represent the literary voice while roman script represents my voice as a researcher.
2. Quotations of real *Facebook* postings have been translated from Catalan/Spanish into English. When possible, the translation seeks to represent the styles of spelling, grammar and punctuation of the original postings.
3. A verbal periphrasis is a verbal construction where two verbs are used, one in a personal form and the other one in an impersonal form, but they syntactically function as a single one. The most common verbal periphrasis in Spanish grammar is created with a verb accompanied by an infinitive (e.g. *poder ser*; approximated translation “to be able to end up being something”). In the commented example, the periphrasis is created coordinating one verb in a personal form (*podeis*; “you can”) and two infinitive verbs (*llegar a ser*; approximated translation “manage to end up being”).

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Digital Literacy and Spelling in Teenagers' Writing: Possible Conflicts among Written Varieties

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Digital reading and writing practices, which appeared at the very end of the 1990s, are inflationary among today's teenagers and digital literacy is now a part of the knowledge and skills that children and adults of the 21st century must have. The fact remains that people's perception of "the digital natives" is often tainted with disquiet, as if they were threatened by digital technology. The risks include the negative impact of the frequent use of e-writing on writing skills, spelling in particular, which is known to be hard to master and, at the same time, socially valued. The present article proposes a contribution to this debate by providing the first results of a comparison of written papers from the same exam with an interval of 15 years, i.e. just before the advent of digital technology and today. The analysis tends first to place the alarmist discourse of public opinion about the impact of e-writing in a less dramatic perspective by showing an absence of specific digital procedures in the more recent papers. It also invites us to be cautious. Since 1996, the increase in expressiveness and problems of segmentation question the findings of linguists, which may be too optimistic.

Les pratiques de lecture-écriture électronique, apparues à la fin des années quatre-vingt-dix, sont « inflationnistes » chez les adolescents d'aujourd'hui. Reste que le regard porté sur les « digital natives » que sont ces jeunes est souvent teinté d'inquiétude, comme si le numérique leur faisait courir des dangers, au premier rang desquels serait l'effritement de leur maîtrise du français et tout particulièrement de l'orthographe. L'analyse menée sur des copies d'un même examen recueillies pour les unes juste avant l'irruption du numérique, en 1996 et, pour les autres, quinze ans plus tard, en 2011, ne confirme

certes pas les prises de position alarmistes mais, dans le même temps, établit un lien probable entre la montée en puissance de certains écarts orthographiques et la littératie numérique.

The practice of electronic reading and writing that emerged at the end of the nineties has been spreading quickly among teenagers today. Digital technology is at the heart of teenagers' lives inasmuch as "their activities, their relationship with the world, their culture, their ways of communication and their ways of getting and spreading information are linked to digital tools to varying degrees" (Schneider, 2014, p. 27). Moreover, now that digital writing coexists with traditional writing, digital literacy has undeniably a "place in the skills children and adults must acquire in the 21st century" (Gerbault, 2010, p. 112).

However, the fact that today's teenagers have become "digital natives" is often considered worrying, as if they were putting themselves at risk by using digital technology (Livingstone & Haddon 2010, quoted by Fluckiger & Hétier, 2014, p. 2). In the eyes of French speakers, this threat exists in the form of a negative impact on the mastery of standard French, and more particularly on spelling, which is notoriously difficult to acquire but is at the same time highly valued socially. Recent media coverage has provided us with many examples of this recurring problem: "is the French language being threatened by Text Messaging?" is one question found in an article from the magazine *Pour la science* (Liénard, 2014), and a programme that was recently broadcast on France Inter radio had this question in its title: "Is Text Messaging re-inventing the French language?" (Devillers S., 2014).

This chapter proposes a contribution to the debate by looking at the extent to which frequent use of electronic writing in a language somewhat removed from standard French usage is likely to affect a teenager's mastery of standard French and its spelling. We will first focus on certain points about how teenagers view electronic writing. We will then give a description of the variety of French they use in their electronic writing and acquire as part of their repertoire. In order to measure the impact of this new variety of writing on French spelling, we will then compare today's examination papers with those taken 15 years ago—just before digital writing appeared.

1. A New Kind of Teenage Writer

Because our aim is to pinpoint an evolution of practice, we will present a few points that enable us to grasp what sort of a writing world today's teenagers live in compared to teenagers at the end of the nineties, before the age of digital technology. We will discuss the different changes that affect writing

itself, as well as correspondence relationships and the evolution of teenagers' personal writing practices.

1.1. The Act of Writing in a Digital Context

Fully equipped with mobile phones and laptops, teenagers today become familiar from childhood with digital technology. It occupies a large part of their time spent at school as well as outside school. Here are three examples of the changes digital technology has made on the act of writing in today's young generation compared to the nineties:

The first change is due to the wider range of media, tools and communication contexts. Teenagers have to go from one information and communication technique to another, either directly or remotely, in real or in delayed time, or with one correspondent or a whole group of "contacts." (Liénard, 2014, p. 32)

Digital technology changes the very static rapport that people have had with writing up to now: "Digital technology has enabled the development of writing practices in times and situations that formerly excluded or at least hampered them: writing while walking, writing standing in a bus, writing to one another from one end of the tram to the other, writing love messages to each other seated on different rows." (Schneider, 2014, p. 32)

It is important to underline how much the potential for diversification of message receivers has created a range of richer and more complex interpersonal relationships than with hard copy writing. In particular, a form of correspondence is being developed in teenage discussion forums that is at the same time intimate and faintly interpersonal, involving relationships that are paradoxically cooperative and unequal, fun-based and aggressive. (Marcoccia et al., 2014)

1.2. Teenagers' Personal Practices of Writing in the Digital Era.

If we now turn to the nature of the personal practices of writing occurring outside school, performed voluntarily and encompassing a wide range of genres (anything teenagers write of their own free will when they are not forced to do so), to grasp their evolution, we can focus on two studies that were carried out in our laboratoryⁱ with a gap of 15 years between them. The

first one (Penloup, 1999) was carried out in 1997, before the onset of digital technology, on 1800 secondary school students² (11–15 year-olds) in the Rouen academy in Normandy, of which 375 were 15-year-old students; the second study, performed in 2012 by R. Joannidès as part of her doctoral thesis, was carried out on 479 15-year-old students. We were particularly interested in the responses given by the 15-year-old students at a 15-year interval, given that the studies, even though they were not identical, were nonetheless comparable because they were both based on samples with cross-referencing parameters such as the students' achievement at school, the schools' location and the families' socio-professional characteristics. The same eight writing practices were analyzed in the form of a questionnaire in both studies: they included writing on cards about favorite topics, making up lists, writing letters, photo captions, and personal journals as well as inventing song lyrics, poems, or stories (the term "invent" allows us here to make a distinction between creative writing and copy writing). The two questionnaires presented the subjects with a yes/no choice of answers to the question "Do you write ..." (... lists, songs, etc.): The results therefore did not indicate actual practices but were in the form of reports of practices, which only gave the general trend in terms of writing genres and priorities. In the 2012 questionnaire, the items were duplicated as "Do you hand-write?" or "Do you write on a computer?" and further questions were added to the eight original ones in order to target writing practices that were specifically linked to digital technology.

The comparison of the responses collected in the 1997 and the 2012 questionnaires—for the latter only including the questions "Do you hand-write?"—is summarized in Table 8.1 (see Appendix). We observe that there are fewer students today who resort to handwriting for any written genre. The hierarchy between the different writing practices has hardly changed, except for the writing of letters, which has understandably been overtaken by email writing and other means of digital communication. As for the rest, what comes out more importantly from the various responses is that handwriting practice has not receded but has been maintained at a surprising and significant level, probably involving aesthetic and corporal dimensions in the rapport between writing and the chosen genre, but we will not discuss this point here. If we now compare (see appendix 2) the 1997 handwriting practices with both handwriting and digital writing in 2012, we observe that, even if the number of affirmative responses is on the rise, there are fewer students today who use handwriting. This observation is true for all the handwriting genres listed, except for photo captions which have become very common practice in the digital era and in media such as Facebook. To have a more complete picture of the situation and not come to a hasty conclusion about these practices, we

have to add, for 2012, the practices that are specifically electronic and did not exist in 1997, and that a great majority of students today report (appendix 3).

Therefore, the decrease in what we could call “traditional” practice has to be seen in the context of an explosion of specific electronic writing practices that have become omnipresent. With digital technology, teenagers are certainly more prone to a personal kind of writing, and this shows a democratization of the writing process. But the nature of this written production is not the same. The comparison of the results obtained shows in particular a decrease in the positive responses for narratives and poetic writing. Does this mean the number of practices that are purely communicative has increased to the detriment of literary practice? Or is the practice now more commonly found in blogs and no longer identified as literary? The collected data does not allow us to answer these queries but we can emphasize the need to do further research to find out whether what we called the “temptation of the literary genre” at the end of the nineties is still true among teenagers today and if so where it is found. In any case, the developments that we have discussed, and the massive implication of teenagers in the digital culture, which, as we have seen, has changed their rapport towards writing and the nature of their personal writing practices, has had an impact on their way of writing in French. This is what we would like to develop now.

2. Digital Writing

2.1. Digital French: An Accumulation of Processes

Leading to a More or Less Stabilized Variety.

A new way of writing French, very different from standard French, appeared with digital writing and has since the beginning of the 21st century been a subject of study. J. Anis (2001, p. 32) described it as a “melting script,” because it is a combination of heterogeneous symbols and writing processes. It mixes letters from the alphabet, numbers, logos, punctuation symbols and different systems (or languages). In addition, at a different level of analysis, we can observe an accumulation of different processes overlaying fundamental characteristics identified by the different linguists that have studied them (Anis, 2004, Fairon et al., 2006, Véronis & Guimier de Neef, 2006, Panckhurst, 2009). For our part we used F. Liénard’s typology (2007), summarized in appendix 4.

The most interesting characteristic in F. Liénard’s analysis is that it attempts to explain why non-standard writing processes are resorted to, classifying them according to their functions: simplification, specialization and expressiveness. The processes that he describes in the “simplification” category

are used to ease the technical constraints that are inherent to the media devices used (keyboard, screen). The “specialization” process allows the writer to specify an expertise, to play with the language, or to create a link and a linguistic community. And the last function of digital writing is to display emotions despite the physical absence of the communicators, their intonation and their gestures; this is what the author calls “expressiveness” or “extraversion.”

What is most important about this analysis is that resorting to digital writing cannot be explained only by technical constraints, and that its vitality goes beyond the progress in technology. It is also important to point out that none of the processes described is specific to digital writing inasmuch as they existed before it developed. For instance, truncation and abbreviation processes have been used since Antiquity in order to compensate for the lack of space on tablets, papyrus and parchments, and have since been re-used by telegraphers, small ad writers, stenographers and later on texters and online chatters (David et Goncalves, 2007, p. 45). If, however, we can talk about “digital writing” or “text messaging,” it means that the different processes are accumulating in an original and sufficiently stabilized manner.

2.2. The Co-Existence of Two Written Varieties in Many Young Writers’ Repertoires

Most teenagers today have a written repertoire with two varieties: a standard variety and a digital variety characterized by an accumulation of processes that are relatively stabilized. In each writing situation, just as bilingual or multilingual speakers would draw from their languages according to the communication situation, teenage writers will on different occasions resort to the digital variety. This variety is expected and relevant when they are writing on Facebook or on their blog. However, its use is forbidden in schools where students are expected to write standard French.

We need to know therefore whether these teenagers have perfect mastery of the two varieties and know exactly how to gauge the quantity of digital writing they want to inject into a piece of writing or whether, on the contrary, the digital variety “contaminates” (we use the medical metaphor deliberately) standard French without their knowledge. This is a new question in the area of writing practices, but well-known in the one of speaking practices with the risk of contamination of the standard register by the familiar or the teenage register which is generation and identity-dependent. This question is all the more legitimate in the case of writing where, rather than an expected strict partition, a sort of porousness can be observed between digital French and the French used in personal hardcopy writing. For instance, in the journals

used by teenagers to write down the work to be done for school and which they use quite readily for other, more personal purposes (declarations of love or friendship, thoughts for the day, poem or song excerpts, etc.), we can find on hard copy all the different processes described earlier as deriving from a "digital" type of French. The journal excerpt below is an illustration of this.

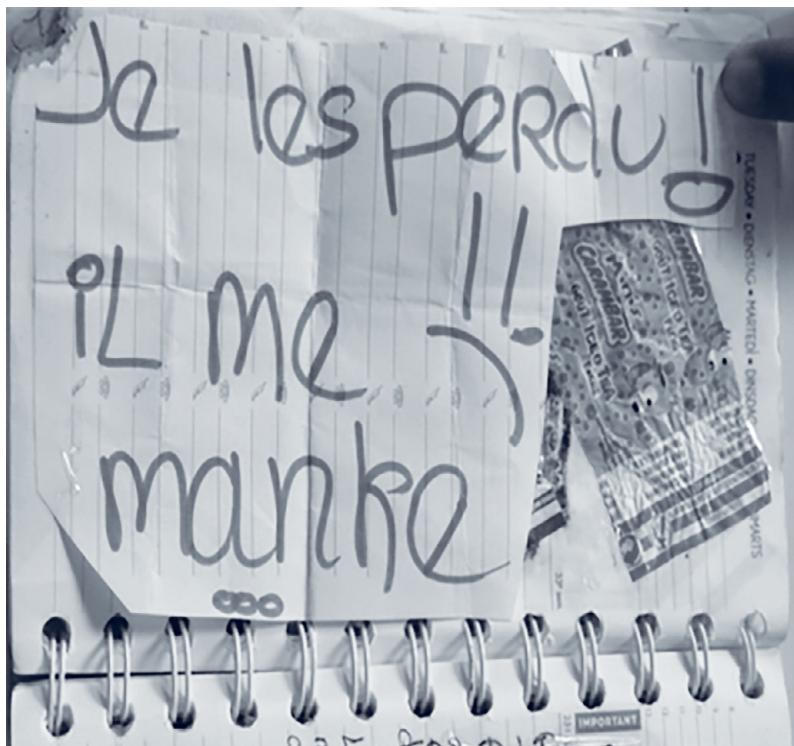


Figure 8.1 Diary Excerpt

Is this proliferation of processes—linked to digital writing and partly originating from technical constraints—towards hard copy writing where these constraints no longer exist a conscious and mastered phenomenon? And if it is not, is it not then likely that in the medium-term we will see an impact on writing forms that require the standard norm?

2.3. A Potential Threat to the Acquisition of Spelling?

The hypothesis that there is a correlation between the decline of the level of spelling observed in teenagers (Manesse et al., 2007) and the rise of digital writing has often been discussed. It has been discussed in the media—as mentioned in the introduction—but also by researchers. B. Ameka (2006,

p. 22) talks about a possible loss of the meaning of spelling even when the current graphic system enables important semantic distinctions. R. Jalabert (2006) highlights the potential toxicity of digital writing in the learning phase, where children and teenagers are insufficiently literate to “differentiate between ‘writing’ and ‘texting’” The teenagers R. Joannidès investigated demonstrated that they themselves were similarly concerned and were convinced that their intensive digital practice gave them “bad writing habits.”

Because Linguistics is by essence a descriptive and not a prescriptive science, the linguists who are asked the question tend not to feel concerned. Some underline the fact that spelling did not wait for the digital era to become a source of problems (Walter, 2006); others prefer to focus on the creativity of text messaging (Fairon, 2005, Panckhurst, 2014 during a France Inter radio talk-show mentioned earlier); and others insist on the fact that mastering standard French is a pre-requisite for being able to play with the digital variety. This point of view can be found in the work by N. Marty (2005), S. Pétillon (2006) or J. David & H. Goncalves: “Our studies show that the students who have not yet mastered conventional spelling (David, 2003) do not resort to these written simplifications or inventions, simply because the processes used are based on a spelling pattern that has already become established” (David, Goncalves, 2007, p. 45). We might therefore witness the emergence of digraphia, which will put the excessive influence of spelling norms into perspective, without jeopardizing spelling: “Alongside spelling in its Sunday best and reserved for academic usage,” says J.-P. Jaffré, “less constrictive and more efficient graphic forms will appear for every day communication” (Jaffré, 2004, p. 22).

However nice and appealing this may sound, it is nonetheless an indisputable fact that spelling in its “Sunday best” is becoming undermined. It seems important to us to go further by trying to determine what part the development of digital writing plays in this trend.

3. Data that Shed Light on the Debate Concerning the Threat to French Standard Spelling

The different points of view that were discussed above are based on scientific hypotheses and not so much on effective research. Actual studies have been endowed with a variety of methodologies on different scales, summarized in a recent article by J. Bernicot and colleagues (Bernicot et al., 2014) who carried out and presented some substantial research on the topic. After having given 19 students aged 11-12 years a mobile phone each, a device they had never owned before, every month and for one year the research team

collected a certain number of text messages that the students were ready to share. The analysis, comprising 4524 messages, concerned the emergence and the density of “textisms” (specific processes in digital writing) and the potential evolution of the level of spelling of the students that were given a phone compared to the control group who did not have a phone and whose level of spelling was the same at the start. “Textisms” themselves were differentiated according to whether they were in agreement with the traditional code (e.g. “m ” for *mais*) or went against it (e.g. “bsx” for *bisous*).

On the whole it appeared that the spelling levels of the students, whether they used text messaging or not, did not change, and that the density of textisms in their messages was not linked to their level in spelling: “On the whole, students who were good or bad at traditional writing at the beginning of the data collection remained the same over the year whatever their text messaging practices (density and types of textism)” (Bernicot, 2013, pp. 3-4).

This research was carried out over a one-year period and used digital writing excerpts. As for R. Joannid  s, she chose to compare French examination papers with a 15-year interval: 81 essays from students taking their DNB exams in 1996 (*Dipl  me National du Brevet* taken at year 10, when the students were 15 years of age) and 98 essays from 2011. These were also written by 15-year-old students in the same school, in a rural location, and whose parents came from an underprivileged socio-professional category.³ (For more information, see R. Joannid  s’ thesis that was completed in October 2014.)

In order to pinpoint the evolutions that might be imputed to outside-school digital writing practices, all the items found in the essays that were different from the norm were collected. They were then classified in an analysis grid along the same lines as C. Gruaz’s analysis (1985) and V. Lucci & A. Millet’s analysis (1994). A comparison was then drawn between the 1996 and 2011 sessions. Three of our results are discussed below.

3.1. Absence of Most of the Emblematic Processes.

We first observed that most of the emblematic processes in digital writing practices were absent from the 2011 students’ examination papers, despite a great number of spelling mistakes. We could not find for instance any examples of consonant skeletons or emoticons. Even if there were certain deviations from the norm, it was obvious that the accumulation of processes discussed earlier, stemming from digital types of writing such as text messaging and found even in school journal writing, was not apparent in the examination papers.

This observation, which coincides with the results found by J. David and H. Goncalves (2007), corroborates the hypotheses discussed earlier and goes

against the alarmist view that written French has been invaded by digital French writing processes. On the contrary, if we look at the differences in the manner of writing of the students from one writing context to another, it would rather seem that they have a good mastery of the two varieties, that is to say, they are conscious of what they are doing to the norm, of the differences between the varieties in their repertoire, and of the need to adapt them to the different writing situations.

3.2. More Frequent Symbols of Expressiveness

Having said that, we also observed (appendix 5) a clear increase in 2011 of what F. Liénard calls repetition of punctuation symbols, as well as resorting to words entirely written in capital letters, a phenomenon that is linked to the question of expressiveness.

The repetition of punctuation symbols appeared twice in the 1996 corpus and six times in 2011 (three times more frequently). As for the use of capital letters, we could not find any occurrences for 1996 but there were 7 in 2011. This increase leads us to consider the probable influence of digital writing practices. However, this fact cannot be established with certainty inasmuch as none of the processes is specific to digital writing. Moreover, the quantitative comparison should be considered carefully because these examples occurred in fragments of direct discourse, to which the 2011 exam subject lends itself more easily than the 1996 exam subject which had fewer opportunities for direct discourse.

3.3. The Case of Segmentations

In this chapter we also focused on a type of non-standard form that originates from “segmentation” errors or, to use C. Gruaz’s terminology (1986), “cutting-up” errors. It concerns more particularly the problem of graphic blank omissions, which occurred 90 times in 1996, but 222 times in the 2011 examination papers (nearly 2.5 times more).

Below are listed some of the many types of segmentation errors:

- Logographic errors in the sense that they generate a confusion between homophones, i.e. between two standard forms (appendix 6). In particular, we observed 2 cases of blank omission on the spelling of “la” and “ma” in 1996 against 51 in 2011, i.e. 25.5 times more. The segmentation errors on “ta” and “tes,” absent in 1996, numbered 8 in 2011.
- Morphographic errors, i.e. on blanks that are used to cut up the graphic chain into morphemes (appendix 7). This time the form obtained

does not have a standard existence. There were 12 cases of blank omissions in 1996 without any accumulation with other mistakes and there were 27 in 2011 (2.25 times more).

In the case of blank omissions accumulated with other mistake types (appendix 8), there were 5 in 1996 but 27 in 2011 (5.4 times more). Finally, only one case of substitution, corresponding to a blank placed wrongly or to non-differentiation of the words, was found in 1996 whereas there were 7 occurrences in 2011 (appendix 9).

The increase of these errors poses a question. It is true that segmentation has always been a problem to writers and more particularly to children in the learning phase. How can we explain this increase? We have to seriously consider the hypothesis of a correlation with a digital writing practice that uses what F. Liénard (2007) calls “écrasement de signes” (lexical short cuts whereby certain signs and symbols are “crushed” or omitted) and this also covers segmentation.

4. Conclusion: A Probable Influence on the Evolution of Digital French Spelling

Our analysis, by showing the absence of digital writing in the examination papers of 15-year-old teenagers, confirms that fact that young writers do not confuse the digital variety with the standard norm. It does not, however, remove the question of the potential correlation between the development of a widely used digital variety (including some hard-copy writing) and the deterioration of spelling among French teenagers. On the contrary, the data gathered give a certain number of clues that suggest a link. This possible link does not imply confusion between varieties, but could have a negative impact on the mastery of spelling norms, i.e. on the maintenance of spelling in its “Sunday Best.” If this hypothesis were to be true, we should then stop denying the fact and, according to how much importance we attach or not to this decline, consider appropriate didactic forms for handling the problem.

Notes

1. The DySoLa Laboratory (*Dynamique Sociale Langagière*) (Social linguistic Dynamics) is made up of sociologists and linguists. Studies include socio-linguistics, linguistics and didactics.
2. The fourth year of secondary school, called “troisième” in France.
3. Examination papers are usually destroyed every year and former exam papers were kept only in one school. It was therefore impossible to find a corpus that was representative of the diversity of the parents’ socio-professional backgrounds.

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Appendices

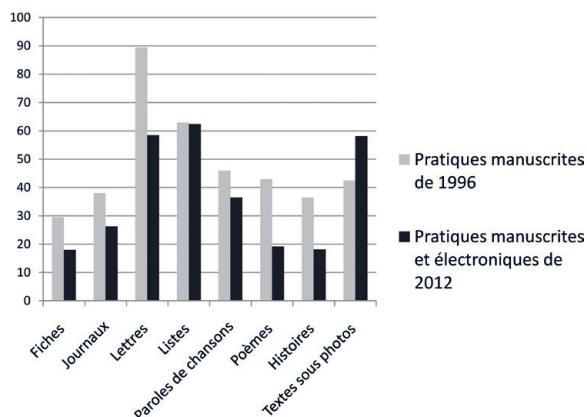
Two questions concerned lists in 1997, one on “useful” lists and the other on lists of favorite words. An average of the obtained responses is given in the following tables to compare it with the 2012 responses to the single question that grouped all the possible list practices.

Appendix 1: Comparison of the positive responses for “Do you hand-write?”

Handwriting usage: students concerned (in %)	1997 n=375	2012 n=479	Difference (in points)
File cards	29.5	9.8	19.7
Diaries	38.0	25.1	12.9
Letters	89.5	47	42.5
Lists	63.0	55.5	7.5
Lyrics	46.0	25.1	20.9
Poems	43.0	13.2	29.8
Stories	36.5	11.1	25.4
Photo captions	42.5	35.7	6.8

Appendix 2: Handwriting usage in 1997 handwriting and digital writing usage combined in 2012

Handwriting and digital writing usage: students concerned (in %)	1997	2012	Difference (in points)
File cards	29.5	18.0	11.5
Diaries	38.0	26.3	11.7
Letters	89.5	58.5	31
Lists	63.0	62.4	0.6
Lyrics	46.0	36.5	9.5
Poems	43.0	19.2	23.8
Stories	36.5	18.2	18.3
Photo captions	42.5	58.2	-15.7



Appendix 3: Writing usage that is exclusively digital in 2012

Digital writing usage: students concerned (in %)	Number	%
Text messages	452	94.4
Search engines	427	89.1
Online chatting	399	83.3
Word processing	377	78.7
Copy and Paste	369	77.0
Emails	328	68.5
Blogs	197	41.1
Online games	190	39.7
Forums	129	26.9

Appendix 4: F. Liénard's typology for the different digital writing processes (2007)

Simplification	Consonant skeletons	Bjr (bonjour), slt (salut)
	Truncations	Ciné (cinema), net (internet), oneur (honneur), ariver (arriver)
	Elision of semiotic elements	Accents, capital letters, articles, etc.
	Acronyms	mdr (mort de rire)
Specialization	Semiotic-phonological notation	Réso (réseau), vil 1 (villain), 6t (cité)
	Anglicisms	Now, F2F (face-to-face)
	Lexical short cuts	Kestufé (qu'est-ce que tu fais)
Extraversion	Emoticons	
	Grapheme or symbol repetitions	Ta di koi??:! c la finn

Appendix 5: An increase in the symbols for expressivene

	Répétitions
	QUI, !?
1996 (81)	2
	aimeriez-vous que l'n sache tout de votre vie ?! Comment tu as fait pour rentrer ici ? (DD)
2011 (98)	13
	500 ans ?! (DD) Ma maman ! LA personne la plus chère à mes yeux ; mais QUOI ??! (DD) ; tu me demande d'oublier ma mère ?! va le cherché !! (DD) Aahh (DD) TERMINER les sorties ! ?! (DD) JULIE c'est quoi !!! (DD) NON, NON et NON (DD)

Appendix 6: The case of logographic segmentation errors

	1996	2011
"la" vs "l'a" and "ma" vs "m'a"	2	51
"ta" vs "tu as" or "t'a" and "tes" vs "t'es"	0	8

Appendix 7: The case of morphographic segmentation errors

1996	2011
enfaît (en fait), biensûr (bien sûr), quelquechose*7 (quelque chose), parcequ'ils (parce qu'ils)	enfaît (en fait), biensûr*2 (bien sûr), quelquechose (quelque chose), parceque*2 (parce que)
parcontre (par contre)	aurevoir (au revoir), cest (c'est), jai (j'ai), jusqu'à (jusqu'à), dépuisement (d'épuisement), jespère (j'espère), derien*2 (de rien), dutout*3 (du tout), du coup (du coup), demmenager (d'emménager), d'accord*2 (d'accord), nimporte quoi (n'importe), men (m'en), sexuser (s'excuser), vasy (vas-y)
Vanina nosa pas (nosa)	

Appendix 8: The case of blank omissions combined with other types of errors

1996	2011
apar (à part), allèle (à l'aise), enrevoirs (au revoir)	apart*2 (à part), appart (à part), allaise (à l'aise), orevoir (au revoir)
nettais (n'était), s'en-naye (s'en aille)	tamieux (tant mieux), plutard*2 (plus tard), touleton (tout le temps), jusqua (jusqu'à), tempis (tant pis), qu'esqu'il (qu'est-ce qu'il), bien-sur*4 (bien sûr), doucoup (du coup), mavais (m'avais), esque (est-ce que), desculsion (d'exclusion), mettonnera (m'étonnera), qavant (qu'avant), enfaite*3 (en fait), quesqu'il (qu'est-ce qu'il), impeu (un peu)

Appendix 9: The case of substitutions

1996	2011
l'aveill (la veille)	la rédécar*3, la rèdécar (l'arrêt des cars) qu'esqu'il (qu'est-ce qu'il) j'usquau (jusqu'au), j'usqua (jusqu'à)

Paths to Academic Writing in a Globalized World: A Longitudinal Study of Content and Language Integrated Learning in Upper Secondary School in Sweden

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The study examines how Swedish upper secondary school students' development of written academic Swedish is affected when some or almost all content subjects are taught in English instead of Swedish, so-called CLIL education. The study includes three CLIL groups (125 students) with different amounts of instruction in English, and two non-CLIL groups (75 students). The study comprises a quantitative analysis of the students' use of academic words in 260 texts and a qualitative analysis of the functions of academic words in a smaller corpus of 36 texts. The study shows that the students' acquisition of the norms of academic writing cannot be taken for granted. When the use of L1 is strictly limited, as in total CLIL, the development of the students' advanced L1 academic proficiency is at risk. Interestingly, the study also shows the potential of partial CLIL, as the largest development of academic vocabulary was found in this group.

Cette étude s'intéresse à l'impact de l'utilisation partielle ou quasi-exclusive de l'anglais à l'école (Enseignement de Matières par l'Intégration d'une Langue Étrangère, EMILE - Content and Language Integrated Learning, CLIL), sur le développement par des lycéens suédois d'un langage écrit académique. L'étude porte sur cinq groupes, dont trois utilis-

ent EMILE (125 élèves) et deux non (75 élèves). Ces derniers représentent la majorité écrasante des élèves suédois dont l'enseignement se déroule exclusivement en suédois, langue officielle. Cette étude combine une analyse quantitative et une analyse qualitative de deux mémoires rédigés par les élèves à l'entrée et au milieu de leur scolarité au lycée. L'analyse quantitative (260 textes) s'intéresse à l'emploi du vocabulaire académique. L'analyse qualitative (36 textes) vise à déterminer comment les élèves s'approprient des termes académiques pour produire une prose plus académique.

L'analyse quantitative montre que, contrairement à tous les autres groupes étudiés, dans les textes du groupe EMILE qui utilise le plus l'anglais à l'école, la part de termes académiques suédois n'augmente pas après deux années. La progression la plus forte est constatée dans un groupe EMILE dont l'enseignement mélange anglais et suédois. L'analyse qualitative montre que les textes les plus riches en termes académiques utilisent ces mots pour convoquer des aspects importants de la prose académique (abstraction, style objectif et organisation du texte). Cette étude conclut que si la langue officielle n'est utilisée en classe que dans le cadre de son enseignement et de la littérature, le développement de l'écriture académique stagne. En revanche l'alternance clairement planifiée entre plusieurs langues a des effets positifs.

1. Introduction

In a time of increased globalization, it has become attractive for students outside the English speaking world to choose an education where English is used for subject teaching. In Europe, the spread of the so-called CLIL education, Content and Language Integrated Learning, is a fact (Euyridice, 2006; Smit, 2008). CLIL, an immersion-like bilingual education, offers more contact with the target language (mostly English) without requiring extra teaching hours, since the target language is used for both instruction and writing in so-called content subjects, e.g. mathematics, biology and history. The perspective taken is that language learning is a natural part of the teaching of subject matter. Thus, CLIL offers the use of the foreign language for talking, reading and writing in a wide spectrum of subjects, and is seen as "a kind of language bath which encourages naturalistic language learning and enhances the development of communicative competence" (Dalton-Puffer, 2007: 3). Besides the intention to give the students a broader communicative competence, CLIL is supposed to give faster access to academic English, also without having detrimental effects

on the expected continued development of academic language proficiency in the first language, L1 (Mehisto, Marsh & Frigols, 2008). However, we know little about how the development of first language for school purposes actually is affected when it is replaced by another language in an education like CLIL (Dalton-Puffer, 2011: 189). But we know that learning in educational contexts implies heavy demands on the students' linguistic ability, not least considering that the learning of content is inseparable from learning the language of a particular subject. In view of the fact that the linguistic challenges increase as students progress through school (Schleppegrell, 2004: 4; cf. Coffin, 2006), the academic and specialized language would not be presupposed to be attained by itself, in any language. That means that not even the appropriation of academic and specialized language in the L1 can be taken for granted or can be assumed to progress automatically.¹

This study aims to examining if and, if so, how Swedish upper secondary school students' development of academic Swedish in writing is affected when content subjects are taught in English instead of Swedish. The study includes three student groups (ca. 125 students) following CLIL programs with English as the medium of instruction for some or all of the content subjects. For comparison, two control groups are included (ca. 75 students). With the exception of language classes, these two control groups have all instruction and all writing tasks in Swedish, the official principal language in Sweden, which is naturally the clearly dominant language of instruction throughout the whole education system and is also most of the students' L1. Thus, the overall question concerns CLIL students' and non-CLIL students' development of academic language proficiency in Swedish writing. The developmental perspective is provided for by testing the students' achievements within the same type of writing assignment at two points during their three years at upper secondary school.

1.1. CLIL Education

In 1995, both the Council of the European Union and the European Commission emphasized the need for EU citizens to learn foreign languages (The Council of the European Union, 1995; European Commission, 1995). The bodies endorsed different types of bilingual education, including CLIL. They hold forth that students at secondary school could benefit from studying certain subjects in a foreign language. Within ten years, CLIL was established in 24 of 33 European countries, including Sweden and e.g. France, though involving almost exclusively English (Eurydice, 2006).² In a recent article, English is estimated to be the target language in 95 percent of all

CLIL programs in Europe (Nikula, Dalton-Puffer & Llinares, 2013). However, the extent to which English is used varies a lot, e.g. from one subject, thematic sessions in several subjects to all content subjects. Previous research has shown that differences can be found between countries, within countries, between schools in the same country, and even between classes at the same school (Dalton-Puffer & Nikula, 2006; Mehisto et al., 2008; Lim Falk, 2008, 2012; Sylvén, 2013; Yoximer Paulsrud, 2014). Usually, less than 50 percent of the subjects are taught in English (Nikula et al., 2013). This implantation of CLIL, where certain content subjects still are taught in Swedish, is referred to as “partial CLIL” in our study. However, there are also instances of CLIL where the national or majority language is totally or almost totally replaced, and this we will refer to as “total CLIL.”

Above, we stated that CLIL is an immersion-like bilingual education. The generally successful Canadian Immersion Programs are often pointed out as a model and a source of inspiration for CLIL (Washburn, 1997; Lim Falk, 2008; Dalton-Puffer, Nikula & Smit, 2010; Nikula et al., 2013). The immersions showed that it was possible to use another language than the students’ first language for content subject instruction with positive results regarding both language and content mastery (e.g. Lambert & Tucker, 1972; Swain & Lapkin, 1982; Genesee, 2004). Like immersion, then, CLIL uses non-language content as a vehicle to promote the students’ development of a target language other than their first language (e.g. Genesee & Lindholm-Leary, 2013; cf. Dalton-Puffer, 2011). Yet, there are important differences in conditions and prerequisites for CLIL and immersion, ranging from guiding principles and learning goals to the analysis of sociocultural and linguistic consequences of the programs.

The success in Canada is not only linked to immersion education per se, but reflects socioeconomic and political factors (de Mejía, 2002). They are construed with respect to the current relation between the majority language English and the minority language French. Specified goals are articulated, on the basis of carefully formulated language policies, concerning both target language and L1. These goals, in turn, are closely connected with general criteria for implementing immersions as well as specified demands on teacher competencies. For example, the importance of native language proficiency is emphasized, and consequently support of the first language is a requirement to ensure additive bilingualism, as opposed to subtractive bilingualism where the target language tends to take over and replace the first language in certain domains (e.g. Genesee, 1987; Baker, 2001).

The conditions for CLIL are quite different. First of all, CLIL is about using a foreign language as the language of instruction, which means that its presence outside the classroom normally is limited. Also, the foreign lan-

guage in question is mostly the prestigious global lingua franca English, a fact that affects the formulations of goals, criteria, and not least language policies. However, most often there is no declared policy regulating CLIL education, neither in the national language policies, nor in the education policies. Moreover, there are in general no guidelines or precise learning goals formulated for CLIL, which in turn makes the education hard to evaluate. Regarding the teachers' competence in the target language, there are no explicit demands; the CLIL teachers are normally non-native speakers of the target language English and they are also in most cases content experts rather than language experts. Also, there are no measures to support the supposed continued first language development (e.g. Dalton-Puffer, 2011). These conditions apply well also to CLIL in Sweden generally, and the CLIL programs in this study.

On the whole, there are many questions to be answered concerning the effectiveness and eligibility of CLIL. There is even insufficient empirical evidence for how much the students improve in English and in what respect (Dalton-Puffer, 2011: 186). In her exhaustive monograph on CLIL classrooms in Austria, Dalton-Puffer (2007) states that rationales for the use of CLIL are vague and that this type of education needs to be better grounded in actual research. The research field of CLIL has expanded greatly in later years, evident for example in the increased numbers of CLIL conferences. However, a topic that few researchers engage in is the CLIL students' supposed development in the national language, most of the students' first language (L₁), which besides the target language also is a medium of instruction in CLIL education. L₁ seems to be taken for granted and the continued development in the L₁ seems to be assumed to progress automatically. Previous research indicates the opposite, e.g. Genesee et al. (2006: 225) states that also for native English speakers in English-only school settings, emphasis on English for academic purposes is likely to have the greatest payoff in student achievement. In fact, an earlier study on a smaller scale showed that CLIL students did not have as good command of the subject-based academic language in Chemistry, Physics and History, as did the all-Swedish-instruction control class. In their writing the control students used subject-specific lexis more frequently, technical terms in particular. They also mastered the correct use of them in the linguistic context, and on the whole, produced more adequate content (Lim Falk, 2008, 2015 forthcoming).

1.2. Linguistic Challenges in School

Basically, our perspective on language and learning concurs with the socially oriented perspective taken within Educational linguistics (e.g. Eggins &

Martin, 1997; Schleppegrell, 2004; Llinares et al., 2012), which is the pedagogical ramification of Halliday's Systemic Functional Linguistics, SFL (e.g. Halliday & Matthiessen, 2014). It assumes a mutual dependence between the assimilation of specialized knowledge and the acquisition of subject-specific registers, implying that the two processes are simultaneously involved in learning (e.g. Coffin, 2006). Thus the theory focuses on the role language plays in the demands and challenges of schooling (e.g. Schleppegrell, 2004). These demands are described in terms of genres, i.e. the types of texts that learners have to understand and produce in different subjects, and the linguistic resources used for these texts. Access to this school language, often referred to as academic language, is considered to be a prerequisite for success at school (Rothery, 1996; Schleppegrell, 2004; Holmegaard et al., 2006; Lindberg, 2007; Gibbons, 2002). Especially, the mastering of written academic language is of great importance, as the teachers mainly build their assessment and grading on written exams and essays. Schleppegrell states that

Schooling is primarily a linguistic process, and language serves as an often unconscious means of evaluating and differentiating students. . . . In school, students are expected to use language to demonstrate what they have learned and what they think in ways that can be shared, evaluated, and further challenged or supported. (2004, p. 2)

However, the written academic language proficiency required at school takes time to learn, and it is a challenge for all students, even if it is assumed to be especially difficult for those without an academic background (Schleppegrell, 2004: 6; cf. Carlund et al., 2012) and for those with instruction through another language than the L1 (e.g. Gibbons, 2002; Holmegaard et al., 2006). The challenges can be explained by the characteristics of academic language as decontextualized and cognitively demanding, i.e. less personal, more grammatically complex and with a more specialized and abstract vocabulary compared to the informal conversational language children and young people develop in everyday discourses outside school (e.g. Bernstein, 1971; Halliday & Martin, 1993; Cummins, 1996, 2000; Macken-Horarik, 1996; Schleppegrell, 2004; Holmegaard et al., 2006). Furthermore, the linguistic challenges are assumed to increase throughout school while subjects reach higher levels of specialization (Schleppegrell, 2004: 4; cf. Coffin, 2006). Several studies have shown that it takes between five and ten years for second language learners to develop the academic language proficiency required for success at secondary school level (Thomas & Collier, 1997, 2002; Hakuta, Butler & Witt, 2000; August & Shanahan, 2006).

To facilitate this complex learning process, pedagogical efforts have been made. In fact, the analysis and the description of academic language within Educational linguistics are aiming at developing tools to facilitate teaching and learning in school practice. Special attention has been paid to the possibilities of scaffolding writing in different school subjects by explicit teaching of the required genre structure and grammar (e.g. Macken-Horarik, 1996; Martin & Veel, 1998; Coffin, 2006; Christie & Derewińska, 2008; Llinares et al., 2012). Other pedagogical contributions, outside the research of Educational linguistics, have been directed to general academic vocabulary, attempting to create academic vocabulary resources. These efforts are based on research that single out vocabulary as the most important element for success within school discourse (Saville-Troike, 1984; Nation, 2001; Lindberg, 2007). So far most of them concern English, e.g. The University Word List (Xue & Nation, 1984), The Academic Word List (Coxhead, 2000) and Longman Dictionary of Contemporary English (2009). Recently however, an academic vocabulary resource has been developed for Swedish, named A Swedish Academic Word List, SAWL (Carlund et al., 2012; Jansson et al., 2012).

From previous research, we can conclude that it is assumed to be of great importance that the students acquire academic language for writing, and also that schools accept their responsibility in making this goal achievable. Moreover, the pedagogical efforts made indicate that the development of academic language proficiency is not assumed to be incorporated into the students' repertoire by itself. We assume that this counts for any language, including the development of written academic language proficiency in the L1. In this study, our focus is on the language that is restricted in use by the CLIL education programme, i.e. Swedish. We hypothesize that the actual amount of English medium instruction, or rather the time left for working with Swedish, might affect the students' continued development of a language that is adequate for Swedish academic writing.

2. Research Context, Data, and Method for the Study

The research context for the study is the longitudinal project Content and Language Integration in Swedish Schools.³ The overall aim of the project is to investigate CLIL-students' development of academic language, in Swedish and English, in comparison with equivalent students having instruction totally in Swedish. The results presented in this chapter are the first results from the analysis of student's Swedish texts. The project, however, applies a broad diversity of methods: explanatory and argumentative writing assignments, vocabulary tests, reading comprehension tests, classroom observations,

student questionnaires and interviews with both teachers and students.

In the research project about 200 students, aged 16–18, are followed during their three years in upper secondary school. The students are studying at three different schools (called A, B and C), but are all enrolled in programs preparing for ensuing studies. They can be categorized into five groups with regard to school and linguistic educational context, three CLIL groups with English as target language and two control groups (see Table 9.1). Of three CLIL groups, one takes part in total CLIL (school A), where Swedish as a language of instruction is almost completely restricted to the subject Swedish (including both history of literature and Swedish language studies), about two hours per week. The linguistic environment for the other two CLIL groups (one at school B and one at school C) is that of partial CLIL, with approximately 50 percent of the instruction in English. The two control groups finally (one at school B and one at school C) represent the mainstream type of instruction in Sweden where all instruction and all writing is performed in Swedish (except for language courses in English, French, German, etc.).

Table 9.1. Student groups, linguistic environment, school, and number of students

Group	Linguistic environment	School	# Students
1	Total CLIL	A	50
2	Partial CLIL	B	25
3	Partial CLIL	C	50
4	Non-CLIL	B	25
5	Non-CLIL	C	50

The total CLIL group (school A) differs from the partial CLIL groups not only in the degree English is used. The teachers of this group have, with few exceptions, higher proficiency in English than the teachers in the partial CLIL groups, and the students of this group are more heterogeneous in regard of L1 than the students in the partial CLIL groups. However, all groups in the study, also the total CLIL group, are bound to follow the national Swedish curriculum, and have to fulfil the same overall goals of upper secondary school, as well as the same learning outcomes for subjects that are mandatory to education preparatory programs, e.g. Swedish, English, Science studies and Social studies.

The data for the study reported here consist of student texts from two writing assignments, out of the four Swedish assignments the project group constructed in order to give all students the same tasks. Both assignments

were oriented towards explanations (the other two were not), a typical kind of assignment in the national writing tests, since the Swedish national curriculum explicitly states that students should be prepared for this type of academic writing (cf. The Swedish National Agency for Education, 2012). The assignments were written during the first semester and the fourth semester. In terms of content, the assignments were constructed in accordance with the curriculum, and related to social and science studies. The first assignment required the students to explain why there are such great differences in health and wealth between different parts of the world, and the second one to explain why the two public health problems—obesity and mental illness—increase in Sweden. Both tasks were supplemented with a background information sheet with tables giving some statistics relevant to the topic. The data amounts to 260 texts and is charted in Table 9.2. For a qualitative part of our study the data was narrowed to 36 texts (see below).

Table 9.2. Outline of data

Group	Linguistic environment	School	# Texts Assignment 1	# Texts Assignment 2	Total
1	Total CLIL	A	26	22	48
2	Partial CLIL	B	18	19	37
3	Partial CLIL	C	35	34	69
4	Non-CLIL	B	24	17	41
5	Non-CLIL	C	31	34	65
Total			134	126	260

The method for the first part of the study is an application the recently developed Swedish Academic Word List (SAWL), mentioned in section 1.2, as a tool for the quantitative analysis. SAWL consists of 655 headwords, compiled from a 25-million-word-corpus based on dissertations and scientific articles from fifteen disciplines, and it is (2015) accessible at the webpage for the Swedish Language Bank at University of Gothenburg (<http://spraakbanken.gu.se/ao/>). It was developed to meet university students' need for knowledge of general academic vocabulary, and the principle for word selection was to find an academic-specific vocabulary that is common for all subjects at university, but not part of the everyday vocabulary (Carlund et al., 2012). Thus, the list can be assumed to reflect the significant general academic vocabulary that upper secondary school students need to know to manage higher education. The coverage of Academic Words, AW, was investigated for each of the 260 texts by a programme designed especially for this purpose.⁴ In the

analysis, we were especially interested in differences between the five student groups as well as differences between the first and second assignment. For a more detailed description of SAWL, see Carlund et al., 2012; Jansson et al., 2012; Sköldberg & Johansson Kokkinakis, 2012.

In order to understand the validity of the results we used the first findings as starting point to a more focused qualitative analysis in a smaller corpus. For this purpose, 36 student texts were selected, 18 texts with high frequency of AW (between about 8 percent and 10 percent AW) and 18 texts with low frequency (between about 2 percent and 4 percent AW). Since the aim was to characterize the functions of the AW, and to understand the differences between texts with high and low frequency of AW, and not to make comparisons between the groups (hardly possible in such a limited corpus), the texts were taken from three groups only (group 1, 2 and 4): the three texts from each assignment and group with the highest coverage and the three texts with the lowest coverage of AW.

The method for the second part of the study is a qualitative text analysis within the framework of SFL. According to SFL, language in texts simultaneously serves three broad functions, or metafunctions, namely the ideational, interpersonal and textual (Halliday & Matthiessen, 2014).⁵ The ideational function refers to the linguistic choices that enable speakers to make meanings about the world. From this perspective it is for example relevant to investigate how linguistic resources, here especially the AW, are used in texts to construe meanings on a semantic scale between concretion and abstraction (cf. Martin, 1993). The interpersonal function refers to the linguistic choices that enable speakers, readers, and writers to enact their diverse interpersonal relations. Within this metafunction, a crucial question is how language—and the resource of AW in particular—establishes close subjective relations or more distant objective relations (cf. Holmberg, 2011). Lastly, the textual metafunction comprises linguistic resources for organizing text at different levels, and managing the flow of discourse (cf. Halliday & Hasan, 1989). Also from this point of view we investigate how AW may contribute. The findings, presented in section 3.2, will further concretize the theoretical division of meaning making into the three metafunctions.

The qualitative analysis was accomplished in two steps. Firstly, the 36 texts were analyzed sentence by sentence in copies where all AW was marked, but without regard to the frequency of AW in the texts. After the typical functions of the AW were established, we investigated if there were functional differences in how AW contributed to the meaning of high- and low-frequency texts.

Neither the quantitative nor the qualitative analyses are meant to imply that texts with high frequency of AW are better than texts with low frequency of AW. What we are interested in is to investigate how the texts are adapted to norms of academic writing.

3. Findings

3.1. The Quantitative Analysis of Frequency and Distribution of Academic Words

The number of academic words in this body of data was 1293. This amount contains 345 types, i.e. almost 53 percent of the 655 AW in the wordlist. 35 types of AW occur ten times or more in the texts.

Through the analysis based on SAWL, the coverage of AW is established for all the five student groups, including both the assignments. The analysis shows that the coverage of AW varies between about 1 and 15 percent AW per student text. Table 9.3 charts the average frequency of AW for each group and assignment. Compared with the academic texts in the corpus of SAWL, AW in our data are used approximately half as much. This is not surprising since the students are at the beginning of their upper secondary school education while SAWL reflects the crucial general academic vocabulary required to manage their first year of university studies (Carlund et al., 2012).

Table 9.3. The average frequency of AW in all the 260 student texts (%)

Group	Linguistic environment	School	# Texts Assignment 1	# Texts Assignment 2
1	Total CLIL	A	6.2	5.7
2	Partial CLIL	B	4.0	6.4
3	Partial CLIL	C	4.6	5.7
4	Non-CLIL	B	4.7	5.7
5	Non-CLIL	C	4.0	4.3

The investigation of the coverage of academic words in the texts shows some differences between the student groups and between the assignments. The most striking result concerns the student group 1, participating in total CLIL in school A. The texts from these CLIL student texts had clearly the highest coverage of AW in assignment 1 written during the first semester (6.2 percent). However, the coverage of AW in the assignment written during semester 4 decreased (5.7 percent). The coverage of AW in all the other groups, CLIL or not, increased in the second assignment. The largest increase is found within group 2, one of the student groups with partial CLIL (from 4.0 to 6.4 percent), followed by group 3, the other student group with partial CLIL (from 4.6 to 5.7 percent).⁶

One interpretation of these results, in view of the linguistic environment, is that the development of an academic register suffers from CLIL education

totally in English, while instruction partly in English and totally in Swedish is favorable. In fact, it is a tendency which aligns with previous research on different forms of bilingual education, as they have shown that the bilingual programs where first-language instruction amounts to around 50% have more positive effects, and also more long-term benefits, than e.g. all-English instruction (Krashen & McField, 2005; Rolstad, Mahoney, & Glass, 2005; August & Shanahan, 2006).

3.2 The Qualitative Analysis of Functions of Academic Words in the Texts

The list of AW used for the quantitative part of our study is a product of statistical calculations (Carlund et al., 2012). Therefore, in order to investigate not only the frequencies but also the functions of the AW, a smaller corpus of 36 student texts was analyzed in detail. For this qualitative analysis we used the systemic-functional perspective of metafunctions. This theoretical perspective gives substance to the question about functions of the AW, leading the analysis to focus on three potential contributions to the meaning of the texts: ideational, interpersonal, and textual (cf. section 2 above).

Our investigation shows that use of AW in the student texts may contribute in all three metafunctions—and does so to various extent in different texts. (Examples are given in Table 9.4 below). In the ideational metafunction AW contribute to the construal of abstract and general meanings. A major part of the AW consists of nouns that are used in the texts to represent abstract entities (e.g. Swedish equivalents to reason, ground and development). Further, abstract entities in the texts are modified or related to each other by use of other AW, typically adjectives and verbs respectively (e.g. Swedish equivalents to individual and increased). In the interpersonal metafunction AW are used in lexical and grammatical constructions that express meaning in an objective way, for instance through implicit or non-affective wordings of the writers' judgements (e.g. in constructions with the Swedish equivalents to obvious and consider). Finally, AW are often simultaneously used in the textual metafunction to logically organize the text, signaling either the content of a new passage or the contrast between passages (e.g. using Swedish equivalents to reason or however). Thus, the qualitative functional text analysis shows how the frequency of AW, in itself a raw statistical fact, is tied up with ways of meaning making that characterize academic language.

To give an overview of how AW tend to function in the texts, we have listed examples for each typical function in Table 9.4. The examples are taken from the 35 types that are most frequently used in the corpus of 36 texts, and

the numbers in parenthesis indicate their rank (the Sw. equivalent to reason being the most frequent word).

Table 9.4. The typical functions of AW with examples from the 35 most frequent types

Typical functions of AW in the texts		English equivalents of AW used in the texts for each function
Ideational abstraction	Representing abstract entities	reason (1), ground (2), development (4), cause (5), difference (7), downfall (8), number (9), pressure (16), change (19), opportunity (21), picture (22), history (23), situation (24), prerequisite (29), influence (30), resource (31), solution (34), age (35)
	Modifying abstract entities	individual (15), increased (18), physical (20), economical (25), social (26)
	Relating abstract entities	develop (3), make (6), compare (17), demand (28), form (33)
Inter-personal objectivity	Making implicit modal judgements	obvious (13), simple (14)
	Expressing non-affective judgement	consider (11)
Textual logical order	Signaling content of text or passage	[the first etc] reason (1), cause (5), difference (7)
	Signaling contrast between passages	however, (10)

Since the small corpus for the qualitative analysis was made up of 18 student texts with high frequency of AW and 18 student texts with low frequency it was possible to do some observations of the functional differences between these two subsets of the corpus. Even if it is hard to quantify the way the texts use the functional potential of AW, it seems clear from our analysis that the two subsets show differences not only in frequency but also in function. In summary, it seems to be texts with high frequency of AW that more fully exploit the possibilities to use AW for abstraction, objectivity and logical order.

The 18 high-frequency texts have almost four times as many instances of AW than the 18 low frequency texts (1463 instances compared to 385). However, the qualitative analysis shows that the difference is much more than a matter of verbal frequencies.

The most evident difference between high-frequency texts and low-frequency texts was found to be how AW are used for construal of abstract

meanings. Although all texts use AW for representing abstract entities like reason and difference, only writers of high-frequency texts make substantial use of the possibility to build in more meaning in these abstract noun phrases with modifiers. As shown in the examples below, from two high-frequency texts, such modification sometimes includes other AW:

Example 1. Academic words (bold) in abstract noun phrases (underlined), high-frequency texts.

- (a) To be obese **means** an impoverished **social status**.
- (b) It [the industrial revolution] **arose** for over a hundred years ago and should not have any major importance for today's economic situation.

The low-frequency texts use, with very few exceptions, a quite limited set of modifiers in corresponding cases: e.g. Swedish equivalents to small/big and high/low.

As regards the interpersonal grammatical constructions of objectivity, almost every text uses the Swedish equivalent to the subjective *I think*. However, only writers of high-frequency texts mix this phrase with the more formal judgements underlined in the examples below:

Example 2. Academic words (bold) in expressions of formal judgements (underlined), high-frequency texts.

- (a) It is obvious that the middle of the decade shows a decrease in the proportion of mentally ill.
- (b) Given that eating disorder becomes a bigger and bigger social problem, it can definitely be **related** to the increase of obesity in Sweden, although I do not consider it as one of the leading **causes**.

Finally, as regards the use of AW for organization of the texts, the repetition of phrases like *another cause* is a strategy in a majority of the texts, and a common strategy also in the low-frequency texts. However, in half the cases the writers of low-frequency texts reveal grammatical shortcomings in such constructions of causality, which indicates that they have not yet fully acquired this resource.

The typical functional differences between texts with high and low frequency of AW can be exemplified by the excerpts from two texts shown in Table 9.5, in translation from Swedish. The words in bold correspond to Swedish AW in SAWL. The analysis we present of the excerpts is not meant

to imply that the high-frequency-text is a better text than the low-frequency text. However, it is clearly a text that is more adapted to norms of academic language.

Table 9.5. Excerpts from texts with low and high frequency of AW (translated from Swedish)

Low frequency of AW; coverage 2.7 %	High frequency of AW; coverage 10.8 %
<p>I am Swedish, and I have a good life, like many others in Sweden. But if I had been born anywhere else, “a good life” wouldn’t have been a matter of course. We have a small earth with immense class distinctions. The odd thing is that it is possible to see people that rich that they can provide a whole country and people so poor that they can’t get food to their own family, in the same time, in such a limited area. It is a question of fortune where you are born and if you will have a good or bad life, why? Who is deciding that we in Sweden are rich and have a good life, while the people in for example Kenya suffers. We have had the fortune to be born in a country where everyone has the possibility to have an I-phone, what can we do? And why is it like this? ...</p> <p>(Excerpt from assignment 1, written by a student in a partial CLIL group)</p>	<p>Wealth and health differ considerably in different parts of the world, e.g. Sweden has twenty times higher GNP/inhabitant compared with Kenya, and the predicted length of life is 26 years longer for a Swede than for a Kenyan. To have a change, it is necessary to identify the cause or causes behind these differences, but it is extremely difficult.</p> <p>The fact that the differences regarding health and wealth are huge, might have many different causes. One cause might be that the rest of the continents fell behind Europe during the Industrial revolution. It arose over hundred years ago and should not have a significant importance for the economic situation of today. Still, differences are observed when it comes to the development of countries, and in many of the poor countries old-fashioned methods still are used, e.g. in farming. ...</p> <p>(Excerpt from assignment 1, written by a student in a partial CLIL group)</p>

The excerpt from the text with high frequency of AW (to the right in Table 9.5) illustrates the three main functions of AW we have found in the writing of explanatory assignments. Firstly, and most noticeable, many of the AW contribute to the abstraction of the text. The student writing this text uses nouns representing abstract entities (Sw. equivalents to change, cause, difference, importance, situation, development and method), modifiers of abstract entities (e.g. economic) and verbs relating abstract entities (e.g. differ). The abstract meanings of this excerpt are typically realized in complex noun groups, which sometimes combine several AW: “the cause or causes behind these differences,” “a significant importance for the economic situation of today.” In contrast, the text with low frequency of AW (to the left in Table 9.5)

relies on a much more concrete way of reasoning. And even if the two AW of this excerpt (Sw. equivalents to matter of course and possibility) express some degree of abstraction, they are used in the rather concrete contexts.

Secondly, the same excerpts illustrate how AW in high-frequency texts also contribute to a more objective style. While the low-frequency text is built up with a chain of pronouns of first and second persons (three I followed by two you and four we), the high-frequency texts establish a more objective point of view. In the latter excerpt the writer uses constructions that express modal judgement implicitly, using two AW: (Sw. equivalent to) considerable and necessary. In the opening sentence the writer states that “wealth and health differ considerably . . . ,” instead of writing more subjectively for example “we/you must consider that” In the end of the first paragraph the writer concludes that “it is necessary to identify the cause or causes behind these differences,” instead of writing “we must identify why” or even more casual “why is it like this?”, as the other writer put the question in the ending of the first excerpt.

Thirdly, the excerpts (in Table 9.5) also show how AW can make it easier to organize the text logically and to signal the text structure. The key-word for doing this in the texts with high frequency of AW is the Swedish equivalent of *cause*. In the first paragraph the writer formulates the goal of the text: “to identify the cause or causes” The second paragraph makes it clear that the problem under discussion has “many different causes,” and suggests that “one cause might be” In the paragraph following after the excerpt two other “self-evident causes” are put forward, and the concluding part of the text discusses what might be “the principal cause.” Thus, the nominal realization of causality is used to break down the complexity of the task into pieces that could be neatly ordered. The low-frequency text follows more of a stream of associations. This is indicated already in the opening part of the text, for example by the sequence of different questions that ends the excerpt. The last of these questions—“why is it like this?”—is not answered by the following paragraphs, and therefore functions rather as an exclamation.

It is clear from the qualitative analysis that AW can be much more than an academic flavor added to the text. For students who use AW more frequently, these words are typically tools for making meaning in the abstract, objective, and logically ordered way that is crucial for meaning making in academic writing. Thus, the qualitative analysis validates the quantitative analysis of AW.

4. Summary and Discussion

This study focus on L1 (here Swedish) academic writing in the context of

English medium instruction, so-called Content and Language Integrated Learning (CLIL), in Sweden. CLIL has expanded enormously in European educational settings during the two last decades, at least partly as a way for schools to meet the increased demands on foreign language proficiency (Eurydice, 2006). However, even if the vision is about foreign languages, in practice CLIL is a matter of English, in 95 percent of the cases (Nikula et al., 2013). Still, CLIL is a form of bilingual education, as it involves two languages for content instruction; the national or majority language and English (e.g. Llinares et al. 2012). Despite the fact that CLIL is a bilingual education, not much attention has been directed to the L1 in previous CLIL research (Dalton-Puffer, 2011: 189). This study contributes to the research field, in that it focuses on the understudied L1 in CLIL, and in that it is based on a quite large body of actual student texts written by both CLIL and non-CLIL students. Our main interest was to find out if CLIL students' written academic Swedish language proficiency differs from their non-CLIL peers. We tested them (125 CLIL students and 75 non-CLIL students) in the beginning of upper secondary school (term 1) and then almost two years later (term 4).

The study consists of a quantitative and a qualitative part. The quite large body of data (260 texts) motivated a quantitative method. A recently developed academic wordlist made it possible to analyze the students' use of the academic vocabulary. In this analysis, the coverage of academic words was calculated for each text. We were interested in differences between the five student groups, on the one hand, and between the first and second assignment, on the other hand. In the qualitative part, we wanted to understand the validity of the quantitative findings. We here moved the focus from frequencies of academic words in the student groups and assignments, to functions of academic words in text, in particular differences between texts with high and low frequency of academic words. In the qualitative part, a smaller corpus of 36 student texts was analyzed in detail, by means of systemic functional linguistics. Thus, the qualitative functional text analysis aimed at examining if, and if so, how the frequency of AW is tied up with ways of meaning making that characterize the language of academic writing.

The quantitative analysis showed differences both among the five students groups and between the assignments. In assignment 1, written during the very first semester of upper secondary school, i.e. when the CLIL students only had participated in CLIL for a short time, the students in the total CLIL group (group 1) displayed a relatively high coverage in average (6.2 percent) in comparison with the other four groups (between 4.0 percent and 4.7 percent) (Table 9.3). The result seems to indicate that the total CLIL group was closer to the goal of academic writing from the outset than the other groups,

at least in terms of academic vocabulary. The results for assignment 2, written after almost two years of upper secondary school, show that all the student groups displayed a higher frequency of AW, with the noteworthy exception for the total CLIL group. While an increase of academic vocabulary can reasonably be interpreted as a step forward, towards the attainment of the crucial academic vocabulary needed for higher education in Sweden, a decrease indicates a lack of development. In that case, an interpretation of this result is that total CLIL might interfere with the development of at least one crucial aspect of the language for academic writing. Another interesting result of the quantitative analysis was that the largest increases were found within group 2, one of the student groups with partial CLIL (from 4.0 to 6.4 percent), and group 3, the other student group with partial CLIL (from 4.6 to 5.7 percent). The fact that bilingual education where first-language instructions amounts to around 50 percent is more favorable, concurs with conclusions drawn from a series of research studies where different forms of bilingual educations were compared. The 50-50 bilingual programs had more positive effects, and also more long-term benefits, than e.g. all-English instruction (e.g. August & Shanahan, 2006). Notably, the increase in the partial CLIL groups also is larger than in the non-CLIL groups, though only slightly larger than in one of these student groups.

The qualitative analysis strongly validated the quantitative results. Through the characterization of the functions of academic words and detailed systemic-functional analysis of the functions of the academic words in a smaller corpus with low frequency texts and high-frequency texts, we found that a high frequency of AW was tied up with ways of meaning making that characterize the language: (a) construal of abstract and general meanings, (b) the expression of meaning in an objective way, and (c) the signaling of a logical organization of the text.

To conclude, objectivity and logical order are certainly characteristic features of academic text, and this investigation has shown that the students' acquisition of the norms of academic writing cannot be taken for granted. In a situation where the use of L1 is strictly limited, as in total CLIL, the development of the students' advanced L1 academic proficiency is at risk. This should really be taken into consideration within the process of implementing CLIL education, not least since a series of studies of other forms of bilingual education has pointed in that direction. Interestingly, our study shows the potential of partial CLIL, which also aligns with previous research. However, as mentioned there is still a lack of empirical studies of the efficacy of CLIL, and therefore it is not yet possible to tell what circumstances actually guarantee the benefits of CLIL for writing in both the target language and in L1.

Notes

1. The term “first language”(or “L1”) is used here to refer to the language first acquired by most of the students in a certain national school context, in contrast to the target language of CLIL. Obviously, at group level the situation usually involves also students for whom this “first language” is in fact a language they have acquired later. In our study, it counts for almost 20 percent of the students.
2. In French, the corresponding acronym is EMILE, *Enseignement de Matières par l'Intégration d'une Langue Étrangère*.
3. The project is funded by The Swedish Research Council, 2011-2015. The project team, led by Associate professor Liss Kerstin Sylvén, includes seven researchers and four PhD students from University of Gothenburg and Stockholm University, see http://www.ips.gu.se/english/Research/research_projects/cliss/.
4. Thanks to PhD-student Judy Ribeck, Swedish Language Bank, University of Gothenburg.
5. The term ideational is used in the article for what more technically would be *ideational experiential* (cf. Halliday & Matthiessen, 2013:30, 85).
6. Due to the fluctuation of students between different assignment sessions the differences reported here between total CLIL (school A) and partial CLIL (school B and C) is not statistically significant. However, the negative trend for the students with total CLIL (school A) continues also in the last writing assignment in Swedish (not presented in this chapter). If these final data for AW are taken into account, the difference between CLIL students in school A and the other two CLIL groups is statistically significant ($p= .026$).

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10 Developing Support for Teachers and Students in Secondary Science Classrooms through Writing Criteria

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Content-area teachers are increasingly called upon to link curriculum to broad literacy standards and goals, yet they often feel unprepared to teach these skills in their discipline. This chapter reports on the implementation of a National Science Foundation-funded grant, Science Literacy Through Science Journalism (SciJourn). Through the grant, U.S. secondary teachers brought science journalism into their school curricula. To support the teachers' efforts, university researchers sought to create criteria for science journalism. This chapter describes the iterative process of creating the criteria by looking first to experts outside of schools and then to the way the resulting criteria were taken up in schools. The authors argue that generic rubrics for writing are not sufficient to support and advance student writing in the disciplines and present this effort as an alternative.

Les enseignants spécialistes d'une discipline sont régulièrement appelés à établir des liens entre leur programme d'études et les normes et objectifs de l'écrit, mais ils se sentent souvent mal formés pour enseigner ces techniques dans le cadre de leur discipline. Cet article présente la mise en œuvre d'un programme subventionné par la National Science Foundation (fondation nationale pour la recherche scientifique) pour l'enseignement de la science à travers le journalisme scientifique (SciJourn). Grâce à cette subvention, les enseignants américains du secondaire ont introduit le journalisme scientifique dans le curriculum

des élèves. Pour soutenir l'action des enseignants, des universitaires ont entrepris d'établir des critères définissant le journalisme scientifique. Cet article examine le processus continu de l'établissement des critères depuis l'avis d'experts externes à l'établissement scolaire jusqu'à la manière dont ces critères sont appliqués dans les écoles. Les auteurs défendent l'idée que les rubriques génériques dans le domaine de l'écriture sont insuffisantes pour assurer le soutien et le développement de l'écriture des apprenants dans les domaines disciplinaires et présentent cette initiative comme une alternative possible.

Content area teachers are increasingly called upon to link curricula to broad literacy standards and goals, yet they often feel unprepared to teach literacy skills. What can we as writing researchers and teacher educators do to support their efforts? What are the impediments to bringing more reading and writing into content area classes? Would “standards” or “writing criteria” help? What should these standards/criteria look like in order to be effective? This chapter describes the iterative process of creating criteria designed to support teachers in their efforts to bring meaningful literacy into science classrooms in a large metropolitan area.

In order to sort through the many roadblocks to bringing more writing into disciplinary subjects, we need to better understand what discipline-specific literacy means to classroom-based educators and what it might look like *in situ*. When we asked the secondary science teachers with whom we work “what is science literacy?” most responded with a version of this answer: It is the ability to read and write in science class (or about science). In the United States, science teachers may equate “science literacy” with “science” plus “literacy” for a variety of factors, including the content area literacy movement and national initiatives related to reading and writing across the curriculum. Content area literacy approaches suggest that when taught a “generalizable” set of reading and writing strategies, students can apply these strategies in all content area classrooms (Hynd-Shanahan, 2013; Shanahan and Shanahan, 2012). This approach to reading and writing in the subject areas has been the topic of required coursework common in U.S. Schools of Education and gained further traction when the concept that “every teacher is a teacher of reading” was codified by the No Child Left Behind Act (U.S. Department of Education, 2002). As U.S. states revised their education standards in recent years and added writing assessments to go along with the reading assessments (e.g., the Common Core State Standards, National Governors Association, 2010), uniform school-wide writing programs and rubrics have been vaunted as a “revolutionary” approach to school turnaround (Tyre, 2012).

Among scientists and academics, however, the term “science literacy” has a long and contested history and is used in a way not to be confused with the act of understanding science through reading and writing. First popularized by Hurd (1958), the term “science literacy” has been viewed as a proxy for familiarity with of a body of scientific knowledge. This view influenced science education in the United States for decades and underpinned the National Research Council’s 1996 Science Education Standards, standards that required the teaching of specific fact-based content in order to build a scientifically literate public. However, competing definitions of science literacy exist in the research literature, as elucidated by Roberts (2007). Roberts differentiates between the science knowledge approach, calling it Vision I, and a Vision II view of science literacy that emphasizes being able to apply scientific information to real world problems. Scholars who approach science literacy from a Vision II perspective define scientifically literate people as those who can use scientific information to inform their health, consumer, technological, and civic decisions (Feinstein, 2011).

Although reading and writing are a component of both Vision I and Vision II, it is important for literacy educators and science educators alike to recognize this confusion, i.e. that “science literacy” is not necessarily or strictly about reading and writing. Still, the act of prioritizing literacy or separately teaching reading and writing skills as distinct from content (Hynd-Shanahan, 2013; Moje, 2008) can rightfully be viewed as an “outside-in’ approach in which generic strategies are pushed into the process of disciplinary reading and learning” (Brozo, Moorman, Meyer, & Stewart, 2013: 353) rather than being born with and from content knowledge. Such push-in efforts can be applied to Robert’s Vision I, in which literacy strategies are used to help novices recall content, or as part of Vision II in which science knowledge is applied.

But such push-in efforts, whether applied to Vision I or Vision II, can be misguided. Literacy layered upon content—for its own sake or for application—can, in fact, run counter to the very notion of what science is or does. A “fun” literacy activity, for instance, asks students to describe a date between hydrogen and oxygen atoms, an activity that is about as authentic as a writing assignment from the 1950s that asked students to describe life as a postcard going from their school to the USSR. But today’s science teachers, especially those with only minimal preparation in the teaching of writing (Totten, 2005), have great difficulty bringing authentic literacy activities into their classrooms, in part perhaps because they view teaching literacy as an extra burden rather than an essential part of teaching their subject matter (Draper, Broomhead, Jensen, Nokes, & Siebert, 2010; Moje, 2008).

In reaction, some literacy scholars have advocated a “disciplinary litera-

cy” approach to literacy in content area classrooms. Rather than emphasizing push-in or transferable approaches to reading and writing, disciplinary literacy “emphasizes the differences among the disciplines” (Hynd-Shanahan, 2013, p. 94). Scholarship in this field has examined the literacy practices of disciplinary experts and calls for including instruction of these practices in middle and secondary schools (Shanahan & Shanahan, 2012). This approach is described as prioritizing the discipline rather than teaching literacy (Moje, 2008).

In science education, disciplinary literacy research often cites studies of the way experts read texts (e.g., Bazerman, 1985) as important frameworks for disciplinary literacy instruction. However, looking to professional scientists presents at least two problems. First, science teachers are not themselves scientists and therefore the disciplinary literacy practices of experts may be unfamiliar to them (Hynd-Shanahan, 2013). Second, most secondary students in science classes will not go on to be scientists themselves (e.g., Feinstein, 2011). Seeking to educate all students as “little scientists” (e.g., O’Neill & Polman, 2004) is both impractical and unnecessary to develop the level of scientific literacy needed to function as an adult member of society (Feinstein, 2011). Feinstein (2011) argued that science education should focus on the “usefulness” aspect of science literacy and described scientifically literate people as “competent outsiders” to science: “people who have learned to recognize the moments when science has some bearing on their needs and interests and to interact with sources of scientific expertise in ways that help them achieve their own goals” (180).

In this chapter we, too, advocate for a literacy that enables graduates to function as “competent outsiders” to science; we also believe that generic reading and writing skills—those seen in content area literacy initiatives—will not promote the development of competent outsiders. Yet disciplinary literacy approaches are also unsuitable to this goal. Instead, we argue for looking to authentic models of “competent outsiders” outside the walls of the academy. In the case described here we have turned to science journalists, professionals who engage in the authentic expert work of “competent outsiders” to science. This chapter describes how we learned from the literacy practices of science journalists and worked through an iterative process of articulating these understandings in a way that was useful to secondary science teachers.

1. Background: The SciJourn Project

The “Science Literacy through Science Journalism (SciJourn)” program was funded by the National Science Foundation (U.S.) from 2008–2013 and involved 51 teachers and more than 10,000 teenagers in classes at 37 schools and in a science museum’s youth development program. Teachers self-selected to

join the program which began with a two-week summer institute in which teachers (1) wrote and revised their own science news article for publication in the grant's newsmagazine for teens under the direction of a professional science journalist and (2) created plans for implementing science journalism activities in their classes under the direction of university faculty with expertise in pedagogy. Each summer institute involved a new group of teachers (referred to as "pilot," "cadre 1," and "cadre 2"); follow-up professional development meetings during the school year included all currently participating SciJourn teachers so that by the final year of the grant representatives from all three cadres were meeting together. The program was not a scripted curriculum and was adapted by teachers in parochial (3) and public urban (11), suburban (17) and rural (6) communities teaching a range of science courses with students of varying ability levels and socioeconomic and racial backgrounds.

SciJourn began with the hypothesis that science journalists are models of scientifically literate individuals (as defined by researchers like Feinstein, 2011) and that the production and consumption of science news offered possibilities for the classroom. Yet science journalism was not taught in schools frequently, either in science classes or English/Language Arts classes (see Jarman & McClune, 2007, for an exception). Furthermore, influenced by such documents as the National Research Council's 1996 Science Education Standards, the science teachers in this program felt pressure to teach and assess a great deal of specific, often decontextualized, factual content. As the project began, we knew that helping teachers find space in the curriculum for science journalism activities would be an early challenge.

In addition, we anticipated that the secondary science teachers in this program would be intimidated by the prospect of teaching, assigning, and evaluating student writing. Our concern was based on the fact that most science teachers feel unprepared to use writing in their classes (Kiuahara, Graham, & Hawken, 2009); likewise, our own research with the SciJourn teacher population uncovered a lack of formal training in and a general discomfort with the teaching of writing (Kohnen, 2013). Because of the prevalence of content area literacy initiatives and other school-wide models of literacy instruction in U.S. schools, we first thought we might adapt one such literacy assessment tool. These tools were already designed for schools, we knew, and might be familiar to teachers. One choice we considered was the 6+1 Trait Writing model, developed by the Northwest Regional Education Laboratory (NWREL) and implemented in schools in the U.S. and abroad. The 6+1 Traits are designed to evaluate writing in any genre and any discipline and studies have found them efficacious in a variety of content areas (e.g. Isernhagen & Kozisek, 2000; Jarmer, Kozol, Nelson, & Salsberry, 2000; Kozlow & Bellamy, 2004). In the original NSF grant application, we

proposed overlaying an elaborated set of scientific literacy standards for writing over the 6+1 traits scoring model (e.g. Culham, 2003; Spandel & Stiggins, 1997) because school districts were already familiar with 6+1 writing and teachers were already using these standards and rubrics. Furthermore, the marketed universal applicability of the 6+1 Traits was a selling point.

However, like Applebee (2012), Moje (2008), and others, we came to believe that trying to be universal in literacy instruction is a mistake; specificity is what matters. At the same time, we also agree with Draper et al. (2010) and Brozo et al. (2013) who caution against an “artificial literacy-content dualism” (Brozo et al., p. 353). Implementing science journalism activities into science classes, we recognized, was not exclusively (or generically) about either writing or science. Science journalism had the potential to help students become scientifically literate “competent outsiders,” we believed, but only if students could engage deeply in the work and receive the formative feedback research has shown is necessary for improvement (Black & William, 1998; Crooks, 1988; Natriello, 1987). Therefore, we turned away from educational models and tools and set out to study the professional practice of science journalism as well as authentic interactions with science journalism by scientifically literate people, hoping to identify what it was about the professional practice of science journalism that was important for adolescent learners.

The remainder of this chapter will describe this research, the development of criteria for teaching and responding to student science journalism that grew out of this research, and the subsequent implementation of science writing criteria by science teachers.

2. An Iterative Process: Developing Criteria for Science Writing

In an attempt to build criteria for writing science journalism, we turned to experts whom we see representing a scientifically literate population. We consulted various stakeholder groups, including practicing scientists, science journalists, editors of science journalism, and classroom teachers. Engaging experts in reading, responding, and editing tasks, we sought to understand what science experts attended to in both professional and student science journalism texts.

2.1. The First Draft

As part of this effort, sixteen interviews were conducted using a think-aloud protocol. Two articles were chosen for each interviewee, one in a field in which they were clearly expert and another in a science area where they were

not as well versed. All articles came from *Science News*, a publication targeted toward a scientifically interested, but not expert public. Interviews were recorded and later transcribed. Each interview lasted at least 30 minutes and some more than an hour.

Subjects were told that we wished to better understand how readers comfortable with science think about what they read—what stops them, what makes their head nod in agreement, what makes them question what they are reading. We then asked them to read the first article aloud, the one where they were expected to be scientifically “in the know,” and to stop and comment when an idea “crossed their minds.” After that read-aloud was completed, the second round began, this time with the article on a topic with which they were less familiar.

Using a grounded theory approach (Glaser, 1992), we began with open coding of the transcribed interviews. In the first round of coding the read-aloud protocol, responses fell into the following categories: sources (13%), contextualization (17%), relevance to readers (11%), factual accuracy (30%), writing quality (23%), and answering the journalistic 5 “Ws” (6%). A second coder created slightly different categories: up-to-date, relevant, clear, concise, attributed, accurate, and credible.

These two groups of categories were discussed and refined by the larger SciJourn research team, a team that included former high school science teachers as well as university researchers. Newman, a co-PI on the project who had decades of experience as a science journalist and editor as well as a Ph.D. in chemistry, provided guidance to help the team understand science news writing from the perspective of a producer of science journalism. For example, everyone involved in the project (including those who participated in the interviews) thought that accurate reporting—getting the information correct—was important. However, Newman clarified how complex factual accuracy is when the topic of an article is cutting edge science and the information and implications are uncertain. Science teachers involved in the project were used to “correcting” students’ factual misunderstandings, but factual accuracy in science journalism meant something different. In these ways, we attempted to deepen our definitions of the categories from an authentic perspective.

Like merchants, we took wisdom gathered from one group to get feedback from another group. The interview data with the science experts was organized and brought back to both educators and to science writers and journalists. For instance, a focus group was organized at a meeting of the American Association of the Advancement of Science (AAAS) by Julie Ann Miller, then editor of *Science News* and a member of our grant’s advisory board. Again, we recorded and examined their feedback, looking particularly

at what they viewed as important, what they saw as missing and what they thought was under- or over-emphasized.

In all of our collected data, there were a number of comments about “writing.” Upon closer examination, these comments referred to different things. Sometimes the word “writing” was used to refer to ideas not being clear, e.g. “this statement could be confusing,” and sometimes “writing” referred to delight in metaphor or word choice. As we drafted disciplinary criteria we purposefully omitted writing in this second sense. Our goal was to help students and their teachers attend to building competent outsiders, not necessarily graceful writers.

Based on this data, we created our first working draft of criteria for science journalism which included the following: 1) Able to effectively search for and recognize relevant, credible information sources, especially on the Internet (referred to as “search” below), 2) Articles are based on multiple, credible, attributed sources (“sources”), 3) Scientific information, discoveries and technologies are contextualized (“context”), 4) Scientific information is relevant to readers (“relevance”); 5) Information is factually accurate (“factual accuracy”).

2.2. Revisions to the Criteria

The first draft of the criteria was field tested in professional development meetings with participating teachers and their students. Newman’s responses to participating student writers were also analyzed to determine if the criteria captured his comments. In addition, transcripts of a series of three approximately 75-minute interviews with two experienced science journalists on the topic of science journalism were used to check the authenticity of the criteria.

Based on these data sources, several related, significant revisions were made. First, the fourth criterion, “relevance,” proved to be difficult for both researchers and classroom teachers. The research team struggled with this concept—relevant to whom? For what purpose? Furthermore, “context” and “relevance” often became intertwined and several of the pilot year classroom teachers resisted the importance of “relevance to readers,” instead arguing that “relevance to author” was more important in a classroom. In other words, teachers didn’t care whether or not readers would find the particular story engaging as long as the writer (their student) was interested. Yet interviews with practicing science journalists and editors revealed that the ability to make science information “relevant” to readers was an essential skill for a science news writer and, if the criteria were to be “authentic” to true practice, “relevance” seemed necessary. The problem with this criterion was identified early in field testing, but a solution was not found

until the related revisions were completed.

A second problem with the original draft of the criteria had to do with the awkwardness of the wording, a direct result of the complicated nature of the criteria's purpose. The criteria were conceptualized as being about more than simply what appeared on the page of a student's final draft, although the final draft was envisioned as a piece of data for determining a student's scientific literacy. The awkwardness of original draft of our criteria was due, in part, to the fact that it included characteristics of a person (e.g., "search") as well as characteristics of an article (e.g., "context," "factual accuracy"). This led to challenges for teachers implementing the criteria. One challenge was that teachers seemed to feel free to reject certain criteria as unimportant to their classroom goals, and project leaders, without language for explicating the relationship between the article itself and scientific literacy, struggled to convince teachers not to do so. This was most apparent for the criterion "relevance," although it also came up for "context." Notably, both of these criteria (particularly "relevance") may have been seen by the teachers as being more about audience than science.

Returning to the grant's overall purpose, project leaders sought to define more clearly the project's aim. What, according to SciJourn, was "scientific literacy"? The answer, first articulated by Newman, was this: the skills and habits of mind necessary to navigate science-related issues and concerns 15 years after high school graduation (see Polman, Newman, Saul, & Farrar, 2011 for more information). Viewing scientific literacy through this lens, project leaders returned to the criteria and made the following revisions (see Table 10.1).

Table 10.1. Qualities of a Scientifically Literate Person compared to Qualities of a Science News Article

A scientifically literate person is able to ...	A high-quality science news article ...
... identify personal and civic concerns that benefit from scientific and technological understanding.	... has most or all of these elements: is local, narrow, timely, and presents a unique angle.
... effectively search for and recognize relevant, credible information.	... uses information from relevant, credible sources including the internet and interviews.
... digest, present and properly attribute information from multiple, credible sources.	... is based on multiple, credible, attributed sources from a variety of stakeholders.

A scientifically literate person is able to ...	A high-quality science news article ...
... contextualize technologies and discoveries, differentiating between those that are widely accepted and emergent; attending to the nature, limits and risks of a discovery; and integrating information into broader policy and lifestyle choices.	... contextualizes information by telling why it is important as well as which ideas are accepted and which are preliminary.
... fact check both big ideas and scientific details.	... is factually accurate and forefronts important information.
<i>Note:</i> Reprinted from “The Authenticity Spectrum: The Case of a Science Journalism Writing Project,” by A. M. Kohnen, 2013, <i>English Journal</i> , 102, p. 29. Copyright 2013 by the National Council of Teachers of English.	

The result was a two-column table, with the left column listing skills that are necessary to function as a scientifically literate adult in a future we cannot yet imagine. The right column then correlates these particular skills with characteristics of a science journalism article. This revision clarified the relationship between the person and the writing, while also inherently making the case that all of the criterion are about science literacy and are, consequently, the science teachers’ domain.

“Relevance,” the most challenging of the initial criterion, underwent the most significant revision. Early analyses of comments by teachers and Newman pointed to the importance of article topic choice for students, an issue not cleanly captured in the first draft of the criteria. Many teachers initially believed they could assign science news stories based on their existing curriculum and limited student topic choice to a few curricular concepts; however, almost all teachers involved eventually concluded that student choice was one of the most important aspects of the assignment. In professional development meetings, teachers explained how students came to discover meaningful topics for their articles and invest themselves in the work of researching and writing, an investment they may not have made with a teacher-assigned topic. The importance of student choice may have also led to the pilot teachers’ revision of “relevance” from audience-focused to writer-focused. (It should be noted that pilot teachers, who were, by definition, the first teachers to work through the program, appeared to feel much more license to revise various aspects of the project than did teachers in later cadres). In his comments on student drafts, Newman, too,

focused on article topic. An analysis of Newman's comments on student writing from the pilot year of the program found that he regularly wrote encouraging comments to students based almost exclusively on article topic, regardless of the length or technical quality of the written article.

When the criteria were revised, then, it was important to capture what mattered about article topics in a way that both aligned with a characteristic of science literacy and also validated the teachers' desire to have "relevance to student" acknowledged. As Newman and others shared the "15 years after high school graduation" definition of science literacy with NSF evaluators, the grant's advisory board, and classroom teachers, the concept resonated. Working with the previous draft of the standards, the project team realized that for any of these standards to matter, students first had to recognize that there was science in their hobbies and in their civic, health, and consumer concerns. As Feinstein (2011) argued, "the pursuit of science literacy is not *incidentally* but *fundamentally* about identifying relevance: learning to see how science is or could be significant to the things you care about most" (180, italics in original). Adults 15 years after high school graduation may have the skills necessary to find information online and to assess credibility, but if they do not recognize that many of their everyday choices and problems could benefit from scientific information or understandings, they won't bother to even look for that information. All of the other standards were only meaningful after the first one had been met.

For a student science journalist, identifying an issue that could benefit from scientific or technological understanding translated into choosing a good article topic. Conversations with Newman about characteristics of good article topics led to the following list: local, narrow, timely, unique angle. Each successful article topic fit at least two of these. This list helped teachers and students identify topics that were personally meaningful and in this sense "relevant": a "local" story might be about a relative with a health condition or a change in the school's lunch menu; a "timely" story might be about choosing the best gaming system for a Christmas gift; stories with "unique angles" included many of the "personally relevant" articles teachers were so passionate about letting their students pursue (including articles about why tennis ball cans "pop" when opened or if cement will ever harden in a cement mixer). From a writing standpoint, "narrow" was perhaps the most important characteristic; all published articles dealt with "narrow" topics. Keeping topics "narrow" meant steering students away from issues like climate change and towards topics like the impact of a local drought (see Appendix for definitions and editorial comments on each of the criteria).

3. Teacher Development

We set out to create these criteria in order to identify what was important about science journalism for teachers in classrooms focused on scientific literacy. Our next task was to work with teachers to develop shared understandings of what these criteria meant, how they might look in student writing, how they could be taught, and how they could be assessed. We also sought to measure whether teachers changed the way they responded to student science journalism after being involved in our program.

3.1. Teachers as Writers

Based on pre-test data, we knew that science teachers felt unprepared to teach or respond to writing and tended to focus on grammar and factual errors in their feedback to students. The kinds of writing they assigned often asked for isolated factual information so that writing could be assessed like an objective test (Kohnen, 2013). We knew that implementing science journalism activities in order to improve student science literacy would be a new use of writing for most teachers, quite different from using writing as a tool to assess factual recall. Teachers would need support in order to make this kind of change.

In the initial two-week professional development summer institute teachers were required to write themselves, with the second and third cadres writing to the criteria. Teachers chose “do-able” science topics,¹ conducted research online and via email, phone, and in-person interviews, and drafted short science news articles (~500 words) written for a teenage audience. Their writing process included instruction and explicit feedback from Newman, an experience many teachers cited as pivotal to their own understanding and classroom implementation. Barbara, a biology teacher in the pilot year of program, called writing “the best thing for the teachers that go through the training to do.” As someone who considered herself a “good” writer of academic papers, Barbara said she needed to write a science news article to really understand the genre. Similarly, Mary, a chemistry teacher in cadre 1, thought of herself as a competent writer and was surprised by Newman’s feedback and her own difficulty meeting the criteria; she brought this experience directly back to her classroom, even showing her students her own writing with Newman’s comments. Other science teachers regularly struggled with writing and were unsurprised by Newman’s editing; however, they valued the criteria and saw these as different from what they had learned about reading and writing standards in the past. Jason referred to the explication of the criteria (which was first done indirectly by Newman through Read-Aloud/Think-Alouds of science articles) as a “profound” experience, one

that changed his own reading of science content. The Read-Aloud/Think-Aloud emerged as an essential step for teachers introducing the criteria in their own classrooms; students responded enthusiastically to hearing interesting science news read aloud to them, and teachers, through their own thinking comments, were able to direct student attention to the essential features of science writing.

Science teachers reacted to the writing process and the developing criteria in a positive way, recognizing these criteria as at once familiar, representing concepts they had been trying to emphasize in their classes for years, and different from any writing assignment or criteria that they had ever used. Because of the connection between science journalism and scientific literacy, many science teachers embraced the idea of “15 years out” scientific literacy and saw the writing assignment as important, even essential. In interviews, teachers expressed the opinion that, unlike the school-wide initiatives they had experienced in the past, the science journalism project complemented and supported science teaching rather than only being about generic writing or reading skills.

3.2. Teachers as Responders

In addition to writing themselves, the teachers were also provided with a variety of tools to help them change their approach to assessment and feedback. In professional development meetings, teachers examined and discussed the writing of students involved in the project. Student exemplars, annotated using Microsoft Word’s comment boxes to note each of the criteria in use, were provided both in handouts and online in a teacher resource website. Teachers practiced responding to sample student articles (written by participating students) using a tool developed by long-time teacher Laura Pearce called the SAFI (Science Article Filtering Instrument), which required that the teachers respond only to the criteria and return the writing to the student if it did not pass through the SAFI “filter.” (SAFI asks questions like: are there two or more credible sources?; is the story plagiarized?; and is the information accurate?; see Saul, Kohnen, Newman, & Pearce, 2012 and teach4sci.journ.org for the SAFI and other classroom resources).

Teachers also practiced “calibrating” their responses to student writing (a process that was inspired by Chapman & Russell, 2005). Teachers were provided with anchor papers that Newman identified as “low,” “medium,” and “high” based on the criteria. Using the criteria, teachers worked in small groups to try to “calibrate” their own assessment of the student writing to Newman’s benchmarks. For this activity, we deliberately selected some “low” and “medium” anchor papers that demonstrated higher mastery of grammar or organization yet included incorrect or misleading information, little con-

text, or few named sources. Teachers worked to train themselves to see past the conventions and look first for the content.

3.3. Teachers as Apprentices

In addition to formal tools, the teachers also benefited from working under the guidance of Newman, who provided editing to their students. Teachers read Newman's comments and compared them to their own way of responding to student work; some asked Newman for clarifying feedback when they were uncertain. In this way, the teachers became "legitimate peripheral participants" (Lave & Wenger, 1991) in the community of practice of science news editing, learning through apprenticeship.

Teachers found several features of Newman's editing notable. First, Newman spent more time on papers he considered closer to publication (which was based on the criteria) and commented less on papers with fundamental flaws. This differed from teacher tendencies in two ways. As noted earlier, teachers had to redefine what made a paper "good," moving from an analysis based on conventions and superficial facts to a judgment based on the criteria. Additionally, they regularly reported spending more time on papers that had errors related to poor conventions and misstated facts rather than on papers that were of higher quality. Newman's tendency, which was reified in the SAFI, was to return papers with what from a science perspective would be viewed as fundamental problems (i.e., plagiarism, topics that were too big, or a complete misunderstanding of the science) to the author for revision. It was his tendency to comment extensively on papers that showed potential and to comment less on papers that needed to be begun again. Copyediting was almost exclusively reserved for papers with publication potential; papers with fundamental content errors received few copyedits (Kohnen, 2012). Although Newman's goal as publisher of a newsmagazine differed from the teachers', several teachers learned from and even adapted Newman's approach of returning work to students who had not met the criteria with only criteria-based comments (and to return plagiarized articles virtually unedited). As a result, the revision process moved from the teacher's responsibility to the students'.

Teachers also saw Newman's editing as more direct and specific than their own feedback. Brian, a chemistry teacher in an urban school, called Newman's edits "actionable" and described Newman's feedback as a model to imitate. Many teachers knew that they previously tended to focus excessively on grammar and conventions in their feedback and saw in Newman an alternative. Brian described a term paper he assigned in chemistry:

I purely graded it for grammar, that's the only thing, I mean I had a rubric and the rubric was assessing ideas, but my marks that I was making on papers were mostly grammatical and then the students would see how they did on the papers by looking at the circles on the rubric that I had given so, in retrospect, learning nothing from the process except for that their chemistry teacher's really into grammar.

After attending professional development, Brian described himself as working with students to develop content and ideas. In a late-September meeting, he told the group, "We've already had two writing assignments that are probably higher in quality in my opinion now than that one writing assignment we had before," a fact he attributed to the training and the criteria. Likewise, Yvonne, a biology teacher, described using the SAFI: "this helps me to not want to correct grammar," a tendency she had in the past.

3.4. Signs of Growth

As teachers grew to understand the criteria, they were able to apply these understandings to student writing. Pre-test data showed that teachers had few ways of responding to student writing other than copyediting or providing comments that offered global praise. In a study comparing six pilot teachers' responses to sample student papers prior to their involvement in the program to their responses at the end of the first year, all pilot teachers provided more kinds of content feedback (rather than only marking factual inaccuracies) in the post-test; specifically, all teachers addressed sources of information and the need for multiple, credible perspectives in the post-test while only one teacher made a single comment about sources on the pre-test. On pre-test papers, all teachers provided non-specific complimentary comments; only two did so on the post-test, perhaps because they had more knowledge and confidence to bring to their end-of-the-year responses and therefore could make more targeted edits. Finally, copyediting comments decreased on the post-test for all teachers who had assigned student writing during the year (one pilot teacher assigned no writing and increased his copyediting pre- to post-test).

Teachers responding to sample papers only provided hypothetical data; therefore, a second study was undertaken, this time the analysis focused on the written feedback Mary provided to her junior honors chemistry students. Here, too, we saw teacher growth. Prior to project training, 51% of the feedback Mary gave on sample papers was related exclusively to conventions or form; 35% of her comments addressed factual information, primarily in isolation. After professional development, 61% of Mary's feedback to her students

addressed content issues, including concerns about factual accuracy, topic relevance, and sources of information; only 24% of her comments had to do exclusively with writing conventions or form.

4. Conclusions

Our research indicates that it makes sense to look beyond the walls of the academy to create criteria for teaching and assessing student writing, especially in a specific content area where there are experts working. To look only within the school environment, focusing particularly on test scores rather than real world experience, is at once less authentic and at the same time less convincing to teachers. This research is of particular importance in the United States as individual states implement the Common Core State Standards. The standards, currently adopted in a majority of U.S. states, call for increased writing in all subject areas in primary/secondary school. We argue that simply asking content area teachers to require more writing in their classes will not necessarily get students to the critical thinking and writing we hope will elevate their content understanding and skills.

Likewise, we cannot rely on generic writing rubrics, hoping that they will address content-specific concerns. We, along with researchers like Applebee (2012), worry that school districts may see the CCSS as a call to institute a uniform program of writing assignments, standards, and rubrics across departments. Our research takes the opposite approach, arguing that specificity matters. “More writing” without attention to discipline-specific conventions and criteria (in the case of this research, criteria designed to improve science literacy) may not improve student learning and may inadvertently confuse and overburden content area teachers.

Our research also suggests that when looking beyond the schoolhouse gates for models of excellent writing, it is useful to consider “competent outsiders” rather than insiders, e.g. scientists themselves, as exemplars. Since these competent outsiders are tasked with explaining and finding application for the ideas laid open through content-based understandings, their work makes sense to both students who seek to become content experts themselves and those whose lives will be importantly, but peripherally, touched by knowing content.

Finally, we strongly believe that it is through an iterative process of working with various stakeholders, in this case writers, editors, literacy specialists and teachers, that useful standards or criteria will be developed. As we have learned though our work in this project, what finally has lasting impact in the classroom is what makes sense to educators. They, like all of us concerned with schooling, want to be teaching that which enables students to look back

years after graduation and find it both meaningful and useful.

Note

1. Also interesting, most teachers selected a topic for their own writing based on personal interests or ideas about what their students might be interested in. Very few teachers attempted to write an article based on their curriculum.

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11

Writing in Mathematics: The Role of Intermediate Texts

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A lot of pupils learning in French “Cycle 3” (ages 8-10) are unable to solve math problems which should normally be easily solved in “Cycle 2” (ages 6-8), because they do not understand the word problems. This study focuses on competencies in addition problem solving by about 600 pupils and as many teachers. It aims to compare results when the phrasing and form of the word problem is varied. Certain tools, based in mathematical literacy, could likely improve the results of pupils by contributing to their understanding of the problem and by the way they operationalize problem solving. This appears to be the case for mediating “graphic figures” like tables, graphic representations, or the way colors can symbolize meaning.

De nombreux élèves connaissent des échecs importants en résolution de problème en raison de difficultés de compréhension des énoncés. Cette étude porte sur la capacité en résolution de problèmes additifs à transformation, réalisée sur environ 600 élèves de cycle 3 de l'école primaire (enfants de 8 à 10 ans) et autant d'enseignants. Elle vise à comparer les résultats en fonction de la forme donnée à l'énoncé. Certains outils, s'inscrivant dans la littératie mathématique, conçus à dessein, pourraient vraisemblablement modifier les résultats des élèves par leur contribution à la compréhension de l'énoncé et par leur opérationnalité résolutoire. Il semble en être ainsi de « figures graphiques » intermédiaires comme une représentation tabulaire, une représentation graphique ou la symbolique des couleurs.

While the whole point of problems is to set mathematical situations which pupils can resolve, they often reveal difficulties of understanding which are located at the level of the language which intervenes as an obstacle in the solving of the problem set. It is common practice to attempt to deal with these difficulties uniquely in the domain of mathematics (working on the meaning of the operations or accumulating solutions to problems) or, independently, in that of language (understanding the wording of the problem). Neither of these two

approaches to post-learning remedial training are very effective.

If we consider mathematical texts as within the scope of literacy, then writing which, according to Goody (Olson, 2006, p. 85) modifies cognitive processes, could be invoked to understand the wordings of problems. Indeed, mathematics, essentially a science of the written, is sensitive to the effects of writing on reasoning.

This leads to distinguishing two levels of literacy. The first level sets the wording of the problem as a mathematical *text* in the field of the teaching of the French language and focuses on the “processus d’enseignement-apprentissage du français, à partir de données issues de disciplines différentes” [“processes of the teaching-learning of French on the basis of data from different subjects”] (Barré-De Miniac, 2003, p. 7). The wording of problems does indeed come within the scope of the literacy acquired at school which “se réfère à la compréhension et à la production des textes écrits utilisés à l’école” [“refers to the understanding and production of written texts used in school”] (Grossman, 1999, p. 140-141), and is usually defined as the positive aspect of “illiteracy.” Sanctioned by these educational issues, literacy enables us to “considérer les compétences des sujets non comme des manques et dans l’absolu, mais en situation et de façon dynamique” [“consider the skills of the subjects not as shortcomings and in the absolute, but in a context and in dynamic fashion”] (Cogis, 2003, p. 103). It is therefore not a question of finding a remedy for the reading difficulties encountered by pupils but of considering, prior to this operation, schemes which would enable pupils to deal with reading the wording of problems (Camenisch et Petit, 2005).

The second level of literacy endorses Olson’s remarks (2006, p. 85) stating that writing transforms language into an object of thought. In these instances, the effort enabling an understanding of the wording of problem and facilitating problem solving then involves “intermediate texts” which are considered as reflexive practices which enable us to think, learn and construct (Chabanne et Bucheton, 2000, p. 24). These writings are not restricted to texts but are based on all the possibilities offered by the spatialization of language which includes “des figures graphiques, emblématiques d’usages que seul l’accès à l’écrit rend possibles” [“visual figures, symbolic of uses which are only enabled by access to the written word”] (Lahanier-Reuter), 2006, p. 174).

This chapter is written in this second perspective. A quantitative study carried out in cycle 3 classes (P₃ to P₅: pupils aged 8 to 10 years), but also among school teachers, enables the formulation of hypotheses on the effect of certain “visual figures” in solving additive problems with one transformation from an initial state to a final state involving an addition or a subtraction. This study pays special attention to the evolution of the performance of the pupils

as a function of these figures. How can we take into account the conversion of semiotic registers, articulating texts, tables, graphs, etc. in the context of solving additive problems with one transformation? What are the texts which help the pupils to enter into the reading/understanding of these statements of the problem?

This study leads us to propose a number of graphic tools, tested in an exploratory study in a Cycle 3 class (P₃ to P₅), which could be taught as from Cycle 2 (P₁ and P₂: pupils aged 6 and 7 years) to improve the results in solving of certain types of problems.

I. Test: Use of “Visual Figures” in Problem Solving

A quantitative study carried out with over two hundred pupils for each of the three levels in Cycle 3 concerned the solving of additive problems with one transformation, the structures of which were studied by Gérard Vergnaud (1986). These tests were carried out in the first semester of the school year 2011-2012 in classes in several different “*académies*” (National Education administrative regions). The statement of the problems is given in the Appendix in their different forms.

Table 11.1: The content of the problems used in the tests

	Story 1	Story 2	Story 3
Stories	At departure from Paris, there are 547 passengers in the train Paris/Le Mans/ Rennes. 324 passengers get off at Le Mans. 223 passengers continue to Rennes.	713 passengers get on the train to Paris/ Aix-en-Provence/Marseille. 179 passengers get off at Aix-en-Provence; nobody gets on at this stop. The train transports 534 passengers between Aix- en-Provence and Marseille.	242 passengers get on at Mulhouse in the train to Mulhouse/ Strasbourg/Paris. 314 get on the train in Strasbourg where nobody gets off. 556 passengers arrive in Paris.
Statement of the problems	Problems 1 a-1; c-1; b-1	Problems 2 b-2; a-2; c-2	Problems 3 c-3; b-3; a-3

1.1 Arrangements set up in Cycle 3 classes (P₃ to P₅)

To evaluate the impact of the “material” presentation of the wording of the question on the pupils’ results, we proposed three additive problems with one transformation in three different forms. The three problems proposed were

based on what we will refer to as “stories,” that is, the explicit wording of all the facts in chronological order, with no additional information (Camenisch and Petit, 2008). With the exception of a few minor variations, these three stories have the same in-depth structure established according to the marking defined by Gérard Vergnaud (1986).

Table 11.2: In depth structure of the stories

Departure	Stop	Arrival
x passengers	Boarding or alighting of y passengers	z passengers
Initial state Ei	Transformation T	Final state Ef

The complexity of these wordings can be evaluated in function of the congruence (Duval, 1995, 49) analyses in the following table:

Table 11.3: Congruence of the wording of the problem

	Problem 1	Problem 2	Problem 3
Wording	$Ei T (Ef)$	$T Ef (Ei)$	$Ei Ef (T)$
Order of wording	chronological	non chronological	non chronological
Operation to be performed	subtraction	addition	subtraction
Verb used	get off	get off	get on
Data processing	order of wording 547—324	order indifferent 179 + 534 ou 534 + 179	reverse order from the order of the wording 556—242
Congruence	Congruent operation	Operation not congruent with the verb	Operation not congruent with the verb and the order of the wording
Type of wording	congruent	non congruent	non congruent

Note: The order of the three periods follows Vergnaud’s classification: Ei for “Etat initial” (Initial State), T for transformation, Ef for “Etat final” (Final State). The brackets indicate the value sought.

Given their non-congruence, problems 2 and 3 are therefore considered as being more “complex” than problem 1. (A problem is described as “complex” when solving it is not a question of using new skills but of organizing the skills acquired in language or well mastered mathematical tools, such as addition and subtraction.) Each of these problems originates in one of the stories (1, 2 and 3) and has been given in three different forms: a, b and c.

Table 11.4: Form of the wording of the problem

Forms	a	b	c
Presentation	Text(Txt)	Tableau (Tb)	Graphique (G)
Order of the information	Order of the statement	Chronological order is implicit (reading direction)	Chronological order is explicit (axis)
Values	Numerical	Numerical	Numerical and in a graph*

* To facilitate carrying forward, the values have been rounded in the graph.

1.2 Provisions for Taking the Tests and Correct Results

The tests were administered on three different days in the same week. In order to avoid any communication of the answers, each day one-third of the pupils answered Document A, one-third Document B and one-third Document C (appendix 1). The general principle was to consider an answer was correct when a math operation which gave the solution was correctly written, which refers to the meaning of the operation. A gap-fill addition could replace a subtraction.

For the wording given in c, in c-1 and c-2, the correct answer was the correct insertion in the histogram of the number of passengers. In c-3, the correct result, or the correct writing of an identity which gives the solution were considered to be correct. Our choice avoided errors in calculation (arithmetic) introducing a bias into the results, thus giving a better idea of the way in which the pupil understands the situation described.

Table 11.5: Results of the right answers (in percentage)

	Problem 1 (Pb1)			Problem 2 (Pb2)			Problem 3 (Pb3)		
	Txt	Tab	G	Txt	Tab	G	Txt	Tab	G
	a-1	b-1	c-1	a-2	b-2	c-2	a-3	b-3	c-3
CE2 (P3)/207*	86	57	25	47	44	21	29	32	20
CM1 (P4)/220	89	72	44	49	58	35	52	43	36
CM2 (P5)/230	97	89	74	56	74	65	71	65	70

* Grade / numbers of students

It is not our intention to show that pupils have more difficulty in resolving non-congruent problems (Pb2 and Pb3) than congruent problems (Pb1), even

if these findings do confirm Duval's research (1995). The test performances indicate another major trend: the scores obtained rise in each of the columns between CE₂ (P₃) and CM₂ (P₅), that is, no matter in what form the questions are presented. However, this difference in variation is dependent on the level of the pupils and the form of the questions.

1.3 Analysis of the Findings by Level

In CE₂ (P₃) (Appendix 2) Pb₁ is solved more successfully than Pb₂, which is solved more successfully than Pb₃; this is the case no matter what the form of the problem a, b or c. (For the details of the scores see Appendices 2, 3, and 4.). For Pb₂ and Pb₃, there is thus no significant difference between a question posed in table form and a question posed in written form, but there is a significant difference between a question given in written form and one given in a graphic shape, with preference for the written form. At this level, visual figures do not therefore appear to make a distinct improvement in scores.

In CM₁ (P₄) (appendix 3), the first observation for CE₂ (P₃) is no longer true, only Pb₁ stands out from the other two, no matter what the form of presentation of the problem. Problems 2 and 3 are not differentiated in terms of scores for written texts (a-2: 49%; a-3: 52%) and visual figures (c-2: 35%. c-3: 36%). However, there are significant differences in scores between written forms and tables, once with preference for the written form, (a-3: 52%; b-3; 43%) and once with preference for the table (a-2; 49%: b-2; 58%). Therefore, at this level, a difficult problem given as a table can give significant improvement in scores when compared with the written form.

In CM₂ (P₅) (appendix 3) the first observation made for CE₂ (P₃) is no longer true. While problem 1 still obtains much better results than the other two, independent of the form of presentation of the questions, Pb₃ seems overall to be resolved better than Pb₂ in written and graphic shape [(a-2: 56%; a-3: 71%) (c-2: 65%, c-3: 70%)]. Tables give significantly better scores than the written form (in b-2), confirming the scores for CM₁ (P₄) and, for the first time, the visual shape gives significantly better scores for Pb₂ (c-2: 65%) than those obtained by the problem stated in writing (a-2: 56%).

To conclude the analysis of pupils' scores for "visual figures," it appears that the hypothesis can be made that, to solve a complex problem, tables and shapes are modes of presentation of the questions which can influence pupils' performance. This could lead us to suggest their use as intermediate texts between questions posed in written form and the search for an answer. It is also

appropriate to evaluate the way in which the performances of pupils develop in the course of Cycle 3 depending on the form in which the questions are posed.

1.4 Evolution of Performances as a Function of Tables and Visual Figures.

The table below shows changes during Cycle 3 (P₃ to P₅) of the rate of success of pupils as a function both of the level of teaching and of the visual figure in the text. It is important to note that this is not an example of one and the same cohort of pupils observed at different levels.

Table 11.6: Evolution of pupils' success rates (in percentage)

		Txt a-	Tab b-	Graph c-
Problem 1	CM1/CE2 (P4/P3)	1,03	1,26	1,76
	CM2/CM1 (P4/P5)	1,09	1,24	1,68
	CM2/CE2 (P5/P3)	1,13	1,56	2,96
	Evolution in %	13	56	196
Problem 2	CM1/CE2 (P4/P3)	1,04	1,32	1,67
	CM2/CM1 (P4/P5)	1,14	1,28	1,86
	CM2/CE2 (P5/P3)	1,19	1,68	3,10
	Evolution in %	19	68	210
Problem 3	CM1/CE2 (P4/P3)	1,79	1,34	1,80
	CM2/CM1 (P4/P5)	1,37	1,51	1,94
	CM2/CE2 (P5/P3)	2,45	2,03	3,50
	Evolution in %	145	103	250

This table demonstrates that mastering two non-written modes of representation (b and c) rises significantly for tabular mode (rise between 56% and 103%) and in a more surprising manner for visual representation mode (from 196% to 250%). This rise is all the more spectacular in that this mode of representation had never been taught as such to the pupils. This demonstrates in particular the accessibility of these tools to pupils.

However, one objection persists. One might think that changes in pupils' performances were the direct consequence of their psycho-genetic development and that it is therefore not necessary to develop the teaching of tools of this sort. We consider it is possible to refute this point of view by the scores which follow.

1.5 Arrangements at Teacher Level

A problem set by G. Vergnaud was given to 648 teachers in Cycles 2 and 3. This was a random sample of teachers taken from the participants in in-service training courses (lectures) in mathematics in 2012 and 2013 in different regions in France.

Mr. Durand wishes to renew the electricity in 3 rooms in his house. He estimates that he requires 130 meters of electrical wire, 4 switches, and 9 electric sockets as well as lamp holders. From a previous installation he still has 37 meters of electrical wire that he is going to use. He will therefore have to buy more wire. After finishing his installation, he notices that he has used 4 meters less wire than expected and that he still has 11 meters. How many meters did he buy?

This complex statement of the problem presented lexical difficulties (*estimate* and *expected*) as well as difficulties related to the non-congruent treatment of the data. The table below gives the teachers' answers. The correct answer (100 meters) was only given by 24% of the teachers.

Table 11.7: Results of the teachers' test

Answers	93 m	100 m	No answer	Others	Total
Total number	387	153	21	87	648
Percentages	60%	24%	3%	13%	100%

The “other” answers varied widely covering a range of twenty-eight different answers between 12 meters and 178 meters with several peaks at 78 meters (21), 104 meters (14), 82 meters (8) and 137 meters (7).

The results, coming from teachers in charge of implementing the learning of solving similar types of problem, refute the hypothesis that psycho-genetic development alone could explain the improvement of the pupils' performances in the course of their education. If this was indeed the case, with a few exceptions, all the teachers would have found the correct answer. Only a very few spontaneously used an intermediary tool to solve the problem.

It is therefore permissible to think that working explicitly on a number of “visual figures” which are considered to be intermediate texts could lead to an improvement in performance in problem solving in the classroom.

2. Intermediate Texts

The two series of tests carried out demonstrate that success is due more to understanding the text of the problem and its functioning, therefore to reading skills, than to the mastery of purely mathematical skills (acquired skills in calculating, like addition and subtraction). It is the understanding of the text, and therefore of the situation, which conditions the choice of operation to be implemented. Solving an addition with a transformation also consists of discovering what is implicit (the command part of the statement) in a text which is cognitively complete (the informative part of the statement). The story behind the statement of the problem is the most explicit cognitive form of the data set. Solving an additive problem with one transformation therefore involves reconstituting the whole story on the basis of a statement containing an implicit element.

2.1 Conversion of Semiotic Registers

We postulate, as does Duval (1995, p 75), that it is appropriate to provide pupils (possibly also their teachers) with different semiotic registers of data representation. These registers then act as intermediate tools, aids to problem solving, required by some pupils or teachers, in order to understand the wording itself and to acquire the degree of operational competence required to solve the problem. They then play a cognitive and meta-cognitive role.

This postulate implies a choice of semiotic registers to be used which differs from the usual iconographical representations in school books, these being of little use in problem solving. The understanding of the wording of problems in written form will then be the outcome of various articulations effected between these registers, which imposes a task of “conversion” of the registers (Duval, 1995, p. 40). It then becomes essential to identify the “meaningful entities” (Duval, 1995, p. 40) in a register, that is, those which enable the problem to be solved, then to make it correspond to meaningful entities in another register. But “la difficulté propre à l’activité de conversion réside essentiellement dans cette discrimination” [“the difficulty inherent in the activity of conversion resides essentially in this discrimination”] (Duval, 1995, p. 77). Two wordings of problems with the same basic story may present different degrees of difficulty depending on their congruence or non-congruence with the associated identity that gives the solution. The cognitive content of the two statements may be strictly identical, whereas the difficulties in understanding the text may present considerable discrepancies.

It is therefore necessary to distinguish what belongs to purely linguistic processing in the text of the wording of a problem, like the wording of the

chronology, and what comes under cognitive processing (Duval, 1995, p 84).

Intermediate “visual figures” therefore aim at introducing in *visual* or explicit manner the temporality of the statement of the problem, in order to concentrate on the purely cognitive aspects; which alone enable the solving of the problem. These tools are part of the context of educational literacy in which the “travail de la pensée consiste concrètement dans la manipulation (réutilisation, transformation, invention) de formes sémiotiques, toutes les formes de symbolisation, mathématique, graphique, etc.” [“task of thinking consists materially of the manipulation (re-use, transformation, invention) of semiotic forms, in all the forms of symbolization, mathematical, graphs, etc.”] (Chabanne et Bucheton, 2000, p. 24). To encourage a reflexive approach and the construction of new meanings (Faure, 2011, p. 22), we have thus developed tools using resources associated with a spatial or symbolic representation. These new tools (pictures, timelines, graphs, colors) have been designed to enable pupils to restrict the purely discursive effects and to highlight the meaningful entities relevant to solving the problem.

2.2 Tables and Timelines

Analyzed by Goody in 1979 as special “visual procedures” (Lahanier-Reuter, 2006, p. 175), Duval defines tables (2003, p. 7) as being an arrangement in lines and columns which “visually separates” the data by delimitation in boxes, thus presenting the information separately. This separation of the units of the discourse, reinforced by drawing lines, is specific to writing. The tables which we designed in the “b” statements thus return to the spatial arrangement of a table by the separation of boxes delimited by lines, organizing in this way the semiotic units expressed by sentences or expressions. But, in contrast to tables, here the “horizontal” margin induces a chronological order. This sort of tabular representation therefore has a close affinity with the timelines used by pupils in other subjects. It can thus contribute to pupils’ thinking and constitute a reading aid by enabling them “de discerner [des] unités de sens dans un texte où plusieurs niveaux d’expression, ou de sens, se trouvent fusionnés” [“to have a clearer picture of the units of meaning in a text in which several levels of expression, or meaning, are merged”] (Duval, 2003, p. 8).

Incidental learning is probably the key to pupils’ success in this mode of data representation, independent of teaching specific to mathematics. It is therefore possible to imagine that explicit teaching of the use of this type of graphic tool would distinctly improve the pupils’ results, by neutralizing the order of the wording of the problem in the statement given in written form. One difficulty remains. It resides in the absence of visual perception of the data and therefore in the difficulty of “seeing” a variation.

2.3 Idiosyncratic Graph

The idiosyncratic graph, combining text and histogram, of the “c” form wordings, situates the periods on an explicit time axis, and gives a visualization of the data by representing it in graphic shape. The difficulties related to chronology disappear while the variations due to the transformation are visually perceptible. To do this, the reader has to combine the meaning of the variation in time and the meaning of the variation in the data (indicated by a “vertical” scale). This register differs significantly from those proposed by R. Damm which, over- contextualized, mix iconographic representation and semiotic representation (Damm, 1992).

While the two preceding tools were based on the restitution of chronological order, it is therefore important to propose a tool enabling the pupils themselves to restore this order. This is what we propose to do with the use of a color code.

2.4 Symbolism of Colors

In the context of the reading and the production of wording of problems, one of the means of chronologically organizing the periods consists of presenting them *visually* by using a color code. We have chosen the conventional order of the colors of the French flag, well known to all pupils in France, to represent the story in its chronological order. This range of colors also clearly shows the six temporal structures which can follow the statement of a problem when the question, which concerns implicit information, is formulated at the end of the wording. The distribution of the periods from the initial state (E_i noted in blue, or B), the transformation (T noted in white or B_c) and the final state (“ E_f noted in red, or R) is then represented as follows in the wordings of the problem (Camenisch et Petit, 2008, p. 4):

Table 11.8: Repartition of the periods in the statements of problem

Story	$E_i - B$	$T - B_c$	$E_f - R$
Statement 1	$E_i - B$	$T - B_c$	($E_f - R$)
Statement 2	$E_i - B$	$E_f - R$	($T - B_c$)
Statement 3	$T - B_c$	$E_i - B$	($E_f - R$)
Statement 4	$T - B_c$	$E_f - R$	($E_i - B$)
Statement 5	$E_f - R$	$T - B_c$	($E_i - B$)
Statement 6	$E_f - R$	$E_i - B$	($T - B_c$)

Through the symbolism of colors, these representations promote the conceptualization of the difference between order or wording and chronological order without using discourse. It also enables periods, states or transformations to be identified, *simultaneously* with the reading of the wording. By learning and using this visual procedure, the pupils thus become active readers, one of their tasks being to reconstitute the chronological order of the data.

The various graphic tools specifically created to promote improved understanding and the solving of additive problems with one transformation enable a “spatialization” of the wording and neutralize the superficial effect obtained by permutations in time; preference is given to the selection of the entities which are relevant to solving the problem. When several registers can be mobilized on the basis of the same cognitive activity, it is appropriate, not to work independently in each of these registers, but to work in the inter-register space, being careful to make the links between these registers explicit.

3. Some Tools for Literacy

Consideration of the written texts leads to suggesting activities targeting the explicit learning of the conversion of semiotic registers and the use of these texts in the context of solving additive problems. Tools of this type were introduced in the context of a project on the reading and writing of the wording of additive problems in a CM1 (P4) class in a school in the center of Colmar in January and February 2012. In the framework of this experiment we proposed to support the reading of the wordings of the problems by constructing a reading strategy which explicitly mobilized the conversion of registers of representation. We will now present three tools used in the pupils’ productions.

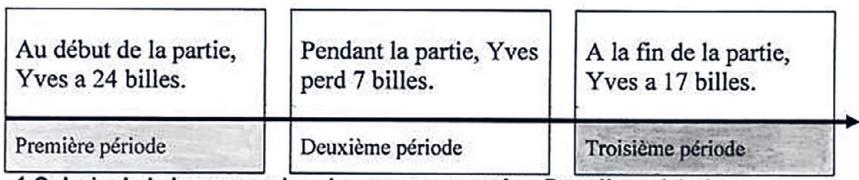
3.1 Story and Problem: A Comparison Between the Two Representations

Pupils were asked to link a series of problems, previously solved, with the under-lying story in which they originated (see Figure 11.1). The story was presented by the teacher in tabular form; each period was specifically named and represented in a box in the table. The chronology was indicated by an arrow. Two working principles implicit in the story were thus revealed: the chronological order and the correlation between period and sentences in the story. The problem was represented in classical written form, with one sentence per period. The wording of the temporal points of reference was scrambled to prevent the pupils from engaging in a selective literal reading to work out the periods.

After identifying the colors in the tables, the pupils had two tasks: to relate

the sentence with the statement of the story to the corresponding question in the wording of the problem; and the use of the symbolic color code to recognize the periods and the order of their statement in the written form of the wording.

Voici l'histoire des énoncés de problèmes vus vendredi dernier



1. Colorie de la bonne couleur les cases marquées Première période et Troisième période.

2. Souligne en bleu ou en rouge les bonnes périodes dans le problème 1.

Problème 1

Yves a perdu 7 billes en jouant. Avant la partie, il avait 24 billes. Combien de billes a-t-il après la récréation ?

Figure 11.1. Comparison between a story and a statement (pupil's production)

The role of this intermediate text is to differentiate the order of statement of the problem and the chronological order of the story. These texts were to become the support for an explicit reflexive activity to create awareness of this non-congruence factor. In pairs, pupils were then asked to compare, in writing, the wording of the problem and of the story, pointing out the differences between the two texts.

Some pupils focused on the changes in the expression: "The words are not the same in the story and the problem." Others focused on the differences at the level of the sentence or the text: "There is a question in the problem but not in the story and the problem is not in chronological order." "In the problem there is a question and in the story the periods are not mixed." (The spelling of the pupils has been corrected.) All the pupils' replies led to a structuring of the differences between the story and the wording of the problem.

The literacy tools, tables, timelines, and color symbolism enabled this reflexive activity which aimed at showing the characteristics of the problem and its relation with the story behind it.

3.2 Learning Activities and the Conversion of Registers

In the learning activities for the conversion of the registers which we had set up, the pupils were helped to explicitly understand the working of the graph,

by filling a blank graph with the data presented in another register of representation. The graph was also a tool for solving the problem, since filling it in was the equivalent of solving the problem.

The first intermediate text presented a problem as a gap-fill story with the three periods given in the boxes, a minimal tabular representation:

Table 11.9. Representation of a problem as a gap-fill story

Monday evening, the temperature is ___ degrees.	During the night of Monday to Tuesday, the temperature drops 5 degrees.	Tuesday morning, the temperature is 7 degrees.
---	---	--

The problem above would correspond in its conventional written form to a statement of the problem similar to problem 2 in the tests [T, Ef, (Ei)], which most of the pupils failed, in which the question, stated at the end relates to the state which corresponded to the first period. The table re-established the chronological order and avoided the interrogative form.

The second intermediate text (Figure 11.2) is an idiosyncratic graph. The task of the pupil consists of localizing the periods of the statement and entering them in the boxes provided, identifying the data of the known states (here the final state alone) and entering them on the graph by coloring, indicating in a sentence the nature of the transformation (here: the temperature falls 5 degrees during the night), examining the transformation to determine whether the temperature was higher or lower on Monday evening and to determine the variation, filling in the graph by entering the value found (here: 12 degrees), checking the coherence of the data entered on the graph and, finally, concluding.

The graph obtained is also an account of the whole story and therefore solves the problem.

The intermediate texts—the gap-fills and the graphs—therefore enable the pupils to carry out conversions of registers of representation and therefore get a better idea of the data of the problem. It is through the increasing use of activities of this type that pupils will learn to understand this system of representation which then appears as a dynamic learning tool.

3.3 From a Story to the Production of the Wording of a Problem

The code of colors becomes a tool for literacy in the context of the production of the wording of a problem in examination conditions on the basis of an imposed or set story and order of wording. Each period of the story is written on a corresponding colored label which the pupils use to produce a statement of the problem respecting the other order of statement which is imposed.

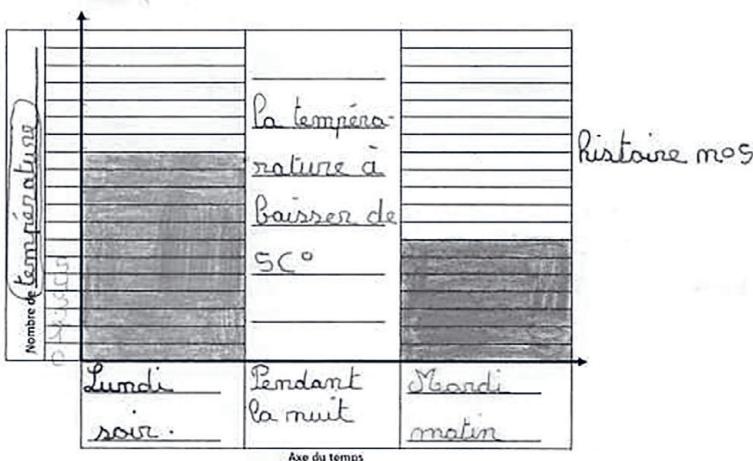


Figure 11.2: Graphic representation of the story (pupils' production)

Histoire B

Luc prend l'ascenseur au 24^e étage de la Tour de l'Europe à Mulhouse. Il descend de 13 étages. Il sort de l'ascenseur au 11^e étage.

Fabriquer un énoncé de problème Blanc, Rouge, Bleu

Histoire : colle les étiquettes dans l'ordre chronologique

Luc prend l'ascenseur au 24 ^e étage de la Tour de l'Europe à Mulhouse.	Il descend de 13 étages.	Il sort de l'ascenseur au 11 ^e étage.
---	--------------------------	--

Énoncé de problème : colle les étiquettes dans l'ordre de l'énoncé

Blanc	Rouge	Bleu
Il descend de 13 étages.	Il sort de l'ascenseur au 11 ^e étage.	Luc prend l'ascenseur au 24 ^e étage de la Tour de l'Europe à Mulhouse.

Énoncé de problème : Ecris l'énoncé en français correct.

Luc descend de 13 étages. Il sort de l'ascenseur au 11^e étage. De quelle étage sort-il partie ?

Figure 11.3: A written statement of a problem in test conditions (pupil's production). In this production, the pupils were asked to handle blue labels ('Luke takes the lift [...]'), white labels ('He goes down [...]') and red labels ('He leaves the lift').

This activity also involves all the language difficulties specific to this type of wording, that is the time markers, the substitutes, and the interrogative type (Camenisch et Petit, 2007 & 2008). The aim of this type of activity is ultimately to give the pupils the means of reconstituting the underlying story by the insertion of the reverse operation.

Conclusion

The tests carried out in class and the results of the school teachers reveal the need to introduce pupils and their teachers to strategies which are relevant to the comprehension of wordings of problems. They demonstrate the impact of the use of a visual figure on performances in problem solving. These findings are all the more significant in that no learning of the tools suggested had been set up in class before the passing of the tests. It is therefore permissible to consider that an explicit learning of these tools would enable pupils (and their teachers) to considerably improve their skills in problem-solving. However, these visual figures should not be taught separately because it is through their articulation that each one acquires meaning and efficiency. These figures, instead, enable the construction of meaning by starting with natural language and then leading to improved understanding.

While the use of this type of “visual tool” in remedial classes can improve the performances of pupils in Cycle 3 in solving additive problems, serious thought should be given to considering their learning in Cycle 2, when pupils begin to solve additive problems and to use tables and graphs. Writing in mathematics consists of learning to mobilize various texts, in particular visual and symbolic, to develop the cognitive skills associated with problem solving.

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Appendices

Appendix 1

Nom : Classe :		A
Problème a-1 Au départ de Paris, il y a 547 passagers dans le train Paris-Le Mans-Rennes. 324 passagers descendent au Mans. Combien de passagers continuent vers Rennes ?		
Opération en ligne Ecris ta phrase réponse		
Problème b-2 Un train part de Paris. Il s'arrête à Aix-en-Provence. Il repart pour son terminus Marseille. Combien de passagers sont montés à Paris ? Ecris ta réponse dans la case vid du tableau.		
départ du train	Aix-en-Provence, arrêt 179 passagers descendant du train, personne ne monte.	Marseille, arrivée du train 534 passagers arrivent Marseille.
action en ligne : Problème c-3 Ecris dans la case du milieu ce qui se passe à l'arrêt de Strasbourg		

First name: Class:

A

Problem a-1: At departure from Paris, there are 547 passengers in the train "Paris-Le Mans-Rennes." 324 passengers get off at Le mans. How many passengers continue to Rennes?

Operation in line	Write the answer		
<p>Problem b-2: A train leaves Paris. It stops at Aix-en-Provence. It starts again for Marseille, its terminus. How many passengers got on in Paris?</p> <p style="text-align: center;">Write the answer in the blank cell of the table.</p>			
Paris, departure	Aix, stop	Marseille, terminus	
	179 passengers get off the train. Nobody gets on.	534 passen- gers arrive at Marseille.	
Operation in line:			
<p>Problem c-3: Write in the central cell what's going on at the stop in Strasbourg.</p>			
Number of passengers in the train 800 700 600 500 400 300 200 100 0	Paris, de- parture	Strasbourg, stop	Mulhouse, terminus
Time axis			

nom :	Classe :	
ème a-2	179 passagers descendent à Aix-en-Provence du train Paris-Aix en Provence Marseille. Personne ne monte à Aix-en-Provence. Le train transporte 534 passagers entre Aix-en-Provence et Marseille. Combien de passagers sont montés dans le train à Paris ?	
opération en ligne		
Ecris ta phrase réponse.		
ème b-3	Un train part de Mulhouse. Il s'arrête à Strasbourg. Il repart pour son terminus Paris. Personne ne descend du train entre Mulhouse et Paris, que se passe-t-il à Strasbourg ? Réponds en écrivant dans la case vide du tableau.	
voie, départ du train	Strasbourg, arrêt	Paris, arrivée du train
passagers montent à train.	556 passagers arrivent Paris.
ition en ligne :		
ème c-1	Indique le nombre de passagers dans le train à l'arrivée en coloriant dans la troisième colonne.	
400		
300		
200	200 passagers descendent du train, personne ne monte.	
100		
0		
Paris, départ du train	Le Mans, arrêt	Rennes, terminus du train
Axe du temps		

First name: Class:

B

Problem a-2: 179 passengers get off the train “Paris-Aix-en-Provence-Marseille” in Aix-en-Provence. Nobody gets on the train there. The train carries 534 passengers between Aix-en-Provence and Marseille. How many passengers got on the train in Paris?

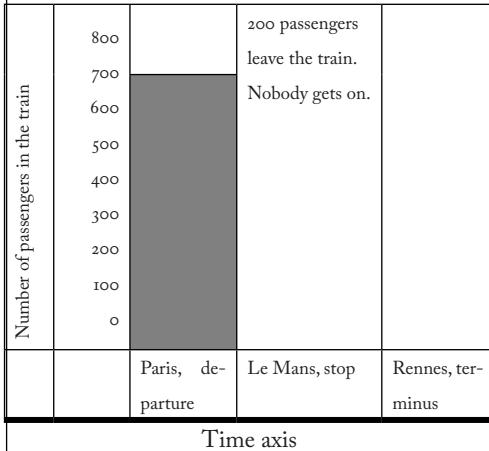
Operation in line	Write the answer
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Problem b-3: A train leaves Mulhouse. It stops at Strasbourg. It starts again for Paris, its terminus. Nobody leaves the train between Mulhouse and Paris. What happens in Strasbourg?

Write the answer in the blank cell of the table.

Mulhouse, departure	Strasbourg, stop	Paris, terminus
242 passengers get on the train		556 passengers arrive at Paris.
Operation in line:		

Problem c-i: Color the number of passengers in the train at the terminus (in the third column)



<p>..... Classe :</p> <p><input type="checkbox"/> 242 passagers montent à Mulhouse dans le train Mulhouse-Strasbourg. 556 passagers arrivent à Paris. Que s'est-il passé à Strasbourg (personne descendu du train à cet arrêt) ?</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 15%;">en ligne</td> <td style="width: 85%;">Ecris ta phrase réponse</td> </tr> <tr> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> </tr> </table> <p><input type="checkbox"/> Un train part de Paris. Il s'arrête au Mans. Il repart pour son terminus. Combien de passagers arrivent à Rennes ? Réponds en écrivant dans le tableau.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 15%;">du train</th> <th style="width: 35%;">Le-Mans, arrêt</th> <th style="width: 50%;">Rennes, arrivée du train</th> </tr> </thead> <tbody> <tr> <td>s montent</td> <td>124 passagers descendant du train. Personne ne monte.</td> <td>.....</td> </tr> <tr> <td>igne :</td> <td></td> <td></td> </tr> </tbody> </table> <p><input type="checkbox"/> Indique le nombre de passagers dans le train au départ en coloriant la première colonne.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 15%;"></td> <td style="width: 70%; text-align: center;">200 passagers descendant du train, personne ne monte.</td> <td style="width: 15%;"></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>aris, départ du train</td> <td>Aix-en-Provence, arrêt</td> <td>Marseille, terminus train</td> </tr> <tr> <td colspan="3" style="text-align: center;">Axe du temps</td> </tr> </table>	en ligne	Ecris ta phrase réponse	du train	Le-Mans, arrêt	Rennes, arrivée du train	s montent	124 passagers descendant du train. Personne ne monte.	igne :				200 passagers descendant du train, personne ne monte.														aris, départ du train	Aix-en-Provence, arrêt	Marseille, terminus train	Axe du temps			<p>First name: Class:</p> <p>C</p> <p>Problem a-3: 242 passengers get on the train "Mulhouse-Strasbourg-Paris" in Mulhouse. 556 passengers arrive at Paris. What happened in Strasbourg (nobody got off the train there)?</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 50%;">Operation in line</td> <td style="width: 50%;">Write the answer</td> </tr> </table> <p>Problem b-3: A train leaves Paris. It stops at Le Mans. It starts again for Rennes, its terminus. How many passengers arrive at Rennes?</p> <p>Write the answer in the blank cell of the table.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 25%;">Paris, departure</td> <td style="width: 25%;">Le Mans, stop</td> <td style="width: 50%;">Rennes, terminus</td> </tr> <tr> <td>547 passengers get on the train</td> <td>124 passengers get off the train. Nobody gets on.</td> <td></td> </tr> </table> <p>Operation in line:</p> <p>Problem c-1: Color the number of passengers in the train at the terminus (in the first column)</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 15%; text-align: center;">Number of passengers in the train</td> <td style="width: 15%; text-align: center;">800</td> <td style="width: 15%; text-align: center;">700</td> <td style="width: 15%; text-align: center;">600</td> <td style="width: 15%; text-align: center;">500</td> <td style="width: 15%; text-align: center;">400</td> <td style="width: 15%; text-align: center;">300</td> <td style="width: 15%; text-align: center;">200</td> <td style="width: 15%; text-align: center;">100</td> <td style="width: 15%; text-align: center;">0</td> </tr> <tr> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">Paris, departure</td> <td style="text-align: center;">A i x - e n - Provence, stop</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="10" style="text-align: center;">Time axis</td> </tr> </table>	Operation in line	Write the answer	Paris, departure	Le Mans, stop	Rennes, terminus	547 passengers get on the train	124 passengers get off the train. Nobody gets on.		Number of passengers in the train	800	700	600	500	400	300	200	100	0												Paris, departure	A i x - e n - Provence, stop								Time axis									
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Appendix 2. Pupils' results in CE2 (P3) (207 pupils)

Problem 1 (Pb1)			Problem 2 (Pb2)			Problem 3 (Pb3)		
Txt	Tab	G	Txt	Tab	G	Txt	Tab	G
a-1	b-1	c-1	a-2	b-2	c-2	a-3	b-3	c-3
86	57	25	47	44	21	29	32	20

Significant differences:

- between a-1 (text) and b-1 (table) at the level of 1% ($\chi^2 = 42$), also a-1 and c-1 (graph);
- between a-2 (text) and c-2 (graph), to the advantage of the text, at the level of de 1% ($\chi^2 = 31$);
- between a-3 (text) and c-3 (graph) to the advantage of the text at the level of 5% ($\chi^2 = 4.72$).
- between the problems b (table), better solved than the problems c (graph), at the level of 1% for Pb1 and Pb2 ($\chi^2 = 15$; $\chi^2 = 9$) and at the level of 10% for the Pb3 ($\chi^2 = 3.16$).

We cannot conclude, at the level of 10% ($\chi^2 = 0.35$), to a significant difference between a-2 (text) and b-2 (table), nor between a-3 (text) and b-3 (table) ($\chi^2 = 0.41$).

Appendix 3. Pupils' results in CM1 (P4) (220 pupils)

Problem 1 (Pb1)			Problem 2 (Pb2)			Problem 3 (Pb3)		
Txt	Tab	G	Txt	Tab	G	Txt	Tab	G
a-1	b-1	c-1	a-2	b-2	c-2	a-3	b-3	c-3
89	72	44	49	58	35	52	43	36

The results in Pb2 and Pb3 are not significantly different in the problems a (49%, 52%) or c (35%, 36%).

Significant differences:

- between b-2 (table) and b-3 (table), to the advantage of b-2 at the level of 1% ($\chi^2 = 10$);
- between a-2 (text) and b-2 (table), with an advantage for the table, at the level of 10%, near to 5% ($\chi^2 = 3.65$);
- between a-3 (text) and b-3 (table), with an advantage for the text, at the level of 10%, near to 5% ($\chi^2 = 3.29$);
- between a-2 (text) and c-2 (graph), to the advantage of the text, at the level of 1% ($\chi^2 = 8.96$);

- between a-3 (text) and c-3 (graph), to the advantage of the text, at the level of 2% ($\chi^2 = 6.40$).

Appendix 4. Pupils' results in CM2 (P5) (230 pupils)

Problem 1 (Pb1)			Problem 2 (Pb2)			Problem 3 (Pb3)		
Txt	Tab	G	Txt	Tab	G	Txt	Tab	G
a-1	b-1	c-1	a-2	b-2	c-2	a-3	b-3	c-3
97	89	74	56	74	65	71	65	70

Significant differences:

- between the texts ($\chi^2 = 9.55$ en a), to the advantage of the Pb3, at the level of 1%;
- for the table, to the advantage of the Pb2, at the level of 5% ($\chi^2 = 4.10$);
- between a-2 (text) and b-2 (table) to the advantage of the table, at the level of 1% ($\chi^2 = 16$);
- between a-2 (text) and c-2 (graph) to the advantage of the graph, at the level of 5% ($\chi^2 = 4.01$).

Not significant differences:

- between a-3 (text) and b-3 (table) at the level of 10%;
- between a-3 (text) and c-3 (graph) at the level of 5% ($\chi^2 = 0.04$).

Part 2. Writing in Higher Education and the Professions

12

Writing in The Content Areas: A Scandinavian Perspective Combining Macro, Meso, and Micro Levels

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Writing is one of the key competences defined by a number of inter-national bodies as being crucial for students' learning and work life qualifications. Scandinavian countries share a common goal of providing equal education for all and have a history of prioritizing extended essay writing as an assessment format in many subjects. The purpose of this chapter is to investigate writing in the content areas in Scandinavia by focusing on the connection between macro-level decisions and what actually happens in schools and classrooms. We first look at recent curriculum plans in the three countries and show how they have chosen different ways of encouraging or mandating writing in the disciplines. Three case studies exemplify what goes on at the meso/micro level: professionalization of science teachers in using writing in Sweden; student perspectives on the challenges and learning potential in mandated written research projects in Danish secondary and upper secondary schools; and teacher-initiated collaboration across content areas in Norway in order to develop better writing practices. We find that although the Scandinavian tradition of extended writing provides favorable conditions for writing in

the content areas, there are problems that must be overcome before a successful integration can be expected.

L'écriture est une des compétences-clés que bon nombre d'organismes internationaux reconnaissent comme étant cruciale pour les études et la future qualification professionnelle des étudiants. Les trois pays scandinaves ont pour objectif commun de fournir une éducation égale pour tous et privilégié historiquement l'écriture longue en tant que modalité d'évaluation pour de nombreuses matières. Le but de cet article est d'étudier l'écriture dans les domaines principaux en Scandinavie en se focalisant sur le lien entre les décisions prises au niveau macro et ce qui se passe réellement dans les écoles et les salles de classe. Nous examinons en premier lieu les programmes scolaires récents des trois pays et montrons comment ils ont choisi différentes façons d'encourager ou de prescrire l'écriture dans les disciplines. Puis trois études de cas, chacune basée sur des projets de recherche, illustrent ce qui se passe au niveau méso/micro: la manière dont les professeurs de sciences sont formés professionnellement à l'utilisation de l'écriture en Suède; les perspectives qu'ont les élèves en matière de défis et de potentialités d'apprentissage lors de la rédaction de projets de recherche dans les collèges et les lycées danois; les collaborations initiées par des professeurs de disciplines différentes afin de développer de meilleures pratiques d'écriture. Nous constatons que, bien que la tradition scandinave de l'écriture longue offre des conditions favorables pour écrire dans les différents domaines, il subsiste des problèmes qui doivent être surmontés pour qu'on puisse espérer une intégration réussie. L'un des obstacles est dû à la nécessité d'associer des compétences clés et des compétences instrumentales de base, l'autre tient au fait que l'idée d'écrire dans les différents domaines de contenu a été introduite de façon descendante. Notre conclusion est que la combinaison d'initiatives de niveau macro, méso et micro (top-down et bottom-up) est nécessaire.

1. Introduction

One key goal for all concerned with students' learning in general—and their writing competence in particular—is to make writing an integral part of disciplinary teaching and learning in schools. To some extent, students have

always used writing to learn and communicate in all disciplines, but the focus on writing as such has been largely dependent on the individual teacher. Furthermore, the responsibility for students' writing development has been assumed to lie solely with the language arts teacher. Though this has also been the situation in the Scandinavian countries, things are changing. (Please note that "Scandinavia" usually refers to Norway, Denmark, and Sweden. The term "Nordic countries" also includes Finland and Iceland.)

The change is closely connected with international efforts over the last decade to define key competencies and core standards in education. One of these efforts is *DeSeCo*, the OECD's *Definition and Selection of Competencies Project 2000-03*, involving Austria, Belgium, Denmark, Finland, France, Germany, Netherlands, New Zealand, Norway, Sweden, Switzerland, and the US. Another is the EU's Common European Framework for linguistic competencies. Follow-up with these international initiatives has occurred in specific countries; for instance, the Norwegian Framework for Basic Skills (2004) and the Common Core State Standards Initiative (CCSE) in the US (2010). The rationale for focusing on core competencies, e.g., *literacies*, is two-fold. On the one hand, reading, writing, and talking are tools for learning in all disciplines, and on the other hand, they are workplace competencies which must be mastered for nearly any twenty-first-century job; writing-to-learn and learning-to-write discipline-related texts correspond to this necessity. An important question in this situation is how macro-level initiatives at the international and national levels influence what happens at the meso level of schools and the micro level of classrooms.

In this chapter, we have chosen the macro level as our point of departure and will therefore first look at *national curriculum plans and assessment* in the three Scandinavian countries. The underlying premise is that decisions made by policymaking bodies are vitally important for what takes place at the lower levels. However, it is not at all clear *how* the connection between the macro, meso, and micro level functions, nor is it given that changes in steering documents result in changes in classroom teaching. Our purpose in this chapter is to shed light on this connection and discuss how writing in the disciplines may be strengthened in classrooms. We will do this by first comparing some aspects of curriculum and assessment in the Scandinavian countries and then presenting an empirical case study from each of the three countries which illustrate different ways that writing is actualized in content areas.

The Swedish case focuses on the professionalization of science teachers in using writing. The context is a multinational European project aimed at promoting students' active involvement in thinking and doing science, but where science writing initially was surprisingly absent. The Danish case investigates

a strong link between the macro and the meso/micro level, exemplified by a change in the curriculum plan for upper secondary school which mandated a compulsory multidisciplinary written research project in grade 12. How do teachers and students rise to this challenge? Finally, the Norwegian case looks at the proliferation of local development projects in upper secondary schools where teachers from a variety of subjects voluntarily collaborated systematically over years in order to investigate the potentials of writing.

Brief Contextualization

The Scandinavian countries range in population from 5–9.5 million and are similar in many ways. Their shared ideological basis is to provide equal educational opportunities for all. Overarching, national steering documents (i.e., curriculum plans) are prepared by the Ministry of Education and voted on by Parliament. While Swedish curriculum plans have introduced national standards (detailed descriptions of what students at different levels are expected to master), Norwegian and Danish plans have competence goals, which are more general. Together with the assessment system, curriculum plans provide the framework for school owners and schools as well as for teachers' work in classrooms. In the context of our topic it is also important that "process writing," with an integrated focus on writing-to-learn, was introduced and widely adopted in the Scandinavian countries from the late 80s. Even though specific WAC (Writing Across the Curriculum) projects have been sporadic, strategies from WAC and WID (Writing in the Disciplines) have received considerable attention.

2. Macro-Level Influences on Writing in the Content Areas: A Surface Comparison of National Curriculum Plans and Assessment

Only a few aspects of the complexity of educational steering documents in the Scandinavian countries will be compared, with a particular focus on the following questions. (See Sivesind (2013a) for a comparison of curriculum plans in a number of countries.)

- To what extent has writing been targeted in curriculum plans as a "basic/core/key skill" or competence across content areas?
- Have changes in recent curriculum revisions affected writing in the disciplines at the upper secondary level?
- What are the characteristic features of assessment in the Scandinavian countries?

	Primary and Secondary	Upper Secondary
NORWAY	YES	YES 2006
DENMARK	NO	YES 2005
SWEDEN	NO	NO 2011

Figure 12.1. Writing targeted as a "basic/core/key skill" or competence across content areas?

The Norwegian National Curriculum of 2006 made writing instruction (together with reading, numeracy, oral skills, and digital skills) a responsibility for all teachers in all subject areas at all levels based on the document *Framework for Basic Skills*, 2004. This was a major change, and it was expected to make a difference in school practices in all disciplines. In Danish primary and lower secondary schools, writing has not been targeted as a skill to be addressed across content areas. In the 2005 upper secondary curriculum plan, however, writing was defined as a *study preparatory competence to be addressed in all subjects*. This was new in Danish plans, but other competencies were not included, as in Norway. The most important change was the introduction of mandatory *multidisciplinary "research" writing*. The Swedish curriculum plans do not target basic skills, but instead emphasize the importance of language for learning in more general terms.

NORWAY	<i>Revision 2013:</i> More specific about what writing in each discipline means
DENMARK	<i>Revision 2010:</i> More specific formulations of goals, especially for cross-disciplinary writing
SWEDEN	<i>Revision 2011:</i> Writing as a competence was highlighted more, but there were no specific demands regarding writing in the plans for each subject A specialization writing project may be cross-disciplinary

Figure 12.2. Changes in the last curriculum revision (upper secondary)

In both Norway and Denmark, a research evaluation of the effects of the new emphasis on core competencies in the respective curriculum plans from 2005 and 2006 revealed that classroom practices were not greatly affected by the reform, with the exception of reading in primary school (Aasen et al., 2012, Krogh et al., 2009). In Norway the evaluation led to a revision of the curriculum, which included a much more detailed presentation of the importance of the five competencies as well as more specific descriptions of what

writing means in the curriculum plans for each subject. Also in Denmark the evaluation led to clarification of goals and more explicit formulations in the curriculum plans. In Sweden, however, there were no corresponding changes in the last revision. Writing as a learning tool is not explicitly mentioned, but competencies that imply various linguistic tools, including writing, are highlighted more.

Assessment, which is also a result of macro-level decisions in Scandinavia, has a crucial influence on teaching in classrooms. The amount and kind of writing that is prioritized in school is a direct result of the types of questions included in exams and high stakes tests. A hallmark in Scandinavia is that language arts exams (as well as social science and science) at the end of Upper Secondary school ask for *extended writing*. Multiple-choice questions are almost non-existent at all levels.

NORWAY	Grade 12: <i>Compulsory national five-hour written essay exam</i> (may not be given as an option to all students) + <i>written literary research paper</i> (presented orally)
DENMARK	Grade 12: <i>five-hour written essay exam</i> . <i>Compulsory written research project</i> (combining two subjects)
SWEDEN	<i>Two national tests</i> , written + oral (grades 10 & 12) + <i>compulsory research report</i> in grade 12

Figure 12.3. Assessment in upper secondary language arts and research papers

A summary of the findings shows an increasing amount of attention paid to writing in Norwegian and Danish curriculum plans. These two countries *explicitly* place the responsibility for students' writing development on teachers in all disciplines. A *general* allocation of such responsibility in curriculum plans alone, however, does not change classroom practices. Norway and Denmark have chosen two different ways of ensuring the connection between the macro and micro level: Norway has increased the specificity of writing competence goals in each of the subject plans (i.e., social science, mathematics, science), while Denmark has made a cross-disciplinary written research project compulsory in grade 12.

The advantage of the Danish model is as follows: 1) schools (meso level) have to ensure that students are trained to write *study specialization projects* in which they combine content and methods from at least two subjects, and 2) collaboration between subject teachers (micro level) is no longer optional. Thus teacher competence in disciplinary writing is gradually being developed

(see section III). In addition, goals for writing competence are incorporated in upper secondary subject plans.

The advantage of the Norwegian model is that specific writing goals in curriculum plans for each discipline *legitimize* school- or teacher-initiated development work (see section IV). In spite of the lack of specific demands of writing in the disciplines in Swedish curriculum plans, efforts are made to motivate and qualify teachers (see next section).

Assessment in upper secondary school in all the Scandinavian countries has historically prioritized *extended essay writing exams* over short answer and multiple choice, both in language arts and in other disciplines. In addition, there is a tradition of compulsory research projects, which are often cross-disciplinary. Extended writing means that students get experience in structuring texts, dealing with sources, and arguing particular points of view, thus providing a foundation for further education.

3. Professionalization of Swedish Science Teachers in the Context of an International Project

There are alarming signals of pupils' decreasing interest and results in science, both internationally and in Sweden. Among several possible reasons for this development, one seems to be linguistically conditioned, as science requires mastery of a special type of language use, especially in writing (Lemke, 1990). In an American study, Applebee and Langer (2011) conclude that explicit work on written texts in science is rare. However, among science teachers in Sweden, there are signs of a growing understanding of the potential of writing as described in the following presentation of the Swedish part of an EU project, S-TEAM (http://cordis.europa.eu/result/rcn/56347_en.html).

S-TEAM (Science—Teacher Education Advanced Methods) focused on inquiry-based science teaching and learning (IBST/L). Twenty-five European universities in 15 countries took part in the project which ran between 2010–2012. The participants were largely researchers of science; however, linguists from a few countries, including Sweden and Finland, also took part, focusing more on linguistic aspects and writing. The overarching objective was to introduce IBST/L and build a sustainable teacher training in science by letting schools and researchers work together for a long period of educational development. There are various definitions of inquiry-based science education, but it can briefly be described as a process where problems are analyzed, hypotheses are made, and science experiments are critically planned and carried through.

Already having a long tradition of using inquiry-based science education,

as an exception in the S-TEAM, the Swedish members of the project were instead directed toward a *dialogic* approach of instruction (Norberg Brorsson, Enghag & Engström, 2014). The reason for this was a need to deepen students' understanding of science. Dialogic inquiry stresses the importance of the dialogue between peers, the dialogue between teacher and pupils, and *writing* in dialogue. Inquiry in itself does not seem enough to guarantee pupils' meaning-making and learning.

In the first phase, four researchers in physics, technology, and Swedish co-operated with five teachers from primary and lower secondary schools. In the project, dialogic IBST/L was described, implemented, and analyzed. The participating teachers' science lessons were video recorded several times. Before the first video recording, each teacher was interviewed, and between classes feedback was given and research texts presented. After receiving feedback for the first lesson, the teachers were given the challenge to prepare a teaching sequence taking into account the analysis and feedback. In the second phase of the project, a Teacher Professional Development Program was framed, partly based on the material gathered during the first year of the project. Seven teachers from other schools, ranging from primary to upper secondary school, took part.

In the following paragraphs some of our findings are briefly presented. Before the start of the project neither the participating teachers of the first phase nor those of the second phase had used writing in the learning activities in their science instruction. Writing was mainly used to answer short questions in textbooks or to write experimental reports. There were even lessons where no writing whatsoever took place (among teachers and pupils alike). Gradually, however, there was an emerging interest and awareness among the participants of the learning potentials of writing, for example, to encourage pupils' oral activity. Being offered time to write before discussions, all the pupils seemed sufficiently prepared to participate, as in the description below of a science lesson on the water cycle in grade 5, based on an 80-minute video recording.

The focus of the lesson was on two experiments and the related experimental reports, both of which were preceded by and followed up with log book writing and discussions, where pupils made connections between the lesson and their everyday life. The writing activities sometimes gave the teacher important information regarding the pupils' learning, as in the following example.

The teacher had asked the pupils to write in their log books everything that came into their heads when they thought of the water cycle. All the pupils looked very concerned and none of them wrote anything. Finally, one boy

said “I don’t understand the water cycle. I understand the cycle of animals, but not the water cycle.” The whole class agreed that they did not understand. Consequently, the teacher had to explain once more. It is very probable that the teacher would not have discovered the lack of understanding if this writing activity had not taken place.

The Swedish members of the project contributed to implementing writing as a dialogic tool in science education, as demonstrated in the micro-level example above, where pupils’ writing was situated in a science classroom context. This shows how writing relates to both oral and other modes of instruction to support learning. In this lesson the writing constitutes part of the pupils’ assimilation of the scientific discourse and certain ways of writing. While writing as a type of learning activity easily attracted the participating teachers’ attention, textual aspects as such did not, in spite of the pupils’ sometimes great interest in linguistic matters.

Although researchers agree that a linguistic focus is vital for increased understanding and learning, writing in science was not highlighted as part of scientific literacies among the S-TEAM researchers in general. One of the overall aims of the S-TEAM project was to support teachers by providing training in, and access to, innovative methods and research-based knowledge. The Swedish members of the project chose to include writing as part of this teacher training and thus developed a sustainable model of professionalizing science teachers.

4. Danish Writing Projects in Multiple Subject Areas—A Student Perspective

In 2005, the Danish reform of upper secondary education introduced writing as an overall responsibility for all subjects and a crucial part of study competence. Previously, writing was addressed only at the subject-plan level. Instrumental in this lift of writing to the general level was another ambitious innovation, the multi-subject construct, requiring writing as part of multi-subject coursework. Most important in this regard is the mandatory cross-disciplinary study specialization project. Behind this curriculum reform is the concept of *Bildung*, in the sense of being able to apply and combine disciplinaries in competent ways.

Although cross-disciplinary projects are also mandatory in Danish lower secondary school, there is a difference with regard to focus. In grade 9 (last year of lower secondary school) the key word is *project*. Students are to raise problem statements within cross-disciplinary topics, but disciplinary knowl-

edge is mainly regarded as a tool. A wide register of modes, media, and genres is suggested, inviting creativity. In upper secondary projects, however, the key word is *disciplinarity*. Students are required both to actualize disciplinary knowledge areas and to understand the affordances of different disciplinary approaches. Genre experiments are not invited.

A major difference between lower and upper secondary school lies in the demand for extended writing. In grade 9 an extended written text is just one of several possibilities for presenting the project; in grades 10–12, the project reports require a considerable amount of academic writing.

In the present study two students are traced through four multi-subject “research” projects across the gap of lower and upper secondary school. The aim is to identify the learning challenges and potentials of these projects as viewed from the students’ perspectives. The study is part of the longitudinal ethnographic research project, “Writing to learn, learning to write,”¹ in which student writers were traced from grade 9 through grade 12, aiming at creating new knowledge about students’ ways of learning subjects through writing and of learning writing through subjects (Krogh, Christensen & Jakobsen, 2015; Krogh, forthcoming 2016).

The learning trajectories of Jens and Sofia are illustrated in Figure 12.4. For their projects in grade 9, Jens and Sofia selected issues which were topical and close to their personal experience; the semiotic registers applied only to a limited degree included verbal writing. In upper secondary school, their projects grew increasingly sophisticated, both in terms of the disciplinary requirements and academic presentation. Extended writing constituted the basic standard of papers, and personal experience and topicality were no longer relevant criteria when selecting topics.

Interview data reveal that in grade 9, Jens spent most of the week “nerding” with the video on COP 15 submitted by his group. He was enthusiastic about the self-regulated organization of the work that made this possible. In upper secondary school, the challenge of the history assignment was how to get a grip on the text sources. This assignment did not mean much to Jens on a personal level; still, he appreciated the concentrated work period. In the study specialization project his challenge was to understand the mathematical theory, but nevertheless he found this part of the project the most exciting. He said that it was a victory to be able to understand Euler’s theory.

In their grade 9 project, Sofia and her partner drew on personal experience and a questionnaire. In their presentation they applied several media and a range of rhetorical and dramatic effects. Sofia especially enjoyed these opportunities for creative experimentation. In the history/Danish assignment, Sofia studied public speeches. What fascinated her was analyzing rhetorical strat-

egies. In her study specialization assignment, Sofia struggled with the math part and eventually had to refrain from solving some of the mathematical problems, but still she expressed a feeling of pride in having done “such a long assignment in math.” For the study specialization project, Sofia decided to go back to more verbal registers in biotechnology and Danish. She was able to handle the challenge this time and was especially satisfied with having dug out an article presenting new knowledge about Chlamydia.

	Jens	Sofia
Grade 9 Project assignment	“COP 15” A 15-minute sampled video Oral presentation supported by PowerPoint	“Young people’s leisure time” Manuscript and storyboard for video, plus brochure Oral presentation, supported by PowerPoint and video sequences
Grade 11 History/Danish assignment	History “The American revolution” Book sources Ten pages, including illustrations	Danish “Danishness” Rhetorical analysis of two speeches Eight pages
Grade 11 Study specialization assignment	Biotechnology and Physics “The function and application of the ELISA method of analysis” Twenty-eight pages, including photos, graphs, and diagrams	Math and Physics “The trajectory of a projectile” Twenty-four pages, including mathematical symbols and formula, graphs, and photo
Grade 12 Study specialization project	Biotechnology and Math “Population Dynamic Models” Twenty-eight pages, including photos, graphs, and diagrams	Biotechnology and Danish “Chlamydia” Thirty pages, including diagrams, tables, graphs, and photos

Figure 12.4. The projects of Jens and Sofia

From these two students’ perspectives, learning challenges and experiences were tied to the “research” aspects of the projects. There was, however, an interesting progression in this respect. In grade 9, Jens and Sofia mainly foregrounded the *self-regulated organization* of the work, the *liberty of choice*, both with respect to topic and resources, and the *personal relevance* of projects. In interviews on the upper secondary projects, more importance was attached to issues of *overcoming challenges* and *exploring new knowledge*. Evidently, there were both losses and gains in the trajectory from secondary to upper secondary school.

In conclusion, cross-disciplinary “research” writing holds obvious learning and Bildung potentials, not just with respect to the curricula, but also from students’ viewpoints. Although both lower and upper secondary schools would benefit from learning from each other, the empirical data indicate that students appreciate the progressive challenges of research projects. There is also a strong indication that important learning potentials of these projects are tied to increasing demands of cross-disciplinarity as well as to requirements of extended writing.

5. Challenges with Implementing Writing in All Disciplines in Norwegian Schools—A Cross-Level Perspective

Although writing has been mandated as an integrated part of all subject areas in Norwegian schools since 2006, evaluation reports show that teachers in general seem to be little affected by the reform (Hertzberg, 2012; Aasen et al., 2012). Very few subject content teachers, particularly at the upper secondary level, consider teaching writing their responsibility; they feel they have neither the competence nor the time for it. With the exception of reading, which is strongly focused on at the primary school level, these findings were also representative of the other competencies (numeracy, orality, and digital skills). As a consequence, the curriculum was revised in 2013, involving a more detailed presentation of the idea behind the integration of the five competencies together with more specific suggestions for implementation. The results are yet to be seen.

However, these rather negative findings do not give the whole picture. Today, an increasing number of upper secondary schools are establishing school-based writing projects across content areas. Already in the year of the reform (2006), a group of teachers at “Fagerbakken” upper secondary school decided to establish a project aiming to gain deeper insight into what counts as text quality in the different subject content areas. The project soon received great attention in the media. After four years, the project was documented through a book published as a joint effort between the school and the Department of Teacher Education at Oslo University (Flyum & Hertzberg, 2011). Today, several other secondary schools in the Oslo area have started similar projects. Since these schools represent a very different picture from the schools in the evaluation report, a research study was designed to find out how they did it and why they succeeded.

In search of an answer, participants of writing projects at four different schools were interviewed. The following schools were chosen strategically to represent the diversity found among Norwegian secondary schools: “Marka”

(11-13), a traditional upper secondary school focusing on vocational strands; “Fjordbyen” (11-13), a traditional upper secondary school focusing on academic strands; “Skogen” (8-10), an innovative school with a long tradition of project work and entrepreneurship; and “Plassen” (8-13), a brand new school with a strong media and communication strand. The interview dealt with organizational structure, aspects of disciplinary writing in focus, classroom practices at play, and critical conditions for success (for an expanded version of the study see Hertzberg & Roe, 2016). Below we list some of the main findings.

Organization: All four projects were initiated from below and quickly received support from the principal. Two of the projects involve the whole staff; the other two involve only part of the staff (and on a voluntary basis). Whereas the projects that involve the whole staff naturally include the whole range of school subjects, the other type of project may be more restricted. In particular, there is a tendency for science and math teachers to be more reluctant than social science and language arts teachers.

Focus of disciplinary writing in the project meetings: There seem to be two main concerns: discussions of student texts and the sharing of “best practice” examples. Text discussions typically center on text norms in the various content areas and the grading of student work, whereas “best practice” sharing includes discussions of types of assignments, feedback strategies, students’ use of sources, the pros and cons of providing students with model texts, and writing frames.

Teaching repertoire/tool kit at play: All interviewees report extended work in the pre-writing phase, including the use of models and writing frames. Teacher response during writing is practiced in some form or another by most participants, and peer response is a regular method in two of the schools. All participants stress the importance of discipline-specific concepts. Writing events typically include reading, oral activities, and the use of digital resources, and the students are asked to complete extended writing assignments several times per semester.

Critical conditions: All four groups highlight the need for a fixed meeting schedule, mental and organizational support from the principal, and a certain amount of devoted teachers.

In light of the enthusiasm and creativity that we found characterized the network schools, a crucial question is why schools in general seem to be relatively untouched by the reform. An explanation may be found in the dichotomy of *top-down vs bottom-up*. Research on reform implementation contains overwhelming evidence that top-down reforms have little chances to succeed unless they are anchored in felt needs among those who must carry out the reform (Cuban, 1998; Tyack & Cuban, 1995; Klette, 2002). In Norway, the

introduction of the five basic competencies has been a typical top-down process, grounded in the European DeSeCo framework, formulated in curriculum plans, and introduced by bureaucrats and politicians. At the micro level, neither school principals nor teachers had asked for it, and teachers felt no ownership of it. In the network schools, however, the engagement started at the micro level, initiated by devoted teachers who saw writing as a means of learning content knowledge.

An interesting point is the similarities between the process writing wave in Norway during the 1980s and today's engagement with writing in the content areas. In both cases, school-based projects have been initiated from below and spread from person-to-person, and in both cases the result has been a broadening of teachers' instruction repertoires. But whereas process writing was implemented in classrooms without support of steering documents, the initiatives referred to above would hardly have succeeded without the introduction of the five basic competencies in the national curriculum. What we are seeing is an interesting blend of top-down and bottom-up initiatives which create a future potential for widespread adoption.

6. Conclusion

We opened this chapter by pointing to an international trend toward highlighting general competencies and skills that are desirable outcomes of education. Writing, as one of the literacy competencies agreed on as being vital for both learning and future work, can only be achieved by concerted efforts by teachers across content areas. However, international research has shown that global concepts like "skills" and "competencies" are still associated with instrumental, basic skills, and that they are not well connected to the best practices that already exist (Sivesind, 2013 b). This challenge needs to be taken seriously in order to implement large-scale changes in practice that informed writing teachers have advocated for decades.

Our three case studies add up to a picture that bodes well for the future of writing across content areas in the Scandinavian countries, even though it will take time. We have emphasized the importance of combining macro, meso and micro levels, but the three countries exemplify quite different combinations. In the Swedish study, an international science project provides the macro level incentive for participating schools, but it is the local interpretation of the project that adds the writing-to-learn. The classroom study shows the importance of helping teachers learn how to integrate writing into a dialogic, inquiry-based teaching of science. In Denmark, the macro level pressure is strongest as a curriculum reform mandated the implementation of

cross-disciplinary written research projects in schools. But the challenge had to be taken up by the subject teachers at the micro level of classrooms in order to work in practice. The longitudinal case study exemplifies this macro-level reform's gradually increasing learning potential for students. Norway is the country where the curriculum documents most clearly state that teachers in all disciplines are responsible for teaching basic competencies—in primary, secondary and upper secondary. Bottom-up writing-in-the disciplines initiatives are spreading, being legitimized by the new emphasis on writing in curriculum plans for a number of subjects. This study thus indicates a viable, but less certain alternative to mandating writing in the content areas.

Maybe the most important overarching conclusion of our studies is that they confirm the value of extended writing. Different from the situation in e.g. the US (Applebee and Langer 2011), assignments requiring *writing at length* have long traditions in Scandinavian schools. This cannot be overestimated as a contribution to meaningful writing in the content areas. From a teacher perspective, extended writing provides opportunities for the training of disciplinary discourses and knowledge. For students, extended writing—and in particular “research writing”—offers experiences of agency and knowledge crafting, which are basic prerequisites for learning and Bildung.

Note

1. Literacy and Disciplinarity in upper secondary education, www.sdu.dk/fos. The project was funded by the Danish Research Council for the Humanities 2010–2014.

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Steering Documents for Scandinavian Schools

Denmark:

Education Programmes for primary, lower and upper secondary:

- <http://eng.uvm.dk/Education/Upper-Secondary-Education/Four-Upper-Secondary>.
- <http://eng.uvm.dk/Education/Primary-and-Lower-Secondary-Education/The-Folkeskole/Subjects-and-Curriculum>

Bekendtgørelse om projekttopgaven i folkeskolens 9. Klasse. <https://www.retsinformation.dk/forms/Ro710.aspx?id=132881%20> [Information of the project assignment at 9. grade]

STX-bekendtgørelsen, bilag 7, August 2010. <https://www.retsinformation.dk/>

Forms/R0710.aspx?id=152507#Bil7 [Information about upper secondary project assignment]

Norway:

Norwegian National Curriculum 2006, revised 2013. <http://www.udir.no/Stottemeny/English/Curriculum-in-English/>

Framework for Basic Skills 2004, revised 2013. http://www.udir.no/Stottemeny/English/Curriculum-in-English/_english/Framework-for-Basic-Skills/

Sweden:

Skolverket (2011). [The Swedish National Agency for Education]. *Läroplan för grundskolan, förskoleklassen och fritidshemmet 2011* [Curriculum for the compulsory school system, the pre-school class and the leisure-time centre, 2011]. <http://www.skolverket.se/om-skolverket/andra-sprak-och-lattlast/in-english>

Skolverket (2011). [The Swedish National Agency for Education]. *Läroplan, examensmål och gymnasiegemensamma ämnen för gymnasieskola 2011* [Curriculum, degree objectives and subjects common for the upper secondary school , 2011]. <http://www.skolverket.se/om-skolverket/andra-sprak-och-lattlast/in-english>

13 Learning Specialists Working with Faculty to Embed Development of Academic Literacies in Disciplinary Subjects

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Learning Advisers broadly agree that academic literacies should be taught within discipline courses. Generic instruction is of limited help with varied discourses reflecting the different epistemologies, identities, and politics of academic communities of practice. However, discipline faculty are often reluctant to devote time to skills, or resentful of managerial pressures to do so; and they may be uncertain how to explicate their discourses to students. This chapter reflects on Australian Learning Advisers' efforts to collaborate with faculty over 20 years, to embed development of academic literacies in their subjects. It highlights factors that have encouraged or inhibited this, including changing demands from government and the community; institutional will and individual interest; diminishing resources for teaching; and the trend toward online delivery.

Les spécialistes de Langage Académique et Apprentissage (ALL, acronyme de Academic Language and Learning) des universités australiennes et britanniques considèrent qu'il convient d'enseigner les littératies académie dans le cadre des disciplines car l'étude de discours académiques génériques, hors de leur épistémologie et des identités culturelles propres aux communautés académiques, serait de peu de profit. Cependant, même si les spécialistes disciplinaires ont besoin des spécialistes du langage pour former leurs étudiants à l'écriture académique et même pour comprendre comment les épistémologies disciplinaires formatent les textes, la collaboration ne va pas de soi car certains spécialistes disciplinaires craignent que les questions de contenu pâtissent de l'intervention.

tion de spécialistes du langage. Cet article traite des efforts des formateurs australiens pour collaborer avec des enseignants au cours des deux dernières décennies afin de les amener à intégrer dans leurs thématiques le développement des littératies académiques. Il met en évidence les facteurs qui ont favorisé ou contrarié cet effort, notamment l'évolution des demandes adressées aux universités de la part du gouvernement et de la communauté ; la volonté institutionnelle et l'intérêt individuel ; la diminution des ressources accordées à l'enseignement et la tendance à la formation en ligne.

1. Introduction

In Australian universities, there is no general education requirement, and the writing that students do is all for their discipline courses. Unlike the North American context from which much of the theorizing on WAC, CAC, and WID has emanated (see, e.g., Russell, 2001; Russell et al, 2009), there has never been a need in Australia to introduce writing into the disciplines; it is a substantial, and often the only, mode of assessing discipline knowledge. What *is* needed, however, is explicit attention to what writing does—where (in the texts), how (in the language), and why (in the activity systems within which it is located) (see, e.g., Paretti, 2011; Russell, 2001: 281). This kind of attention is what I mean, in this chapter, when I refer to the development of academic writing—not just that students write, but that they are invited to notice how the genres they are reading and writing in their disciplines work. This is not the province of English lecturers, for students do not study composition. Nor do we have any equivalent of WAC or WID programs; we have Academic Developers (a career rather than a part-time responsibility of discipline lecturers as in North America), but these are specialists in curriculum and pedagogy, not in writing. In our context, the people responsible for helping students to develop their academic writing—the position from which I speak—are career professionals who come into the field of Academic Language and Learning (ALL) from a wide range of discipline backgrounds, usually with a degree or other qualification in Applied Linguistics as well, for many of our students come from language backgrounds other than English. This work emerged in Australia, in the late 1970s and early 1980s, from Counselling services which were responsible for “study skills” as well as for students’ emotional well-being. These functions soon diverged, and from the 1980s on, ALL developed into a professional community with a national conference, an Association, a journal, and an identity quite distinct from that of Academic

Developers. Apart from (but related to) a gap in salary and status, the salient differences are that ALL practitioners (or “Learning Advisers”) work largely with students, and that their core expertise is in language and discourse, while Academic Developers work with faculty and their expertise is in learning theory. Elsewhere, I have traced the divergence of these roles and the ways in which that separation has worked to distance Learning Advisers from discipline faculty (Chanock, 2011). It has not, however, stopped Learning Advisers from seeking to collaborate with faculty. Their job classifications and their locations vary—in academic divisions, or student services, or the library—so that some are more likely than others to interact with lecturers in the disciplines. But whatever their location, most of them believe that their work is most effective if they can collaborate with discipline lecturers to integrate the development of academic writing into their course curricula, and to have them assume, or share with Learning Advisers, the responsibility for teaching it. This chapter looks at the reasons for this approach, drawing on literature from Australia as well as from other regions where similar experience has given rise to congruent approaches (such as the UK, New Zealand, and South Africa); and at what hinders or helps in achieving it.

2. Academic Literacies Are Discipline Literacies

There are both practical and intellectual reasons for integrating writing development. Learning Advisers can reach more students if they do not have to rely on students seeking them out for consultations or workshops, which many are reluctant to do because they are embarrassed or they do not have the time. More important is that students are more motivated to work on their writing if it is integral to achieving in their disciplines (e.g., Baik & Greig, 2009). Durkin and Main (2002), for example, have documented a comparison between a program of generic study skills workshops that attracted not a single student; a peer mentoring program based on work for the disciplines that attracted 80% of the student cohort; and discipline-based workshops that 87% of the cohort chose to attend. However, it is not just convenient to teach academic literacies in the context of the disciplines; it is essential because they are *the literacies of the disciplines* (for discussions of this in Australia and the UK, see, e.g., Baik & Greig, 2009; Gibbs, 2009; Gimenez, 2011; Hyland, 2000; Jones, 2009a and 2009b; Lea & Street, 1998; Mitchell, 2010; Monroe, 2003; Skillen, 2006; Star & Hammer, 2008; Wingate, 2006, 2007; Wingate, Andon & Cogo, 2011). As Paretti (2013: 96), in the US, puts it, “Learning the literacy practices of a discipline involves not simply mastering the mechanics of language (e.g. vocabulary, syntax), but also understanding

the social practices of the discipline, including what constitutes knowledge, how it is created, and how meaning is socially constructed.” Generic versions of “academic discourse” taught outside the disciplines are of limited help to students faced with varied discourses that reflect the different epistemologies, identities, and politics of academic communities of practice, much of which goes so deep that it is rarely made explicit to students (Baik & Greig, 2009; Bazerman, 1981; Durkin & Main, 2002; Jones, 2009a and 2009b; Russell 2001: 287). Indeed, while discipline scholars are “native speakers” of their discourses, they may need help from language specialists to make these visible to their students (Elton, 2010; see also Jacobs, 2005; Wingate, Andon, & Cogo, 2011).

For example, scientists have learned to avoid first person pronouns and to use passive verbs (Halliday, 1989), and to present their findings separately from their discussion of what the findings mean. These practices are all linguistic reflections of the ethos of objectivity that goes very deep in their culture of enquiry (Gilbert & Mulkay, 1984). But they are unlikely to show their students how that ethos is reflected in their written discourse. Conversely, anthropologists may use first person pronouns and narrative text structure in accordance with the discipline’s requirement that ethnographers must be self-reflexive about their subjectivity and their research practices; but they may not think of these discourse patterns as encoding ethical and epistemological values. For students who carry around the unexamined rule “never say ‘I’ in an essay” (Chanock, 1997), these language practices are simply contradictory and some conclude that (as they have put it to me), “my anthropology teacher is interested in my opinions, but my psychology teacher isn’t.”

Many scholars have remarked upon the tacit nature of disciplinary expertise, whereby “the writing, genres, and expectations of their disciplines have become second nature to faculty” (Russell, 2001: 287; cf. Elton, 2010). It was highlighted in Lea and Street’s (1998) seminal article propounding an “academic literacies” approach to supporting students’ learning about academic discourses, based on research which “provide[s] evidence for differences between staff and students’ understanding of the writing process at levels of epistemology, authority and contestation over knowledge rather than at the level of technical skill, surface linguistic competence and cultural assimilation” (160). Not only were staff understandings different, but they were unhelpfully vague; for example, staff commonly considered “structure” and “argument” to be of key importance, and could recognize these when they saw them, but could not describe what they meant, and were not aware that their meaning varied across disciplines (Lea & Street, 1998: 162–163). Lea and Street give an example of a student whose ways of constructing structure and argument were the same in writing for history and for anthropology; but whereas these

ways were praised by his history lecturer, the anthropology lecturer called his essay “incoherent” and referred him to an “essay-writing clinic”! (1998: 166). Jacobs (2005) thinks it necessary, in view of such problems, to “problematisize” the privileging of “insider” knowledge of disciplinary discourses: “Such ‘insiders’ or experts have a tacit knowledge and understanding of the workings of discourse within their disciplines which remains unarticulated as they model appropriate disciplinary practices and discourse patterns for their apprentice students in the classroom” (477).

3. Tacit Knowledge

Studies using a range of approaches have identified important differences among discipline and professional discourses that trouble attempts to generalize about academic discourse. For example, from interviews with staff and students at the University of Edinburgh, Anderson and Hounsell (2008: 466) identified “Ways of thinking and practicing in biology,” which included “Achieving ‘foundational’ forms of understanding, including a sound grasp of key terms, concepts and principles, biological structures, functions and processes; and systems and levels of organization” which sharply contrasted with “Ways of thinking and practicing in history,” such as “Appreciation of history as socially constructed and contested . . . ; Sensitivity to the ‘strangeness of the past’; Ability to view events and issues from different perspectives; [and] Readiness to separate out one’s own preconceptions.”

While Anderson and Hounsell were investigating what members of particular disciplines believed about the nature of their discipline, Moore (2002) took the very different path of textual analysis to infer differences in three disciplines’ views of where knowledge comes from, based upon their practices of attribution. He examined “metaphenomenal clauses” (where a participant states/ claims/ argues/ believes/ etc. a proposition or idea) in textbook chapters from sociology, economics, and physics, and discovered that economics—while ostensibly a social science—was more likely even than physics to treat knowledge as located in the world, rather than constructed in the mind of the observer(s) in an effort to understand what is out there (Moore, 2002: 356). While the chapter from sociology contained 225 metaphenomenal clauses, the chapter from physics had 51, and the one from economics, only 23. Of these, the clauses attributing ideas to “individual scholars” numbered, in sociology, 169; in physics, 17; and in economics, 4. “Schools of thought” were credited with ideas 36 times in sociology, 29 times in physics, but not once in economics. Finally, knowledge was attributed to “generic scholars” (for example, “sociologists/ a physicist/ many researchers/ we”) 20 times in sociology, 15

times in physics, and 19 times in economics. Thus, in these textbook chapters, sociology represented knowledge as the product of interpretation of social phenomena by scholars, while physics and, to an even greater degree, economics, bypassed reflection on the status and provenance of knowledge, and presented what they saw as unmediated facts about the world.

Because of the non-trivial differences between disciplines revealed through close examination of their texts and discussions with their practitioners, learning advisers in Australia have advocated since the early 1980s for “integrating the understanding and teaching of writing within the context of the particular discipline” (Emerson & Clerehan, 2009:169). Despite this, not much collaboration has actually occurred until the last few years (for accounts of collaborations in Australia and elsewhere, see e.g. Al-Mahmoud & Gruba, 2007; Brackley & Palmer, 2002; Brooman-Jones, Cunningham, Hanna, & Wilson, 2011; Chanock, Horton, Reedman, & Stephenson, 2012; Evans, Tindale, Cable, & Mead, 2009; Harris & Ashton, 2011; Kazlaukas, Gimel, Thornton, Thomas, & Davis, 2007; Magyar, McAvoy, & Forstner, 2011; Mitchell & Evison, 2006; Murphy & Stewart, 2002; Purser, Skillen, Deane, Donohue, & Peake, 2008; Thies, 2012; Wingate, Andon, & Cogo, 2011; Yucel et al., 2009). To understand why integration developed sluggishly in the decades since 1980, but seems to be gaining traction now, we need to look at the range of factors that have encouraged or inhibited this effort, including the changing demands upon universities from government and the community; institutional will and individual interest; diminishing resources for teaching; and the trend toward online delivery.

4. Obstacles to Collaboration

For a long time, the teaching of academic writing in Australia has been troubled by the same issues of status that have hampered its development elsewhere. Universities considered academic literacy a basic skill and not their responsibility to teach, so the learning advisors charged with this remedial work occupied an often marginal status, and struggled to establish a developmental framework for the teaching and learning of academic writing (Huijser, Kimmins & Gallagher, 2008; Stevenson & Kokkin, 2007). Apart from various limited initiatives documented in Chanock and Burley (1995), rare systemic efforts to establish an integrated approach were made at Murdoch University (Marshall, 1982); at the University of Wollongong (Skillen, Merten, Trivett, & Percy, 1998; Percy & Skillen, 2000), and at the University of Sydney, inspired by ideas from Systemic Functional Linguistics (Jones, Bonnano, & Scouller, 2001). These initiatives were not widely emulated, however, in the curricula

of other universities. Many lecturers thought of academic skills as separate from content knowledge; they did not know how to teach skills, and did not want to take time away from content. (It is possible, too, that early efforts on the part of ALL professionals to communicate with discipline lecturers were hampered by the specialized language of the theory on which many of them drew. Systemic Functional Linguistics, with its “participants” and “processes,” “field, mode, and tenor,” “nominalization,” “congruence,” and “grammatical metaphor,” is useful for thinking about the workings of discourse, but not for discussing them with lecturers in the disciplines. For a fuller discussion, see Chanock 2011: A76-A78.)

5. Opportunities for Collaboration in the “Generic/ Graduate Attributes” Movement

When universities came round to encouraging collaboration between learning advisers and discipline lecturers, it was because of the pressures exerted from outside the universities to produce “useful” graduates. At the 2001 Conference of the Association for Academic Language and Learning, Janet Jones (2001) urged her audience to consider how the work of learning advisers would be affected by “a clear convergence of government and employment agendas . . . [promoting] a set of generic attributes deemed essential for successful employment” such as skills in problem solving, team work, and oral and written communication (Hager, Holland, & Becket, 2002; Purser et al., 2008; Skillen, 2006). Auditing of university curricula, assessment, and reporting was introduced to ensure that universities did not just claim to develop these skills, but incorporated them into their courses (de la Harpe & David, 2012).

This pressure on universities from government and employers to give more attention to students’ development of “skills” or capabilities has created opportunities for learning advisers to approach discipline teachers who need to incorporate this focus into their subjects but may be uncertain how to do so, and reluctant to give it class time. Learning Advisers can meet with them at the planning stage of constructing their subjects, to suggest how they can use a focus on the discourses embodied in the subject’s readings to help their students understand the content more readily. If students are shown explicitly how the argument in an assigned article proceeds via conventional “moves” of contextualizing the topic, problematizing existing scholarship, and establishing a space for new research and/or interpretation, they can learn to recognize what the reading *does* as well as what it *says*; and they can add similar ways of thinking and writing to their repertoires, as their lecturers hope that they will (see Appendix One). This focus on discourse patterns takes only a

few minutes, and doubles rather than diminishes the attention given to the subject's texts. Learning advisers can provide strategies for reading, frames for writing, and examples from subject texts by both scholars and students annotated to highlight salient features of the textual practices they embody (see Appendix Two). Such collaborations may take all sorts of forms, from contributing materials and workshops to the subject, to co-teaching with the discipline lecturers (e.g., Chanock, 2013; Mort & Drury, 2012; Wingate, 2011; Wingate & Dreiss, 2009). The great variety of initiatives discussed in the literature has not settled into anything that could be called a "model," and seems unlikely to do so, as the forms they take depend upon institutional resources and structures, and on rapidly changing technological affordances, as much as on policy. We have accounts of successful systemic, institutionally-sponsored approaches, in which typically ALL staff invest considerable time in learning about the content students are studying (for an early, pioneering one, see Skillen et al., 1998; for more recent initiatives that fit within the framing of developing generic attributes, see Frohman, 2012; Thies et al., 2014). These are demanding of staff time, including, sometimes, the time of discipline staff. At the other end of the collaborative spectrum, we have online materials developed by ALL staff for the use of discipline subjects, which students can—but may not choose to—access (e.g., Chanock, 2013; Mort & Drury, 2012; Thies et al., 2014). If common lessons can be distilled from this varied literature, they are these: collaborations can be initiated with or without institutional sponsorship (for small-scale bottom-up examples, see Harris & Ashton, 2011, or Thies, 2012); and initiatives are likely to be more successful, the more closely ALL and discipline faculty are engaged in collaboration, and the more tightly integrated any learning materials are into the activities of learners within their subject curricula.

It is, of course, difficult to assess the impact of such approaches, with all the complex and interacting influences on students' learning, and without a control group for comparison. (For rare attempts to quantify effects, see Hunter and Tse [2013], who found an average improvement of 9.02 in students' marks on assignments for macroeconomics, following "assignment discussion sessions" [in contrast to an earlier, unassisted, cohorts' experience of receiving lower marks from one assignment to the next]; and Chanock, Horton, Reedman, & Stephenson [2012] below). Nonetheless, I think the ripple effect sometimes reported, by which discipline lecturers within an academic area increasingly seek input from ALL staff over time, is strongly suggestive of the efficacy of such initiatives. For example, Frohman (2012), who shifted her approach from generic teaching to offering Faculty-based support in a Faculty of Health, found that

As the academic staff became more aware of my role and support I could offer, I was invited to become more involved. I was asked to review the clarity of assessment tasks and criteria sheets, develop workshop materials to scaffold academic literacies, and provide individual interventions for at-risk students. (A56)

Similarly, Harris and Ashton (2011) report that, when they moved from generic workshops to support for a Management subject in their university's Faculty of Business and Law,

As working relationships with teaching staff developed, the [Learning Adviser's] opinions were sought on a range of issues including the appropriateness of assessment tasks and how best to scaffold them, as well as how to address language-specific problems and reduce plagiarism. The bottom-up approach . . . occurred naturally as academics sought assistance, listened to colleagues discussing the embedding project, and invited the LA into their classes. (A79).

However, while the “graduate attributes/skills” movement has created opportunities for collaboration with discipline faculty, it does not guarantee them. Faculty often resist the imposition of such requirements by institutional mandate, and do not implement them in their courses (de la Harpe & David, 2012; Green, Hammer, & Star, 2009; Jones, 2009a; Radloff et al., 2008). In a survey of 1064 academic staff across sixteen Australian universities, de la Harpe and David (2012) found considerable gaps between lecturers’ belief in the importance of graduate attributes and their actual willingness to teach these. Star and Hammer (2008) have found that many lecturers believe “that they have been employed to teach ‘content’ rather than graduate skills” (246). Faculty interviewed by Jones (2009a) saw their institution’s defined generic attributes as oversimplified and/or overly prescriptive, and as part of a managerialist agenda. “Because [skills] are not framed as part of the disciplinary content but are seen as extraneous they are resisted,” says Jones, “despite the fact that higher order skills such as critical thinking, analysis and communication are an integral part of [the discipline]” (2009a: 181). It is not surprising, therefore, that one highly successful collaboration between ALL and discipline staff to teach communication skills in Accounting at Macquarie University (Evans et al., 2009) deliberately eschewed a top-down approach in favor of an “incremental and voluntary approach to change” (600).

If learning advisers wish to develop collaborations that faculty will “own”

with them, they cannot rely on central directives to make faculty cooperate. They must instead show them that they are familiar with their courses, understand the discourses of their disciplines *and find these interesting* (Chanock, 2007a and 2007b), and can show them something about their discourse that they find internally persuasive. Obviously, this requires a considerable investment of time and effort, but it is one that Learning Advisers are already making if they work with students as they draft their discipline assignments; and that work alerts Learning Advisers to the things students find puzzling, and the reasons for their puzzlement, which their lecturers may be glad to have explained. As Jacobs has put it, lecturers appreciate the help, in “unlocking” their tacit knowledge, of a partner from ALL who comes “with an understanding of the problems that marginalized ‘non-mainstream’ students face; as a novice to the discipline; yet as an equal who is able to question and interact with another colleague” (2005: 481).

6. My Experience of Collaborating with Faculty

My own experience in this role over the last quarter century reflects both the opportunities and the obstacles I have outlined here. One of my ways of learning about the courses my students take is to sit in on early lectures, and in the mid-1990s, I noticed that the lectures in a history subject were structured in the same way as the assigned readings, a structure of argument that was also expected in the students’ written assignments (Chanock, 2007a). I approached the lecturer with this observation, wondering whether we could share it with his students, and he found it both novel and interesting. We then addressed it explicitly in subsequent lectures, and from this collaboration I went on to develop a kit that faculty across the humanities and social sciences could use to shed light on the purpose of each week’s work in their subject (Chanock, 2004). They could show their students how the questions asked in the subject reflected the culture of enquiry in that discipline; how primary and secondary evidence are used; the structure of argument in discipline texts; practices of use and attribution of sources; and habits of critical thinking. With the backing of the Dean, all first year subject coordinators were asked to talk with me about how the activities in this kit might be suited to their subjects, and to use them as and how they were applicable. Thus, although the ideas came from outside the subjects, those to whom they made sense took ownership of them and used the kit for several years (Chanock, 2010). It required no apparatus for implementation, and cost nothing to teach.

This approach did not, however, survive a change of Dean, attrition of

discipline lecturers, and a new institutional vision promulgated by central management (Design for learning, 2009). The new broom swept clean, and a new approach, centrally mandated, required all core first year subjects to incorporate the university's designated "graduate capabilities." The subjects that I worked with responded by adding parallel tutorials, taught by casual staff, which focused on skills including the subject discourses. Although I designed these tutorials with a colleague, I did not teach them; nor did the subject coordinators unless they wanted to, and some coordinators were much more engaged in this program than others. The results were very good, especially in the subjects where coordinators had collaborated in the planning and teaching (and notably poorer where they had not). As we had no control group, we compared the cohort's results with those of the previous year. Although the current year had many more students with lower university entry scores, the fail rate remained steady overall, while the distribution of passing grades changed in ways that suggested the intervention had been effective. As and Bs rose in 14 out of the 19 groups taught (by up to 17% and 18% in subjects with the most engaged coordinators), while Ds and Fails dropped in 16 out of the 19 groups (by up to 24% and 19% in those subjects). Nonetheless, despite these gains, the program was not sustainable because of the logistical difficulties and high cost of doubling the subject's tutorials (Chanock, Horton, Reedman, & Stephenson, 2012).

The end of the program was not, however, the end of the collaborations that had developed, for, once again, there were lecturers for whom the explicit focus on subject discourses made sense, and who saw the value of integrating this somehow into their teaching. Some have asked me to join in the planning of their subjects; to contribute materials and workshops; and to advise on students' problems, and possible solutions, in a cycle of improvement to the design and teaching of their subject (Chanock, 2013). So, currently, we are in another phase of bottom-up, cost-free collaboration, and this time it has gained further impetus from cuts to staffing (which mean that tutorials have been halved, and something must be found for students to do independently in non-teaching weeks). It was also facilitated by the move to housing subjects online, on a Moodle Learning Management Site, so that I am able to provide activities and resources to students anywhere, any time (Chanock, 2013). I would suggest that bottom-up collaboration, although possibly more ephemeral than systemic programs (Thies, 2012), and certainly less well-resourced, is likely to be more effectively and enthusiastically implemented because it is intellectually persuasive and adapted to the needs that faculty and students themselves experience (e.g., Frohman, 2012; Harris & Ashton, 2011).

7. Current Dilemmas

At the same time, it is worth teasing out of this apparent success some issues that are, and will continue to be, problematic for ALL not only in my university but around Australia. The saying “Be careful what you wish for” comes to mind. Since the 1980s, ALL professionals have campaigned tirelessly both to professionalize their role and to raise its profile in their institutions. Since 1994 they have had a biennial national conference, which, along with the list-serv “unilearn” to which colleagues at every university across Australia (and many in New Zealand) subscribed, created and consolidated a professional community. This, in turn, gave rise to a peak body, the Association for Academic Language and Learning (AALL), established in 2005 (<http://www.aall.org.au/>); its Executive was then able to represent the community’s views and interests in national debates on higher education (see, e.g., <http://www.aall.org.au/aall-media-contributions>). AALL publishes a refereed *Journal of Academic Language and Learning* (<http://www.aall.org.au/journal>) and its website functions as a clearinghouse for members’ publications in the field, including archived conference proceedings, key texts dealing with both theory and practice, and government-funded projects. The Association hosts a members’ Forum and publishes a newsletter, and disperses grants to fund research, projects, and cross-institutional events for professional development. Looking further afield, AALL’s website houses links to partner associations in the US, UK, Canada, Europe, and New Zealand. All of this is grounds for satisfaction, but not, unfortunately, for complacency. At the same time that the field has grown in numbers, activity, and professional identity, its members have not fared well in several institutions. Units have been restructured and reconstituted with fewer staff, or staff reclassified from “academic” to “general,” that is, without support for research (<http://www.aall.org.au/australian-all-centres>). And, at a time when most Learning Advisers recognize integration and discipline specialization as best practice in their work, ALL units have been centralized into “hubs” under supervisors who are management rather than ALL professionals.

An obvious reason for the limited success of efforts to promote the role of ALL lies in the shrinking support from government for higher education and consequent frequent restructurings by institutions to make precarious budgets stretch further. While universities strive to minimize wastage by retaining students, it is difficult for ALL to demonstrate, still less to quantify, its contribution to retention as its influence on students’ confidence, comprehension, motivation and success is only one strand in the students’ experience, and the work with individuals that is most effective in retaining struggling

students has been widely curtailed because it is (ostensibly) expensive. Increasingly, it is delegated to peer mentors who are seen as more accessible, if less expert, and certainly cheaper than ALL professionals; the trend towards learning with peers, so long established in the US, has begun to take hold here, while ALL professionals are deployed “strategically” in the service of top-down, whole-of-university attempts to infuse reportable development of graduate attributes into discipline curricula. This “streamlining,” centralization and standardization of ALL work is seen as likely to be more efficient than the strategy of diverse solutions to diverse problems that Learning Advisers have often found more efficient simply because it is more effective. In the process, they are distanced from their students, and often from staff as well if they come to regard Learning advisers as working in the service of unpopular, rhetoric-ridden institutional strategies perceived to be of dubious merit.

These changes present ALL professionals with various dilemmas. They are generally enthusiastic advocates of peer learning, and have sometimes been responsible for introducing and/or managing peer mentoring programs. They have also moved to adopt technologies and opportunities for creating learning experiences online. However, as trainers or as producers of online curricular or co-curricular materials, they tend to disappear from view, and this is a risk also in their collaborations with discipline faculty. Whereas my collaborations with discipline colleagues, described above, have been mutually rewarding, I am aware that our management’s framing of them is in terms of “interventions” to fix “problem” students and then move on. The work is not envisaged as ongoing, organic development but rather as a mechanism for “quality assurance.”

It is not clear what the solution to such dilemmas may be. It has always been the case that many managers have not understood ALL work in the sense that they are not attuned to the importance of expertise in language and discourse, but see what Learning Advisers do as “study skills.” Learning Advisers have tried to explain their work both locally and nationally, but raising their professional profile does not seem to have protected their industrial underbelly. They could, but probably should not, conclude that it is the anomalous nature of their work that makes them vulnerable; it does, but at the same time, colleagues in the disciplines are also being shed by cash-strapped institutions, and this is not because Vice-Chancellors do not know what historians or anthropologists do, for example, but because they feel they cannot afford so many of these any more. ALL practitioners find themselves in a confusing situation of new opportunities that bring with them new risks to their work and to their role. However, where it is possible to work with

discipline faculty and their students to develop, articulate, and scaffold everyone's understanding of the work they are engaged in, it has proved to be well worth doing.

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Appendices

Appendix 1. An abstract from a journal article, annotated to show students the typical structure of “moves”

This comes from the first page of an article by Nel, E., Binns, T., and Motteux, N. (2001). Community-based development, non-governmental organizations and social capital in post-apartheid South Africa. *Geografiska Annaler Series B: Human Geography*, 83(1), 3-13. Like many articles, it has an “abstract” before the article begins, summarizing its purpose and content.

Abstract	“Moves”
Community-based development strategies are gaining in credibility and acceptance in development circles internationally and notably in post-apartheid South Africa. In parallel, the concept of social capital and the role of supportive non-governmental organizations are receiving attention as key catalytic elements in encouraging and assisting community-based initiatives. In this paper, a well-documented initiative, the Hertzog Agricultural Co-operative in Eastern Cape province, is re-examined after the passage of several years to assess the impact of social capital and the involvement of a particular non-governmental organization in ensuring the sustainability and economic survival of the project. While both elements have proved critical to the project’s life-cycle, particularly in recent years, concerns over possible dependency and project sustainability exist.	Context of current practice
	Context of current theory
	Focus
	Question (how does a case reflect on key aspects of theory)
	Answer

Appendix 2. Advice on reading a “policy brief,” supplied by a Learning Adviser to a politics lecturer to post on his subject website introducing students to a genre they must write for assessment

A policy brief is different from an essay, in a number of ways. All of these stem from the difference in purpose: an essay aims to inform understanding, while a policy brief aims to inform action. In the table below, Kate Chanock (Student Learning) sets out key differences, with a few examples that you will see when you read the sample policy brief that follows.

	An essay	A policy brief	Examples in sample policy brief
Audience:	Does not assume that the reader shares the writer’s knowledge of the topic (even when s/he does); people, events, and organisations must be introduced and their roles explained	Assumes that the reader is familiar with the background and the various parties involved, and that only the implications of events need to be explained	Hamas, Kadima, Likud, Netanyahu, Ikhwan Muslimin
Perspective:	Is objective and looks at the situation from all angles	Is biased in favor of, and focusses on, the interests of the writer’s government (“we”)	Focus on threats and opportunities (within constraints of international opinion and international law)
Structure:	Gives the writer’s answer in the introduction; then unpacks into linked, fully developed paragraphs with reasons for that answer	Short, concise paragraphs under prescribed headings	Event; significance; analysis; conclusion with recommendations
Use of sources:	Discusses various scholars’ ideas and how they relate to each other	Gives references to sources of information, but does not discuss the sources	footnotes
Language:	Academic vocabulary, some theoretical terms	Everyday language (but not informal)	“Gazan hospitals will not be able to cope”

[The example that followed was titled “Preliminary threat analysis: Israeli incursion into the Gaza Strip (Operation Cast Lead).”]

14

Building Knowledge through Writing Workshops: How to Accompany the Gradual Building of an Apprentice-Researcher Posture

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In this chapter, we investigate the process of acculturation to research writing with Masters' students. We present the analysis of an empirical study carried out at the University of Orleans (France) in the Linguistics and Didactics Masters course, dedicated to writing process didactics and including an initiation to dissertation writing. We show how, in the framework of this course, the students acquire writing skills and associated didactics, and start to discover and invent (in the sense of the Latin etymon) new knowledge. Specifically, we highlight the relevance of key notions in writing didactics (learner-writer, scriptural competence, writing-rewriting process, relationship with writing) for conceptualizing and accompanying epistemological, dialogical and enunciative ruptures inherent to acculturation to research writing at the university. We first set out 1/ a didactic model of scriptural competence, 2/ a vision of writing as a process based on the contribution of textual genetics, 3/ the studies of the specifics of research writing, and 4/ studies on the didactic interest of creative writing workshops. We then describe a teaching and training scheme organized around two writing workshops (a creative one and a research one) that support revision. Finally, we present results of an analysis of a corpus of 41 dissertations, both intermediate and final versions, collected between 2009 and 2013 that illustrate the writers' repositioning, the evolution of their relation to writing, and the emergence of an apprentice-researcher posture.

Dans cette contribution inscrite dans le champ des littératies universitaires, nous analysons une expérimentation menée en France, au niveau master, dans le cadre d'une unité d'enseignement dont l'objectif est double : aider les étudiants à s'approprier des savoirs sur l'écriture et sa didactique, en les engageant dans un processus d'acculturation à l'écriture de recherche. La contribution met en évidence la pertinence de notions-clé (sujet-écrivant, compétence scripturale, processus d'écriture-réécriture, rapport à l'écrit) pour penser et accompagner les ruptures, sur les plans épistémologique, dialogique et énonciatif, que l'apprentissage de l'écriture de recherche implique. Nous présenterons les fondements scientifiques de l'expérimentation : un modèle didactique de la compétence scripturale, une vision de l'écriture comme processus fondée sur les apports de la génétique textuelle, les études menées sur les spécificités de l'écriture de recherche ainsi que les travaux sur l'intérêt didactique des ateliers d'écriture créative. Puis nous décrirons le dispositif expérimenté qui s'organise autour de deux ateliers d'écriture (un atelier d'écriture créative et un atelier d'écriture de recherche) qui favorisent la réécriture. Enfin, à partir de l'analyse d'un corpus de 41 mémoires recueillis entre 2009 et 2013 sous la forme de deux versions, nous exposerons quelques résultats qui nous semblent significatifs d'un repositionnement des scripteurs. D'une part, on relève dans les mémoires des indices d'une évolution du rapport qu'ils entretiennent avec l'écriture, évolution qu'ils verbalisent et qui les aide à construire la notion de compétence scripturale. D'autre part, l'analyse, sur les plans épistémologique, dialogique et énonciatif des versions définitives ainsi que celle des modifications entre les deux versions met en exergue le rôle de la réécriture prescrite et accompagnée pour favoriser l'émergence d'une posture d'apprenti-chercheur.

This study investigates the teaching and acquisition of writing skills at university level. Our work is thus situated in the field of academic literacies, which is a recent development in France, in the wake of Anglo-American research on academic writing (Delcambre & Lahanier-Reuter, 2012). Two trends are relevant here: *Academic literacies* (Lea, 2008; Lillis & Scott, 2007) in Britain, which highlight the reading and writing context specific to higher education, and *Composition Studies* in the United States, which originated in a variety of teaching practices in several disciplines (Russell, 2012, p. 31).

Our specific concern is the teaching and learning at university of what Reuter (2004, p. 10) calls “research writing in a training context” to denote

writing practices that he considers as being at the intersection of two socio-institutional areas of activity:

the area of *training*, where the main issue for learners is to demonstrate that they have acquired the knowledge and know-how defined by the institution as objectives to be achieved in order to be awarded a given degree or grade, in compliance with the forms and norms laid down by the university community of the discipline in question, and the area of *research*, where the main aim is rather to produce new knowledge in the forms and norms recognized by the scientific community of the field in question.

Initiation into these writing practices is an important stage that can be considered as one of the “*predictable loci of rupture(s)*” in students’ relationship to writing (Deschepper & Thyrion, 2008, p. 61). Based on the analysis of an experiment conducted at the University of Orléans in the first year of the master’s course in Linguistics and Didactics, we will detail the kind of repositioning required of the students and the effects of the accompanying support and scaffolding provided. The expected evolution concerns the students’ relationship to writing, both as text receivers and text producers, but the analysis presented here will focus on their relationship to writing.

The experiment was conducted in the teaching unit *Writing workshop and writing skills* attended by future primary school teachers and tutorial designers. The aim of this course is twofold: training in writing didactics, and initiation to dissertation writing. The present study aims to show not only how the students appropriate (reconstruct) knowledge and know-how about writing and its didactics but also how they discover and invent (in the sense of the Latin etymon) new knowledge, even if only on a modest scale. We also wish to highlight the relevance of key notions (*writer-as-subject*, *writing competence*, *writing-rewriting process*, *relationship to writing*) constructed by the approach to writing didactics that we advocate, to reflect on and scaffold the ruptures—epistemological, dialogic, and enunciative—that are involved in acculturation to research writing.

Writing didactics first developed as part of the didactics of teaching French as a school subject (Reuter, 2007, p. 69). Drawing on the notions constructed by writing didactics is therefore not self-evident when one addresses the field of academic literacies. Nevertheless, while we are fully aware of the “shifts in how content and writing are conceived of in the university context . . . , as indicated by the very term of *academic literacies*” (Reuter, 2012, p. 161), we will attempt to show that notions borrowed from writing didactics remain

operational in the university context, beyond any reference to French as a school subject.

After first describing our theoretical framework and the experimental methodology, we will present some of the most significant results concerning the role of writing in knowledge construction and acculturation to research writing. This will lead us to discuss the ruptures mentioned above.¹

1. Theoretical Background and Experimental Methodology

The experiment, from the design of the methodology to the analysis of its effects, is based on four scientific sources:

- “a didactic model of writing skills” (we use the title of the article by Dabène [1991]) which, in addition to graphical, linguistic, textual, genre and pragmatic knowledge and know-how, takes into consideration the writer’s relationship to writing on the emotional, axiological, and conceptual levels (Reuter, 1996; Barré-De Miniac, 2000; Penloup, 2000; Chartrand & Blaser, 2008). Drawing heavily on the work by Goody (1977), this approach considers that it is essential to address learners’ conceptions, as this makes it possible to move from a representation of writing as a mere instrument for reproducing speech to a representation of writing as a process for developing thought;
- a vision of writing as a process, foregrounded by psycholinguistics and cognitive psychology (Hayes & Flower, 1980; Fayol, 1984) and by textual genetics.² From the latter discipline, which stresses “the intrinsically dynamic nature of text production” (Fenoglio & Boucheron-Pétillon, 2002, p. 2), we have borrowed methods, tools, and above all notions such as *rewriting operations*, *genetic file*, *drafts*, *states*, etc. which enable the various graphical and linguistic traces of the writing process to be analyzed (Grésillon, 1994; Fenoglio, 2010);
- studies conducted on “the appropriation of academic writing” (we use the title of the book by Blaser & Pollet [2010]) which make it possible to go beyond the way in which the writing difficulties encountered by students are traditionally handled in terms of a poor command of syntax, vocabulary, or spelling. (While these difficulties are real, they often mask blockages related to the need for students to adapt to the writing demands of higher education, which are in part discipline-specific.) These studies stress the practices and functions of “scholarly” writing, which require acculturation at two key moments at least in the student curriculum: the entrance to higher education (Deschep-

per, 2010; Forster & Russell, 2002; Donahue, 2008), and the transition from the undergraduate to the graduate course level, particularly when the latter also involves research writing (Reuter, 2004; Deschepper & Thyrian, 2008; Rinck, 2011). On this issue, studies in France are based on the same central theoretical concept as the WAC (writing across the curriculum) or WID (writing in the disciplines) movements in North American universities, which consider “writing as an integral part of the intellectual activity expected at university,” and emphasize writing as “a means of learning discipline-specific concepts and methods” (Russell, 2012, p. 23);

- work on creative writing workshops that developed in France following two pioneering French experiments in the late 1960s, one with arts students at university (Roche, 1994), and the other with children with major learning difficulties (Bing, 1976). These workshops, in which “a small group engages in direct writing in the presence of an instructor” (Lafont-Terranova & Petitjean³), have some points in common with *creative writing* in American universities which influenced several workshop initiatives in Europe. They differ, however, in their aims, which are not primarily to train writers, in particular when they are used for didactic purposes. We are referring here to studies conducted on workshops based on the French model of recreational workshops. These studies pointed out the effects of this model on the construction of the writer-as-subject, namely providing reassurance, staging, and distancing of the writing process, bringing out skills that are traditionally undervalued in the school context, and improving written production, especially when rewriting is encouraged (Lafont, 1999; Lafont-Terranova, 2009, 2013, 2014; Niwese, 2010; Niwese & Bazile, 2014).

Since 2008-2009, our experimental design has comprised two successive writing workshops which promote rewriting: a creative writing workshop and a research writing workshop, in which certain elements of the recreational workshop model have been adapted.⁴ In the whole program, students engage in reflexive revision of their productions, in both senses of the term (process and product resulting from the process), which is facilitated by the workshop situation and further backed up by the analysis of theoretical material and by keeping a writing diary. Lastly, students are requested to produce a mini-dissertation (henceforth “dissertation”). Figure 14.1 depicts the overall design dynamics.

The dissertation, which is built around the analysis of the creative writ-

ing experiment and, if applicable, of the research writing workshop, rests on personal data (the successive drafts of the creative writing texts and, when appropriate, passages from the dissertation as well as excerpts, freely chosen by the students themselves, from the writing diary). These data form each writer's corpus and are added as Appendices to the dissertation. In order to provide detailed guidance and scaffolding for writing the dissertation, the students are requested to submit two versions of the dissertation, a first version (V1) which receives teacher feedback, and a final version (Vdef). Figure 14.2 presents the objectives of the dissertation, the corpus analyzed, and the support provided.

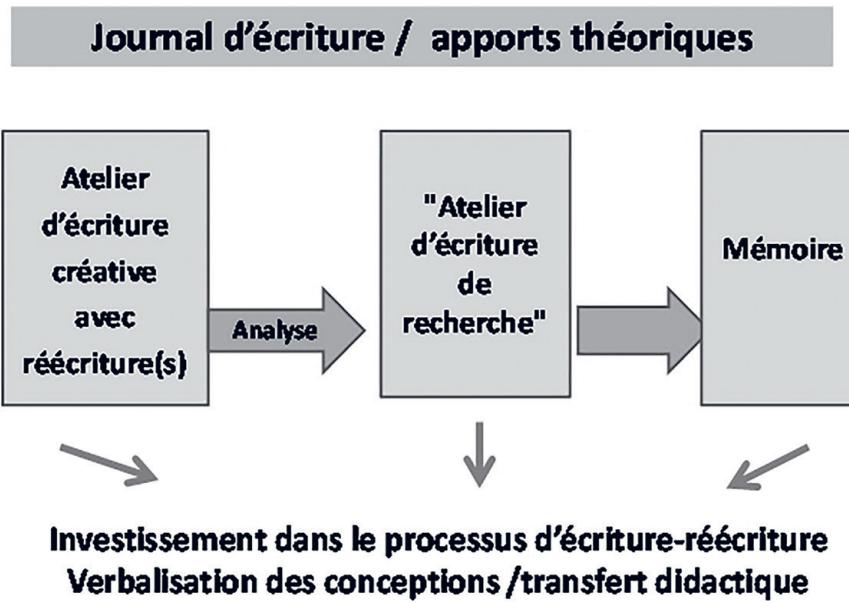


Figure 14.1. The design experimented since 2009

2. Evaluating the Methodology

From the outset, the experimental method has been evaluated at regular intervals to see if it enables an evolution of students' relationship to writing, the construction of knowledge related to writing and writing didactics, and acculturation to research. In answer to these three issues, we analyze here a corpus of 41 dissertations (V1 and Vdef) produced between 2009 and 2013. In continuation of our previous work (Lafont-Terranova & Niwese, 2012a, 2012b, 2015), we present some results that appear to be significant of the construction of knowledge and know-how targeted by the methodology and that reveal

the emergence of an apprentice-researcher posture.

environ 20 pages (hors annexe)

Objet	Corpus exploités (annexe)	Accompagnement
<ul style="list-style-type: none"> - présentation de notion(s) éclairant celle de compétence scripturale - réflexion sur l'enseignement de l'écriture 	<ul style="list-style-type: none"> - différentes versions des textes créatifs - journal d'écriture (extraits) 	<ul style="list-style-type: none"> - partage en groupe, - présoutenance - 2 versions (V1-Vdef) - retours de l'enseignant sur V1

Figure 14.2. The dissertation

To characterize the evolution of the writing produced by the students, we studied the transformations of their texts from V₁ to V_{def} using the MEDITE software (Ganascia, Fenoglio & Lebrave, 2004), which detects and systematically classifies the various rewriting operations (Niwese, 2010, pp. 385-389). We then analyzed these changes both qualitatively and quantitatively.

Complementing the analysis of the students' reflexive comments on the writing process in the final versions of the dissertations, the comparison between V₁ and V_{def} shows that the methodology used promotes an evolution of their relationship to writing, empowering them to make the necessary repositioning to engage with research writing and to appropriate and conceptualize the key notions of writing didactics and textual genetics.

2.1. Evolution of the Relationship to Writing, Which Contributes to Constructing the Notion of Writing Competence

Judging from the results obtained, the methodology favors an evolution of the relationship to writing that contributes to the construction, by the writer, of the notion of *writing competence*. In the dissertations analyzed, evidence of this evolution can be found in three of the dimensions of the *relationship to writing* pointed out by Barré-De Miniac (2000, 2002, 2008): involvement in the writing-rewriting process, conceptions, and reflexive comments on the

writing process.

Thus for example, the much greater length of the final versions of the dissertations compared to V1 demonstrates the extent of students' involvement in the writing process. This is evident both in the body of the papers (20 pages on average) and in the Appendices, some of which run to fifty or sixty pages. What is interesting from the point of view of student engagement is their tendency to go beyond the instructions for the assignment.⁵ The length of these 1st-year master's mini-dissertations and the fact that two versions were handed in for almost all the papers show that the writers seized the opportunity for rewriting that was offered, confirming their strong engagement in all the stages of the writing-rewriting process, whether creative texts or the dissertation itself. (Only 4 dissertations comprised a single version, all of them written in 2009, the year when the experiment was set up in its present form.) The proportion of successful or very successful dissertations (almost 40%) with respect to the level expected in Master 1 is additional proof of this.

The students' involvement is also evidenced in the quantity and quality of their rewriting. The corpus studied contains many instances of various kinds of rewriting and editing. The rate of rewriting, on texts of considerable length, and the quality of the changes made show that the writers reworked their texts in depth when rewriting them, which is a clear sign of engagement in the writing process. In addition, in the dissertations one also encounters instances of textual rearrangement. This type of modification is usually "under-represented in the writing of novices, since it implies intervening simultaneously on the paradigmatic and syntactic axes" (Niwese, 2010, p. 392).

Concerning students' conceptions and their reflexive comments, fostered in particular by exchanges in the two workshops, by the writing diary and the analysis of excerpts from the diary selected by the writer herself, we observed a growing awareness on their part of the role of writing as an aid to reflection. The dissertations also reveal an effort to verbalize in order to express the dynamic nature of writing:

Rewriting gives birth to a host of possibilities, governed by rearrangement, addition, replacement and deletion. The variety that emerges from this process is infinite. (MC, Vdef, 2013)

Even more interestingly, the writers explicitly document their progress in this respect thanks to a fine-grained analysis of their experience and their personal data conducted in the light of the theoretical approaches studied in class or read outside, as shown by the following two examples.

In the first, FL (2012) draws on her reading of an article by Alcorta (2001),

selected by her, to analyze how she uses a draft. The excerpt from her diary where she does this analysis also echoes a text by André (1994) that had been studied in class and that talks of the “chaos” that precedes the act of writing:

I use lists in my draft versions for exactly the same reason as Alcorta mentioned. They help me plan and organize information before writing it up as sentences. *“I felt the need to have two different sheets of paper: one for the text and the other to jot down my ideas, some vocabulary . . . It was very helpful, if only to construct a first rough draft. Writing a draft allowed me to note down ideas and expressions to include . . . I observed a kind of dialogue with myself. It was like bringing order to chaos.”*
 Excerpt from my writing diary, 25 February 2012. (FL, Vdef. 2012).

In the different versions of her text, written in response to the prompt “Writing is . . . ,” MS (2010) detected clues of her growing awareness that “deletions don’t mean mistakes,” echoing the work by Penloup (1994), *La rature n'est pas un raté*, that had been mentioned in class, and then reformulates the way in which textual genetics took this idea up in order to analyze the writing process:

The example I find the most enlightening is the writing prompt “Writing is . . . ” (Cf. Appendix, p.21). [. . .] There’s a natural evolution between the first and the second version because I had to write other texts in the meantime. I also notice that my first three versions of “Writing is . . . ” never mention deletions, the fact of erasing, of backtracking, of re-modeling the text, etc. From the fourth version on (Cf. Appendix, p.22), a significant change took place however, since I wrote about a novice writer that “once on the ice-rink of writing, his feelings confirm his initial thoughts: he falls, falls again, and yet again” These falls are what are usually called deletions but they don’t mean that something has been done wrong. A deletion [. . .] reveals all the processes of creation that gradually fall into place as one writes. (MS Vdef, 2010)

2.2. Clues of Repositioning in Order to Engage in Research Writing

Following Descheppe & Thyrian (2008), we pointed out that the specific

nature of research writing can lead to ruptures in the relationship to writing that may become roadblocks for students, making it all the more essential to acculturate them to this new writing practice (Lafont-Terranova & Niwese, 2015).

From an epistemological point of view, research writing is used not only to appropriate knowledge but also to construct “something novel (however minor)” (Deschepper & Thyrion, 2008, p. 66). This implies both a specific methodological approach (constructed *in* and *by* language) and the need to mobilize and network concepts and notions.

On the dialogical plane, this knowledge construction is achieved through a constant dialogue with one’s sources (prior, contemporary or even future), which are, in turn, multi-voiced. The writer constructs her object not only by relying on other sources but also by positioning herself in relation to them. Managing this discursive polyphony is a real challenge for novice researchers.

As for the enunciative position, it is made difficult by the very status of research writing, which oscillates between two extremes:

on the one hand, an objective stance reflected in the neutralization of subjectivity in the act of perception and interpretation, hence the tendency to adopt an impersonal style (via, for example, nominalization and use of the passive) and, on the other hand, the need for authorial commitment, which is reflected in modality and hedging, in the verb modes and tenses used, etc. (Lafont-Terranova & Niwese, 2015, p. 193)

The separation of these three dimensions (epistemological, dialogical, and enunciative) is more a response to methodological concerns than a reflection of reality. In fact, the three levels are intertwined. In the following passage for instance, MA (2011) constructs the notion of relationship to writing by adopting a posture of “overenunciation”—elimination of the singular subject pronoun (Grossmann & Rinck, 2004), arguing instead by using connectors and a suitable lexis, and situating herself in relation to a source:

The relationship to writing is therefore a complex notion which requires a detailed description and in which many elements come into play. It can be noted that the notion of relationship to writing is close to the notion of social representation, but it has an advantage as it goes beyond the notion of “social representation” since it can include representations but also the possibility of discussing or observing one’s own practices. The expression “relationship to” is therefore

preferable because, as pointed out by Marie-Claude Penloup (2000), it highlights the activity and involvement of the subject, whereas the notion of representation refers rather to a passive subject who endorses the standard, widely-used discourse. (MA, Vdef., 2011)

We have shown in previous studies (Lafont-Terranova & Niwese, 2012b, 2015) that thanks in particular to the rewriting activities and accompanying support, our methodology makes it possible to monitor the improvements not only on the language level but above all on the three planes mentioned above. Thus, in the following example, through two replacements and one addition compared to the V₁ of his dissertation, the writer provides a better conceptualization of writing didactics, which she clearly distinguishes from its object (rewriting). (The passages that were added with respect to V₁ are in bold between double slashes. The term in V₁ that has been erased is struck through, while the term that has replaced it is between double slashes.)

Writing didactics is recent discipline. Until the early 1980s, ~~it formed only a minor part of/~~ writing was not yet an important topic in/ the didactics of French ~~and~~ /, so it was little studied. Before the advent of writing didactics, interest focused for example on learning to write in relation to reading /and therefore on all the work around graphomotor ability/ or on literary writing, but not on the act of writing itself. (PP, 2009)

Likewise, in a long addition of which we give only the beginning here, MA (2011) returns to her discovery of the interest of drafts, and analyzes this discovery as indicative of the evolution of her conception of writing, referring to the article by Barré-De Miniac that had been studied in class:

In fact, it's thanks to the writing workshops, to the particular environment they create, and especially thanks to this particular moment that I managed to write and /to/ discover the interest of drafts / **Moreover, it's thanks to this discovery that my conception on this point evolved.** These remarks very clearly reflect an evolution in my way of seeing things, in other words, in my conception of writing. As Christine Barré-de Miniac (2002, p. 29) says, the relationship to writing has several dimensions, and one's conception is one of the dimensions of this notion. [. . .]/ (MA, 2011)

In order to better grasp the way in which rewriting fosters the transition from reflexive writing to research writing, it is interesting to return to the beginning of the excerpt from the dissertation by MS (2010) quoted above and analyze the changes between V₁ and V_{def}:

/The example I find the most enlightening is the writing prompt “Writing is . . .” (Cf. Appendix, p.21)./~~My thinking changed due to the writing workshop experience but also to rewriting (which I will discuss later)~~ / There’s a natural evolution between the first and the second version because I had to write other texts in the meantime./ Indeed I observe/I also notice that my first three versions of “Writing is . . .” never mention deletions, the fact of erasing, of backtracking, of remodeling the text, etc. From the fourth version on (Cf. Appendix, p.22), a significant change took place however, since I wrote about a novice writer that “once on the ice-rink of writing, his feelings confirm his initial thoughts: he falls, falls again, and yet again . . .” (MS, 2010)

It can be seen that, thanks to the two replacements and the two additions indicated above, the three versions to which MS returns to acquire the status of data are more fully referenced. The reflexive comment on the writer’s evolution becomes, owing in particular to the relatively impersonal authorial stance, an enlightening example in the writer’s argument.

We have called the rewriting activity scaffolded because it takes place with various kinds of help from the teacher during many exchanges with the writer, particularly when giving feedback on V₁. Several studies conducted on the effects of the methodology have enabled us to develop assessment criteria for the dissertations (Lafont-Terranova & Niwese, 2012a) and subsequently to construct support tools. This means that the teacher’s feedback is better targeted, as shown by a case-study of the dissertation by AD, 2012. Apart from comments on language difficulties, which can be at least partly related to “writing insecurity (Dabène, 1991) which is likely to increase when one is faced with a new type of writing” (Lafont-Terranova & Niwese, 2015, p. 192), our analysis shows that most of the teacher’s comments on V₁ (almost 80%) concern aspects that are specific to research writing. The teacher’s comments can be broken down as follows: 47% for the epistemological dimension, 21% for the dialogical dimension, 10% for the enunciative dimension, and 22% for linguistic and textual features.

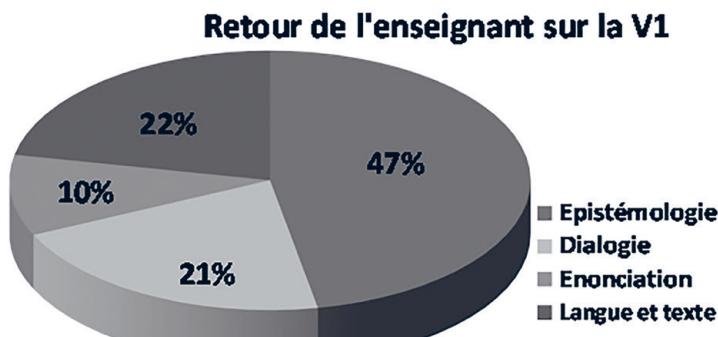


Figure 14.3. Analysis of teacher comments on V1

As a conclusion to the clues of acculturation to research writing, we would like to focus on an excerpt from the dissertation by HB (2009) which shows how additions can confirm the apprentice-researcher posture that the writer is beginning to adopt. “In this excerpt, it is a researcher ‘T’ who expresses commitment to, and extrapolates, some of the preceding reflexive analyses”: the first addition enables HB to hypothesize about the reason for the larger number of rearrangements in the dissertation compared to the creative writing texts; the second addition enables him to hedge his interpretation by specifying “that his first claim remains tentative until confirmed or invalidated” (Lafont-Terranova & Niwese, 2012b):

/Here in particular, the more frequent use of this operation [rearranging] in academic writing can be attributed, I think, to the need to conceptualize what one is writing, which leads to readapting the way in which ideas are linked together as one writes./ As for the other three procedures / operations/, it seems to me that I used all three / I used them// with about the same frequency, whether for the creative writing texts or when writing my dissertation. / For the creative writing texts of which I have traces of the different draft versions, it would be necessary to count occurrences in order to be able to do a precise comparison./

3. Conclusion and Perspectives

In conclusion, we wish to stress four points. First of all, analyzing the ruptures in the relationship to writing and written texts that a student entering

graduate level has to undertake should not mask the continuities between the different levels of study at university, or between secondary and higher education. “In a didactic context where increasing attention is paid to writing and written texts as contributors to the construction of thought and of knowledge in various disciplines” (Lahanier-Reuter & Reuter, 2002, p. 113), the aim appears rather to be to help pupils and then students extend their literacy to ever wider fields. In this process, the discovery and experience of writing should take place in gradual stages throughout their apprenticeship (at school and at university). It is essential to make this demand visible by clarifying the expectations that relate to the new types of writing they are required to produce at each stage, while at the same time developing scaffolding that is suited to each level of writing. This will attenuate the effects of the ruptures and enable the pupil, and then the student, to construct herself as a writer capable of engaging with the writing process and experiencing the epistemic purpose of writing.

Secondly, we have approached the broader problem addressed here—writing (and teaching to write) in order to construct knowledge—by drawing on notions borrowed from textual genetics and a specific conception of writing didactics. As the words used in the previous paragraph suggest, however, we consider that this approach is perfectly compatible with others whose didactic interest in developing an ever more extensive literacy has been demonstrated by a large number of studies. We refer here in particular to the notions of *secondary discourse* (Jaubert, 2007; Bautier, 2009), of *discourse community* (Jaubert & al. 2012) or *distancing* (Kervyn, 2009). The dissertation genre can be considered to prefigure the thesis or research article genre, both prime examples of higher-order (secondary) genres. Likewise, the methodology we have presented aims at distancing the act of writing (creative writing and then initiation into research writing) via writing of the diary and the various opportunities for reflexive comment it offers and which are reinvested in the writing-rewriting of the dissertation.

The third point we wish to emphasize is the specificity of our approach, which borrows tools and concepts from textual genetics in order to provide close guidance for each writer during the writing process and to set up an exchange which fosters and scaffolds the dialogue that the writer engages in with herself throughout the writing process.

Lastly, an important point is the fact that in the method proposed here, the knowledge and know-how to be constructed concern both writing and writing didactics. The two objectives (training in writing didactics and acculturation into research writing) are indeed closely inter-related. On the one hand, “writing is a literate practice that enables one to reflect reflexively about

writing” (Colin, 2014, p. 60), while on the other, “Training for (and by) research writing” (see the title of the article already mentioned by Rinck [2011]) fosters the conceptualization and appropriation of notions that, in the present case, lead to a better understanding of what writing is.

Notes

1. The work presented here is part of the project *Acculturation à l’écriture de recherche et formation à la didactique de l’écriture* financed by the MSH Val de Loire and conducted in collaboration with a team of the LLL (Orléans) and the LACES (Bordeaux).
2. A feature of the model by Hayes and Flower that is of particular relevance to our work is its recursivity; this aspect is often neglected in didactic applications, which are underpinned by a vision of writing as a staged activity (Plane, 2006).
3. Project for the entry “Writing workshops from school to university” in *Dictionnaire de la Didactique de la Littérature* (Massol & al., in preparation).
4. The first evaluation of the experiment launched in 2005-2006 (Lafont-Terranova, 2008) resulted in some changes to the design—greater stress was subsequently laid on research writing to favor didactic transfer.
5. Initially, students were asked to submit a 10-page paper, not counting Appendices. As most of the students in fact handed in dissertations about 20 pages long on average, the instructions concerning length were changed in 2012 to 20 pages not counting Appendices. Since then, the dissertations have usually exceeded 20 pages, with some even over 30 or 40 pages.

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15 Intellectual Orientations of Studies of Higher Education Writing in Latin America

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This study contributes to understanding the initiatives, programs, scholarship, professional networks, and organizations concerning the teaching of writing that are rapidly developing across Latin America. Writing scholars are emerging from a number of disciplinary bases (particularly languages and linguistics, education, and humanities) and are situated in no single department. Similarly, influential authors represent a variety of theoretical approaches. The lack of common journals as well indicates that no core scholarly identity has emerged. Further, the lack of journals with broad geographic reach indicates limited opportunities for regional communication. All these clues indicate an emerging field that is looking in multiple directions, in ways that seem to be reaching beyond disciplinary and institutional locations, but which has not yet formed its own communicative structure.

Cette étude se propose de contribuer à la compréhension des initiatives, programmes, systèmes de bourses, réseaux professionnels et organisations consacrées à l'enseignement de l'écriture dans l'Amérique latine, l'ensemble de ces dispositifs ayant connu un rapide développement. Les étudiants qui apprennent l'écriture universitaire sont issus d'un grand nombre de secteurs disciplinaires—en particulier les secteurs des langues, de la linguistique, de l'éducation et des humanités—and ne sont pas regroupés dans un département unique. On note également que les auteurs qui influent sur le champ présentent des approches théoriques diverses. L'absence d'une revue qui serait commune indique aussi qu'il ne s'est pas encore constitué un noyau qui serait fondateur d'une identité intellectuelle partagée par les universitaires concernés. De plus, le manque d'une revue à large portée géographique signale que la communication entre les différents secteurs géographique est limitée. Tous ces indices montrent qu'il s'agit d'un domaine émergent, qui s'oriente vers de multiples directions, vers des voies qui peuvent être atteintes au delà des spécificités disciplinaires et géographiques, mais qui n'a pas encore constitué une structure de communication qui lui soit propre.

1. Introduction

The teaching of writing has not traditionally been part of higher education in Latin America, but in recent years programs and research in both L1 and L2 reading and writing have grown rapidly in individual countries and across the region. In Latin America, as in much of the world, the teaching and support of academic writing in higher education has little prior professional or institutional infrastructure, little scholarship, and few academic networks. However, in recognition of the need for writing development in first language (Spanish and Portuguese) and second language (primarily English) new initiatives are being developed from Mexico south to Argentina and Chile. Motivations range from inclusion of new student populations and educational reform, transforming learning from reproducing authoritative information to active student engagement in disciplinary epistemic practices, to promoting democratic participation and advancing competitiveness in global research communities, global economy, and other information age imperatives.

In support of these initiatives, programs, and scholarship, professional networks and organizations are rapidly developing across the region. Academic networks in Latin-American countries focusing on all levels include the UN-

ESCO Chair on Reading and Writing in Latin America (*Cátedra Unesco para la lectura y la escritura en América Latina*, <http://www.unesco-lectura.univalle.edu.co/>), and “Networks for Transforming Language Teaching” (*Redes para la Transformación docente en la enseñanza del lenguaje*, <http://encuentrolenguaje.univalle.edu.co/ques.html>). The Redlees Network on Reading and Writing on Higher Education (*Red de Lectura y Escritura en la Educación Superior* (<http://www.ascun-redlees.org>) was created in Colombia in 2006 particularly to focus on literacy in higher education levels. In Argentina, GICEOLEM (a collective founded in 2005) brings together research faculty from three public universities for research and teacher training on reading and writing in all subjects (see <https://sites.google.com/site/giceolem2010/>). These and other developing networks testify to the growth of engaged professional communities.

This growth has drawn on resources from both within and beyond the region, to develop a unique configuration appropriate to local needs, institutional dynamics, and intellectual traditions. Understanding this growth is useful both for educators in this region engaged in building such initiatives and for contributing to a more general understanding of the growth of higher education initiatives. While there have been some preliminary attempts to document the growth of writing studies and writing programs globally (most notably Thaiss et al., 2012, but also the two prior volumes from this series, Bazerman et al., 2010; Bazerman et al., 2012), there has yet been no regional survey of developments in Latin America. The current study provides a preliminary map of the disciplinary and intellectual resources being drawn on as writing initiatives develop in the region and how these intellectual resources and networks are positioning Latin American work with respect to global resources and are structuring intellectual communities within the region.

This study is part of the ILEES Project (“*Iniciativas de Lectura y Escritura en la Educación Superior en América Latina / Initiatives on reading and writing in Higher Education in Latin America*,” <http://www.ilees.org>). The larger ILEES project aims at developing a comprehensive, diverse, and inclusive map of research and pedagogy tendencies in teaching higher education writing in the Latin American region. The objectives of the project are to map out the development of the field through the identification of the centers of practice, as well as the existing and emerging academic networks, in order to a) identify and understand the dynamics and intellectual influences of the emerging field by having knowledge of the various initiatives in higher education in reading and writing in the regions, the forming networks, and the intellectual resources drawn on and produced, and to b) elaborate a website in three languages (Spanish, Portuguese, and English) to share data and showcase the sites of practice we have been able to identify.

2. Methodology

The research of the larger ILEES project mixes survey, interviews, and ongoing action research methods. Other publications will represent other aspects of the work. For the purpose of this chapter, we will limit our report to the part of the survey relevant to characterizing the disciplinary affiliations of the survey participants by making inferences from their institutional academic affiliations, authors who are nurturing their initiatives (teaching, researching, and publishing), and journals or other resources reported as highly consulted by the participants.

2.1 Survey

Through an online questionnaire, basic programmatic, institutional, publication, and intellectual network data were initially collected from Argentina, Chile, Colombia and Mexico; then later from Brazil, Puerto Rico, and Venezuela; and finally through open invitation to all Latin American countries. The survey was disseminated through snowball techniques, described below. Through these procedures we have invited 321 participants and received 118 responses. The number of invitations and responses by country are listed in Table 15.1. We have now opened up the survey to voluntary participation through our project website in order to keep track of unfolding developments, but this current study is based on data collected only by invitation, with collection finishing August 31, 2013.

Table 15.1. Response rates by data collection stage

	Countries	Sent	Responses	Rate
First stage	Argentina, Chile, Colombia, Mexico	161	66	40,99%
Second stage	Puerto Rico, Venezuela	48	14	29,16%
	Brazil (Portuguese)	112	37	33,92%
Totals		321	118	36.76%

The online survey, designed and piloted in Spanish during summer 2012, is organized in four sections and contains 9 principal questions with open and closed answers. The first section collects information regarding institutional information of the participants. The next section explores information upon teaching initiatives known by the participants in their universities and in other institutions. The third section includes questions regarding authors,

journals, books, and databases used as resources by the surveyees, as well as publication venues from Latin America and Spain to publish their work. This section also collects titles of publications, oral communications, and research projects. Finally, the fourth section asks for the name of other scholars who might be interested in responding to the survey. This study focuses primarily on data from the third section, along with institutional data of the participants to identify academic orientations.

2.2 Distribution of the survey

The Spanish version of the online survey was initially distributed to L1 (Spanish) teachers of writing in Argentina, Chile, Colombia, and Mexico. These initial countries were chosen because of the high level of activity in them among Spanish speaking countries as perceived by the team; this perception has been confirmed through the survey. A preliminary list of 20 scholars was created by the researchers based on their knowledge of the field (i.e., identifying scholars known by their publication and leadership in disseminating programmatic research and pedagogy projects). The preliminary lists created were sent to two scholars in each country to receive their recommendations before defining the final list for the survey. To that initial sample of four countries, at the end of 2012, we added Brazil, Venezuela, and Puerto Rico, using similar snowball techniques.

For Brazil, we translated the questionnaire into Portuguese. Also we extended the focus from L1 (Portuguese) to L2 (English as a Foreign Language) writing and accordingly added a question identifying which language the respondents worked with and whether this was L1 or L2 for the students. Because of the size of Brazil and the large number of universities, the initial survey sample was 30 for L1 and 30 for L2, and this number was extended by snowball recommendations which were part of the survey. Since September 2013, the online survey has been opened to voluntary participation for all countries in Latin America through the project website at <http://www.ilees.org>.

2.3 Analytic methods

The survey consisted of a mix of closed choice items that could be aggregated quantitatively and open field questions. After the initial round of data gathering from Argentina, Chile, Colombia, and Mexico a findings report was collected and examined by the team. The quantitative material was descriptively gathered, and the open field material was aggregated for: a) names of universities; b) names of the academic units to which the surveyees were affiliated;

c) influential authors (to which we assigned country of origin and theoretical orientation), books, databases, or other resources mentioned by the surveyees in the third section of the survey. The analytic report presented data by country and overall, to allow for comparison of trends in different countries. In this study we will present the overall results, and supplement that with some per country data. We present the quantitative data descriptively and do not attempt statistical inferences or test for inferential significance. Further details of the survey responses are available at the ILEES.org website.

3. Results

We present the results in four principal topics: academic units, influential authors, theoretical orientations, and journals or resources for reference and publication.

3.1 Academic units

Despite variation in the naming of the academic units from country to country and university to university, we were able to categorize the institutional department of the participants as listed in Table 15.2 and Figure 15.1.

Table 15.2. Reported Institutional Unit

Academic unit	Frequency	Percent
Language and Linguistics	46	39%
Education	25	21%
Humanities	19	16%
Not applicable/none	5	4%
University services	5	4%
Science	4	3%
Other (one mention)	3	3%
Hispanic or cultural studies	3	3%
Communication	3	3%
Directories of research	3	3%
Speech Therapy	2	2%
Totals	118	100%

Overall, the most common disciplinary orientations of the academic units to which the surveyees were affiliated were Languages and Linguistics (39%), Education (21, 2%), and Humanities (letters, arts, and philosophy) (16, 1%), together comprising about two thirds of the sample. No other units had more than 5 percent of participants. While substantial numbers of people are located within a few departments, there seems to be no well-defined or clearly dominant unit in which writing specialists are housed (Figure 15.1).

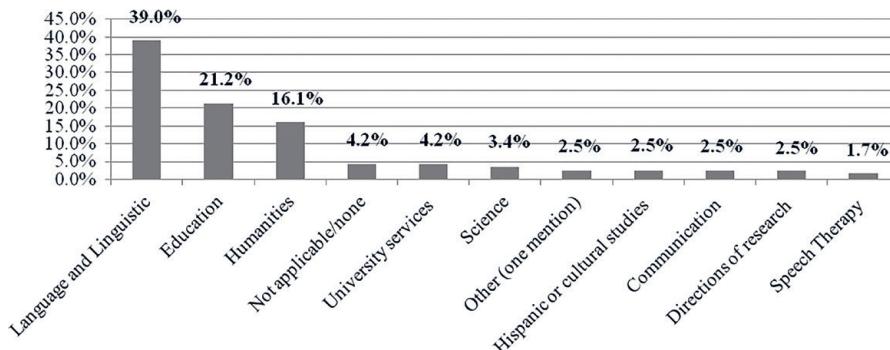


Figure 15.1. Distribution of academic units by percentage

When examined on a country basis, there are some differences (Table 15.3 and Figure 15.2). In Brazil, Chile & and Venezuela, languages and linguistics dominated while in Argentina 36% were in education and most of the others in non-academic or service units (45%); Colombia reported equal numbers in education and language and linguistics (30% in each). Also, in several cases respondents were affiliated to more than one academic unit. For statistical purposes, we decided to count only the first one mentioned.

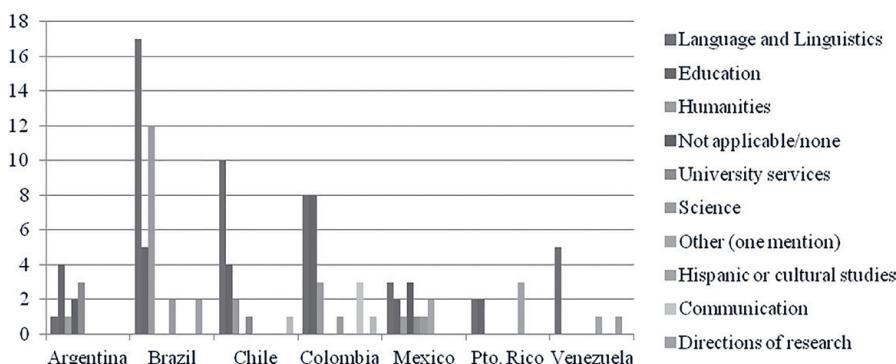


Figure 15.2. Distribution of academic units by country

Table 15.3. Categorization of academic units by country

Academic unit	Argen-tina	Brazil	Chile	Colom-bia	Mexico	Pto. Rico	Venezu-ela	Total	Percent
Language and Linguistics	1	17	10	8	3	2	5	46	39%
Education	4	5	4	8	2	2	0	25	21%
Humanities	1	12	2	3	1	0	0	19	16%
Not applicable/none	2	0	0	0	3	0	0	5	4%
University services	3	0	1	0	1	0	0	5	4%
Science	0	2	0	1	1	0	0	4	3%
Other (one mention)	0	0	0	0	2	0	1	3	3%
Hispanic or cultural studies	0	0	0	0	0	3	0	3	3%
Communication	0	0	0	3	0	0	0	3	3%
Directions of research	0	2	0	0	0	0	1	3	3%
Speech Therapy	0	0	1	1	0	0	0	2	2%
Totals	11	38	18	24	13	7	7	118	100%

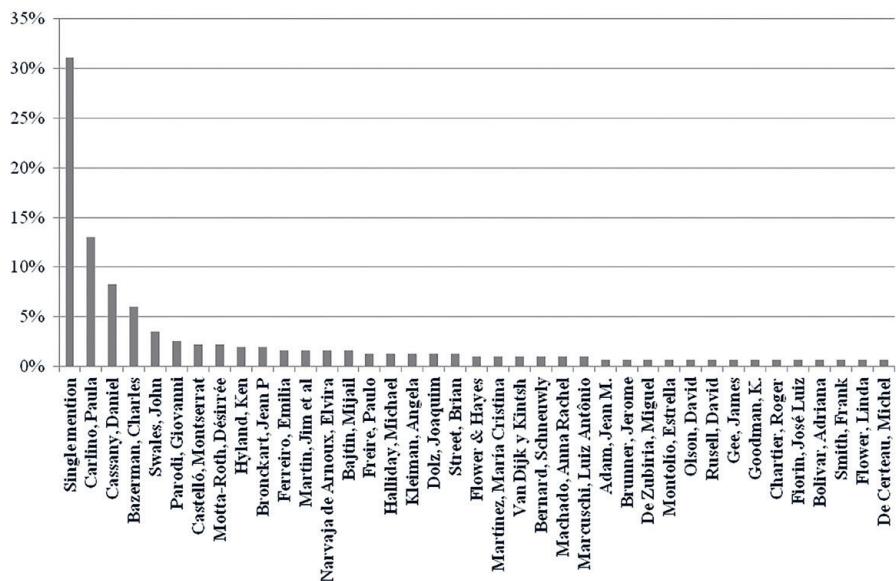


Figure 15.3. Distribution of influential authors by percentage (N=315)

3.2 Authors

The first striking thing about the authors that were viewed as influential was there were very few authors that were widely shared. In fact, 31% of the total mentions are authors that were mentioned only once, whereas only four authors received 10 or more mentions (equivalent to 30,8% of the total of N=315). Figure 15.3 presents as a percentage of the total all the reported influential authors that received 2 or more mentions. When these influential authors are categorized by theoretical and methodological affiliation (see Table 15.4) and by geographic region of origin (see Figure 15.5), the wide range of influences is even more evident.

3.3 Theoretical Orientations

The categories in Figure 15.4 were determined by examining the work of the authors cited twice or more as influential, and developing these categories based on our knowledge of the field and the content of their published work: school, origin, and language.

Table 15.4. Theoretical orientations of the influential authors mentioned twice or more (N=217)

Theoretical Orientation	Frequency	Percent
Academic literacy	41	19%
Rhetorical Genre Studies	21	10%
Genre Studies	8	4%
Critical Literacies / NLS	6	3%
Critical Genre Studies	7	3%
Critical Pedagogy	4	2%
Pedagogy	2	1%
Didactics	26	12%
Psychology of learning	14	6%
Psychology	2	1%
Cognitive Processes	8	4%
Psycholinguistics	4	2%
Linguistics	4	2%
Textual Linguistics	6	3%
Discourse Analysis	10	5%

Theoretical Orientation	Frequency	Percent
Corpus Linguistics	8	4%
English for Specific Purposes	17	8%
Systemic Functional Linguistics	9	4%
Socio-Discursive Interactionism	16	7%
History	2	1%
History of writing	2	1%
Total	217	100%

The theoretical orientations can be aggregated in three large groups, as shown in Figure 15.4, Languages and Linguistics, Education (including Psychology) and Rhetorical and Literacy studies. While the first two approximate the percentages of departmental or academic unit location of faculty (see Figure 15.1) the large percentage of rhetorical and literacy studies does not match departmental location.

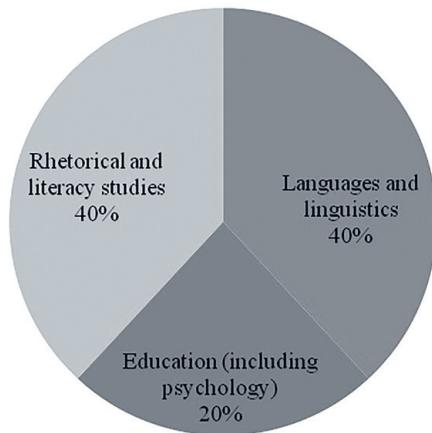


Figure 15.4. Aggregated theoretical orientations of influential authors

The aggregated 40% of influential scholars having a rhetorical and academic literacy orientation do not correlate with any institutional location reported by the respondents. While rhetorical and literacy studies may be construed as being in the humanities, they are not traditionally part of humanities departments in Latin America. But even if we so construe these approaches as humanities, they turn out to be the most influential, despite the humanities being only the third largest institutional home. So it appears that the study of writing seems to be drawing scholars in different directions than is traditional in their institutional affiliations.



Figure 15.5. Geographic location of the influential authors

The geographic location of influentials identified is shown in Figure 15.5. There is an eclectic mix of local and international influences, drawing most prominently on scholarship in Spanish and Portuguese, totaling 57%, but with strong engagement with international scholarship in both English and French. Local scholars, either in Spanish or Portuguese, aggregate together a 41% of the mentions. However, a more detailed examination of the data on a country by country basis shows some interesting patterns.

In Portuguese-speaking Brazil, the influential Latin American authors (with a single exception of Emilia Ferreiro) were Lusophone and from Brazil. Similarly, in Spanish-Speaking Latin America, there was only one Brazilian or Lusophone influential (Paulo Freire). Thus there seems to be little influence between Spanish speaking and Portuguese speaking Latin America. The international influences from outside the region also show an interesting pattern. Scholars from Spain, such as Daniel Cassany, Monserrat Castelló, and Estrella Montolío are mentioned only in Spanish-speaking countries, and Francophone scholars such as Jean-Paul Bronckart are mentioned substantially in Brazil, with only occasional mentions in Spanish-speaking regions (all located in Colombia). It should be noted, however, that Anglophone scholars such as John Swales and Charles Bazerman as well as other international scholars such as Mikhael Bakhtin are shared across both Spanish-speaking and Lusophone regions.

Within Spanish speaking Latin America there were some further local patterns, with some authors having greater influence (or even their only influence) within their home country, and each country having a distinctive profile of influences. In the Spanish speaking-countries at least some Span-

ish-speaking influentials from other countries in Latin America are mentioned in each case, with some having region wide prominence; for instance, the Chilean scholar Giovanni Parodi is mentioned by surveyees in Chile, Colombia, and Puerto Rico, and the Argentine scholar Paula Carlino is mentioned in all the Spanish speaking countries. Thus there appear to be among Spanish speaking countries both internal national influences and region wide Spanish speaking influence.

3.4 Journals, Websites, and Databases for Reference and Publication

Across the region and in all countries, there seems to be no single dominant resource that participants reported using. “Resources” were defined in the survey as journals, databases and websites the respondents frequently consulted in their practice. By far the largest number of identified resources (77 out of 297, comprising 25.9 percent), were mentioned only once.

Table 15.5. Resources (journals, websites and databases) frequently consulted

Source	Frequency	Percent
Other (one mention)	79	26.60%
None / no answer	18	6.06%
Lectura y Vida (IRA)	16	5.39%
Signos	16	5.39%
Reading Research Quarterly	11	3.70%
Scientific Electronic Library Online (Scielo)	11	3.70%
Applied Linguistics	8	2.69%
PRODEAC (Programa de desarrollo de habilidades de lectura y escritura académica a lo largo de la carrera)	8	2.69%
Not Identified	7	2.36%
Real Academia Española	7	2.36%
REDLEES / ASCUN	7	2.36%
The WAC Clearinghouse	7	2.36%
REDALYC (Network of Scientific Journals Latin America And The Caribbean, Spain And Portugal)	6	2.02%
Science direct/EBSCO-Host	6	2.02%
Signo y Seña	6	2.02%

Source	Frequency	Percent
Discurso y Sociedad	5	1.68%
Revista de Linguistica teórica y aplicada (RLA)	5	1.68%
Textos (Didáctica de la Lengua y la Literatura)	5	1.68%
Dialnet	4	1.35%
Discurso (Blog F. Navarro)	4	1.35%
Journal of Writing Research	4	1.35%
Sage Journals	4	1.35%
Textos en context	4	1.35%
ERIC (The Education Resources Information Center)	4	1.35%
The Online Writing Lab (OWL) at Purdue University	4	1.35%
Cátedra UNESCO para la Lectura y la Escritura en América Latina	3	1.01%
Elcastellano.org	3	1.01%
GICEOLEM (Grupo para la Inclusión y Calidad Educativas a través de Ocuparnos de la Lectura y la Escritura en todas las Materias)	3	1.01%
Infancia y Aprendizaje	3	1.01%
Lenguaje	3	1.01%
Revista Mexicana de Investigación Educativa	3	1.01%
Portal CAPES	3	1.01%
Revista Ibérica	3	1.01%
Written Communication	3	1.01%
Cervantes.org	2	0.67%
Discourse Studies	2	0.67%
English for specific purposes	2	0.67%
Escrituraylectura.com.ar (Escritura y producción de conocimiento en las carreras de posgrado)	2	0.67%
Journal of Second Language Writing	2	0.67%
Onomazein	2	0.67%
Revista Aled	2	0.67%
Totals	297	100.00%

Only 4 resources were mentioned more than 10 times: *Lectura y Vida* 16

(5.4%), *Signos* 16 (5.4%), Reading Research Quarterly (RRQ) 11 (3.7 percent), and Scielo 11 (3.7 percent), of these, only *Lectura y Vida* is literacy focused, and it has ceased publication as of 2010. *Signos* was founded in 1967 and since 2005 publishes research articles in Spanish on the fields of psycholinguistics, text linguistics, discourse linguistics, and applied linguistics, SCIELO is a website of open access portal for journals in all fields, and RRQ is a reading journal. 13 participants mentioned not using specific resources or did not provide responses (Figure 15.6).

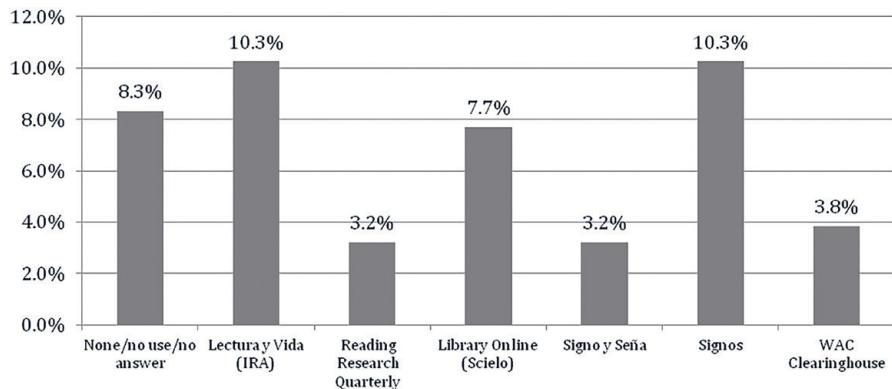


Figure 15.6. Distribution of resources mentioned more than 10 times

The largest number of responses for journals that the respondents would desire to be published in were for single-mentioned journals (45 out of 243 responses, or 18.5%) or none or do not know (43, or 17.7%). One journal, *Signos*, stood out as a preferred site for publication for work on writing research with 23 responses (9.5% of the total responses and about 20% of respondents, representing 6 Spanish speaking countries). No other journal received 10 or more responses.

Four journals were listed by 8 or 9 respondents (3.3 or 3.7% each). *Lectura y Vida* (mentioned by respondents in four countries) was so listed although it was no longer publishing. Three of the four preferred journals were mentioned only in their country of Publication: the Brazilian *Revista Brasiliera de Linguistica Aplicada*, the Colombian *Lenguaje*, and the *Revista Mexicana de Investigación Educativa*. Finally, 8 of the 9 mentions for the Colombian *Magis* were in Colombia. Thus only the linguistic *Signos* and the discontinued *Lectura y Vida* seemed to reach across the region in any substantial way as a favored publication venue (Figure 15.7). It should also be noted that in Brazil there were no mentions of Spanish-Speaking journals and in Spanish-Speaking countries there was only one mention of a Brazilian journal (*Linguagem em Discurso*). Thus there appears to be a strong pattern of local publication

with only two journals (only one of them still publishing) reaching across the Spanish-speaking region, and almost no publications crossing the language divide.

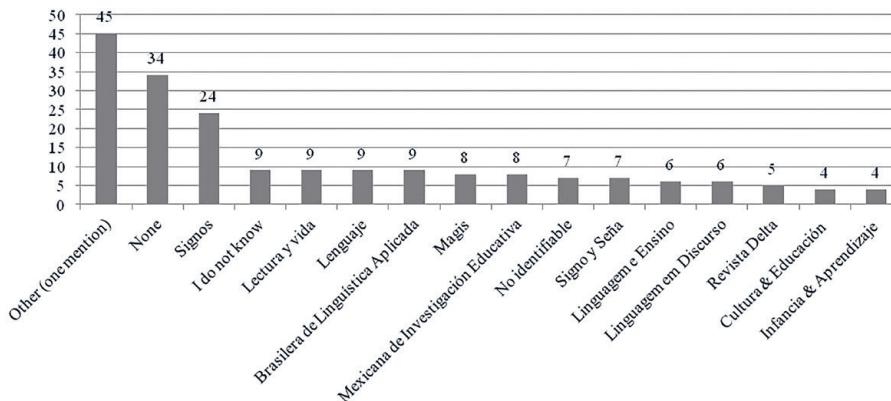


Figure 15.7. Frequency of preferred publishing journals

4. Analysis

First, we would like to comment on the numbers of respondents. Our response rate of over 36% overall is good, especially given the length and complexity of the survey instrument. We also have reason to believe, based on the team's insider knowledge of the region, that we have gotten good saturation of information, with reporting on most initiatives and scholars in the field. In fact, because we attempted to be inclusive in our initial invitations and snowball extensions, we suspect that many of our non-responses were from people who felt they did not participate fully enough in the field to have anything to report. Thus our self-selected respondents may reflect closely the emergent shape of the emerging field, with still small numbers of participants located in a few pockets of work. Our further mapping of the region may confirm this suspicion.

This field is emerging out of a number of disciplinary bases (particularly languages and linguistics, education, and humanities) as well as institutional service locations and is situated in no single department, though in some countries there are different mixes of academic and service units. Similarly, there is a disciplinary and theoretical spread in the authors seen as influencing the field, so there is no crystallization around a single or small number of approaches. On one side, the variety of academic units and theoretical orientations of influences could mean a healthy eclecticism, but on the other side it could also reflect dispersion, and lack of cohesive networks over common

interests and approaches. A deeper investigation into the work of individual scholars to see whether they are eclectic or within theoretical and disciplinary silos might help us interpret the situation more fully.

The lack of common journals, and particularly journals that reach across the various perspectives to address the multiple approaches to writing, however, indicates that the field may not have yet emerged with a core scholarly identity and with common discussions. Further, the lack of journals that have broad geographic reach across the field indicates limited opportunities for regional communication. Certainly there seems a strong linguistic divide between scholars whose first language is Portuguese and those whose is Spanish, as indicated both by the lack of orientation to each other's journals and by the lack of orientation to each other's leading scholars. Further, while they seem to share an interest in Anglophone scholars, the Portuguese speakers orient to European Francophone scholars and the Spanish speakers to European Spanish scholars, with little crossover.

All these clues indicate an emerging field that is looking in multiple directions, in ways that seem to be reaching beyond disciplinary and institutional locations, but which has not yet formed its own communicative structure in journals. There appear to be in recent years an increasing number of conferences that have an expanding place for writing, though these are within organizations of different scope. For example, The International Symposium on Genre Studies (SIGET) was created in 2003 in Brazil aiming at exploring the relationship between genres and the many human activities that they engender. The symposium meets every other year in Brazil, but it draws a number of other scholars from within Latin America and from other regions. Many of the participants are particularly interested in using genre approaches to understand and teach writing. Another academic network in Latin America is The UNESCO Chair on Reading and Writing in Latin America, which deals with the fields of teacher training and research into reading and writing at all educational levels. Within its regular congresses an increasing number of papers are specifically focused on the teaching of writing. Similarly, the International Reading Association has been holding biannual meetings on reading and writing at all educational levels; although the papers at this congress have been predominantly focused on reading and on primary and secondary levels, some work on writing and particularly higher education writing has been presented. Finally, in Colombia the nationally sponsored REDLEES Network on Reading and Writing on Higher Education (*Red de Lectura y Escritura en la Educacion Superior*) since 2006 has been holding events aimed at improving reading and writing in all Colombian universities. Because of the uniqueness of its focus on writing in higher education, it has become a de fac-

to region-wide meeting place for Latin American higher education writing.

As yet these developments have not yet led to a region-wide focused set of conferences or organizations with writing or higher education reading and writing as a central theme. Nor has it led to a journal or set of journals creating a core place to find and publish articles on higher education reading and writing.

What is most promising is that there is attention in each country to local scholars who are emerging as intellectual leaders in the field and that a small number of scholars are beginning region-wide attention, indicating some common approaches. Nonetheless, the lack of focused publication and conference venues to support interchange stands in the way of developing further intellectual coherence of the field. More detailed study of the conference programs in the recent past and as they emerge in near future can also tell us in greater depth what the dynamics of intellectual growth in the field are.

Similarly, the attention to scholarship from other regions and from multiple theoretical orientations can be a great strength, but it would be useful to see how these resources are being used in the Latin American region. Are the approaches from outside the region entering into a complex multi-sided discussion, in which Latin American scholars as equals are contributing new perspectives and fresh research, even as they are learning from what has gone on in other parts of the world or are the Latin American scholars only applying external approaches to local data and conditions?

A more detailed study of the uses made of external influences as well as of how internal communication emerges can in a more general way reveal much about how new scholarly communities form and how they draw on and relate to existing intellectual communities. The ILEES project will continue to document and study these processes as well as the emergence of practical programs and the relation of those programs to the emerging scholarly approaches.

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16 “Cultural Anchors” of Chinese Students’ University Writing: The Learning Culture and Academic Traditions

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This chapter takes an intercultural perspective on academic literacy focused on the didactics of French for Academic Purposes. It is linked as well to the long-standing field of sinology and Chinese research on Chinese Writing. This work lies within the scope of the latest research on academic literacy in intercultural perspective, on didactics of French for Academic Purposes, and it is linked as well to the field of long-standing sinology and Chinese national studies research on Chinese writing. This research analyzes a corpus of textual productions, in French and in Chinese, written by Chinese students who have learned French at the university in China, and a corpus of comprehensive interviews in Chinese with those students. The analysis of academic dissertations written by Chinese undergraduate and graduate students studying in several Chinese universities shows a few specificities of the writing of Chinese students completing academic writing tasks. These features are described and linked to the students' discourse on their writing practices and on their training to writing and to academic writing. The writing of Chinese university students in China has its basis in five main cultural anchors: Chinese culture; learning culture developed in Chinese schools with specific exercises for the acquisition of Chinese characters; western academic rhetoric, which is a part of what China has borrowed from universities in Europe and America since the 19th century; literary writing in the Chinses academic tradition, which can especially be found in the forms and uses of the imperial examination system (*keju-zhidu*); and the writing of the contemporary scientific community. Through this analysis, it is possible to approach some of the specific features of academic

writing in China (*xue-shu xiezuo*).

Cette contribution présente des résultats issus d'une recherche en didactique de l'écriture en Français langue étrangère, portant sur l'écriture des étudiants chinois dans l'Université chinoise. Les analyses portent sur un corpus de productions textuelles en français et en chinois écrites par des étudiants qui ont appris le français à l'université en Chine et un corpus d'entretiens en chinois avec ces étudiants. L'analyse des productions des étudiants de premier cycle et des étudiants avancés issus de différentes universités chinoises fait apparaître plusieurs spécificités de l'écriture académique d'étudiants chinois. Ces spécificités sont reliées au fait que l'écriture, pour ces étudiants, prend racine dans des traditions séculaires concernant les écrits de savoirs, l'intelligibilité et l'interprétation du monde existant. Nous distinguons ainsi cinq ancrages culturels de l'écriture des étudiants en contexte universitaire : la culture chinoise, la culture d'apprentissage de l'école chinoise, l'écriture lettrée de la tradition académique chinoise, la rhétorique universitaire occidentale et enfin l'écriture de la communauté scientifique internationale contemporaine. La notion d'écriture académique (*xueshu xiezuo*) dans le contexte chinois peut être reliée dans une perspective plus large à la notion d'écriture (*wen*) dans la culture chinoise telle que l'ont analysée les sinologues.

The results which are presented in this chapter are based on research on the didactics of French as a foreign language and the practices of intertextuality in Chinese students' writing in an academic setting in China. Specifically, how do they use quotations when writing academic texts? The context for this research is the analysis of academic literacy from an intercultural perspective and on French for academic purposes; it is also linked with sinology.

The analysis focuses on a corpus of 36 textual productions, in French and in Chinese, written by Chinese students (graduate and postgraduate dissertations) who are learning French in China (as a major for some of them). The corpus contains also 26 comprehensive interviews in Chinese with post-graduate students from East China Normal University (Shanghai). They were studying for their master's degree in 13 different majors while learning French, in preparation for doctoral studies in France at one of the of Écoles Normales Supérieures (ENS).

Among the results, I would like to show the "cultural anchors" (Barré de Miniac, 1995) of Chinese students' academic writing, which Reuter (2004)

calls “écriture de recherche en formation.” These anchors provide contextual insight, in addition to what we know from the disciplinary environment (Delcambre and Lahanier-Reuter, 2010). There are five anchors: Chinese culture and its conception of writing, the learning culture in China, literary riting in the Chinese academic tradition, western academic rhetoric, and finally the international scientific community.

In this chapter I will analyze the first four cultural anchors, which I have identified in students’ discourse and practices.

1. Prestige of Writing in Chinese Culture

The first cultural anchor of Chinese students’ practices of writing and the discourses about it is Chinese culture and the “cult of writing” (Ji, 2011) in China’s history. This social representation is essential in what students say because they link Chinese writing with Chinese culture. It is also essential for research in the didactics of French as a foreign language because it helps to understand these learners.

To understand this representation, we must remember that the 1898 discovery of oracle bone inscriptions (on tortoise shells or animal bones: *jiagu-wen*) which date back to the 13th Century BC, has been a scientific event (*hanzixue*) (Wang, 2006; Guo, 2004) as well as a popular event because this discovery locates China in a very early position in the chronology of the birth of writing in world history and thus in cultural history.

The notion of writing is as polysemic in Chinese as it is in French. However, it is expressed in Chinese with several Chinese characters. The first one is the character 文 (*wen*). According to the Ricci Dictionary, this character has four meanings: written form, prose text, literary work, and culture. This character can be put together with others to form words such as 论文 *lunwen* which means scientific writing (it can be translated as: dissertation, paper, or thesis). The character 书 (*shu*: book) can form 书面 *shumian* which means written language. The character 写 (*xie*: to write) can form *xiezuo* 写作 which refers to school writing. *Xiezuo* put together with 学术 (*xueshu* which means: to learn / art, technique) can form 学术写作 (*xueshu xiezuo*) which designates academic writing.

Chinese and western historians have shown the important role of writing in the social and political life in the history of the Empire. The social group of officers is a group of scholars, the only ones proficient in written language. Historians’ research, especially western sinology research, has produced a certain representation of writing in China. According to this representation, Chinese culture has its own specific qualities because of its graphic system

(which fascinated Leibnitz). Some research makes the assumption that a determining relationship exists between Chinese writing and Chinese thought. J. Gernet (2003) shows that Chinese syntax expresses a logic of combination and association (different from the linear discursive logic of Latin and Greek languages). F. Jullien speaks of “the civilization of *wen* (writing)” (Jullien, 2004, p. VII). Chinese students also convey the same representation of a different China because of its completely different way of thinking and writing.

W. von Humboldt noted that Diderot’s Encyclopedia deals a lot with written language and very little with oral language. In 1835 he wrote: “(sinology scholars) have replaced language with writing.” This example is quoted by Viviane Alleton (1994, p. 261) whose research on writing has tried to give back some importance to oral language. She has refuted the theory of two cerebral hemispheres, one used for alphabetic writing, the other used for character-based writing. She has disproved the explanation of a determining relationship between writing and thought. She has restored to favor oral language as a carrier of Chinese culture.

We can find the same debate in the didactics of foreign languages. Presenting Chinese students as “students with writing culture” was a commonplace in academic papers until the late 2000s. Thus, Chinese students are seen as learners with developed reading comprehension and writing skills but not good oral skills. But now, the situation has changed and some research (*Synergies Chine* 8, 2013) has shown students’ oral skills. This recent development is due to international mobility, early learning of French, multimedia accessibility, and the evolution of practices in classrooms.

2. Learning Culture and Chinese Students’ Writing Practices at the University

The notion of “learning culture” is much used in didactics in China (Cortier, 2005). It is the second cultural anchor of students’ writing. I discuss learning culture here based on student interviews.

For the students, the first experience of writing is the copying of Chinese characters in childhood. They have learned to write by imitating patterns (patterns written by teachers or *zitié* 字帖 copybooks for calligraphy). Several students have practiced calligraphy since the age of five. They recall the graphic gesture as the pursuit of an ideal: the control of breath regulates the flow of *qi* (vital energy) which is, physiologically and ethically, an inner strength. Copying is depicted as the pursuit of a kind of spirit.

Next, when students explain how they learned to write, they all describe it the same way: “(At school) we wrote characters to build sentences. After-

wards, we wrote little texts, and then composition.” Copying patterns also includes replacing parts of the text by similar elements. This instructional method is essential because children aren’t able to write a lot of characters. This is a kind of structural and distributional approach to texts: some elements are fixed and some can vary depending on what the student chooses.

Students talk about texts they copied from textbooks or from annals of examinations and contests and above all from compositions written by other students, since the best compositions of the class are held up as examples. Students explain that after entering the university the first method for learning how to write an essay involves reading other students’ essays or papers written by their supervisor. They refer to academic writing as something with a frame (or a structure) and content. Furthermore, they recognize that there is a phenomenon of re-using the same topics with some variation (in some language departments, students are not allowed to choose some research topics because they are chosen too often).¹

The teaching method using imitation of patterns is a key issue in Chinese culture. Some Chinese didactic specialists (for example, Meng, 2005) contrast *fanwenjiaoxue* 范文教学 “Didactics based on composition models” (it means: to let students imitate texts models) with *guochengjiaoxue* 过程教学 “Didactics based on procedure” (it means: to describe theoretically and a priori the writing task). The notion of “model” has been analyzed by Anne Cheng (1997b): she refers to “model extension,” which means that a model is never exactly reproduced. This is related to an aesthetics of series, which is essential in Chinese art. The word *xue* means “to learn” and “to imitate.”

The notion of model is linked to that of exemplary nature (Cheng, 1997b). A large majority of the students surveyed remember how proud they were the day their successful composition was read in front of the class. The result of this educational practice is that students get used to writing and adapting their essays to speech, i.e., a composition addressed to peers. The text becomes a speech, a writing addressed to peers. When I found out about this enunciative posture (Rabatel, 1998), I could understand why students’ academic texts, as shown clearly by the corpus, frequently address the reader and have conclusions that very often express determination to act collectively with this hackneyed expression: “we will strive to improve . . .”

Students’ academic writing uses the rhetoric of oral discourse, with exclamatory sentences, slogans, and so on. Texts manifest the qualities of storytelling (using fictional dialogues, the dramatization of historical events, the use of anecdotes, symbolism, etc.). Academic dissertations try to convince by using polyphony (*prosopopoeia*, effects via introductory or conclusive quotes, searching for good turns of phrase and emphasis while choosing quotes, etc.).

In addition, autobiographical writing is an important part of the learning process. Almost all students remember the task of regularly keeping a diary, which was a compulsory task starting with the first year of primary school; several of them have continued to keep one until the university. Students explain that they are used to writing 流水账 *liushuizhang* (day-to-day accounts) or 随感 *suigan* (spontaneous impressions). Some of them talk at length about writing about feelings or writing about moods. Some remember precisely their school compositions they call *sanwen* or *suibi*, a typical kind of essay in China in which writing about sentiments prevails. That kind of writing about sentiments and personal feelings can also be found in academic writing. Some might say this is not academic, but it's very hard to eliminate it.

When speaking of writing, students also constantly refer to examinations, which is an ever-present part of their school life. Examinations influence the genres of writing that are taught very early in the school curriculum. Examinations introduce the practice of cramming as well as the firmly established habit of quantifying writing tasks by calculating word counts and writing speed. When they refer to examinations or to the numerous writing contests, students link writing with excellence, pressure, intensive training, and suffering, which are frequent topics in Chinese literature and Chinese proverbs.² Some students explain that resorting to plagiarism is due to this constant pressure.

3. Scholars Writing in Ancient China

The mention of the issue of the examinations is related to what students call “ancient China” with its imperial examination system. This system, abolished in 1905, was a way of recruiting literati-officers with written tests (Liu, 2004). The Mandarin, who was an officer as well as a scholar, relayed the power of the Emperor throughout the Empire. He acquired his learning from books (he was able to quote the Confucian canon he had memorized) and mastered writing skills (he knew calligraphic styles, official genres, and the style characteristic of written language). The imperial examination system connected the social sphere and the knowledge sphere.

In several academic dissertations from the corpus, academic research and social responsibility are linked together, and scientific activity is presented as serving ongoing reforms in China. This is especially the case for academic writing in foreign language classes. For example, in some texts we read this expression 借鉴外国经验 “to learn from the experiences of foreign countries.” These are the same words which were used by the reformists in the 19th century to promote foreign languages as tools to learn western scientific and technical knowledge.

Considering the link between knowledge and social responsibility, we can explain why ethical considerations have such an important place in writing. We can find them in the use of proverbs, in the expression of moral judgment when giving a commentary on a text (it’s obvious in literary commentary), and in writing phrases of praise (for example, phrases which express respect for the authors cited). From the 3rd or 4th year of primary school on, students have to write compositions, and the topics for these compositions are often about moral lessons learned from experience.

The important place of ethics can be explained by Confucianism. Referring to Confucian thinking is essential in writing. Yet explicit allusions to Confucian classics are only necessary when the text is about Chinese issues. Confucian thinking appears in writing much more through proverbial expressions and through argumentative postures. During the interviews, some students explain it by referring explicitly to the Confucian notion of *zhongyong* 中庸 (middle way) from the doctrine of the mean. Using this word, students mean that points of view shouldn’t be expressed in a definite way and that a text has to seek balance by maintaining the balance of power between two contrary positions. For some of the students, this approach seems incompatible with trying to defend a thesis.

When they speak about the imperial examination system, several students mention the traditional eight-part dissertation 八股 (*bagu*) which is a kind of essay (Zhao, 2009; Liu 2009), created during the Ming Dynasty. It has a strict structure made up of a limited number of characters and a specific form in 8 parts, each one having a fixed number of sentences. It is characterized by a peculiar tone called *shengxian* 圣贤 (literally: wise). The topic of the essay is a quotation from “Four Books” and “Five Classics” and must be treated in accordance with the received interpretation of the Classics.³

Students have a positive representation of *bagu*; this is consonant with its current resurgence in China. Previously it was a disparaged genre, especially because of the rote learning that it requires (Lee, 2000: 159-161). And, yet, in the interviews, students lacked clarity of the genre’s features. and they hesitated while describing it. That hesitation brings to light that they have a global representation of writing and of the experience of scholars’ writing, which conflates writing as written down knowledge and writing as literature.

Indeed, for them, and in Chinese culture, literary writing is the center of all forms of writing. Therefore, style, rather than reasoning, can convince, because the flowing style of writing expresses *qi*, the vital energy which arouses a reader’s support beyond logical demonstration (Cheng, 1997a). From this perspective, certain features of academic writing are seen as a disturbance to the text and to the fluidness of inspiration. Features such as quoting,

summing up, announcing the text plan, and making logical connections, as well as process elements such as planning a text or writing a rough draft, (which students seldom write, as I noticed during exams).

Furthermore, for Chinese students, literary writing is a rearrangement and a revival of old material in a new way. This leads us to think of philosophical, literary, and scientific compilations in ancient China, such as Classics compilations, encyclopedias, anthologies, etc. This has led a large number of sinologists to say that compilation and the overuse of quotes in writing are Chinese specificities (Granet, 1999, p. 54; Lévi, dans Chemla, 1995, p. 43; Jullien, 1989, p. 15). However, I think it is possible to draw a parallel between Chinese culture and western medieval culture, e.g., Antoine Compagnon says about the Middle Ages that “it is tempting to define [it] as the golden age of quotation” (“il serait tentant de [le] définir comme la grande époque de la citation”) (Compagnon, 1979, p. 157). Some students say that writing at university is basically a never-ending reuse of the same material which is combined again differently. For them, academic writing is made of rememberings. Consequently, it is bound to be plagiarized. On this issue of plagiarism, some Chinese colleagues teaching English as a Foreign Language resort to the notion of “patchwriting.” Indeed, in the writing practices of students, it can be noted that they used cited sentences as mere language material, that is, that quotations are discourse pieces they directly juxtapose next to their own sentences without adding words of integration. They merely take sentences written by others for their own use. This has to do with the lack of a critical engagement with sources and with the weak presence of cited authors in students’ texts.

Literary writing also includes writing by allusion. Some students speak about the ideal, “to express deep meaning with few words” 微言大义, that is, writing concisely. When discussing the issue of quotations without reference, students mention *diangu* 典故, a kind of literary quotation. *Diangu* are cited without references because they are supposed to be known by the educated reader. The notion of “participation” (Maingueneau: 2004) can help to understand this kind of scholarly writing. For Maingueneau, when a community of scholars is based on an age-old relationship, their members share a tacit understanding of implicit references that form a “thesaurus of utterances.”

4. Western Academic Rhetoric

The fourth cultural anchor of Chinese students’ writing is academic writing, which they describe as “western” (a vague and standardizing concept). For them, academic rhetoric is a part of what China has borrowed from European and North American countries since the late 19th century including: the con-

cepts of *university* and *science*; particular academic disciplines and the system of distribution of the disciplines in university faculties; research procedures, tools, language; and theories and methods.

In the interviews, students said pointedly that academic writing and many characteristic elements of academic genres are “western.” For example, introductions and conclusions, abstract(s), keywords, table(s) of contents, as well as standards for bibliographies, quotations, reviews of literature, forms of reasoning, structuring words or forms of expression, and more.

For example, some Chinese students think that banning the use of the pronoun “I” is an American standard (see also Donahue, 2008). The influence of these American representations provides one explanation for why, when Chinese students write in French, they use the French pronoun “on” (one) or “l'auteur” (the author) a lot, which in French is quite inelegant, or “nous” (we, representing not “I” but “I and the group I belong to”).

However, Chinese standards for writing academic texts (*lunwen*) and writing practices conform to international standards (ISO 690 and ISO 690.2), even if the Chinese academic dissertation has some particularities features that differ from French dissertations. For example, the role of the abstract, (which is a long presentation), the function of introductions and conclusions (which are sometimes missing or mingled with the rest of the text), and the importance of acknowledgments.

Nevertheless, the analysis of the interviews shows that logical notions are used only occasionally by Chinese students when they refer to their academic writing. In teaching French, a problem arises, for example, with the notion of “problématique” (research problem) for which there is no equivalent, neither in students’ discourse nor in the normative or methodological discourse of textbooks. In Chinese, students use 问题意识 (problem awareness) or 研究问题 (research questions) or 问题的提出 (issues raised). But those expressions don’t involve for them the idea of hypothesis testing or reasoning.

In the classroom, I try to use expressions found in dictionaries to translate “problématique” (提问法, 问题群, 一组问题) but students say they neither use nor understand them. When I ask students who went to study abroad in France, most of them tell me they have discovered this notion there. In practice, argumentative writing rarely entails a debate between views. Instead, students usually choose to attach themselves to the views of one author, whom they quote at length.

Conclusion

The analysis of those four essential cultural anchors of Chinese students’ ac-

ademic writing highlights the necessity of documenting the history of academic places and practices and the history of contacts between different academic cultures. I have not said anything here about the fifth cultural anchor, the contemporary scientific community, because it is under development due to the recent increase of academic mobility in China and in the world. This anchor appears in what students say but, significantly, it is often mixed up with the anchor of western traditions of academic writing, as if the latter was inevitably becoming the global prevailing standard.

In China, research concerning the imperial examination system has contributed to a new research area on the history of literati's throughout the imperial dynasties (Liu, 2004;2009). A similar history remains to be written for western academic rhetoric. This writing tradition is not considered very often as a research topic. Even though many academic writing practices are taken for granted in western universities, the emerging reflection on the writing practices of the scientific community should be rooted in multiple cultural contexts. This means deepening the analysis of these contexts as well as analyzing them from different geo-cultural points of view. In China, some young researchers are engaging in this path, and their research will be welcomed.

Notes

1. For example, see pages 3 through 25 of the methodology textbook: Mu Yang and Chen Chunlian牟杨, 陈春莲. (2007). 英语专业毕业论文写作指南 (I). Wuhan: Wuhan University Press.
2. Some students evoke the physical pain in writing: "we had to write continually, every day we wrote so that we had a sore hand!" In Chinese proverbs, we find the figure of suffering student: 刺股悬梁 "jab one's thigh with an awl and tie one's hair on the house beam" (hurt oneself to keep oneself awake and not to fall asleep on one's book); 囊萤映雪 "read by the light of bagged fireflies or the reflected light of snow" and 钿壁偷光 "bore a hole on the wall in order to get some light from the neighbor's house" (study hard far into the night); 吃得苦中苦方为人上人 "after bitter suffering, you can be the best."
3. The Confucian canon contains "Four Books" (*Analects of Confucius*, *Mencius*, *Great Learning*, *Doctrine of the Mean*) and "Five Classics" (*Classic of Poetry*, *Classic of Documents*, *Classic of Rites*, *Book of Changes*, *Spring and Autumn Annals*).
4. Chinese official standard GB7713-87 Presentation of scientific and technical reports, dissertations and scientific papers, 1987; National standard GB/T7714-2005 Rules for Contents, Form and Structure of Bibliographic References, 2005.

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Writing and Reconstructing Identity Through Professional Transitions

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Professional development can be studied from the angle of transitions, which may include reflexive written productions (such as a cover letter or the rewriting of a CV). This is the case of the Vocational Skills Validation (French VAE), a French law which allows individuals to obtain all or part of a diploma or a professional title on the basis of personal or work experience. The candidates who take the initiative to use a VAE have to write a file of proofs of his (her) experience in order to demonstrate if their experiences meet the requirements for a diploma. We offer the hypothesis that this writing, conceived as a second chance plan, highlights social and school inequalities. In this chapter, we present the analysis of two corpuses related to the vocational skills validation (VAE): interviews guided around writing the “notebook of validation,” for women who begin a VAE to obtain the qualification of nursing auxiliary, and interviews guided around writing the “experiences file” for candidates seeking to obtain university degrees. These two corpuses show that writing about one’s own experience to obtain a diploma constitutes a process of reorganization of the statutory, narrative, and reflexive identities, which is unequally appropriated by the candidates: these differences come from differences in writing abilities, the availability of feedback, and the applicant’s ability to provide particular kinds of evidence related to their experiences.

Les évolutions professionnelles rapides peuvent être étudiées sous l’angle des transitions. Elles sollicitent souvent des productions écrites réflexives (récit d’expériences, réécriture du CV ...). C’est le cas de la Validation d’Acquis de l’Expérience, dispositif français qui permet d’obtenir tout ou partie d’un diplôme sur la base des expériences professionnelles ou personnelles. Les candidats qui se lancent dans cette procédure

ont à produire un dossier de preuves de leur expérience pour répondre au référentiel du diplôme visé. Nous émettons l'hypothèse que cette production scripturale, destinée à offrir une « seconde chance » aux candidats, réactive en fait des inégalités socio-scolaires. Nous analysons deux corpus, autour de la validation d'acquis de l'expérience : des entretiens guidés autour de l'écriture du livret de validation, avec des femmes non diplômées qui entreprennent une VAE pour obtenir le CAP d'aide à domicile ; des entretiens guidés autour de la rédaction du « dossier d'expériences » avec des candidats à la VAE pour des diplômes universitaires. Ces deux corpus montrent qu'écrire son expérience pour obtenir un diplôme constitue un processus de remaniement de l'identité statutaire, réflexive et narrative inégalement approprié par les candidats : ces différences relèvent des aptitudes scripturales et de la capacité à effectuer un retour sur trajectoire, notamment à récupérer les preuves de son expérience, selon la plus ou moins grande linéarité du parcours antérieur.

1. General Research Framework

The following results belong to a broader research project focusing on moments of transition in the life of an individual. This project seeks to analyze moments that arise over the course of education, training, and employment from a sociological perspective.

Transitions may be defined as “major changes in the life environment” which meet three criteria: these changes “have long-term effects; occur in a relatively short space of time; and decisively affect how the individual represents the world” (Parkes 1971, 101). Guichard and Huteau (2006) highlight the role played by *identity readjustments* and *expectations for the future* in these life events. These liminal definitions encourage further study of transition’s effects on the subject’s *representations* of the future. Oriented toward representations of the future, transition provides an especially appropriate lens through which to investigate rapid changes in professional development, such as those stemming from an examination, internal mobility, or professional certification.

The present chapter discusses the Validation des Acquis de l’Expérience (Accreditation of Acquired Experience), concentrating on its requirements for reflective written material, in order to analyze how one such event in the subject’s professional life influences her identity.

2. The Validation des Acquis de l'Expérience and Writing

Instituted in France as part of the Social Modernization Act of 2002, the Validation des Acquis de l'Expérience (VAE) allows an individual to obtain credit toward a diploma or professional certificate on the basis of professional or personal experiences. Full or partial credit is awarded by a jury made up of teachers and professionals active in the desired credential's field; the jury determines whether the candidate's professional skills, gained from practical experience, match the skills required for certification (Jacques, Marchan & Neyrat, 2007).

Recognizing the problem of unequal access to basic as well as continuing training justified creation of the VAE program. The VAE was presented as a way to compensate for an initial failure in schooling, on the model of a "second chance" (Jacques, 2009). The mechanisms through which this correction is supposed to occur are studied here, and in particular, the written requirements of the VAE.

Indeed, all VAE candidates must put together a written record of their experience [*dossier de preuves*] in order to apply and provide evidence of qualification, no matter what the level of desired certification. That is, for each skill listed in the standards of the credential, the candidate must describe or narrate concrete acts drawn from her career to illustrate her competence. The jury then evaluates the dossier, which also serves as a reference during the interview portion of the application process.

Yet it would be a mistake to consider this record a simple compilation. In fact, a codification of experiences must guide the writing of the dossier if it is to best meet the standards of the certification in question. The candidate must explain her actions in writing according to the credential's norms and, as much as possible, use its current terminology to express her personal experiences.

3. Field Work Site and Materials

Our principal hypothesis rests on the gap that separates the VAE program's goals of "social justice" and letting individuals "catch up" from its real results. If the VAE certainly has its successes, there are also disillusionments: failure to complete the application, denial of credit, differing outcomes for comparable candidates, etc. We began with the idea that these gaps between the program's ideals and its realities emerge from the social conditions of its implementation; the VAE upholds pre-existing socio-educational differences and so does not help to reduce inequalities (Jacques, 2007). As a secondary

hypothesis, we supposed that if candidates encountered difficulties with the VAE accreditation at the university level, then those difficulties would be all the more challenging at levels below the Baccalaureate. In particular, candidates for these Level 4 and 5 certifications are more or less able to “write their experience,” a skill that the VAE program heavily emphasizes.

We tested these hypotheses using two bodies of sociological material:

- 32 interviews with VAE candidates for university diplomas: these retrospective interviews were structured around their writing process for the “experience report” [*mémoire d’expériences*].
- 20 interviews with non-certified women who began a VAE to obtain a state caregiver certification and stabilize their employment: these retrospective interviews were structured around how they approached completing the accreditation booklet [*livret de validation*], which also served as concrete support for the interviews (Amewoui, 2011). This booklet is a standardized document; each section must be filled out with a narrative that illustrates the candidate’s experiences.

We have based our results on content analysis of these qualitative materials, and will now turn to presenting two scenarios, which represent successful and “unhappy” VAEs.

4. First Family of Results. The University-Level VAE: Turning Points and Stumbling Blocks in Writing the Record of Experience

4.1. Finding the Trail of Experience

Claude was a certified technician in computer graphics, with twenty years of experience in the field, and a VAE candidate for a professional degree in logistics. He describes himself as a recorder of his own experience—and this quality took on decisive importance as he pursued the VAE. “Since I’m someone who files a lot, who archives . . . I always have an old planner with me . . . If you like, at the end of the day I always took twenty minutes to write down the details of what I’d done. So . . . I had things written down, I had, you know, notes. But not all of it was so detailed, like the forklift broke at this or that time—it wasn’t that—but during the day, I always tried to summarize what had happened . . . I had those kinds of documents.” Claude benefitted from personalized support that not only drew on this “spontaneous” recording, but which also helped put it to good use in the application. Producing the dossier affirmed Claude’s writing skills, and transferred his informal written material into a standardized form both more general and more academic. This trail

of experience and the writing process factor into the full credit that Claude received.

Patrick offers a contrasting example. Patrick received his Baccalaureate and has worked in a number of different fields, including jobs as driver, administrative agent, and call-center employee. Self-taught in computer science, Patrick was inspired to apply for a bachelor's in information technology and communication. "I did so many things. And then of course you have fixed-term contract jobs in the meantime, and then you present a, your CV, you're going to sum everything up but there are things missing, what did you do? No . . . it's not easy, in the way that it means having to remember. Okay, so for one thing, I already don't really have a great memory. If you were to ask me . . . 'So you worked for this business, but you did what exactly?' I can say, uh, overall, but I can't tell you . . . uh, 'so I worked with that software, I did it this way.'" Dissuaded by the difficulty of putting together his dossier, Patrick quickly abandoned the plan to apply for the VAE. Because the different tasks he had accomplished throughout his career were not clearly identified, they were hard to translate into the program's standardized framework. But above all, because no recording existed of his career trajectory, reconstructing its trail was that much more challenging. Patrick did not finish writing his record of experience and gave up on pursuing the VAE diploma.

4.2. Norms of Certification, Norms of Writing

For more than two decades, Florence has been the director of a retirement home (EHPAD); she was the regional president of her professional association and held a Master's degree in law. She was also a VAE candidate for a Master's in healthcare management. "Actually, the units for the Master's degree are completely connected to the work of an EHPAD director," she said. In articulating this connection, Florence indicates the subtle link between having, on the one hand, extensive experience normalized and validated within higher education, and on the other, a command of how to relate one's own activity clearly to the VAE standards of the desired diploma. Prior success at a post-secondary level shaped the candidate's ability to write about her usual practices, in her own words and in accordance with the requirements of the degree: "I was able to follow, since the beginning, the whole pricing reform via texts, and then, I was able to do the judicial analysis, things like that, I was on the whole negotiation procedure over the specifications for the ministry agreement about relationships with the state—these are experiences that are very worthwhile and very interesting, after all, and that can be put pretty directly into a VAE dossier." Boosted by

this legitimacy as a writer and professional, Florence received a full Master's degree. Over the next year, she became a presenter within the healthcare management curriculum.

Conversely, some candidates produce written material that diverges far from the standards of the diploma. Unable to master either the content or the vocabulary necessary to the degree, these candidates cannot satisfy the norms of writing. For example, Martine was a dormitory monitor in a private institution, and anxious to advance her career. She first learned about the VAE in a women's magazine. To begin applying, Martine referred to a degree whose name seemed to fit her. "I thought that the degree "Educational sciences" was supposed to be for educators." She submitted a thin dossier to the jury; instead of an organized, written account of her experiences, Martine presented a three-page "table," which she called a "padded-out résumé." She included a simple chronological list of professional activities accomplished while working for educational institutions and services, such as summer camps. "It was a bit of a mess," she said, "because the papers arrived, the dossier arrived for me to fill out. So somebody called me, explained quickly that I was supposed to give a picture [*faire un tableau*] of my skills . . . , you know, of my professional experience and then that was it, right? So, nice and sure, I made my table [*j'ai fait mon tableau*], that I sent to them." From this angle, Martine placed too much emphasis on the roles of dormitory monitor and catechism instructor within her overall career. Lacking outside support and familiarity with the workings of the university system, Martine did not understand the written requirements she was supposed to satisfy. Although she was "confident" upon arriving at the interview, Martine failed to receive credit for a single unit within the degree curriculum; she left the defense feeling that she "had been made to feel small." Above all, she took away the idea that her own professional activity, which she considered more valuable than the written and conceptual work demanded by the VAE, had not been recognized. "Oh, well, my experience, what mattered to them, and especially the youngest one, was to know what I read in the evenings. Sure, but that shouldn't be called gaining experience. Experience means, at least for me anyway, it means professional experience, it's something that you did. It's being on the job! After that you need a different word."

4.3. Linear Trajectories and Written Coherence

The VAE program offers a second chance at a professional credential, presented as the possibility to rebuild one's original disorganized or incomplete

education. But to write a report in accordance with the standards of a given credential presupposes a certain uniformity of experience, or even linearity; the candidate must be able to translate positions held, tasks accomplished and skills utilized into a coherent whole. Beyond establishing her career chronologically, the candidate must find common denominators across different experiences, and then reshape those experiences as a skill for each category required for the degree. Murielle, a certified technician in sales, had worked for eighteen years as an employee [*cadre*] in mass retail. Murielle wanted to obtain a management degree through the VAE program in order to pursue becoming a teacher in a vocational high school. She provides an example of the ability to satisfy degree standards thanks to a coherent career: “I called an old colleague, so that he could gather all of my job descriptions [*fiches de poste*] and what I’d done, my sales, my career progress . . . I was comfortable filling out the VAE dossier . . . because teaching high-school students about business with concrete examples, no problem, that’s what I’d done for twenty years.”

The sample of candidates studied here rarely attests to such a successful shift. Significantly, among the ten candidates seeking a Bachelor’s degree [*licence*], four ended the VAE application process before submitting their dossiers. These four candidates tended to evoke the poor fit between their own practical experience and the content of the desired degrees, which they often described as too theoretical; they emphasized the difficulty of reconstituting their career trajectories in the form of a written record. This was the case with Brice, who held a high-school diploma [general Baccalaureate] and had become an employee [*cadre*] in computer maintenance at France Telecom. Hoping to strike out on his own, Brice intended to apply for a professional Bachelor’s degree. But after initial inquiries, he decided not to put together a dossier:

“For me it’s the program—it just doesn’t take into account the fact that we’re in the business world, not the National Education! So the fact that the VAE requires exactly the same skills as the standard curriculum, that alone doesn’t take reality into account, because we’re not there to take classes! We’re there to get things done, to get our career plans in action. Otherwise, then there are more problems—I realized very quickly that preparing the dossier would be difficult because gathering up all the records is practically impossible. At work we changed teams pretty often and we’re in a field where there aren’t many documents, a lot of things are virtual.”

5. Second Family of Results. Multiple Writing Processes for the Diplôme d'Etat d'Aide Soignante (DEAS)

The Diplôme d'Etat d'Aide Soignante (State Caregiver Certification) is a Level 5 vocational credential, whose written component for the VAE is structured around the “Standards of Competence” document. The eight skills listed there organize the VAE accreditation booklet’s prompts for candidates to describe their experience and professional abilities. For each skill, the candidate is asked to answer three main questions. First, she must provide an account of her work activities related to this skill; then she must describe two situations in which she utilized that skill; finally, she must discuss and explain her actions in those situations. Because each main question is broken down into a series of smaller ones, the form creates the impression that the candidate must follow a ready-made path in order to write her experiences.

5.1. Showcasing / Downplaying the Profession’s Least Valued Tasks

The structure of the accreditation booklet’s questions guides VAE candidates to list and describe the minute detail of their day-to-day work—work made up of tasks that are usually neither seen nor valued in society (Arborio, 2001; Cours-Salies and Le Lay, 2006). The VAE offers a space in which to relate these otherwise unmentionable activities, and so offers them an official status. To receive credit, the candidate must engage in a writing process that recounts the mundane gestures and practices of caregiving in technical terms. By accepting this writing process, the candidate puts the lack of privacy implied in the trade’s “dirty work” at a distance. Excerpts of descriptions from the booklets that we studied display usage of specific technical language:

I give Monsieur A. his bath in bed, because he can no longer stand on his legs following a thrombosis . . . I begin with his face and hands. Then I wash his torso, I dry him, rub on his cologne and put deodorant on his underarms. Next I remove his urine bag and check the color of his urine. I help him to turn over and move on to washing his back; I dry him then put on his t-shirt to cover him. Then I begin genital and anal cleaning. Monsieur A.; having become incontinent, I start by removing part of his stool, with protection . . . Then I wash his intimate areas. (Valérie)

I perform the daily maintenance of a hyperbaric chamber. I clean this room after all the other rooms and I make sure

that all of the waste and contaminated linens are removed beforehand. I leave the cart outside and check that nothing is missing before I enter the room. I wash my hands and put on my PVC protective gloves. I put descaling product in the toilets and leave it to work. (Marianne)

5.2 Secondarization: transposition and transformation in the writing process

The concept of “secondarization” (Astier, 2008) provides a framework within which to explain the differences observed among VAE dossiers. Many care-giving activities, as noted above, are generally absent from social discourse; when such activities structure the candidates’ writing, it hews closely to their concrete lived experiences, rather than creating a remove that would allow for professional detachment. Several of the dossiers examined here represent a type of writing corresponding to “transposition”: like fill-in-the-blank exercises, the candidate’s responses consist of sentences that reproduce the questions but add a word or two. The sentences are either short or entirely replaced by bullet-pointed lists. Having observed candidates struggling with writing, we saw during field work that outside support correlated with completing the VAE booklets among those in difficulty. Thanks to this support, candidates were able to give an exhaustive, but strictly factual, account of their experiences. Answering the booklet’s questions, candidates wrote in an essentially pragmatic register connected to their ordinary experience. Audrey, currently on her third attempt at earning a VAE credential, offers a good example of “transposition” writing:

- “I write down the names of residents who have outside tests
- “I lift residents
- “I give full or partial sponge baths
- “I prepare residents for breakfast
- “I help them take meals
- “I make note of the breakfasts on monitoring sheets”

These candidates are forced to repeat the VAE application process, because they receive only partial credit each time.

For credit, a type of presentation is expected that requires the candidate to formalize her experiences. Secondarization focuses on the abstract experience

at the core of the learning process, rather than the details of an individual's unique experience. VAE dossiers that make a secondarized use of experience through writing better align with "transformation" than transposition. These professionals seek not just stable employment, but also envision career development, which motivates them to write more than basic responses; they take advantage of the writing requirement in order to further examine their own knowledge and expertise. The transposition category of writing discussed above makes a striking contrast with the way that Monique fills out her list of tasks:

"If I work in the morning, I start the day by looking at the charts to see if the residents had a good night or if there are any little concerns.

"Next the whole team starts to prepare the breakfasts and we get the residents settled in their beds and help them to eat breakfast as well as to take the medicine that the nurse has handed out.

"Next I start to give full or partial sponge baths, alone or with the help of a caregiver for heavier dependent persons, or according to the residents I give them a shower or bath, I dress them and put them into their chairs, and then I move on to cleaning the area and remaking the bed."

5.3 Reflexivity: Emotional value and the register of a skill

By asking for a reflection on the candidate's career trajectory in her application's written record of experience, the VAE program asks for "work on one-self." This term can be defined "as an activity, a transformative development, performed by an individual on her personal spaces (subjectivity, behavior, interpersonal skills); work that draws on internal and external resources" (De Backer et al., 2007).

The accreditation booklet includes a question that is very revealing in regard to the reflexivity required by the application. "From across the different situations that you have described, which difficulties did you face?" The question continues, "What were the positive moments? What did you learn?" The candidates who struggled the most—whose sole priority was keeping their unstable jobs—took recourse to a moral and emotional register to answer this question. Laure gave the following answer:

"The difficulties were to see those sad people, and to see that

they suffered realizing that they have forgotten how to do everyday things. When I feel helpless facing his [*sic*] sufferings in the moment. I learned to give my help, and not to do things for them."

On the other hand, Marie establishes a more objective logic, distancing herself from her work:

In both cases, since the handicap wasn't the same, my challenge was finding different ways to adapt. In the first case, Monsieur R. doesn't talk much so I adapted to urge him to express himself verbally and non-verbally. In the second case, it was not possible to use equipment (patient lift) in the room. I knew which tricks to use to move and dress him without hurting him. In both cases, my actions allowed each improved autonomy, at his own pace and according to their potential. I developed my sense of observation even more, as well as listening and patience.

In this respect, Marie's response can be described as a "polyphonic text," which Bakhtin (cited by Bautier, 2002) defines as a text constructed from multiple references (completed actions, patient's point of view, overall evaluation . . .).

6. Summary: Writing Processes for the Validation des Acquis de l'Expérience and Reconstructing Identity

The present analysis shows two very different situations for writing of the record of experience [*dossier de preuves*] with the intention of receiving credit for a certification. Writing requirements for university degrees are very open-ended, and each candidate can take his own approach; for the DEAS certificate, writing requirements are very structured, thanks to precise instructions and an accompanying writing guide. However, our analysis identifies similar obstacles and similar criteria for success in the results of both.

Using the three axes of social identity outlined by Dubar (2002), we conclude that the writing of a VAE application for any level of certification resembles an identity transition:

- A narrative identity is sought. The candidate brings her own biography into line with her personal VAE project. She relates a story told through work, defining herself by what she does, by problem-solving,

by animating lived situations with anecdotes and characters. To succeed and receive the certification, the candidate must at times put the invisible on display (skills that she becomes conscious of while writing, unseen tasks that she makes appear); amplify the anecdotal (make the smallest task or event stand out, so as to fulfill the credential's requirements); and minimize the obvious (de-emphasize the most conspicuous tasks of her trade in order to focus attention on exceptional acts). The more lively the candidate makes this narration, the better it will pay off; she should show how she is the main character.

- Experiential learning—the development of hands-on knowledge—is not sufficient proof of experience. The candidate must put this learning through processes of verbalization and formalization, which implies generalizing from personal experience, appropriately employing concrete examples, and justifying ordinary practices. All of these elements mobilize the candidate's reflexive identity as a subjective meaning given to professional activity, creating a distance from her own role.
- Finally, if the stakes of the VAE process predominantly concern the statutory identity conferred by state-issued certifications, our other research (Jacques, 2011; Jacques and Neyrat, 2011) has indicated that the gains are small. Although the self-representations prompted by writing the application open up perspectives with transformative potential, in practice the candidates' reconstructing of their identity proves limited. When reconstructions do occur, they affect different candidates differently. Candidates who hope either to confirm their existing position, or to move forward on a pre-ordained path, benefit more from reconstructing their identity through writing for the VAE than candidates who hope to change positions entirely (finding a job, changing careers, achieving a professional dream). For the latter group of candidates, this work on identity has rare or at least hard to perceive effects—and in the event of failure, can even have damaging results for their careers.

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Commenting with Camtasia: A Descriptive Study of the Affordances and Constraints of Peer-To- Peer Screencast Feedback

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Recent research on written, audio, and screencast feedback has focused on teacher feedback and student attitudes and perceptions regarding the quality of feedback in the different modalities. Unexplored in the literature is the use of screencast feedback in peer-to-peer feedback. The objective of this exploratory study is to discover how first-year writing students from two separate research writing courses use a range of semiotic resources to provide feedback; determine whether students prioritized higher-order (i.e., audience, purpose, organization) or lower-order (i.e., word choice, syntax, grammar) rhetorical concerns in their feedback; and understand student attitudes and perspectives about feedback in written and audio/visual modalities. Results show that students used multiple semiotic resources to meet their communicative goals. In the analysis of lower and upper classmen in one class, findings show that upper class students were more advanced in their feedback strategies. In the second class in which the feedback from two essays was compared, majority of students addressed higher-order concerns in generic terms and focused on lower-order concerns; however, students demonstrated a modest improvement in feedback quality. Survey results reveal that students valued receiving screencast feedback initially, citing it as more personal and comprehensive; however, as a resource for revision, screencast feedback presented various limitations. Although students preferred the written modality for revision, it was predominantly within the audio/visual modality that students addressed higher-order rhetorical concerns, although in generic terms. This study aims to expand our knowledge about peer feedback and explore the limitations and affordances

es of screencast feedback.

Les recherches récentes sur les feedbacks réalisés par écrit ou par des moyens audio ou vidéo se sont intéressées aux feedbacks opérés par les enseignants ainsi qu'aux attitudes et perceptions des étudiants quant à la qualité de ce feedback en fonction des différentes modalités. Mais l'usage de la vidéo dans les feedbacks entre pairs n'a pas été exploré. L'objectif de l'étude exploratoire que nous présentons est de découvrir comment les étudiants de deux cours distincts d'initiation à l'écriture de recherche utilisent une gamme d'outils sémiotiques pour fournir un feedback, de déterminer si les étudiants priorisent les éléments rhétoriques de haut niveau (par exemple: audience, but, organisation) ou ceux de bas niveau (par exemple: choix des mots, syntaxe, grammaire) dans leurs feedbacks, et de comprendre l'attitude des étudiants et leurs perspectives au sujet des modalités écrites et audiovisuelles. Les résultats montrent que les étudiants ont recours à de multiples ressources sémiotiques pour atteindre leurs objectifs de communication. Dans l'analyse des meilleurs et des moins bons d'une des classes, les résultats montrent que les meilleurs étudiants sont plus avancés dans leurs stratégies de feedback. Dans l'autre classe, dans laquelle les feedbacks de deux essais ont été comparés, la majorité des étudiants ont exprimé des remarques concernant les éléments d'ordre supérieur dans des termes génériques et se sont focalisés sur les éléments d'ordre inférieur. Cependant les étudiants ont fait preuve d'une légère amélioration de la qualité de leur feedback. Les résultats de l'enquête montrent que les étudiants apprécient de recevoir d'abord un feedback audiovisuel, le considérant comme plus personnel et plus global. Cependant, en tant que ressource pour procéder à la révision des textes, le feedback audiovisuel présente de nombreuses limitations. Bien que les étudiants préfèrent la modalité écrite pour la révision, c'est majoritairement par la modalité audiovisuelle qu'ils émettent leurs remarques de haut niveau rhétorique, même si c'est dans des termes génériques. Cette étude vise à améliorer notre connaissance des feedbacks entre pairs et à explorer les limites et les intérêts du feedback audiovisuel.

1. Introduction

Recent research on multimodal assessment has discussed the pedagogical im-

lications of student-generated criteria to evaluate multimodal composition (Adsanatham, 2012). Scholars agree that assessments should focus on a rhetorical understanding of composition (Borton & Huot, 2007; Odell & Katz, 2009; Shipka, 2011); and instructors as well as students should use Web 2.0 technologies in assessment to improve students' metacognitive skills and "[re-cast] assessment as integral to the learning process . . ." (Wyatt-Smitt & Kimber, 2009, p. 86). However, unexplored in the literature is discussion about the method of assessment itself as a multimodal activity. In digital environments, whether through marginal comments in Microsoft Word or Google Docs, rubric assessments, progress reports, email exchanges, or discussion forums, alphabet text has been the predominant modality used for formative, summative, or self-assessment of student projects. By only focusing on print-based discourse or face-to-face oral communication, we ignore the affordances of making meaning and connections across different multimodal and multimedia contexts. We also fail to see the limitations of face-to-face oral communication as governed by the temporal and sequential logic of speech (Kress, 2005), in which students are not able to go back and "hear and see" their thinking in time, whereas in other modalities like audio or audio/visual digital recordings, students can experience their thinking as a tangible learning artifact that could be reflected on, analyzed, archived, or repurposed. Framing assessment as a dynamic multimodal activity allows instructors to re-imagine traditional forms of assessment such as teacher feedback and peer-to-peer (P2P) feedback.

1.1 Research on Multimodal Teacher Feedback

For decades, teachers have experimented with providing feedback in multiple modes with mixed results. A face-to-face teacher/student conference is arguably the most optimal method of teacher feedback (Lerner, 2005) where teachers can elaborate on their goals and expectations and students can respond (Frank, 2001). However, this method of feedback is not ideal for large class sizes, contingent faculty working at multiple locations, online distance education courses, non-traditional students, and students with divergent learning needs.

Research on teacher feedback has found that students frequently fail to understand teacher comments and expectations (Thaiss & Zawacki, 2006). In a meta-analysis of feedback, Hattie and Timperley (2007) conclude that effective feedback must answer three questions: "Where am I going? (What are the goals?), How am I going? (What progress is being made toward the goal?), and Where to next? (What activities need to be undertaken to make

better progress?)” (p. 86). The three questions correspond respectively to the terms feed up, feedback, and feed forward. The most common form of teacher response is feedback, which often functions as a rationale for the summative grade (see also Glover & Brown, 2006), rather than feed forward, which includes strategies and instructions for further revisions or subsequent writing tasks. Feedback is powerful so long as students actively engage with it and do not overlook the feedback in search for their grade (Dean, 2007). Feedback in the form of praise, on the other hand, seldom addresses the three fundamental questions for effective feedback.

In recent years due to the integration of audio-recording software on smartphones, laptops, and desktop computers, audio feedback has become more popular with instructors. However, audio feedback is nothing new. In the form of analog cassette tapes, it dates back to the early 70s (Coleman, 1972). Anson (1997) found that teachers valued this mode of feedback because in less time they could provide more comprehensive feedback. For instance, teachers could reference the class context (e.g., past assignments and class discussions), provide helpful strategies, and answer students' concerns about their writing. In more recent studies on student attitudes about (digital) audio feedback, researchers found that students valued personalized and comprehensive feedback (Gould & Day, 2013; Merry & Orsmond, 2008; Rotheram, 2007; Trimingham & Simmons, 2009). In online courses, researchers found that the use of audio feedback not only personalized feedback, it created a social presence and sense of community online and increased student involvement (Ice, Curtis, Phillips, & Wells, 2007).

Research in audio/visual feedback in the form of video files (i.e., screen-cast feedback) is relatively new, as screen-capture software (e.g., Camtasia) prices continue to be relatively high for the average person—available at <http://www.techsmith.com> for \$299 (Windows) or \$99 (Mac). Free alternatives have become more popular (e.g., Jing and Screenr); however, the 5-minute limit can deter some from considering these alternatives. Furthermore, limited Internet speed and storage space for large media files are everyday constraints for many instructors. Screen-capture software, such as Camtasia, allows users to record audio as well as all screen movement and activities, such as scrolling, typing, clicking, and web surfing. Early adopters of these technologies, however, have reported positive results regarding student attitudes and perceptions about screencast feedback (Brick & Holmes, 2008; Marriott & Teoh, 2012; Silva, 2012; Stannard, 2008; Thompson & Lee, 2012; Vincelette & Bostic, 2013). One possible reason that students have responded positively to audio/visual feedback is based on Mayer's (2009) principle of multimedia learning, which asserts that students learn better

from words and images than from words alone.

In one study on student expectations of video and written feedback in a large undergraduate course, Kerr and McLaughlin (2008) found that students valued the quality of screencast feedback better than those who had only received written feedback. Thompson and Lee (2012) explain that screencast feedback allowed instructors to provide in-depth explanations and that students responded more to global issues in their writing (see also Silva, 2012). Vincellette and Bostic (2013) also found that students made more macro-level changes in their writing and communicated a preference for screencast feedback for micro-level issues as well.

1.2 Research on Peer-to-Peer (P2P) Feedback

Research in P2P feedback indicates that with proper training, students can provide constructive and descriptive feedback (Beach & Friedrich, 2006). In one study of high school students, Simmons (2003) reported that after students obtained proper training, which included modeling and discussions about constructive feedback, students no longer defined editing as peer feedback. However, Simmons also found that students continued to praise text without substance. Based on the findings of a study on forward-looking written feedback, Duncan (2007) reported that students focused more on surface-level issues and provided vague praise “at the expense of clear practical advice on how to improve the quality in subsequent work, or at least clarify issues in the students’ minds” (p. 278). Hovardas, Tsivitanidou, and Zacharia (2014) also reported that less experienced peer reviewers provided less critical, descriptive feedback and more positive commentary.

There are several pedagogical benefits to concentrating efforts to improve P2P feedback. First, students learn to perform the simultaneous roles of reader and writer. Nicol (2010) contends that when students construct feedback rather than receive it, students learn to actively engage with multiple texts (i.e., peer texts, assignment guidelines, rubric, etc.) and construct their own assessment criteria. Hovardas et al. (2014) add that students engage in a process of triangulation in that they must review their own feedback, their peers’ feedback, and expert feedback. This process of triangulation could facilitate metacognitive thinking and transfer of learning in students. Moreover, students learn to gauge their weaknesses and strengths among a community of their peers, thereby allowing students to develop their self-efficacy and agency as writers.

Much of the research on P2P feedback has examined student feedback in written modalities. There is scant research on P2P feedback in audio or audio/

visual modalities. In one study on P2P audio feedback, Reynolds and Russell (2008) compared audio feedback to written feedback. They wanted to assess whether students who provided audio feedback focused more on higher-order concerns (e.g., content, organization, audience, purpose) than those who gave written feedback. Lower-order writing concerns related to surface-level issues such as grammar, spelling, punctuation or word choice. Results of their analysis of student audio feedback show that students addressed higher-order concerns more and gave more specific comments. However, students preferred to give written feedback, expressing that it was easier, more comfortable, and more efficient to organize their thoughts and communicate in writing. In addition, it took longer to process audio feedback. Although Reynolds and Russell reported success using audio feedback, Trimingham and Simmons (2009) found that some students did not listen to their feedback with draft in hand, which could be problematic, particularly if reviewers leave visual cues in their feedback to assist with revision. This problem would not be an issue in screencast feedback.

Excluded from research on screencast feedback is an exploration of the affordances and constraints of particular semiotic modalities (Kress, 2003), such as vocal inflections, cursor and scrollbar movements, highlighting, and recorder pausing. Furthermore, literature on student use of screen-capture software to administer P2P screencast feedback is non-existent. One objective of the present study is to explore the interrelationship between the mode of feedback and higher and lower-order concerns in P2P feedback. The present study answers the following questions:

1. When students provide screencast feedback, what do students prioritize: surface-level issues (lower-order concerns) or macro-level rhetorical issues (higher-order concerns)?
2. How do students use the semiotic resources available across multimodal/multimedia environments (i.e., Camtasia, Google Docs, computer) to construct their peer feedback?
3. What are student attitudes and perspectives about the use of screen-capture software to provide peer feedback?

2. Methods

2.1 Participants

A mixed method design was used to conduct a semester-long descriptive study of student use of Camtasia to provide P2P screencast feedback on drafts produced in Google Docs. Participants ($N=19$) were from two parallel

classes from a second-semester first-year research writing course at a private college in New York. In Class 1, the majority of student participants were second-semester freshmen and sophomores (first and second-year students); however, a junior (third-year) and senior (fourth-year) were enrolled and participated as well. In Class 2, all participants, but two juniors, were freshmen and sophomores.

2.2 Task

During the first half of the semester, students reviewed two separate source-based essays using Camtasia. The peer review of each essay occurred approximately three weeks apart. In class, students received two non-consecutive days of training on how to provide effective feedback and received a set of questions to guide their feedback for each essay. With Camtasia, students were advised to pause the recording while reading. At the end of the semester, a total of 19 student participants completed a satisfaction survey online about the use of Camtasia and Google Docs to conduct P2P feedback. The survey also asked students to reflect on their roles as reviewers and writers and to comment on their priorities within the different modes of feedback.

2.3 Data Analysis

Data analysis was an iterative process of reviewing video and audio data, marginal comments on drafts, survey results, and field notes. Thirteen students submitted 34 videos totaling 137 minutes and averaging 4 minutes with a range of 11 minutes. Each video was transcribed in Google Docs and coded for higher-order concerns and lower-order concerns. Reynolds and Russell (2008) define higher-order concerns as comments that address macro-level rhetorical issues (e.g., content, organization, audience, and purpose). Lower-order concerns are defined as comments that address writing mechanics and surface-level issues. Using a grounded theory approach (Glaser and Strauss, 1967), higher-order and lower-order concerns were further divided into two sub-categories: specific versus generic comments. Specific comments engaged with concrete claims and evidence in the text and offered concrete steps or strategies for revision. Higher-order generic comments alluded to rhetorical matters, such as audience, purpose, ethos, and logos, yet were not associated with specific claims or evidence within the student text. For instance, students often asked peers to “provide more examples and elaborate more” without linking the comment to any given claim. As for lower-order generic comments, students might say “proofread for grammar er-

rors" or "double-check your sentences." In addition to higher and lower order concerns, evident in P2P screencast feedback was evidence of modeling (i.e., verbally communicate corrections or modifications), summarizing (i.e., summarize the student writer's claims and evidence), and praise (i.e., compliment the student writer's general effort or specific rhetorical move).

A total of 225 comments were coded. The unit of analysis was determined by triangulating three streams of multimodal discourse. First, a great majority of the time, students paused the video recorder in order to continue reading and conclude oral commentary. Second, students highlighted or scrolled to relevant text. Last, the content and purpose of each comment demarcated the boundaries between comments. A single screencast comment often included a combination of codes, in other words, higher-order specific (HOS), higher-order generic (HOG), lower-order specific (LOS), lower-order generic (LOG), modeling, summarizing, and praise. However, for statistical purposes, each code was only assigned once per comment (see Appendix for sample coding sheet). Unlike electronic feedback in which a single comment is determined by conspicuous boundaries such as a Microsoft Word comment bubble, or written feedback, in which summative commentary may be represented as a single paragraph, determining the boundaries of screencast comments is far more subjective and unexplored in the literature.

Within Excel the total number for each of the seven codes was calculated and graphed across the two classes. With the first data set, a comparative analysis of lower and upper classmen feedback was conducted ($n=7$) because the majority of HOS and modeling commentary (a more advanced form of feedback) came from the junior and senior students in the course. In Class 2, class standing was not a marker for advanced forms of feedback. For this data set, a comparative analysis of P2P feedback between Essay 1 and 2 was conducted.

3. Results and Discussion

In both data sets there was evidence of advanced forms of feedback (i.e., higher-order feedback and modeling). In the first data set of lower and upper classmen (Class 1) in which the junior and senior students produced a total of 60 comments combined and the 5 lower classmen produced a total of 60 comments combined, findings show that the upperclassmen were nearly three times more likely to provide HOS commentary and six times more likely to provide modeling commentary (see Figure 18.1). These findings are not too surprising since we would expect upper classmen (i.e., juniors and seniors) to have more reading and writing experience; however, the two juniors in Class 2

did not demonstrate advanced forms of feedback. A number of reasons might explain the differences, such as choice of field of study, prior coursework or preparation, student motivation, student confusion about the goals of P2P feedback, and/or unfamiliarity with Camtasia.

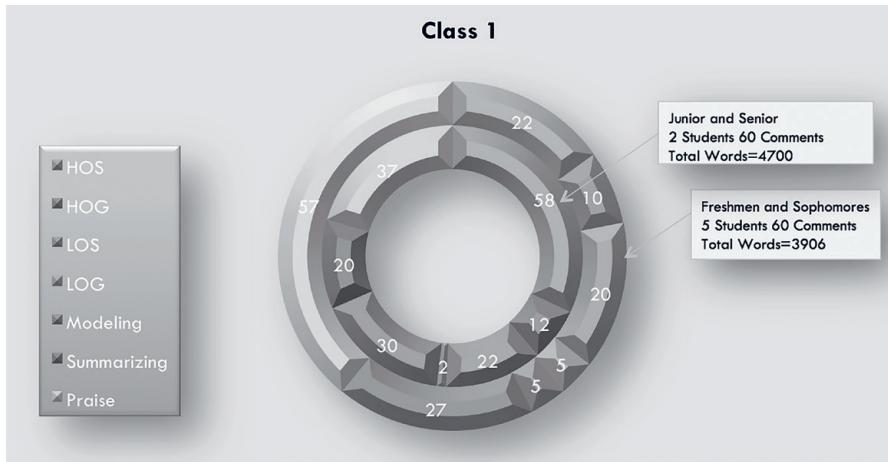


Figure 18.1. Types of Feedback in Class 1

Because class level was not relevant in Class 2, commentary from Essays 1 ($n=49$) and 2 ($n=56$) were compared instead ($N=105$ comments). Results show a positive shift, with students providing HOS commentary 24% of the time in the first essay and 48% of the time in the second essay (see Figure 18.2 for total number of feedback types for each essay). There was a modest improvement in modeling, from 16% to 20%. What was common in student feedback of Essay 1 was emphasis on lower-order concerns, such as syntax, sentence clarity, and word choice, even within a visual/audio modality. Half of the feedback in Essay 1 consisted of HOG commentary and LOS commentary. On the other hand, students equally prioritized higher-order concerns, such as purpose, audience expectations, structure, rhetorical appeals, and assignment guidelines; student discussion of these rhetorical matters, however, was non-descript, and generalized. In Essay 2, only 32% and 25% of total feedback consisted of HOG and LOS commentary, respectively. A slight decrease in HOG and LOS commentary may suggest improvement in student feedback as well as a slight shift in students' priorities after several weeks of class instruction. Student praise also decreased from Essay 1 to Essay 2, from 80% to 77% of total feedback. Unlike written modalities, where praise is represented in comments like "Good Job," with audio/visual feedback, praise often involved summary of the students' major claims, evidence, and objectives, all positive signs of

students managing their reading of text. In general, a decrease in praise in the same allotted time would indicate that students now prioritize higher-order concerns. In longer more focused screencast videos, however, it could illustrate that it is important for students to position themselves as facilitators rather than as evaluators. In fact, in Class 1, the junior and senior students provided praise commentary 62% of the time in their data set. Within an audio/visual modality, praise may be one way in which students attempt to personalize feedback, establish a social presence (Ice et al., 2007), and mitigate the expectation to “criticize” student writing. Students can exploit semiotic resources, such as vocal inflections, speech tempo, hedges, gestures, and pauses to reduce the social discomfort of a critique and communicate empathy, all of which are not accessible to students within the margins of a Word document.

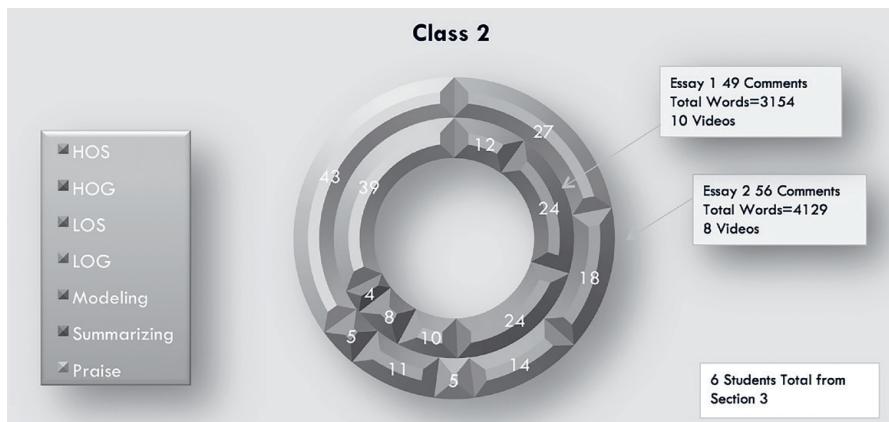


Figure 18.2. Types of Feedback from Essay 1 to Essay 2 in Class 2

3.1 High-Order Generic and Higher Order Specific Comments

Reynolds and Russell (2008) report that students in the written modality were more apt to focus on lower-order concerns; while in the audio modality, students discussed higher-order writing concerns. Reynolds and Russell conclude that the audio feedback was “better” than the written feedback even though students preferred the written modality. The present study reveals similar findings in that students discussed higher-order concerns in the audio/visual modality and preferred written feedback in the end due to convenience. However, when student comments in the audio/visual modality were examined more closely, results show that students predominantly gave generic feedback that lacked direction and clarity for revision. Rather, students frequently made blanket statements about wanting more details, examples,

sources, or “flow” without linking these statements to specific claims or evidence in the text. Odell and Katz (2009) discuss the problem with feedback that simply asks students to “elaborate.” They ask,

How much and what sort of information is the student supposed to provide? Where does he or she look to find that sort of information? How much elaboration is enough? How does the student decide whether a particular bit of elaboration (a detail, a quotation, a reference to an authority) is appropriate? (p. 200)

In the present study, when students repeatedly asked their peers to elaborate or give more examples, it is possible they were shadowing the type of feedback received in the past by instructors. For some students, this form of feedback proved to be unhelpful (none of the students asked for further clarification with the screencast feedback I had provided throughout the course). Further research is needed to determine if concentrated efforts to improve first-year writing students’ feedback skills would result in higher quality feedback (feed up, feedback, feed forward--Hattie & Timperley, 2007) in the audio/visual and written modalities.

Higher-order specific (HOS) comments were not common or consistent in student feedback. In Class 2, only 37% of the total comments were HOS. In Class 1, the junior and senior students provided HOS feedback 97% of the time. The freshmen and sophomores in Class 1, similar to Class 2, provided HOS feedback 37% of the time. The following student excerpts illustrate the ways in which peer reviewers attempt to contextualize the feedback and provide concrete steps for revision:

Student 4: “Find some examples of how companies are advertising for the experience not just the brand. I’ll give you an example, in my essay I found something on Google Scholar that broadcasted that companies are manipulating the consumer by photo-shopping celebrities by making them look better which furthers my argument and it just brings up a different point. The more points you have in your essay the better and more convincing it will be to your audience.”

Student 5: “First, you need to make your statement a little more clear [highlights 2 sentences] Do you think what a man’s job is changing today? I know you said that the definition of a man has been changing. Is that what you’re leaning toward? I think a man’s job is changing today.”

....

I thought you brought in this [highlights the bottom of a paragraph with an external source] about how the toys have changed from scrawny to buff. That's true. I know my Ken Barbie definitely had muscles. I think at the end of this, you need to bring in your own opinion rather than say that you only think that they're tough but they need to be smart.

In the above excerpts, both students engage with the ideas of the text and attempt to provide specific support through cursor gesturing, modeling, asking relevant questions, and responding to student claims. Unlike written modalities in which students do not have the physical space or technological affordances to elaborate on their interpretation of a text, the audio/visual modality affords students the time and space to do so.

3.2 Lower-Order Specific and Lower-Order Generic Comments

In Class 1, LOS comments were evident in 37% of the total comments by the junior and senior. In their feedback, students focused on word choice, syntax, grammar, and punctuation errors, often providing a brief rationale and modeling possible modifications. As for the freshmen and sophomores in the class, 33% of the total comments were LOS comments. In Class 2, of the total comments across the two essays, 36% of the comments focused on LOS concerns. Unlike student feedback that addressed higher-order writing issues in generic, vague terms, LOG comments were not as common, accounting for 14% of total comments in Class 2. In Class 1, LOG comments accounted for 3% of total comments among the junior and senior and 8% of total comments among the freshmen and sophomores. Although student feedback in written modalities was not the objective of the current study, there was no evidence of students articulating a rationale for any sentence-level corrections or recommendations.

Evidence of LOG feedback was not an indicator of weak reviewing abilities. For several students, LOG commentary functioned as a summative statement based on prior feedback. In the video data, it was evident that strong reviewers, who had provided ample HOS and LOS feedback throughout the video, would make general summative recommendations about proofreading for sentence-level issues. Moreover, all students were mindful of time constraints and did not want to produce videos longer than 6-7 minutes. On the other hand, weaker reviewers did not always contextualize their LOG feedback; students either did not know how to correct the problematic sentence

or felt compelled to alert their fellow classmate of the problem, because they had been instructed to focus on higher-order concerns.

3.3 Survey Results

The survey results show that students did not perceive video feedback from peers as an affordance because it was not perceived as a necessary tool to augment their peer review activities. During revision, they admitted that revising with the screencast feedback proved to be more of a challenge because they had to re-watch the video several times to locate points in the video timeline, whereas within Google Docs, they could begin to work immediately. The convenience of written feedback also correlated with some of the technical challenges that occurred in student attempts to give audio/visual feedback. Only 3 of 19 students reported no technical problems with recording, saving, converting, and uploading video files. Students did comment on the value of personalizing their feedback, as most students were quite concerned about appearing too harsh or critical; however, the technical difficulties of screen-capture software and inconveniences for revision deterred most students from considering screencast feedback in the future. Interestingly, students valued receiving screencast feedback, appreciating its conversational elements and comprehensive explanations.

A common theme that emerged from the student responses was student sensitivity about sounding too harsh or critical in the audio feedback modality. When students received peer feedback, they valued the personable and conversational quality of the commentary. However, when they themselves were the reviewers, several felt self-conscious about appearing too critical or negative. Some students compared the audio modality to the written, believing that written feedback was neutral, therefore safe:

“I feel like when I make a video, the peer I am reviewing may think I am being mean because we’re not in person for them to see that I do not mean my comments to be mean or especially negative. Whereas on Google Docs, there is no emotion whatsoever; it is just a comment.”

In this next response, the student felt that writing allowed for revision, which could control for the tone and affective intentionality of the feedback:

“I found that it was sometimes hard to explain myself well and get across a tone of constructive criticism and not arrogant correction. It was good to be able to write something

and re-write it and not worry about communicating it well the first time.”

On the other hand, one student acknowledged that she did not like to critique other’s work, yet felt that screencast feedback allowed her to communicate her affective intentions:

“I always claim to be very bad at peer reviewing and that’s because I don’t like to critique other’s work. However, with the audio I learned that it is easier to talk to someone about their essay without sounding too judgmental.”

Student sensitivity about appearing too harsh may explain the high frequency of praise comments in the screencast feedback. According to linguistic studies on politeness and peer feedback, students employ linguistic and mitigation strategies to reduce the directness of their criticism (Leijen & Leontjeva, 2012). Within a multimodal environment, having the option to employ linguistic and mitigation strategies, as well as hedge, apologize, and modulate voice can either create anxiety and discourage full engagement or assuage pre-existing anxieties about giving feedback.

Another prevalent theme evident in the survey results about screencast feedback was experiences of cognitive overload (Mayer, 2009; Sweller, 2005). While reviewing, students must mitigate any anxieties about “sounding harsh” or inarticulate, manage the functions of Camtasia, answer the peer review questions, reread relevant passages, and recall their interpretation of the text. Although Camtasia afforded students the time and space to elaborate on their reading of the draft and provide feed forward (Hattie & Timperley, 2007), the live recording did not afford students the opportunity to see and revise their feedback in real time. For example, one student commented in the survey, “I am more comfortable when I can write because I can take my time to develop an idea that I hadn’t thought about before without being interrupted. Sometimes I strongly believe in points that I have a hard time backing up with information.” For this student, the process of writing feedback was a recursive thought process that made invisible the hard work required to effectively communicate one’s understanding of a text and the assignment goals. Some students also voiced concerns about sounding unintelligent: “I really paid attention to what I was saying, because I didn’t want to sound dumb.” In both situations, the students could not edit their representational selves as articulate and intelligent reviewers within the audio/visual modality. Thus, a multimodal approach to peer feedback may be too much for novice reviewers.

3.4 Student Perceptions and Attitudes about Camtasia and Google Docs

In the survey results and in my field notes, there was a clear shift in student attitudes about receiving screencast feedback from peers and me. When students received the first wave of videos, before revised drafts were required, there was an overwhelming consensus that the peer and instructor screencast feedback allowed students to hear the intentions of the reviewer and obtain a more thorough explanation and rationale regarding problems in the text. The survey results confirm earlier findings on student satisfaction with screencast feedback (Marriott & Teoh, 2012; Silva, 2012; Vincelette & Bostic, 2013). Once students were required to incorporate the screencast feedback into their revision practices, student attitudes about Camtasia shifted. Students expressed frustration having to locate specific critiques within the video timeline and identify specific problem areas within their draft. Thompson and Lee (2012) report similar findings. Moreover, students grew increasingly impatient with the peer videos, complaining that they were too long and unfocused.

Another common thread in student preference for written feedback during revision was the importance to “fix” and “correct” localized problems in the draft:

“I felt more key issues were talked about and better explained in Google Docs, and they were easier to go back and fix and see, because they were right there.”

“This is hard to say but I think I preferred to receive the Google Docs feedback because I could get the correction and re-read it if I needed to, and again re-read it after I had made the correction to see if it fit with what the person was telling me.”

These results are consistent with the results of my earlier study (Silva, 2012) on student preference for Microsoft Word marginal comments versus instructor screencast feedback.

In the above excerpt, both students can re-read the written comment multiple times as a visual artifact fixed in time and space. In this context, written peer feedback could afford students the cognitive space to negotiate multiple perspectives (i.e., assignment guidelines and other peer responses) and develop criteria for effective writing (Nicol, 2010). In general, engaging in this mode of thinking requires additional cognitive resources. Thus, being able to “see” the response appears to link the text with formulating plans for revision, whereas having to locate feedback within a video while revising within

a Google document may create a split-attention effect (Mayer, 2009), which may leave some learners feeling overwhelmed or frustrated.

What written marginal feedback does not afford, however, is the space for students to articulate criteria for effective writing and analyze a text's progress based on those criteria. The video data show students doing this very thing—reading, synthesizing, and analyzing texts as well as verbalizing commentary utilizing multiple semiotic modes, such as highlighting with the cursor specific locations within a draft; scrolling from one paragraph to another to discuss macro-level issues; summarizing student text aloud to make inter-textual connections; modeling aloud modifications to the student text; and modulating voice to reduce the social impact of criticism and offer praise. The use of semiotic resources in screencast feedback functions as a type of socio-rhetorical performance that positions students as critical and engaged, yet empathetic and supportive. Although P2P screencast feedback videos can lack focus, or students may struggle to relocate specific comments in the video timeline, students can also experience anxiety and stress when reading and managing lengthy and numerous written comments. Whether or not students embrace screencast feedback or written feedback is a matter of students acknowledging the affordances and limitations of the two different modalities and using the semiotic resources necessary to meet their communication goals.

4. Conclusion

The objective of the current study was to discover how first-year writing students, as well as upper classmen, from two separate classes used the semiotic resources available to them across multimodal and multimedia environments and determine whether students prioritized higher-order or lower-order concerns in their feedback when delivering screencast feedback. Moreover, this study aimed to understand student attitudes and perspectives about the use of screen-capture software to provide peer feedback. According to the video data, results show that students used multiple semiotic resources to meet their communicative goals. In one class, a junior and senior student demonstrated more advanced feedback strategies, providing HOS commentary 97% of the time and modeling commentary 50% of the time. Freshmen and sophomores, on the other hand, focused more on HOG commentary, LOS commentary, and praise. Although freshmen and sophomores were not as advanced in their feedback, in the second class, freshmen and sophomores, including two juniors (who were not strong reviewers), made modest improvements in their feedback strategies. Students reduced the number of HOG, LOS, and praise

commentary and increased the number of HOS and modeling commentary. The survey results reveal that students valued receiving screencast feedback, appreciating its conversational elements and comprehensive explanations; however, as a resource for revision, screencast feedback presented various limitations.

Results indicate that first-year writing students require far more training to provide effective feedback. For students hesitant to trust the quality of peer feedback, Nicol (2010) suggests that teachers could comment on peer feedback to validate it and establish confidence and trust among peers. This is readily easy to do in Google Docs, where writing instructors can reply to comments. Writing instructors could also incorporate on-going discussions about various types of feedback and strategies for using feedback to improve student writing and reading. To improve the effectiveness of screencast feedback during revision, students could highlight and annotate their draft in a separate window while viewing their screencast feedback (Thompson & Lee, 2012). This would provide students with something more tangible to easily locate and address problem areas in their writing during revision.

Reviewing pedagogical approaches to teaching different types of peer feedback is often ignored in the literature because writing instructors assume that there is a direct correlation between advanced rhetorical/critical thinking and advanced feedback. If this were true, instructors would provide effective feedback; research on teacher feedback, however, indicates otherwise (see Thais & Zawacki, 2006). Also ignored in the literature (excluding L2 research) are discussions about the social and psychological implications of peer feedback. According to the video data and survey results, students are acutely aware of their social presence. Rather than only focusing on teaching students how to improve a draft, perhaps we should be teaching students how to build better connections with peers through their feedback in multiple modes.

In a medium such as Camtasia, students have the semiotic tools to point to different text types (e.g., words, paragraphs, images, hypertext, video) using their cursor; they can verbalize their understanding of the assignment, as well as their objectives, progress, and revision plan; they can think-aloud the skills, knowledge, and strategies that could transfer to writing situations across the curriculum; moreover, they have a medium that can record the evolution of their rhetorical and integrative thinking, which functions as a type of learning artifact that students could archive, analyze, reflect on, and/or repurpose. Written modalities can serve the same purpose and should be used to achieve similar goals; however, the constraints of print-based text open opportunities for a multimodal approach to student learning.

Further research is needed to determine if the additional modal choices in

P₂P feedback, as well as training in P₂P feedback, could shift students' attention toward more higher-order rhetorical concerns, allow students to engage in assessment dialogues (Carless, 2006) with peers, and feed forward (Hattie & Timperley, 2007) strategies and suggestions for revision.

Further research is needed in multimodal research to study alternative modes of assessment not situated in print literacy. Framing assessment as a dynamic multimodal activity allows instructors to re-imagine traditional forms of assessment. Furthermore, screen-capture software like Camtasia can allow researchers to better understand the interconnections between students' digital behaviors and rhetorical decisions, particularly in the ways students use semiotic resources and tools to position themselves as readers and writers across multiple rhetorical contexts. Research in this area is greatly neglected. One reason may be due to the lack of sophisticated data analysis tools for processing multiple streams of dynamic visual, audio, and hypermedia data. Although advancements in computing technologies have allowed researchers to represent multiple modes of communication in their original form (e.g., NVivo) and collect, analyze, and visualize research data (e.g., eye-tracking software, video screen-capture software, keystroke software), all of which are paired with traditional qualitative and quantitative research methods (Getto & Silva, 2012), O'Halloran (2009) argues that representations of research in the humanities have been predominantly communicated in a reductive manner employing few semiotic channels. For instance, in the present study, the coding sheets (see Appendix for a sample) could not capture the dynamic interplay between students' vocal inflections, processing of text, and use of the cursor for organizing P₂P feedback. To remedy this problem, further interdisciplinary collaborations are needed between computer scientists and multimodal researchers in writing studies.

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Appendix. Sample Coding Sheet

Total Time 5:04	Transcript Total Words=575; Average Words per Comment=63.89 9 Total Comments	Codes Praise=3 Modeling=2 HOS=5 HOG=2 LOS=2 Summarizing=1
	I think for this first sentence [highlights first sentence] [reads text] “Students in [my] Ithaca College academic writing course” You’re in the class too so the reader knows you’re talking that you’re a part of that class.	Lower Order Specific Modeling
0:22	This is good [highlights sentence] because you said what your thesis statement was and what you want to argue.	Praise
0:31	Your summary of Sanders article was really good. But I think you should add in your opinion about how it ties into your statement. Sorry, I have notes. I’m trying to keep it going.	Higher-Order Specific without Rationale
1:01	Here [she highlight the first sentence of a paragraph] when you start “From an academic writing class” [reads from text] you already said students in an academic writing class so you already introduced them in the beginning. You shouldn’t have to say it again. You just have to re-word how you say it because A) you’re in the class and B) you already said it above. So, “The students’ perspectives” or something along those lines. [Here, she recommends a modified version of the original.] It’s really good that you tied them all together. You kept it flowing. It wasn’t like “so and so said this and so and so said that.” And you really tied it in.	Lower Order Specific Modeling Higher Order Specific Praise
1:50	My opinion here [Highlights a sentence in the middle of the paragraph.] this should be starting a whole new paragraph and at the end of this [highlights text] at the end of the Google posts comments, you should include your opinion here to sum up what you said and it starts up a whole new paragraph of what Paula England said. [the source that he references]. This is okay [highlights text with cursor] because it’s continuing what you’re talking about but it’s on the contrary so you’re okay. It’s just a lot to have basically a page [she moves the cursor to the top of the paragraph which is about a page long] for one whole paragraph and it’s a lot of information. There were times I had to go back and remember what you were talking about, whereas if you had a linking sentences so it wouldn’t be as bad.	Higher Order Specific with rationale

2:56	I would say for this [highlights and zooms into the paragraph.] I think that like you should, you never said what were the popular gender roles. What do you mean? Is it the male going to work? Is the female supposed to stay home and take care of the kids. This sentence is just a little confusing. I don't know why. I can't comprehend it.	Higher Order Specific with rationale
3:33	I think you could also, you have a lot of information, here [places cursor in paper] you could definitely tie it in more to your statement.	Higher Order generic
3:46	I also think from here, it's a good conclusion. What else did I have? Tie in here [zooms into the final words of the last paragraph.] So gender roles aren't changing so I feel that you were saying that women are becoming like what men used to be, yet you say that gender roles aren't changing. I don't know. I kind of got confused. I don't know. I could have totally misread it.	Higher Order Specific Summarizing
4:31	As far as your paper goes, you have a lot of information. It's good information and you tie it all together pretty well. But I think you could just fix this paragraph [highlights the long paragraph mentioned earlier.] and make it into two. Other than that, your paper was good. Good job.	Praise Higher Order generic without rationale Higher Order specific without rationale

19 Writing in Discussion Forums: Between Primary Genre and Secondary Genre

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Teaching methods supported by technologies help to spread new types of verbal written productions. It is the case for forums, where students are required to interact in order to resolve problems and issues raised by teachers. Forum is the chosen media because of the following characteristics. As it is asynchronous, it slows down time and helps to distance (Bruillard 2010). Furthermore, as exchanges are public and interactive, it promotes explanation and structuration of point of views (Mangenot, 2002). Forum has a function of “mobilization of ideas,” it allows a progressive sort through ideas, it facilitates decentralization and enables gradual adoption. Furthermore, it helps to raise group identity by creating a sort of “groupal skin” (Rinaudo, 2010). As part of a Master of Education and teacher training program, students support for their research papers is provided by discussion forums. We assume that in certain conditions, writing in forums supports the construction of a “discursive community,” which likely promotes reconfiguration and “secondarization” effects on student writing. Bakhtin (1984) distinguishes between the first “gender” (spontaneous production of statements related to the context) and second kinds (production developed statements). From this, Bautier (2005) develops the concept of “secondarization” (Bautier 2005), processes by which the student considers school activities as objects to query, which implies a shift from performance to procedure, and the adoption of a new purpose: to understand the proceedings (Bautier & Goigoux, 2004).

To understand if forums promote this “secondarization process,” we studied twenty student forums (both posts and intermediate writings). The study shows two types of student productions: one whose messages belong to a speech or a first position (Profile 1); and one whose messages show a form of

secondarization more or less accomplished (Profile 2).

This analysis shows that forums enable progress to those who are already in the process of secondarization (Profile 2): if the qualifications specified in writing by the research are already well developed, forums only reflect it; if they are being built, forums, in this case, seem to contribute to their acquisition. However, for students who have not engaged this process (Profile 1), the forum reflects the inability to secondarize. In fact, the forum seems to be mainly useful for intermediate students, allowing them to practice rigorous thinking, testing their analyses and nourishing their reflections with the views of others. It seems forums strongly enhance implicit meanings in communication but promote academic inequalities that correspond most closely to the kind of students in profile 1 who need to be guided more explicitly.

Les nouvelles modalités d'enseignement s'appuyant sur les technologies contribuent à diffuser de nouveaux types de production verbale écrite. C'est le cas des forums, où les étudiants doivent interagir aux problèmes et questions posés par les enseignants. Dans le cadre d'un Master Métiers de l'Enseignement, l'accompagnement à la recherche des étudiants s'effectue via des forums de discussion. Nous présumons qu'à certaines conditions, l'écriture sur les forums favorise la construction d'une « communauté discursive » ayant des effets de reconfiguration sur les écrits de recherche, le forum participant alors du processus de « secondarisation » (par lequel les objets étudiés se constituent comme objets de savoir). L'étude des messages d'étudiants et de leurs écrits de recherche permet d'observer deux profils d'écriture différents, en termes de secondarisation :

- celui dont les messages relèvent d'un discours ou d'un positionnement « premier » (Profil 1),
- celui dont les messages attestent d'une forme de secondarisation, plus ou moins aboutie (Profil 2).

L'analyse montre que le forum permet de faire progresser ceux qui sont déjà dans le processus de secondarisation (profil 2). Pour les étudiants qui n'ont pas enclenché ce processus (profil 1), le forum ne fait que refléter l'incapacité à secondariser, manifeste dans l'écrit de recherche. Il semble que les implicites liés à l'usage du forum jouent un rôle important et relèvent pour certains de la « coconstruction des inégalités » universitaires.

New teaching methods supported by new technologies help to spread and legitimize new types of verbal written production, while making them more sustainable. These new production types are part synchronous part asynchronous, part verbal part written, part individual part collective. This is particularly the case for forums, where students are required to interact in order to address problems and issues raised by teachers for the purposes of learning and/or training.

Specifically, as part of a Master of Education degree preparing students for the teaching, education and training professions, the scaffolding of research writing skills for students who are studying using the Distance Learning method only (henceforth DL) or a “hybrid” method (part DL, part face-to-face) is provided by discussion forums where groups of students interact, knowing that over the two year course they must write a research paper taking the form of a research note at the end of master’s year 1 (30,000 words) and a research thesis at the end of master’s year 2 (50,000 words).

We assume that in certain conditions, the new ways of using writing arising from the use of forums foster the construction of a “discourse community” (Bernié, 2002) promoting the reconfiguration of research writing, with the forum becoming part of the process of “secondarization” (Bautier, 2005).

1. Theoretical Framework

1.1 Remote Interaction in Discussion Forums for Learning

The numerous studies on computer-mediated communication (CMC) and computer-assisted collaborative learning (CACL) describe the advantages for teachers’ professional development (Bruillard, 2010; Daele and Charlier, 2002; Ferone, 2011). While there is no consensus on the analysis methods used, researchers in this field mainly refer to the theories of Wenger (1998) who underlines the social dimension of learning and the importance of participating in “communities of practice.” It is true that it is thanks to interactions in a community of practice that the learner can develop a pertinent representation of the profession, internalize the content and didactics and accept the personal transformations initiated by the learning process (Fabre, 1994). Bernié (2002) also underlines the need to build socio-discursive spaces for the sharing of meanings in “discourse communities,” as training depends above all on affiliation processes (Coulon, 1997) and identity construction (Dubar, 1991).

A discussion forum proves useful for encouraging interactions in learning due to its characteristics. Being asynchronous, it slows down time and fosters detachment (Bruillard, 2010). Furthermore, as it is public and interactive, it

promotes the structuration of exchanges and the presentation of points of view (Mangenot, 2002). A forum thus serves a purpose of “mobilizing ideas,” enabling the construction of a list of possibilities and allowing the creation of a kind of “group skin” (Rinaudo, 2010). Kuster and Lameul (2010) also advocate the use of debate forums for teacher training:

Debate forums could be of key use in training, by designing them in a way that shifts the sharing of training responsibilities to the student teachers: the student teachers would produce the main substance of the training thanks to the interlacing of the descriptions of their actual practices and the arguments for the rationale behind them; the teacher trainers would have a special vantage point from which to take part in the conceptual clarification of the themes addresses, and in the critical analysis of the practices described.

Within this technical pedagogical approach, the role of writing is crucial.

1.2 The Discourse Community and Role of Writing for Learning During Training and for Building a Research Perspective

Writing makes it possible to step back and think and fosters the construction of a writing subject identity (Bautier & Rochex, 1998). Crinon and Guigue (2006) also underline the importance of writing in the professionalization of teachers, to structure and give meaning to their experience:

Writing [indeed] leads the students, not only to state their experience (its unseen opacity), but to give meaning to it (by putting it into writing and by the choice of words) and to progress by developing the same perspective as that of the professional field in which their words will be heard.

Writing in this context also makes it possible to become part of a discourse community, that of education sciences research students who are observing/querying/interpreting phenomena related to teaching/learning, the subject of the research paper required. The dialogical component, asynchronous though it may be, would contribute through the confrontation of points of view. The role of language thus seems to be decisive in the process for training research students and on account of the characteristics of forums, writing in forums is conducive to facilitating learning and setting in motion the “secondarization” process.

1.3 Secondarization

The distinction made by Bakhtin (1984) between primary genres (spontaneous production of context-related statements) and secondary genres (elaborate production of unanchored statements like literary text) results in the concept of “secondarization” (Bautier, 2005), the process by which the pupil considers “school activities as a world of objects to query upon which they may (and must) exercise thought activities and a specific task” and implying “on the one hand, the removal of the pupils’ attention from performance to procedure, and on the other, the adoption of a new purpose: to understand the procedure” (Bautier & Goigoux, 2004).

This process is a source of differentiation between pupils as it makes it possible to distinguish those who can construct the world’s objects as knowledge objects from those who cannot, who are simply accomplishing tasks for example or remain at the I-here-now specific to primary genres.

If this concept was devised in the context of teaching pupils/pupil learning, we contend that it can be transferred to situations of teaching students/student learning, providing curriculum continuity, and that writing in forums is conducive to exploring the conditions for this transfer, if we consider research writing to be the final outcome of the process and the forum to be a means to that end.

2. Data

The data was collected in the framework of the “research” teaching units of this M.Ed. degree, the purpose of which is to initiate students to research in the field of education sciences by integrating their work into an ongoing research project of the laboratory in question. The aim is to encourage the analysis of professional objects from the perspective of knowledge production (observe/query/interpret) along three lines: the learning content and materials; the learning outcomes; and the teaching practices.

The lessons, combined with forums, provide scientific content including both theoretical and methodological content, with discussion and regulation seminars taking the form of webinars (for the DL model) and on-campus sessions (for the hybrid model).

2.1 Forums

We observed the forums combined with the lessons of the research option for two groups ($M_1 - M_2$) using distance learning (DL) only and two “hybrid”

groups ($M_1 - M_2$) (part distance learning, part face-to-face learning), that is to say four groups of students over two years. The audience for these two types of learning models is different because for the first, recruitment is selective, and directed to students who for the most part have highly-developed socio-linguistic and socio-cognitive skills, while for the second recruitment is open, notably attracting weaker students.

The forums are designed to be the continuation of the remote sessions: an online lesson (theoretical or methodological content) is systematically attached to a forum, where elements found in the corresponding lesson must be commented upon, discussed, or illustrated. Part of the lesson content is identical in both models of the option (DL and hybrid), as the aim is to build a shared culture, even if this shared culture is slightly colored by the research profiles specific to the lecturers-researchers responsible for the Teaching Units.

The written material that is the subject of the present analysis, and that forms the data thereof, is the body of messages from the discussion forums provided for the students of both models, on the same course questions. Regulation forums or forums less likely to trigger interactions were not included in the corpus.

By way of an example, here are three of the questions posed:

1. The book “*Le bonnet rouge*” (*The red bonnet*): expansive or restrained? (Lesson on comprehension and interpretation of texts from children’s literature)
2. According to Jacques Crinon (2000, p.10), the main obstacle to the production of intermediate writings in the classroom lies “in the persistent idea that the mastery of written language is a precondition to its utilization.” What do you think? (Lesson on written production)
1. What do you think of the way in which the three dyads work together? Are there any differences in the way in which they collaborate? Do they have any impact on learning? (Lesson on collaborative learning, corpus analysis)

The analysis covered 271 student messages, distributed over 18 forums, posted by around twenty students in four groups. The discussions are long and structured, with an average message length of about 200 words (see Appendices 1 and 2), showing that the production is more closely related to structured writing than to the spoken word. By way of a comparison, in Piolat (2006), 13 forums are studied, and the number of words per message varies between 48 and 97 words depending on the forums.

Table 19.1. Number of messages analyzed by group

Group	M1 Distance course	M1 Hybrid course	M2 Distance course	M2 Hybrid course
Number of forums	7	5	2	4
Number of messages	140	50	39	42
Total forums	18			
Total messages	271			

The research papers are divided between research notes (end of master's year 1) and research theses (end of master's year 2). The messages observed were those of students posting regularly on the chosen forums, that is around twenty messages (thirteen research notes and seven theses).

3. Analysis

This type of forum, identified as being set in an institutional context, engages the students in a specific way of using writing most unlike the one they would use in a totally different context: if all written production is the "management of constraints" (Plane, 2006), writing on an institutional forum strongly highlights, in our view, the "constraints resulting from prescriptions imposed by the assignment or that the writer imposes on himself." In this case, these constraints notably include the supposed linguistic requirements, as well as the constraints "imposed by the production medium"—in other words, the influence of the specific space of the forum and its dialogical configuration.

It may thus be noted that whatever the level of difficulty for the students, the enunciative choices made by the students in their messages belong to an academic style of writing, even if it is to a more or less elaborate degree, in a written language that is characterized as follows:

- Consideration of the communication context,
- Textual cohesion and consistency, with in particular an argumentative focus translating into linguistic markers,
- Appropriate syntax and spelling.

The example of Amandine, DL M1, on intermediate writings illustrates this:

The idea that written language must be mastered in order to use it seems self-evident. For indeed at first sight, how is it possible to write without mastering the codes of writing. Today, however, the conception of writing has broadened. It no

longer only takes into account the mastery of written codes.

However, we observe two different writing profiles with regard to secondarization:

- One where the messages pertain to speech or a primary position (profile 1), marked in particular by an immediate consideration of other people's point of view, often not reformulated, the repetition of previous remarks with no recontextualization, general statements, etc.
- One where the messages show some form of secondarization, more or less accomplished (profile 2), marked in particular by the recontextualization of remarks in relation to previous ones, the reformulation of previous statements, with concessive modalities, tautly strung, in some cases a summary of previous remarks, etc.

3.1 Profile 1: The Writing on the Forums

Profile 1-1: Impermeability to Knowledge Brought by the Lesson and by the Interventions of Others

The example of Anaïs, hybrid M₂, on children's literature:

I will try not to repeat what has already been said. I think that children's literature gives pupils the desire to read, I find that the different books read in school contribute to the interpretation of the real world. They also help pupils with written production thanks to the analyses done in the classroom. The pupils develop their imagination.

We see here a very weak recognition of the contributions of the lesson and of the remarks of others (brushed off by a rhetorical diversion, "*I will try not to repeat what has already been said*"), an immediate personal position (I-here-now: "*I think*," "*I find*"), the reiteration of doxic and naive perceptions (exposure to books being enough to give the desire to read, reading serving to improve writing, etc.).

Profile 1-2: "Primarization" of Secondary Discourse and Prescription

The example of Claire, hybrid M₂, on children's literature:

This lesson was very interesting and taught me that children's literature **is not stereotyped by an appropriate vocabulary**, with Jean Giono's example "The man who planted the trees" we see that only the cover illustration "**sets the tone**" but the text remains the same for adult and child readers. **It is**

blatant to see how a book may be read on two levels. With regard more particularly to comprehension, **the focus of my research**, this difficulty represents a dilemma for the teacher who wants to draw the pupils' comprehension to the surface **by making them search for possible interpretations of inferences. It seems clear that** this type of work must be adapted to children not only with regard to their reading skills, as one might think, but just as much with regard to their experience and literary culture.

This example shows an attempt to take into consideration knowledge brought by the lesson (inappropriate vocabulary, improper reuse of notions, misapplication of concepts, for example those of “*stereotype*,” of “*interpretation*” or of “*inference*”). In parallel, the student introduces the prescription as being self-evident.

This student takes time to reply and to try to report what she thinks she has understood, with application and implication. However, she is ceaselessly exporting elements from the scientific domain to the everyday, by the use of a “primary” vocabulary, reformulating in a kind of incomprehensible jargon, where it is difficult to know whether it corresponds to the perception that she has of scientific language or it demonstrates an incapacity of expression.

Profile 1-3: Plagiarism (Extreme Case)

The example of Marie, hybrid M₁, on adult dictation; two cases of plagiarism, of which an example is presented below (the points in common between the two messages are in bold):

Published 4th March (Thomas): This adult dictation given to a nursery school class 2 shows diversified knowledge of a literary kind. The choice of title “Goldilocks and the Wolf” plunges us directly into literary memories intertwining the tale of “Goldilocks and the Three Bears” with that of “Little Red Riding Hood and the Wolf,” fairy tales with which nursery school pupils are often familiar. This first indication informs us that this adult dictation is part of a specific literary genre, that of the fairy tale. The incipit “Once upon a time” used at the very beginning of this text confirms that we are indeed in a fairy tale. . . .

Published 7th March (Marie); (there are several entries between the two messages) Hello Mrs. (teacher's surname),

This adult dictation was given to a nursery school class 2, and brings together diversified knowledge of a literary kind. The title of the story “Goldilocks and the Wolf” takes us into literary memories mixing the tale of “Goldilocks and the Three Bears” with that of “Little Red Riding Hood and the Wolf,” these fairy tales are often familiar to young pupils. This adult dictation is part of a specific literary genre, that of the fairy tale. . . .

The failure to understand the challenges of the requested task results in the student not using the lessons provided and plagiarizing what other students write (reformulating certain turns of phrase so that they are no longer strictly identical), while addressing the teacher. The *Hello Mrs. (teacher's surname)* is indeed proof that the author of the message is addressing the prescriptive teacher of the forum and not the other students, as the forum is not seen to be a dynamic, collective space conducive to reflection by the confrontation with and discussion of the ideas of others.

3.2 Profile 1: Research Writing: “Primary” Position/Discourse

The discourse characteristics observed in the research writings of students of profile 1 are comparable to those in the forums.

To take the example of Marie, Theoretical framework for research note, hybrid M1:

Some children say that they don't like reading and it is true that the joy of reading is not for everyone. . . . Documentary reading demands less cognitive effort and secondarization is not always necessary. However, the author of a literary text does not say everything, does not explain everything!

Or the example of Claire, Theoretical framework for research thesis, hybrid M2:

The teacher or another adult will have to motivate pupils of this age and support them in this discovery, which will start with observation and may lead to detailed literary analysis: such as finding the type or genre of a text.

These two examples are characterized by naive representations of what is involved in work on literary texts, erroneous conceptions, for example on the joy of reading or the inherent difficulty of certain types of text, the failure to take into account available knowledge, with no indication of reference au-

thors, and the misuse of concepts, such as secondarization, undefined. This is almost always accompanied by the use of prescriptions, with references to universal solutions that are never queried.

The “primary” position or discourse of this writing profile is reflected in the following way in research writing, despite what was sometimes strong scaffolding by the mentor:

- The failure to take into account the works of others, indicated by the absence of references, or by references that are purely formal,
- The presence of generalities or clichés,
- Numerous prescriptions (schools must, the teacher will have to . . .),
- The juxtaposition of enunciations,
- An unstructured, summative strategy (the aim being to reach the length required),
- A strict obedience to the announced rules (the approach to and stages of the research paper being purely mechanistic).

The failure to understand the quintessence of research work is for these students partly based on an illusion, which is tantamount to a misunderstanding: mistaking self-sufficiency for autonomy, resulting in the exclusion of the work, the ideas and even the existence of others, who are only recognized in the form of collective and prescriptive shared spaces, considered to be private.

For profile 1, writing on the forum would appear to be of no benefit. In these cases, it is less a question of effects than of identical strategies, reproduced in parallel with no cohesion or correlation.

3.3 Profile 2: From Forum to Research Paper, Secondarization Undertaken in Continuity

To take the example of Maëlys, DL M2:

Excerpt from the forum: . . . As C. Tauveron underlined
in her article on . . . Illustration, in my view, enables . . . As
C. Tauveron says (2002) . . . Nonetheless . . . At this stage of
the narrative, **it is still reasonable to wonder . . .** The “why”
of the denouement forms the equivocal area of the work. It
may, in a teaching-learning situation, be the subject of an
interpretive debate as it lends itself to **a different appraisal**
depending on the individual and his own life story, experi-
ence and knowledge.

Excerpt from the thesis:

The necessity of deliberative debate: clarifying the grey areas of the narrative

Comprehension thus covers a univocal, undisputable area that must be shared by all the readers. **As C. Tauveron says (2002) ...**

At this stage of the narrative, **it is still reasonable to wonder** Thus, as defined by C. Tauveron (2002)

The polysemy of the story

... The “why” of the denouement forms the equivocal area of the work. It may, in a teaching-learning situation, be the subject of an interpretive debate as it lends itself to **a different appraisal depending on the individual and his own life story, experience and knowledge.**

The bold characters indicate common elements between the reply on the forum and its reuse in the thesis, where the initially ad hoc response to a request for analysis nourishes the dynamics of the analysis in the thesis.

In the case in point, what is written on the forum is an argumentation that is often quite long, suggesting a reply to the question asked, nourished both by theoretical contributions (in this case the lessons) and the contributions of previous posts that are truly taken into consideration, whether they are validated or contested, and illustrated by examples taken from the corpus to be examined (book or teaching sequence) or from personal experience.

In the same way, we observe in research writing where the writing pertains to profile 2:

- An argumentative organization appertaining to “dispositio,”
- A consideration of the otherness of the discourses (other contributors, theoretical knowledge) leading to a personal and pertinent reflection,
- A reinvestment of forum contributions that reinforce a scientific approach.

For these students, the writing on the forum demonstrates the development process of a reflection that is both collective and personal, the very kind that is sought after in the writing of a master’s thesis.

4. Discussion: Ways of Using Forums and Reinforcement of Inequalities

The forum is used here with minimum scaffolding from teachers and a de-

liberate absence of institutionalization. These choices are founded upon the conception of a discursive approach where the students, assumed to be autonomous, are capable on their own of benefiting from interactions with their peers and reaping the rewards.

However, the notion of the co-construction of educational inequalities demonstrates that:

- There is a correlation between “students’ socio-discursive and socio-cognitive aptitude and, on the other hand, the opacity and implicit nature of school requirements” (Bautier & Goigoux, 2004).
- An “aptitude for study” is peculiar to “those who are already most familiar with the school environment and its requirements,” while teachers assume that this familiarity has already been fully acquired by all (Rochex & Crinon, 2011).
- Recurrent “misunderstandings” prevail in school activities: task performing *vs.* perception of the challenges of cognitive development (Bautier & Rayou, 2009).

Our observation of research forums for students in master’s years 1 and 2 leads us to think that the concept of the co-construction of inequalities can be transferred from the context of school to the context of university.

We notice that there is a correlation between the aptitudes of weaker students and the implicit nature of the forum requirements, which teachers assume to be self-evident. If the aim of these forums is to put students into an inquiring position in their own research work, that does not mean that this aim is made explicit, as it is assumed that the change of position has already been understood. In fact, while certain students grasp the cognitive challenges of the activity, others are simply accomplishing tasks: the cognitive misunderstanding is indeed under way.

5. Conclusion

Forums enable those who are already in the process of secondarization (profile 2) to progress: either the research writing skills sought are already well developed, in which case the forum simply reflects them; or they are in the process of being built, in which case the forum seems to contribute to their acquisition.

However, for students who have not yet engaged this process (profile 1) the forum simply reflects the inability to secondarize, evident in their research writing.

Forums would thus appear to be useful for intermediate students, allowing them to engage in rigorous reflection, as well as for stronger students, as

they test their analyses and nourish their reflection with the views of others.

Forums would appear to overly rely upon implicit communication and contribute to the co-construction of academic inequalities that probably correspond to students with profile 1. This kind of student would need to be guided more explicitly.

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Appendices

Appendix 1. Forum on Adult Dictation

Instructions:

“Here is a text used for an adult dictation in nursery school class 2, in May. Identify the literary knowledge that the text demonstrates.”

Participants and number of words per message:

DL M1		Hybrid M1	
Anne	255	Alice	298
Lucie	246	Thomas	345
Christine	170	Manuelle	355
Chaima	144	Jeanne	263
Birgit	124	Mélissa	527
Manuela	251	Chloé	227
Romane	171	Marie	322
Clara	148	Julia	229
		Fatima	195
		Joy	484
Total	1509		3245
Average words / M	189		324

Appendix 2. Forum on intermediate writings

Instructions:

“According to Jacques Crinon (“Écrire pour apprendre” [Writing to learn], *Cahiers pédagogiques*, 388-389, 2000, p.10), the main obstacle to the production of intermediate writings in the classroom lies “in the persistent idea that the mastery of written language is a precondition to its utilization.” What do you think?”

Participants and number of words per message:

DL M1		Hybrid M1	
Lucie	220	Joy	1060
Romane	181	Mélissa	341
Chaima	169	Manuelle	588
Julie	315	Thomas	362
Birgit	165	Jasmine	208
Anne	214	Julia	305
		Chloé	205
		Alice	361
		Jeanne	164
Total	1264		3594
Average words / M	211		399

20 Contributions of Online Tutoring for Written Production in a Télécollaborative System

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As they have brought about a transformation in the relationship to the written word, digital tools cannot be ignored in the teaching of written work. Information and communication technologies (ICT) promote an authenticity of communicative practices. Written production tasks based on digital tools lead the learners to write for addressees other than the teacher. What can the role of the teacher or tutor be when the written productions are based on digital tools? Various studies show that scaffolding plays a fundamental role.

This chapter deals with the role of the tutor in a written production task based on digital tools. We propose to study a telecollaborative project between 25 tutors enrolled in a Master's degree in Paris to become French language teachers and 13 undergraduate students learning French in Hong Kong. Each group includes two tutors for one learner. The exchanges are built around a writing project using new technologies, a blog dedicated to student life in Paris and in Hong Kong. The learners first read an account written by one of their tutors on a theme about student life in France; then they write an account on the same theme about student life in Hong Kong. The texts, in which the participants talk about their experiences, are published on the blog, thus highlighting the social dimension of the project. They are also aimed at serving as models for the learners' productions.

Our research question deals with the tutors' scaffolding. To what extent does the tutoring help in the learners' written production? To answer this question, we study the accounts written by the learners and tutors, the instructions given by the tutors, as well as the questionnaires filled in by the learners and the reflective assessments written by the tutors at the end of

the project. The analysis of the corpus shows that the learners' reading of accounts written by the tutors provides support for the production of their own accounts. By writing articles and revealing things about themselves, the tutors encourage the learners to produce autobiographical texts. The tutors personalize the tasks, guide the learners' written production, adapt to fit their interest, and introduce a suitable progression. The learners use in their productions ideas, themes, and expressions similar to those that appear in the tutors' accounts. Thus, the study highlights how the tutors' commitment to their productions can encourage the learners' involvement in their own productions.

Parce qu'elles ont provoqué une transformation de notre approche de l'écriture, les technologies multimédia ne peuvent être ignorées quant il s'agit de l'enseignement de la production d'écrit. En effet, les technologies de l'information et de la production peuvent encourager des pratiques authentiques de communication. Grâce au recours à des outils numériques, les apprenants peuvent être incités à écrire pour un autre lecteur que leur enseignant. Quel est alors le rôle du formateur ou du tuteur lorsque la production écrite se fonde sur la technologie numérique ? Diverses études montrent que dans ce cas, le rôle de l'étayage est capital.

Dans cette contribution, nous nous intéressons à l'étayage des tuteurs dans un projet de télécollaboration entre 25 tuteurs inscrits en Master de didactique du français langue étrangère à Paris et 13 apprenants de français inscrits en Licence à Hong Kong. Les échanges s'articulent autour d'un projet d'écriture mobilisant les nouvelles technologies : un blog consacré à la vie étudiante à Paris et à Hong Kong. Les tâches sont personnalisées par les tuteurs qui guident la production des apprenants, s'adaptent à leur intérêt et élaborent une progression adaptée. En rédigeant eux-mêmes des témoignages et en acceptant de se dévoiler, les tuteurs encouragent les apprenants au récit autobiographique. On peut ainsi observer dans les productions des apprenants les effets du tutorat à travers la reprise de thématiques et d'expressions.

As they have brought about a transformation in the relationship to the written word, digital tools cannot be ignored in the teaching of written work. While at first, it was the interactions between people and machines that aroused en-

thusiasm for activating written production (Desmet & Rivens, 2010, p. 5), exchanges between writers and readers are now the subject of increasing interest. Within this context, a tutor, writer or reader, but always a learning guide, can play the role of mediator between the learner and the technologies and provide scaffolding. This chapter focuses on the contributions of online tutoring to written production in teaching French as a foreign language (FFL). In the telecollaborative project we will study, the tutors produced first-hand accounts about student life in Paris before asking their learner to write some texts about student life in Hong Kong. This written work was then published on a blog. Here, we will look at the role of the tutor and the contribution of their scaffolding on the learners' written work. After expanding on the use of digital tools for written production, we will set out the chosen methodological approach. Three aspects in particular will be highlighted: the thoughts of the tutors and learners on the role of reading for writing, the personalization of the tasks by the tutors, and the effects of tutoring on the learners' written production.

1. Use of Digital Tools for Written Production

1.1 Digital Tools and Written Communication

When we look at the teaching of written work, we must not forget that reading and writing are above all social practices (Gerbault, 2012, p. 112; Crinon & Marin, 2010, p. 86). In this sense, information and communication technologies (ICT) promote an authenticity of communicative practices (Penloup, 2012, p. 135). Digital communication is characterized by interactivity (Penloup, 2012, p. 131). Written production tasks based on digital tools lead the learners to write for addressees other than the teacher (Ollivier, 2010, p. 124) and a new type of dialogue between learner and teacher can be established. (Of course, such practices already existed before the emergence of ICTs.) The Social Web in particular provides new possibilities for writing tasks (Mangenot & Souibrié, 2014).

Digital technology has brought about a diversification of practices and, at the same time, has helped make the world of writing more accessible (Gerbault, 2012). Various discursive genres have appeared: blog, forum, wiki and instant messaging. They are now part of ordinary writing (Chiss, 2012, pp. 200-201). These media are often characterized by a multimodality, which requires specific skills (Penloup, 2012, p. 131). ICTs also prove to be useful for “observing the variety of uses of French and their role in context” (Penloup, 2012, p. 133).

1.2 The Blog, a Tool for Written Production

A blog provides an interactive space that enables visitors to read individual contributions and provides a medium for the writing of new blog posts. While the blog is mistakenly equated with a diary—which would not involve readers –, it ought to be recognized that it is particularly appropriate for the “narration of oneself and one’s experience” (Dompmartin-Normand, 2008, p. 169). However, the individual autobiographical dimension is tempered by the social dimension that is fundamentally present in blogs (Springer & Koenig-Wisniewska, 2007, p. 25).

The interactivity encourages communication between peers and makes this tool particularly pertinent for exchanges between learners, between learners and tutors, or between learners and internet users, whether or not these be native speakers of the target language. The blog thus enables learners to write for a readership other than the teacher, which is likely to motivate them. For Soubrié, this digital space encourages “the setting up of a new method for teaching writing” (2006, p. 11). Indeed, it has “the advantage of “socializing” the textual production” (Mangenot & Louveau, 2006, p. 35) and making accessible the written productions in the public domain (Dompmartin-Normand, 2008, p. 171).

1.3 What About the Teacher’s Role?

What roles can the teacher or tutor play when the written productions are based on digital tools? Tutors can be advisers who guide learners’ work (Decamps, Depover, & De Lievre, 2001, p. 123), assessing, leading, and informing students, while providing feedback and retrospective commentary (Desment & Rivens, 2010, p. 6). These activities constitute forms of scaffolding (Bruner, 1983), which refer to the assistance provided by an expert to a novice. Foucher et al. (2010, p. 156) argue that providing scaffolding and support are fundamental to the tutor’s work, while Rodrigues (2012) analyzes the scaffolding tutors provide learners in different stages of written production, specifically during planning, textual layout, and editing.

2. Context and Methodological Approach

2.1 Presentation of the Telecollaborative Instructional Method

Here we propose to study a telecollaborative instructional method which was carried out in a university context in 2010. The project of remote exchanges brought together 25 tutors enrolled in a Professional Master’s Degree “Didac-

tique du FLE et interculturalité” (“Teaching French as a Foreign Language and Interculturality”) at the Paris Descartes University and 13 learners enrolled on a Bachelor’s Degree 2 in European Studies at Hong Kong Baptist University. (The method was linked up to the class “TICE et FLE” [“ICTs in Education and French as a foreign language”] we provided at Paris Descartes University.) At level B1, the students in Hong Kong take intensive French lessons with a view to preparing them for their third year of study which they will spend in France. This electronic tutoring is along the same lines as the “Le français en (première) ligne” (“French on the (front) line”) project (Develotte, Mangenot, Zourou, 2005), which involves putting French learners and students of teaching French as a foreign language into contact with each other.

The system is based on project-based teaching through the creation of a blog dedicated to student life in France and Hong Kong, with contributions added by the learners and the tutors on the social network of Paris Descartes University, *Les Carnets 2 Paris Descartes* (Muller, 2013). Twelve tutoring groups that included two tutors for each learner were created. A task-based approach was introduced: after carrying out a written or oral comprehension activity using an online resource on a theme specific to student life in France, the learners read a first-hand account written by one of their two tutors. Afterwards, they in turn had to produce a first-hand account on this same theme, with the focus this time on Hong Kong. Learners as well as tutors published their accounts on the blog. During the eight weeks that the telecollaboration ran, six themes were developed by the groups of three, from choices including housing, transport, travelling, going out, leisure activities, sport, work, studies, food, and family.

The telecollaborative method implemented is thus at the crossroads of two intentionalities from the point of view of communication: speaking about oneself, as well as giving the other person a textual and phrasal “example/model.” Indeed, reading the tutor’s accounts helps the learners in the production of their own accounts, by providing input, that is to say linguistic data. Here we are in a model-based production system where linguistic exposition provides “examples of the aimed-for productions” (Beacco, 2007, p. 147). The written comprehension phase plays a fundamental role for the written production stage. It is a matter of connecting the written reception to the written production: “reading in order to write” (Moirand, 1982, p. 158).

2.2 Methodological Approach

In the system put in place, the learners’ reading of accounts written by the tutors aims to provide support for the production of their own accounts. Our research questions focus on the mediatory role of the online tutoring. How

does the tutors' scaffolding manifest itself in the system? To what extent does the tutoring help in the learners' written production?

To answer these questions we first did a content analysis of the questionnaires completed by the learners as well as the log books and reflective assessments completed at the end of the project by the tutors. We paid particular attention to the analysis of the feedback between the learners and tutors during written production. Secondly, we studied the instructions given by the tutors and the personalization of the tasks. We also compared the learners' productions with those of the tutors. We then carried out a linguistic examination to study repetitions and reformulations, i.e., when the learners took inspiration for their own accounts from the structures and phrases that appeared in the texts written by the tutors.

3. The Participants' Reflections on the Role of Reading for Writing

Before studying the manifestations of the tutors' scaffolding, we feel it is important to analyze the different ways in which the tutors and learners consider model-based written production.

3.1 Contribution of Input and Highlighting a Symmetry

The tutors express in different terms their desire to encourage model-based written production among their learners. (The tutors' and learners' first names have been changed, while the text has been kept in its original version without introducing corrections. Bold characters have been added to highlight the phenomena under study.)

Bilan Olga: En ce qui concerne la structure des échanges proposée (compréhension, témoignage, production), **je l'ai trouvée efficace**: on peut dire que le document authentique servait pour la sensibilisation au sujet traité et **nos témoignages donnaient des pistes à nos apprenants pour leur production écrite**.

Questionnaire Elena: **Cela était une bonne idée de servir d'exemple** pour nos apprenants

According to Olga, for the tutors it was about "giving some ideas." For Elena, the tutors' accounts can "serve as example[s]." The women tutors are in favor of this way of working: "I found it to be effective" (Olga), "It was a

good idea” (Elena).

Maxime sees it as a requirement to produce an account that is likely to serve as a model for his learner’s written production:

Bilan Maxime: En ce qui concerne la forme du témoignage, deux éléments nous ont paru particulièrement importants. D’une part la composition générale du texte, qui devait être claire et immédiatement identifiable, de manière à ce que Li Mei puisse la reprendre sans difficulté dans son témoignage. D’autre part le style, que nous avons voulu simple (avec des phrases relativement courtes) et standard (ni trop familier, ni trop formel), à la portée d’une étudiante de niveau Br.

In this excerpt, the student develops on the care taken by himself and Léa when it came to the form of the account, and more particularly its composition. He uses a deontic modality to speak about what he perceived as obligations: “the text’s overall composition, which **had** to be clear and immediately identifiable.” He uses the expression of a goal: “**in such a way that** Li Mei can use it again without difficulty in her account.” In doing so, Maxime reformulates the notion of model-based production, which here consists of “reusing” the composition of the tutors’ account.

The same phrase appears at the end of each of the accounts written by Maxime and Léa:

Now, it’s your turn to write a text!

This general instruction highlights the reciprocity inherent in the task (“it’s your turn”). The temporal indication (“Now”) makes it possible to make a connection between what has been accomplished by the tutors in the past and what the learner must now achieve.

Marion explains in the following excerpt the instructions given to her learner:

Carnet Marion: Pour le témoignage, nous avons toutes les deux écrit un petit texte sur notre famille. Nous avons demandé à Naomi de **s’inspirer** de nos témoignages pour écrire sa production écrite. **Depuis le début de l’expérience**, nous essayons de lui proposer d’écrire sa production écrite **en se servant de nos témoignages comme d’un modèle**. **Il est ainsi plus facile pour elle de rédiger sa production écrite, son témoignage!**

The verb she uses is significant: Naomi must “take inspiration” from the

accounts written by the tutors in order to write her own. The notion of inspiration is relevant for describing the model-based written production: the tutors' accounts provide resources that can be partly re-used by the learner. This approach was put in place by Marion "from the start of the experiment." The tutor sees the accounts as "a model" for the learner, which is likely to facilitate her written production: "it is therefore easier for her to write her written production, her account!" The exclamation mark at the end of the utterance shows the tutor's enthusiasm for this approach to written production.

3.2 Tutors' Commitment

The approach asserted by Anaïs is slightly different. For her, it is not about either reusing the composition, or the lexicon, but about "opening up" so that her learner, in turn, opens up:

Carnet de bord Anaïs: Nous nous sommes, une seconde, demandé s'il était "gênant" de **raconter nos vies** lors des témoignages. Nous avons conclu que, compte tenu de nos personnalités respectives, cela ne nous dérangeait pas. De plus, **nous partions du principe que si nous nous livrions, par mimétisme, notre apprenante aurait envie de se livrer à son tour et cela serait le moteur de productions écrites spontanées et sincères.**

Nous avons aussitôt fait le choix de nous présenter chacune de manière informelle sur notre forum avec un ton détendu et amical pour **stimuler** les productions comme évoquée précédemment.

[. . .] Globalement, nos responsabilités pourraient se résumer à:

[. . .] **Témoigner soi-même.** Par **mimétisme**, les étudiants écrivent davantage si les enseignants écrivent à leur tour.

The notion of first-hand account refers to the perception of an event by an individual (Beacco, 2000, p. 152). In this context, the tutors may be led, as Anaïs points out, to "talk about [their] lives." Anaïs and her working partner are all the more enthusiastic about this idea as they suggest the existence of an "unconscious imitation" that is produced in their learner. According to Anaïs, a cause-and-effect link is likely to appear between the fact that the tutors reveal things about themselves and the fact that their learner opens up. The tutor hopes to trigger a desire in her learner: "would want to." She is aiming

for a certain type of production which she describes as “spontaneous and sincere.” The reading of the tutors’ accounts by the learners is seen as spurring them into action: “driving force,” “stimulate.” The unconscious imitation would work not only in terms of involvement in the discussion, but also in terms of the length of the productions: “Through unconscious imitation, the students write more if the teachers write in turn.”

3.3 The Learners’ Awareness of Using Input Provided by the Tutors

In the questionnaires, the learners express their desire to produce an account similar to that of their tutors. In response to the question “Did you try to imitate the tutors in the form of the accounts?,” five learners out of eight answered yes:

“Avez-vous cherché à imiter les tuteurs dans la forme des témoignages?”

Tracy: Oui, un peu.

Daisy: Oui, j’ai souvent cherché à les imiter dans la forme des témoignages parce que ils ont été bien écrites.

Naomi: Oui, toujours.

Li Mei: oui

Li Rong: Oui

While Li Mei and Li Rong do not provide any more information, Tracy, Daisy and Naomi use qualifiers in their answer. For Tracy, it was “a little bit” the case, for Daisy, “often” and for Naomi, “always.” Only Daisy justifies the effort she undertook: “because they were well written.” The tutors’ written accounts constitute for the learner a guarantee of quality and, in this respect, it makes sense to take inspiration from them for the written productions. Imitating the tutors thus seems to bring the learners a form of security.

As we see, the tutors and learners alike are aware of the reciprocity in the reading/writing system and show their enthusiasm for this approach. We should now turn our attention to the manifestations of this help through the instructions introduced by the tutors.

4. Personalization of the Tasks by the Tutors

This section will address the different ways in which the tutors adapt their instructions according to the productions of their learner.

4.1 Introduction of Complicity

Complicity is introduced by the tutors who adapt to fit the interests of their learner, as is the case with Léa:

Témoignage 3 Léa: Je t'ai raconté mes sorties parisiennes . . .
Et toi, que fais-tu quand tu as du temps libre? Et de manière plus générale, quels sont les endroits sympas quand on veut sortir à Hong Kong?

At first, the tutor reformulates the content of her account ("I told **you** about when I go out in Paris . . .") by talking to the learner before letting her speak: "And you." This indication is followed by a series of questions.

In the instruction for account no. 5, Léa emphasizes the things she and her learner have in common:

Témoignage 5 Léa: On a vu que tu allais rarement dans les magasins comme Burberry ou Armani Exchange, et que tu préférerais plutôt acheter des vêtements sympa et originaux dans des boutiques un peu plus spécialisées et bon marché.
Ça tombe bien, moi aussi!

The exclamatory utterance "That works out well, me too!" creates complicity between the tutor and the learner by revealing shared tastes. This introduction of symmetry can also encourage the writing of a similar account.

4.2 Introduction of Constraints by the Tutors

The tutors give out instructions with certain constraints with regard to the length or the lexical repetition. In his assessment, Maxime reveals the constraints that he and Léa gradually introduced:

Bilan Maxime: Au fil des séances, il nous a paru intéressant de corser un peu l'exercice, pour éviter qu'il ne prenne un tour trop routinier. Nous avons donc pris le parti d'introduire dans nos consignes des contraintes supplémentaires. Ainsi, dans la consigne qui accompagne le témoignage n°4 (sur les études), nous avons ajouté une contrainte d'ordre compositionnel (Li Mei devait reprendre le plan de texte utilisé par Éléonore—ma petite sœur—pour décrire Sciences Po Paris).

The aim of these "additional constraints" is to increase the difficulty of the task: "make the exercise a bit tougher." Maxime justifies the growing com-

plexity by a desire to vary the activity: “to avoid it becoming too routine.” The tutor first of all cites the example of account no. 4 where Li Mei is asked to follow the same outline as Éléonore’s text. This indication about the different points that the learner must tackle does indeed appear in the instruction for account no. 4:

Témoignage 4 Maxime: Tu pourrais, **comme** Éléonore, nous parler du site de l’Université, des cours, des profs, des étudiants, etc.

Maxime continues his assessment by mentioning account no. 6, in which the constraint no longer concerns the structure but the vocabulary used:

Bilan Maxime: De même, dans la consigne associée au témoignage n°6—“Gastronomie étudiante”—nous avons posé **une contrainte de nature lexicale**, en demandant à Li Mei de réutiliser dans sa production cinq des dix mots ou expressions figurant en gras dans mon propre texte.

In his instruction, Maxime urges Li Mei to pay careful attention:

Témoignage 6 Maxime: **Attention!** Cette semaine, il y a **une contrainte supplémentaire!** Dans ton témoignage, **tu devras utiliser** 5 des 10 mots ou expressions qui figurent en gras dans mon texte: *gastronomie, se régaler, plâtrée, équilibré, cuisiner, se débrouiller, budget nourriture, savoureux, diététique, en avoir marre*.

He uses exclamation marks to highlight that this is a new approach. The term “constraint,” which he uses in his assessment to describe his teaching experience, also appears in the instruction addressed to his learner. The tutor uses a deontic modality: “you must use.”

The insistence on the shared tastes of the learners and tutors, as well as the introduction of further progression through the use of constraints, aim to influence the learners’ accounts. It is now necessary to analyze the effects of these instructions on the productions.

5. Effects of Tutoring on the Learners’ Productions

Learners and tutors alike are aware of the forms of help in written production, which have just been the subject of our analysis. Here we will look at how the tutoring manifests itself in the learners’ written work.

5.1 The Learners' Repetition of the Themes Explored by the Tutors

In her account no. 4, Li Mei reuses the structure of Éléonore's account. Maxime's sister had divided it into different parts, marked by the titles: "The site," "The lessons," "The teachers," "The students," "The atmosphere," and "Other advice for Li Mei." Li Mei organizes her account in a similar way with the help of the following titles: "The University site," "The lessons," "The teachers," and "The students." This means that the same themes are explored by both.

Without being asked to do so by Maxime and Léa, Li Mei tends to explore themes similar to those that appear in her tutors' accounts:

Témoignage 5 Léa: **Mais moi, ce que je préfère**, c'est partir à la chasse aux bonnes affaires dans les friperies!

Témoignage 5 Li Mei: **Mais, pour moi**, je trouve que ça est trop cher et cliché. Donc **je préfère** à faire les courses dans les petites boutiques.

Témoignage 6 Maxime: **Mais tout ça, ça demande de l'organisation!** Entre **les cours, les devoirs, le ménage et la lessive**, ce n'est pas évident de trouver un moment pour cuisiner . . .

Témoignage 6 Li Mei: **Mais** je ne suis pas motivée de cuisiner. Parce que je dois se débrouiller **le cours, les devoirs, la lessive, etc.** Donc je trouve ça trop prenant.

In these excerpts, the similarity does not so much concern lexical repetition as the expression of similar ideas. Just as Léa reveals her preference for second-hand clothes shops, Li Mei emphasizes her preference for small shops: "Mais moi, ce que je préfère" [But personally, what I prefer], "Mais pour moi, [...] je préfère" [But as for me, ... I prefer].

In account no. 6, there are two things found to be in common between Maxime and Li Mei: the fact that they eat well at weekends at their parents' home and the fact that they are too busy with different tasks to find the time to cook. In principle, these two characteristics are indicative of a pace of life that is common among students. However, they also reveal Li Mei's desire to explore themes similar to those developed by her tutor.

5.2 The Learners' Repetition of the Tutors' Expressions

The input provided by the websites selected for the written or oral comprehension and by the tutors' accounts encourages noticing (Narcy-Combes, 2005, p. 44), as well as the use of lexicalized units (Narcy-Combes, 2005, p. 45).

In her account no. 3, Li Mei thus draws on Léa's account:

Témoignage 3 Léa: Quand j'étais jeune, comme **j'habitais en banlieue**, je n'avais pas souvent l'occasion d'aller dans le centre de Paris. Je ne pouvais pas faire le trajet à vélib': **c'était beaucoup trop loin!** Du coup, **j'y allais en train** . . . mais le problème, c'est que **ça me prenait presque une heure**. En plus, **le dernier train pour rentrer chez moi partait** un peu avant minuit, donc pas question de rester à Paris tard dans la soirée!

Témoignage 3 Li Mei: J'habite à Shatin, qui est un quartier en banlieue. Mais ce n'est pas trop loin du centre-ville. Je peux y aller en train ou bus et ça me prends moins d'une heure. Le dernier train pour rentrer chez moi part vers 00:30.

We notice a certain number of similarities between the two productions. First of all, the theme is identical: Léa and Li Mei discuss the distance that separates their home from the town center. In doing so, they touch on the issues of transport, the length of the journey, and the time of the last train. Table 20.1 shows the processing of the input by Li Mei.

Table 20.1. Processing of the Input by Li Mei

Témoignage Léa	Témoignage Li Mei
j'habitais en banlieue	J'habite à Shatin, qui est un quartier en banlieue
c'était beaucoup trop loin!	ce n'est pas trop loin du centre-ville.
j'y allais en train	Je peux y aller en train
ça me prenait presque une heure	ça me prends moins d'une heure.
le dernier train pour rentrer chez moi partait un peu avant minuit	Le dernier train pour rentrer chez moi part vers 00:30.

Léa's text about her adolescence is written in the past tense, whereas Li Mei alludes to the present. For the learner, this entails a transformation from the past to the present: "j'habitais" [I used to live]-> "J'habite" [I live], "c'était beaucoup trop loin!" [it was much too far]-> "ce n'est pas trop loin" [it's not too far], "j'y allais en train" [I used to go there by train]-> "Je peux y aller en train" [I can go there by train] , "ça me prenait" [it used to take me] -> "ça me prends" [it takes me], "le dernier train pour rentrer chez moi partait" -> [the last train to get home used to leave]"Le dernier train pour rentrer chez moi part" [the last train to get home leaves]. Only one mistake appears in the transition from "prenait" to "prends." The incorporation of input in this

discussion constitutes for Krafft and Dausendschön-Gay (1994, p. 135) a potential acquisitional phase.

In her different accounts, Li Mei regularly reuses the vocabulary used by her tutors. The following excerpts show a relevant incorporation; no mistake is introduced by the learner:

Témoignage 5 Léa: Comme dans beaucoup de grandes villes, à Paris, il y a pas mal de **boutiques de luxe** (qui sont super chères!) et de magasins de prêt-à-porter (qui sont relativement plus abordables).

Témoignage 5 Li Mei: D'après ma constatation, il y a de plus en plus de gens qui aiment faire les courses dans **les boutiques de luxe** à Hong Kong.

In her account no. 5, the learner reuses the expression “luxury shops” used by Léa.

The reuse of resources can involve a larger syntactic unit:

Témoignage 4 Éléonore: À Sciences-Po Paris, il y a onze mille étudiants.

Témoignage 4 Li Mei: Il y a environ 2000 étudiants à HKBU.

Témoignage 4 Éléonore: mais c'est un très beau quartier au niveau architectural!

Témoignage 4 Li Mei: Mais c'est un quartier très tranquille, qui est assez rare à Hong Kong.

In account no. 4, Li Mei indicates, just like Éléonore, the number of students in her university. Here, we find the same structure (“il y a X étudiants”) [there are X students] but it is turned the other way round: Éléonore starts the utterance with the place complement whereas Li Mei ends with this. Maxime's sister expresses her liking for the area around Science Po Paris, which she introduces with the conjunction “mais” [but]: “mais c'est un très beau quartier” [but it's a very beautiful area]. Li Mei uses a similar structure: “Mais c'est un quartier très tranquille” [But it's a very quiet area]. She changes only the adjective, which leads her, with complete correctness, to change its position in French: “un très beau quartier” -> “un quartier très tranquille.”

5.3 Incorrect Incorporation of Input

However, the act of reusing resources does not necessarily mean incorporat-

ing them correctly:

Témoignage 3 Léa: Paris est une ville authentique que je trouve très jolie. **Il y a beaucoup à voir et à faire!**

Témoignage 3 Li Mei: Hong Kong est vraiment une ville très jolie et **il y a beaucoup de faire et voir.** Et il y a toujours des surprises!

Témoignage 6 Maxime: Le reste du temps, je me nourris un peu n'importe comment.

Témoignage 6 Li Mei: Je me nourri toujours n'importe quel et comment.

In account no. 3, Li Mei uses, to describe Hong Kong city, a statement similar to that produced by Léa about Paris: “Paris est une ville authentique que je trouve très jolie” [Paris is an authentic city which I find very pretty], “Hong Kong est vraiment une ville très belle” [Hong Kong is really a very beautiful city]. Li Mei also repeats Léa’s expression “Il y a beaucoup à voir et à faire!” [There is a lot to see and do]. However, she introduces changes, firstly in the order of the verbs, then in the prepositions: “il y a beaucoup de faire et voir.”

This same phenomenon appears in account no. 6: Li Mei re-uses Maxime’s statement “Le reste du temps, je me nourris un peu n’importe comment” [The rest of the time, I eat a bit any old how] by removing the “s” in “nourris” and changing the expression “un peu n’importe comment”: “Je me nourri toujours n’importe quel et comment” [I always eat any old what and how]. Here, Li Mei introduces an expression known to her (“n’importe quel”), before trying to re-use Maxime’s formulation. The combination of the two expressions results in “n’importe quel et comment.” These changes produced by the student possibly show a desire to avoid the “copy and paste” technique by bringing a “personal touch.”

6. Conclusion

The analysis of the system highlights the benefits of remote collaborative exchanges in the writing of texts. Learners and tutors are well aware of the help provided for writing and they are in favor of the model-based approach to written production. This appears clearly in the objectives that the tutors set out, as well as in the learners’ answers. We have noticed the manifestations of the tutors’ scaffolding through the personalization of the tasks, the adaptation to fit the learners’ interests and the introduction of a suitable progression. The comparison of the tutors’ accounts with those written by the learners

shows the incorporation of input in a context. The learners rely on their tutors' accounts for organizing the text, the themes, the expressions, and even the structure of the utterances, thus going on to learn the vocabulary in context. The question of real appropriation remains unanswered.

This collaborative written production task requires strong commitment from tutors: they are not lecturers but learning assistants who, as part of an exchange, are ready to get involved in productions that they write themselves in order to receive an account of the same kind from their learner. It should be recalled that the conditions of this online tutoring were exceptional in terms of the proportion of tutors to learners. There is no doubt that the fact that each learner had access to two tutors, thanks to the project carried out as part of teacher training, made such a personalization of the tasks possible. This system also reveals the contribution of reciprocity between the participants. It really is the tutors' commitment to their productions that encouraged the learners' involvement in their own productions.

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21 Use of Metadiscourse in Research Articles Written in L1 and L2 by the Same Authors

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The ability to write in English at an advanced level has become paramount for non-native speakers of English who wish to participate in a wider academic community. The aim of the present study is to compare one element of English academic writing, the use of metadiscourse, in L₁ and L₂ by analyzing a corpus of 10 research articles written in Serbian and 10 research articles written in English on the same/similar topic by the same authors. The occurrence of metadiscourse is analyzed using Hyland's (2010) distinction between interactive and interactional categories. In a further qualitative analysis five of the authors were asked to participate in a follow-up questionnaire designed to address their awareness of the metadiscourse elements and cultural differences in this area.

Pour les non-anglophones, l'écriture académique en anglais impose de connaître non seulement le vocabulaire et la syntaxe mais aussi des normes de l'écriture en anglais, telle celle de l'usage des métadiscours qui diffère selon les langues. Cette étude compare l'utilisation de métadiscours en L₁ (serbe) et L₂ (anglais) en analysant 10 articles de recherche écrits en serbe et 10 articles de recherche écrits en anglais sur des sujets similaires par les mêmes auteurs. L'apparition de métadiscours dans les deux groupes est analysée en utilisant la distinction entre catégories interactives et catégories interactionnelles. Dans la partie qualitative de l'analyse, cinq auteurs participent à des entretiens conçus pour identifier leur connaissance des éléments de métadiscours et les différences culturelles dans ce domaine. Les résultats de notre enquête indiquent une plus grande présence des caractéristiques de métadiscours dans les articles écrits en anglais par rapport à ceux écrits en serbe.

Les études précédentes suggèrent que le serbe fait partie des langues qui utilisent moins de métadiscours que l'anglais, donc les résultats actuels suggèrent que ces auteurs ont pu adapter leur écriture à cet égard et faire une transition réussie d'une culture de l'écrit à l'autre. Mais les réponses au questionnaire de suivi montrent qu'ils ne sont pas conscients de la façon dont ils utilisent des éléments de métadiscours dans leur écriture. Ces résultats montrent la nécessité d'enseigner formellement l'écriture académique.

1. Introduction

Today, English is considered to be the lingua franca of modern academia, and the ability to write in this language at an advanced level has become paramount for those who wish to participate in a wider academic community and to make progress in their academic careers. The dominance of English as the language of academic communication has raised concerns about the dichotomy between the “centre” and the “periphery” (Canagarajah, 2002) and the ways it affects the academics who are non-native speakers of English.

Writing research papers and publishing them in recognized international journals is particularly demanding for the non-Anglophone scholars (Lillis and Curry, 2010) since they are expected to satisfy additional requirements. Non-native speakers of English seeking international publication need to achieve adequate writing skills not only in relation to the correct use of vocabulary and grammar but also regarding the norms, conventions and many other aspects of English academic writing which may differ from the traditionally accepted practice in their first language. This implies that non-native English speakers have to deal with the cultural differences regarding writing in two languages. If culture is regarded in the widest possible sense as a set of learned and shared patterns of behaviors and interactions, cognitive constructs, and affective understanding, then writing is considered imbedded in a particular culture and not independent from it.

Language and culture interdependence is traditionally treated within the area of contrastive rhetoric (Kaplan, 1966). More recently, cultural differences in academic writing were studied in relation to intellectual styles (Clyne, 1987; Čmejrkova, 1996; Duszak, 1994; Ventola and Mauranen, 1996; Siepmann, 2006). Mauranen (1992: 239) sees “all writing strongly anchored in the values of the writing cultures that people get socialized into as they learn to write.”

According to Kruse (2012: 293), academic writing culture may be defined as a set of rules, regulations, practices, and attitudes regarding the usage of writing for learning and teaching. Our study examines academic writing in English and in Serbian, two languages which do not share the same academic writing culture, as Serbian academic writing shows resemblance to other Slavic languages and has been under the influence of the Teutonic (German) writing tradition. Čmejrkova (1996), Duszak (1994), and Yakhontova (2002) find that academic writing in Slavic languages differs from English academic writing in being less linear, showing greater tendency towards syntactic complexity and digressions, and generally nursing a “baroque” style of writing (Čmejrkova 1996: 13).

In relation to Hinds’ (1987) typology of reader vs. writer responsible languages, Blagojević (2005) describes Serbian, similarly to other Slavic languages, as a language which is to a large extent reader-responsible, presenting scientific knowledge in a manner that requires additional effort on the part of the reader to understand the text. In addition, contrary to Anglo-Saxon attitudes to writing and, in particular, North American traditions of providing writing instruction, in Serbian, how one writes is left to writer’s intuition and individual talent (Blagojević, 2005).

In examining academic writing in English and Serbian, this chapter concentrates on the knowledge and use of metadiscourse as the tool to express or withhold the author’s personal attitudes, as the source of expressions for referring to information sources, graphs and tables, as well as the means to build a relationship with the reader and make the reading easier to follow (Blagojević, 2005; Mauranen, 1993a).

Metadiscourse is defined as discourse about discourse, as expressions referring to the author’s linguistic manifestations in the text. Their function is to describe the text and guide the reader through it. Authors use metadiscourse expressions to “help readers to organize, classify, interpret, evaluate and react” (Vande Kopple, 1985: 83) to the information (i.e. propositional material) presented in the text, and hence the metadiscourse becomes the key to a successful communication between the writer(s) and the reader(s). As Mauranen states, “it is not surprising it [metadiscourse] has interested scholars, because it manifests a fundamental feature of natural language: the capacity of talking about itself” (Mauranen, 2007: S4).

Metadiscourse presents a valuable tool for both the writer and the reader. However, the studies that analyzed the presence of metadiscourse elements in different languages have proven that its usage varies from one language to another. In comparison to English, metadiscourse is used less in Slovene (Pisanski Peterlin, 2005), German (Clyne, 1987), Polish (Duszak, 1994), Finn-

ish (Mauranen, 1993a), and Serbian (Mirović & Bogdanović, 2013). It can therefore be stated that the usage of metadiscourse is related to the culture that a writer belongs to, not their writing style or personal choice. This situation is observed in Serbian in comparison to English. In previous research, Mirović and Bogdanović (2013) pointed out that master-level engineering students, when writing in Serbian, used metadiscourse only occasionally. Studies also report the limited usage of metadiscourse elements with Serbian authors writing scientific papers in English (Blagojević, 2005; Bogdanović & Mirović, 2013), and that is the reason why this topic demands more attention among scholars. Blagojević (2005) suggests that in Serbian, as well as in some other languages (Mauranen, 1993b; Hyland, 2005), the lack of metadiscourse relates to the fact that Serbian authors do not manage to establish successful relationship with the potential readers, which can potentially affect their chances of publishing in English.

Previous studies on the cultural differences related to the use of metadiscourse (Mauranen, 1993b; Ädel, 2006; Crismore et al., 1993; Crismore & Abdollehzadeh, 2010; Blagojević, 2008) have compared the papers written by native speakers in two different languages or have studied the use of metadiscourse by native and non-native English speakers. The present study is designed to look into the use of metadiscourse in research articles written by the same authors in their first language (Serbian) and in their second language (English). Given the pressure that modern-day academics have to write and publish in English, it is of interest to investigate whether the authors from non-English language backgrounds are able to use metadiscourse differently when they write in two different languages.

The study is divided into two parts: the first part focuses on a corpus consisting of 10 research articles written in Serbian and 10 research articles written in English by the same authors. The articles are analyzed to determine the extent of the use of metadiscourse in the two sub-corpora (English and Serbian) and the potential differences in the use of particular metadiscourse features.

In the second, qualitative part of the analysis, five of the authors were asked to participate in the follow-up interviews designed to address their awareness of the metadiscourse elements and, in particular, cultural differences in this area. They were also asked to comment on their use of particular features such as references, ways of establishing connection with the readers, self mentioning and other prominent characteristics found in their use of metadiscourse. The results are analyzed in terms of the level of congruence between their actual use of metadiscourse markers and the authors' beliefs on the use of these elements.

2. Metadiscourse in research articles in L₁ and L₂

2.1 Method and results

Each of the ten academics who participated in the study was asked to contribute two previously published research articles: one written in English and one written in Serbian (their mother tongue). The articles dealt with different topics in the area of science and engineering (physics, chemistry, civil engineering, mechanical engineering, electrical engineering, traffic engineering, graphic engineering and architecture). The research articles in both groups were read noting every occurrence of metadiscourse and classifying each according to the taxonomy proposed by Hyland (2005, 2010).

Authors of this chapter are aware of the fact that there are other metadiscourse classifications. The first classification of metadiscourse was made by Vande Kopple (1985), who identified seven categories. Crismore et al (1993) made a distinction between textual and interpersonal metadiscourse, which Hyland (1997) adopted and modified for academic discourse. Mauuranen (1993a) presented a taxonomy based on high- and low-explicit reflexivity, which was followed by Ädel (2006) in her classification on metatext and writer-reader interaction. Present research uses the classification of metadiscourse into interactive and interactional categories introduced by Hyland (2005, 2010). This classification is based on a functional approach where the emphasis is on the manner the writer refers to the text, to themselves and to the reader. In this taxonomy, metadiscourse is related only to the context in which it occurs and the interaction between elements is always present. The model is presented in the following manner:

Interactive expressions help to guide the reader through the text and include:

- Transitions (express relations between main clauses): e.g. in addition, but, thus, and;
- Frame markers (refer to discourse acts, sequences or stages): e.g. finally, to conclude, my purpose is;
- Endophoric markers (refer to information in other parts of the text): e.g. noted above, see Fig., in section 2;
- Evidentials (refer to information from other texts): e.g. according to X, Y 1990, Z states;
- Code glosses (elaborate propositional meanings): e.g. namely, e.g., such as, in other words.

Interactional expressions involve the reader in the text, i.e. allow writers to conduct interaction by intruding and commenting on their message. These include:

- Hedges (withhold commitment and open dialogue): e.g. might, perhaps, possible, about;
- Boosters (emphasize certainty or close dialogue): e.g. in fact, definitely, it is clear that;
- Attitude markers (express writer's attitude to proposition): e.g. unfortunately, I agree, surprisingly;
- Engagement markers (explicitly build relationship with reader): e.g. consider, note that, you can see that;
- Self mentions (explicitly refer to author(s)): e.g. I, we, my, our.
- As Hyland (1997: 444) pointed out, the taxonomy cannot fully cover the complexity of metadiscourse and one and the same item can be perceived to have different functions in the text. When we encountered such dilemmas, the cases that some researchers (Ädel, 2006: 24; Crismore et al., 1993: 41) term "multifunctional metadiscourse," we tried to discuss the item together and thus solve the problem according to what was commonly seen as the item's dominant function in the particular case. We adopted the principle that each instance of metadiscourse can be classified into only one subcategory which also meant that larger textual chunks were regarded as one occurrence of metadiscourse, similar to Crismore and Farnsworth (1990). For example, a phrase: As we shall see in Figure 21.2 is counted only as one instance of metadiscourse and is classified as an endophoric marker.

Table 21.1 shows the data obtained from the two groups of articles (articles in English and articles in Serbian) comparing the overall use of metadiscourse in two groups as well as the presence of particular metadiscourse features (interactive and interactional subcategories). Overall there were 655 instances of metadiscourse in the articles written in English vs. 438 instances in the articles written in Serbian.

Table 21.1. Use of metadiscourse in articles in English and in Serbian

	English: 34,921 words		Serbian: 28,269 words	
	Items	%	Items	%
Total METADISCOURSE	655	1.88	438	1.55%
INTERACTIVE	579	1.67	413	1.46
Transitions	87	0.25	58	0.21
Frame markers	63	0.18	46	0.16
Endophoric markers	170	0.49	171	0.61

	English: 34,921 words		Serbian: 28,269 words	
	Items	%	Items	%
Evidentials	194	0.56	113	0.40
Code glosses	65	0.19	25	0.09
INTERACTIONAL	76	0.22	25	0.09
Hedges	27	0.08	14	0.05
Boosters	6	0.02	3	0.01
Attitude markers	12	0.03	6	0.02
Engagement markers	3	0.01	2	0.01
Self mentions	28	0.08	0	0.00

Since the articles were not of the same length (the total length of the research articles written in Serbian was 28,268 words and the total length of the articles written in English was 34,921 words) the results are presented in percentages for easier comparison. However, it should be noted that the percentages do not represent the percentage of words devoted to metadiscourse but rather the instances of metadiscourse in relation to the length of the texts, similar to the approach used by Hyland (1999). The elements of metadiscourse found in the study took the form of words, expressions and even sentences. Some authors (Mauranen, 2007) mention the possibility of whole paragraphs having discourse reflexive functions but such cases were not observed in the articles in our study.

It can be seen from Table 21.1 that the articles written in English contain more metadiscourse than the articles written in Serbian (1.88% vs. 1.55%) and that in both groups interactive elements are used much more than interactional (1.67 vs. 0.22 in the English articles and 1.46 vs. 0.09 in the Serbian articles).

Although the authors generally used metadiscourse to a lesser extent when they wrote in Serbian than when they wrote in English, they used more endophoric markers in Serbian articles than in their English articles. At the same time endophoric markers are the type of metadiscourse most used in Serbian articles and all other subcategories are present to a lesser extent. With articles written in English the dominant group is evidentials.

Interactional elements are used, roughly speaking, twice as much in English as in Serbian articles, and among them, self mentions, although present in English articles, are not found at all in Serbian articles.

2.2 Corpus analysis

The analysis of the articles written in English and in Serbian shows that

the authors used metadiscourse in both languages to support their claims (by referring to the source of information), to indicate information located elsewhere in the text, to connect ideas, state the purpose of their research, etc.

The texts written in English demonstrate greater use of metadiscourse elements of almost all subcategories than the texts written in Serbian. Previous findings (Blagojević, 2005; Bogdanović & Mirović, 2013) indicate that features of metadiscourse are more prominent in English than in Serbian and attribute this to cultural differences in writing between the two languages. The fact that authors in this study, generally speaking, used more metadiscourse elements when they wrote in English than when they used their mother tongue speaks well of their ability to adapt their writing styles to different writing cultures and thus function more successfully in the academic environment. The modern academic environment demands the mastery of the English language and specialist vocabulary but also good command of other, more sophisticated features, which are not easily (or regularly) taught, such as metadiscourse.

The use of interactive metadiscourse features in the two groups of articles deserves closer analysis. As can be seen in Figure 21.1, the only category of metadiscourse that is used more in Serbian articles (0.61%) than in English articles (0.49%) is endophoric markers. They are used more in Serbian by seven authors, which means that it was a rather general feature of metadiscourse use, and not just limited to one or two authors. The use of these markers in the studied articles was generally frequent as they contained a large number of illustrations, tables, mathematical formulas (even photographs) that the authors had to refer to in argumentation and discussion.

The use of evidentials is very prominent in both Serbian and English articles. Evidentials accounted for about one third of all interactive items (33.51%) in articles in English and somewhat smaller percentage (27.36%) of interactive items in articles written in Serbian. They serve to demonstrate the author's awareness of previous research in the area and thus strengthen their arguments. Previous research is mentioned usually in the first part of the article, by giving reference to the authors of earlier articles in the same field, and in this way evidentials serve to build on existing knowledge and also position the author within the academic community (Hyland, 1997). This seems to be the convention of the genre in the area of science and engineering and the use of evidentials in the two languages does not show much variation. It can be noted that the use of this type of metadiscourse does not require high-level language skills, i.e. they are easy to use in any language.

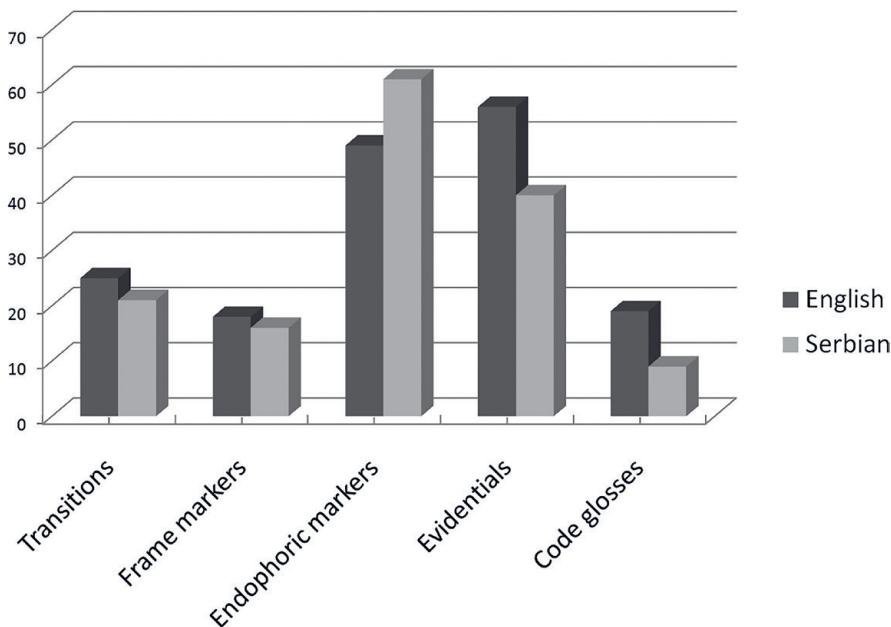


Figure 21.1. The use of interactive metadiscourse in English and in Serbian

Transitions, on the other hand, are more demanding from the point of view of language skills. It is our general impression that the authors did not have problems with their use, as it can be seen in Example 1.

(1) Although NAA has an aromatic ring structure whereas the NAs are aliphatic, there is a possibility that the NAs operate through the same receptors as the auxin NAA. In addition, it was recently established that one or more of the compounds present in the naphthenic acid mixtures bind to the androgen receptor in a manner similar to that of flutamide, a powerful metabolite for binding to androgen receptors. (paper E8)

However, there are sections in the articles, particularly those which describe procedures and methodology of research, which are totally devoid of transitions, leaving it to the reader to make logical connections on the basis of their understanding of the given subject area. Usually this part of the text contains statements without connectives, as seen in Example 2.

(2) Group-structural analysis was performed by mass-spectrometric fragmentation to quasi molecular ions by a soft ionization technique in either the positive or negative ion

mode. Lower solution high performance liquid chromatography coupled with electrospray ionization mass spectrometry (HPLC-ESI-MS) spectra were recorded on a Finnigan LCQ advantage MAX spectrometer. The spectra encompassed a molecular series of protonated and sodiated molecular ions of the acids $[M+H]^+$ and $[M+2H]^+$ or $[M+23]^+$ recorded in the positive ion mode in 0.1 % trifluoroacetic acid in acetonitrile or acetonitrile-water mixture 1:1. (paper E8)

There is not much difference in the use of frame markers between the two groups. They are generally found in the first part of the article and are used either to indicate the purpose, objective or aim of the research (Example 3), or to organize a list of points (Example 4).

(3) Considering the previous discussion, the aim of this research was to investigate measuring performances of mentioned two dental optical systems, with emphases on accuracy and precision, and to evaluate the statistically significant difference. (paper E10)

(4) The CAD reference model's generation included the following phases:

(1) Design of basic study model and preparation of teeth.

(2) Creation of impression and stone replica.

(3) 3D digitization of the stone replica and generation of the STL model. (paper E10)

Code glosses show greater difference in use: they are used twice as often in English articles, usually to add information in the form of example, as presented in Example 5.

(5) Other very important aim of such a system is the possibility of fast reactions in the case of contaminated batches of food (e.g. with poisonous chemicals or bacteria). (paper E9)

However, it seems that when they write in their mother tongue, the authors do not feel the need to clarify or exemplify to the same extent. This may be related to their increased sense of authority when they write in their mother tongue, which in our study resulted in the reduced need to clarify and exemplify things for their readers in Serbian texts. At the same time a specific form of code glosses was found in some articles written in Serbian: namely English

terms, usually given in parenthesis, were used as a form of clarification for the key terminology used in the articles.

As it was already mentioned, both groups of articles have more interactive metadiscourse than interactional. This is something that we anticipated; engineering and science disciplines are not characterized by the presence of the author, but rather by the dominance of facts. Other studies (Hyland 1997; Bogdanović & Mirović, 2013) also found that research articles in these areas do not contain a lot of interactional metadiscourse or as many examples of interactional metadiscourse as articles in social sciences (applied linguistics and marketing).

If we compare the amount of interactional metadiscourse in the articles in English and articles in Serbian, we notice a significant difference: twice as much interactional metadiscourse in English articles. With articles written in English, interactional metadiscourse accounted for 11.6% of the total metadiscourse and with articles in Serbian 5.7% of the total metadiscourse was interactional. The higher proportion of interactive metadiscourse features is also observed by Blagojević (2008), who also compares academic writing in English and Serbian although she uses a somewhat different taxonomy and does not compare the papers by the same authors. The limited use of interactional metadiscourse features by Serbian authors in this study is not surprising. These expressions indicate author's presence in the text. Their use in academic discourse is largely defined by the conventions of an academic or discourse community. In this case we can say that the differences in the use of interactional metadiscourse also reflect cultural differences between two languages. The overall greater use of interactional metadiscourse in English articles can be observed in almost all subcategories (see Table 21.2).

Table 21.2. The use of interactional metadiscourse in English and in Serbian

	English: 34,921 words		Serbian: 28,269 words	
	Items	%	Items	%
Total METADISCOURSE	655	1.88	438	1.55%
INTERACTIONAL	76	0.22	25	0.09
Hedges	27	0.08	14	0.05
Boosters	6	0.02	3	0.01
Attitude markers	12	0.03	6	0.02
Engagement markers	3	0.01	2	0.01
Self mentions	28	0.08	0	0.00

The subcategory of interactional metadiscourse which was used the most was hedging, which, again was not surprising. Hedging plays an important role

in scientific writing as it allows writers to make scientific claims with appropriate caution and at the same time avoid the possible disagreements or opposition. The authors used hedges to present their interpretation of the facts as possible but not necessarily absolutely correct. The most frequently found way of hedging was the use of adverbials and the use of modal verbs. Some examples of hedging are presented in Example 6.

(6) That opinion was found somewhat more frequently among the residents of peripheral blocks (91%) than in urban ones (85%). It can be concluded that spatial organization of blocks in the settlements of Vojvodina provides privacy to their residents to a great extent. (paper E6)

All other interactional forms of metadiscourse are used rather sporadically. Self mentions (the use of pronoun we or possessive adjective our), which seem as numerous as hedges are actually concentrated in one paper (27 out of 28 instances). It could be said that their use represents a convention in academic writing which some authors adopt and some do not. The same author did not use the first person pronoun in the text on a similar topic written in Serbian.

Although the results obtained in this part of the study complement previous research, the question remains whether the amount of metadiscourse used by these authors and the way in which it is employed in their articles equals or approaches the use of metadiscourse by native English speakers. To determine this, we would need to compare these papers with a third sub-corpus of research articles written on these topics by native English speakers which would provide a norm or standard against which non-native speakers' papers could be evaluated. Still, at this point, we can say that, on the whole, these authors made a successful cultural transition from one writing culture to the other in their use of metadiscourse.

3. Questionnaires

On completing the analysis of research articles, five of the authors were asked to participate in the follow-up questionnaire designed to address their awareness of the metadiscourse elements and cultural differences in this area. They were asked to comment on their use of particular features such as references, self mentioning and other prominent characteristics found in their use of metadiscourse. The questionnaire is presented in the Appendix 1 of the paper.

The questionnaire consisted of three parts. The first part related to general information about participants. They were asked how long they had studied

English in an institution and if they had attended any course in academic writing (whether Serbian or English). These questions were related to their previous education on writing skills and general English competence. They were also asked how long they had been working at the Faculty of Technical Sciences, University of Novi Sad, Serbia and how many research articles they had published during that time. It showed their writing competence and presence in the academic community.

The second part of the questionnaire was concerned with their knowledge on metadiscourse. The participants were asked whether they use metadiscourse, whether they pay special attention to it or incorporate it into the article subsequently, if they have any favorite expressions and if they had any training in the use of metadiscourse. There was also a question on whether they write in first person singular, which was to be related to self mentions. Most of the questions were simple factual questions.

Finally, in the third part, they were provided with examples of each of ten metadiscourse types and they were asked to grade, from 1 as not being used to 5 as always being used (so-called basic Likert scale in a checklist type format; according to Adams & Cox, 2008: 21), what they believed to be the frequency of their usage of individual metadiscourse types. In the end, what is presented here is a qualitative analysis of the data obtained from five writers.

The answers from the questionnaire revealed that the writers participating in the research learnt English for approximately 10 years in primary and secondary schools. Neither of them entered a course in any academic language, whether English or Serbian. In other words, they are all self-taught in writing skills and writing research articles. They have been employed for a long time at the Faculty, during the period between 15 and 25 years, and during that time they have written a great number of scientific papers (most of them circled that they have written between 20 and 50 research articles).

One of the interesting observations regarded general information related to their frequency of writing in two languages. They all tend to write in English more than they do in Serbian. It seems that the global academic market demands that the papers be written and published in English, so they are beginning to neglect their writing skills in Serbian. Even when they attend domestic conferences, they still write in English for general understanding and on line accessibility.

As for the information regarding metadiscourse, the participants claim they use metadiscourse in both English and Serbian, which is confirmed by our investigation (but with differences in the amount of metadiscourse used in two languages). They claim they always pay attention to metadiscourse, and they do not have any favorite expressions. They report that they sometimes

add metadiscourse expressions if that is requested by the reviewers, in a situation when they have to refer to a table or a figure, or when they want to have better organization, which they achieve using expressions like *however* or *on the other hand*. They all claim they do not write in first person singular because they learnt not to do that, and the journals demand they not do it.

It is interesting to observe that they all believe their use of metadiscourse in the two languages does not differ. When asked about their use of different types of metadiscourse in the two languages, they always provided the same answers for both languages. However, both previous researches (Mauranen, 1993b; Markkanen et al., 1993; Ädel, 2006; Blagojević, 2008; Mirović & Bogdanović, 2013) and the analysis in this chapter indicate differences between L₁ and L₂.

Whereas the results of the analysis show greater use of metadiscourse in the articles written in English, the results of the questionnaire seem to indicate that the participants are not aware of their use of metadiscourse markers, especially the interactive ones.

For example, these writers believe they use frame markers, endophoric markers and evidentials regularly, whereas the analysis has proven that frame markers are not that common in their writing. Some of the participants believe they use code glosses moderately in both languages, though there are actually very few examples of code glosses found in their articles in Serbian. Conversely, there are also situations when they believe they use endophoric markers only moderately whereas endophoric markers present one of the most used types of metadiscourse. Rarely are they aware of how they use certain markers, and most of their misconceptions are related to code glosses, which they believe they use more than they actually do.

As already emphasized, interactional expressions are rarely found in research articles. However, the writers believe they use boosters and engagement markers quite often, while they believe they never use attitude markers and self mentions. The analysis proved them wrong again, since the most used type of interactional metadiscourse is hedges. The results also show that there are situations when the writers believe they are using one marker type more than the others (e.g. hedges) but the analysis of the research papers shows that it is actually vice versa. The authors definitely follow the advice never to use self mentions and they are aware of that fact as an element in their writing skill.

Of course, we did get some interesting feedback. For example, the writer with 37 endophoric markers in English and 17 endophoric markers in Serbian believes to use them rarely. On the other hand, the same writer believes s/he uses code glosses quite often although there were only 14 expressions in their

research papers. We would also like to single out a writer with the greatest number of interactional expressions used, even though s/he believe s/he uses those expressions only occasionally. And in the questionnaire s/he answered that s/he never used metadiscourse in writing and never wrote in first person singular. The analysis counted 27 self mentions in his/her English paper, which were the only instances of self mentions in all analyzed papers.

4. Conclusion

In view of the increased need for researchers from different language backgrounds to publish in English, the study looked into the use of metadiscourse by a group of Serbian academics and analyzed their papers published in L₁ (Serbian) and L₂ (English). The results of this investigation indicate greater presence of metadiscourse features in the articles written in English compared to the articles written in Serbian, in both interactive and interactional metadiscourse categories. Since earlier studies which compared articles by native and non-native English speakers (Blagojević, 2008; Mirović & Bogdanović, 2013) suggest that Serbian is among the languages which use metadiscourse less than is the case in English, the fact that these authors were able to adapt their writing in this respect can indicate their successful transition from one writing culture to the other. At the same time the data from the follow-up questionnaire indicate that they are not consciously aware of how they use metadiscourse elements in their writing in the two languages. The indication that these authors share some wrong assumptions regarding their use of metadiscourse suggests that providing them with a formal course in academic writing based on the research results would almost certainly improve their writing, taking it one step further in text organization. Considering the increasing need for academic communication in English for researchers from different language backgrounds, further research into this area would be interesting for both theoretical and practical reasons.

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Appendix. The Metadiscourse Questionnaire

(Underline or **bold** your answers)

Metadiscourse are expressions like the following: but, and, my purpose is, to conclude, see Figure 21.1, according to XY, e.g., in other words, I consider, as you can see, in the previous section, therefore, hence, perhaps, in fact, I agree; ali, iz tog razloga, cilj rada je, da zaključimo, vidi sliku 1, prema XY, drugim rečima, smatramo da, kao što se može videti u radu, u prethodnom poglavljju, dalje, možda, u stvari, slažemo se da,

Part 1—General information:

1. How long have you been learning English? _____ years

2. Have you ever attended a course about Academic writing in English?

yes	no
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3. Have you ever attended a course about Academic writing in Serbian?

yes	no
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4. How long have you been working at the Faculty? _____

5. How many research articles have you written?

In Serbian: 1-5 6-10 11-20 20-50 over 50

In English: 1-5 6-10 11-20 20-50 over 50

Part 2—Metadiscourse-related information:

1. Do you use metadiscourse expressions when writing your research articles?

<i>In Serbian</i>	yes	no		<i>In English</i>	yes	no
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2. Have you ever had any training in the manner of using metadiscourse expressions for writing research articles?

<i>In Serbian</i>	yes	no		<i>In English</i>	yes	no
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3. Do you pay attention to metadiscourse expressions when you write research articles?

(1—never, 2—rarely, 3—sometimes, 4—often, 5—always)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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4. Do you have any favourite expressions in writing research articles?

<i>In Serbian</i>	yes	no		<i>In English</i>	yes	no
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These are: _____

5. Do you (subsequently) add metadiscourse elements after you have written your article?

<i>In Serbian</i>	yes	sometimes	no		<i>In English</i>	yes	sometimes	no
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If your answer is yes, write why you do it and which expressions you usually insert. _____

6. Do you write in first person singular, explicitly referring to yourself as the author?

<i>In Serbian</i>	yes	no		<i>In English</i>	yes	no
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Why do you do it?

- a) This is how I have been told I should write
- b) This is how I have been taught I should write
- c) My colleagues write like that

- d) It is recommended by the journal where I publish / want to publish my articles
e) _____

Part 3—Metadiscourse usage

7. To what extent do you consciously and intentionally use the following expressions when writing a research article?

(from 1 to 5, where: 1—never, 2—rarely, 3—sometimes, 4—often, 5—always)

- a) Conjunctions (and, but, thus, in addition, ali, stoga, dalje, ipak)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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- b) Expressions that signal schematic text structure, determine the order of arguments, label text stages, announce discourse goals and indicate topic shifts (finally, to conclude, my purpose is, zaključak je, cilj rada je, prvo, drugo)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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- c) Expressions which refer to other parts of the text (noted above, see Fig., in section 2, u sledećem poglavljvu, vidi sliku)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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- d) Expressions that refer to an idea from another source (according to X, Z 1990, Y states, prema X, Z 1990, Y navodi da)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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- e) Expressions that supply additional information by rephrasing, explaining or elaborating what has been said (namely, e.g., such as, in other words, drugim rečima, odnosno, poput)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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- f) Expressions that withhold complete commitment to an idea (might, perhaps, possible, about, approximately, možda, moguće je, otrilike)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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- g) Expressions that express certainty in writers' views (in fact, definitely, it is clear that, zaista, jasno je da, činjenica je da)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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- h) Expressions that indicate the writer's affective attitude to ideas (unfortunately, I agree, surprisingly, nažalost, nasreću, iznenađujuće je da, slažemo se da)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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- i) Expressions that explicitly address readers (consider, note that, you can see that, ako posmatramo, možete videti da, primetite da)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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j) Expressions that refer to the degree of explicit author presence in the text
(I, we, my, our, ja, mi, naš, glagol u 1. licu množine)

<i>In Serbian</i>	1	2	3	4	5		<i>In English</i>	1	2	3	4	5
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22

Writing and Social Media: Which Website Types for Which Scaffolding?

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Writing and social media: which website types for which scaffolding? This chapter considers how the social web can support writing. The theoretical background lies on three principles: reading / writing interaction, socialization of productions, procedural aids supposed to ease the cognitive load. The corpus is composed of writing tasks designed for a telecollaboration by master's students in French as a foreign language (future teachers). These tasks brought the learners to compose and then "publish" texts on participatory websites. The analysis first proposes a brief typology of these websites; it then discusses the way they support writing.

Ce texte examine certains apports du web dit « social » en tant que support à l'écriture. L'approche relève des champs de la didactique de l'écrit et des TICE. Le cadre théorique fait appel à trois principes aujourd'hui bien établis en didactique de l'écriture : l'importance du lien lecture-écriture, l'intérêt d'une socialisation des écrits et les facilitations procédurales destinées à alléger la charge cognitive. L'étude s'appuie sur un corpus de tâches créées par des étudiants de deuxième année de master professionnel de français langue étrangère (futurs enseignants) dans le cadre d'une télécollaboration internationale ; ces tâches prévoyaient toutes la rédaction et la publication d'un texte sur des sites participatifs non scolaires. L'analyse propose tout d'abord une brève typologie des sites auxquels il a été fait appel. Puis elle examine les apports de chacun des types dégagés à la pédagogie de l'écriture.

The present research analyzed a corpus of writing tasks in order to consider how social media can be used to support writing. These tasks, designed for a telecollaboration project by master's students aiming to become teachers of

French as a foreign language (FFL), required learners to write and “publish” texts on designated, non-educational websites. The analysis was carried out from a writing instruction theory and instructional design perspective, and was based on a theoretical framework encompassing three didactic principles: the reading-writing interaction, the socialization of productions and the use of procedural aids to lighten the cognitive load.

1. Theoretical Framework and Review of the Question

1.1. Writing Instruction Theory and CALL

It is not this chapter’s intention to provide a comprehensive review of writing instruction theory. For a perspective oriented towards the production of teaching applications and learning scenarios, the reader is referred to the approach described by Mangenot (1995, p. 151–152) in the theoretical framework of his Ph.D. thesis:

This approach [of computer supported writing instruction] follows a few simple pedagogic principles:

- **Authentic text production** must take place, even if it is limited in length and complexity. The computer does not evaluate the production, in order not to limit creativity.
- One of the goals of these computer-supported writing aids is to encourage learners to **observe how language/discourse functions**.
- They must provide links between reading and writing.
- Priority must be given to the **translating phase**, with scaffolding procedures (e.g. through prompting). The term “translating” refers to Hayes & Flower (1981) model, where it means “the translation of ideas into language.”
- They must enhance—even more than a word processor—group work and the **collective solving of writing problems**. They should elicit peer interaction around the screen.

In 1995, the Internet was not yet part of the educational landscape and “authentic production” meant simply that the texts produced had to have sense for the learners, rather than being produced merely for the teacher (for a critique of essay writing, see Halté, 1989). In terms of the link between reading and writing, Peytard and Moirand (1992, p. 51) had already noted that in

a second language “it would be vain to ask (students) to produce texts before giving (them) similar texts to read in the language they were learning, because the exercise requires the prior appropriation of foreign textual models.” Consequently, some computer programs and applications included “libraries” of texts categorized in a variety of ways (e.g., *Gammes d’écriture*, Mangenot, 1996, *Ecrire en lisant des récits de vie*, Crinon and Vigne, 2002). Finally, group work was designed to take place “around the screen” by, for example, asking learners to write in pairs (see Dejean, 2004).

1.2. Writing with the Internet: Information and Socialization

Long before the advent of Web 2.0, the Internet had begun to impact the way writing is taught. The acronym ICT (*Information and Communication Technologies*) highlights two essential dimensions of the Internet, information and communication. In terms of writing instruction, the Internet facilitates the search for texts of the same genre or type that a learner would like to master, as well as allowing learners’ writings to be introduced into a social circuit, which is one aspect of what is sometimes referred to as “the socialization of writings.” The term “socialization of writings” encompasses both the design of ways to ensure the teacher is not the only person for whom texts are destined (as in the Freinet method and in writing workshops), and the use of the Internet, especially social media, to share writings within an environment that gives them sense and allows other Internet users to provide feedback. In the words of Ware and Warschauer (2006, p. 110), “Electronic discourse also provides an audience of peers beyond the instructor, which helps heighten awareness of audience and of communicative purpose.” Nevertheless, both of these operations involve risks. The risk in the first case is of plagiarism; in the second case it is that no one reads the texts that are put online. As Bézard (1998, p. 19) pointed out:

The idea that putting students’ work online makes it available to the entire world is, in itself, incontestable, but it deserves to be looked at from an editorial point of view, if only to avoid the disillusionment of young authors [. . .] It is essential to bear in mind the fact that having students publish on the Internet is still a kind of simulation and to avoid giving students the idea that every web page thrown to the wind will inevitably fall before the eyes of an interested reader.

These limitations may be overcome by careful task design, including pre-

cise instructions about the ways in which previously read texts can be transformed, or, most importantly, by ensuring the project design gives sense to the texts and creates an audience for them when they are put online (Mangenot, 1998).

In fact, the Web can be considered a discursive space that facilitates the emergence of new *cybergenres* (in the Bakhtinian sense of the term *genre*), which depend on both the tool being applied and the social spheres in which that tool is used. The only way to make use of this discursive dimension is to get learners to enter these *cyber discourses*, which is something certain university-level teachers have already tried to do. For example, Hanna and de Nooy (2003) asked their students of French to take part in discussion forums on the *Le Monde* website (although the degree of success with which they integrated this discursive environment varied widely) and Ollivier (2010) asked his Austrian students of French to write articles about their home towns for *Wikipedia*. In both cases, the learners had to follow the “rules of the genre,” which was highly beneficial for them:

Encouraging learners to publish the results of their work on a popular website puts learners in a new position. They are no longer learners; they are people with knowledge to share. This encourages them to pay greater attention to both the accuracy of the content and to the way they express this content [...]. The resulting effects are similar to those of “learning by teaching” (Ollivier and Puren, 2011, p. 46).

Le Monde's forums and *Wikipedia* are part of the social web, a concept which is defined more precisely in the following section.

1.3 The Social Web

Zourou (2012) defined “web 2.0” as “(only) the technological platform enabling social media applications to evolve, thanks to the possibilities it gives users to create, distribute, share and manipulate different types of content, most of them publicly accessible.” Hence, the term *social web* covers both the technical ability to share content and all the practices that arise from the possibilities offered by Web 2.0. Social networks, the best known of which is *Facebook*, are just one part of the social web. The myriad websites for sharing information and content about tourism, food, health, films, etc., are also part of the social web, as much of their content is produced by users. The social web has no well-defined boundaries and is “not a homogenous set of appli-

cations" (Zourou, 2012.). Its central characteristics are its "User Generated Content (UGC), openness and network effects." This purposely-wide definition allows the concept of social media to encompass applications as diverse as sharing sites, video and photo transformation sites, blogs, virtual worlds, link-sharing sites, wikis (as long as they are open) and social networks in the strict sense of the term.

With respect to the link between writing and *social media*, in March 2010 the journal *Computers and Composition* (created in 1983) published a special issue entirely dedicated to "Composition Web 2.0." One of the authors, Clark (2010), who teaches first-language writing at a college (university undergraduate level), argued for a 21st-century approach to teaching that incorporates the "digital imperative":

The future of writing—based on a global, collaborative text, where all writing has the potential to become public—informs our classrooms and forms a new, "digital" imperative, one that asks how we can reshape our pedagogy with new uses of the technologies that are changing our personal and professional lives.

The approach to teaching writing Clark describes, albeit from a slightly technocentric and dithyrambic perspective, encompasses this "digital imperative":

Through the calculated and sequenced introduction of ePortfolios, digital stories, online games, Second Life, and blogs, all of which create a new digital infrastructure for my course and assignments, I am working to create a set of practices that work together to explore the ways in which writing instruction can change to meet a new digital imperative; as such, I attempt to use technology in my courses to re-create the contemporary worlds of writing that our students encounter every day. (Clark, 2010, p. 29)

2. Analysis of Websites and Applications

2.1 Constitution of the Corpus

This chapter is part of a broader study of Web 2.0 telecollaboration tasks, which were designed and tutored by master's students in FFL during the 2011 and 2012 winter semester, and which were assigned to learners from Cyprus

and Latvia (see note 1). The learners always submitted their productions to the student teachers before publishing them on the Internet (for more details on this point, see Dejean-Thircuir and Mangenot, 2014).

As a first step, we selected the Web 2.0 tasks (20 out of a total of 60) and the productions (oral, written, multimodal) they generated. Dejean-Thircuir and Mangenot (2014) used this initial corpus to determine the readerships for these productions and the support provided by the student teachers. They noted that the tasks rarely led to exchanges with run-of-the-mill Internet users and suggested a number of possible explanations. Mangenot and Soubrié (2014) studied a sub-corpus of 12 tasks involving written productions in order to assess the contribution social media can make to writing. They tried to characterize Web 2.0 sites and applications in terms of their editorial apparatus and their genre (in the Bakhtinian sense). The objective of the present research was to draw up a more praxeological classification by identifying sites and applications with the potential to promote the three didactic principles listed in the introduction. It was based on the same 12 tasks used by Mangenot and Soubrié, which were designed in 2011 and 2012, together with an extra task from 2013. The tasks designed by the FFL student teachers in 2013 are too recent to have been analyzed in detail, but one of them stood out for the original way in which it used Web 2.0 tools, especially *Facebook*. The 13 tasks are described in the Appendix.

2.2. A Didactic Classification of Social Websites and Applications

Given the small size of the corpus and the specific conditions under which the telecollaboration project was run, most notably the very rapid rate (weekly) at which the tasks were designed/completed, the classification outlined below makes no claim to being either exhaustive or a true typology. It was drawn up on the basis of three criteria. The first was the accessibility of productions to run-of-the-mill Internet users. Here, the notion of accessibility includes both the technical accessibility of the students' writings and the likelihood these writings would reach an audience (see Bézard, above). The second criterion was the degree to which the website guides productions by imposing technological constraints (as in the case of *Prezi*, see below) and/or through the use of forms (as is the case for some websites). By definition, all the sites considered here include a certain amount of UGC. The final criterion was the link between reading and writing—does the site include similar texts to the ones the students are trying to produce? In the light of these criteria, the sites and applications used by the tasks in the corpus were divided into four categories, as summarized in Table 22.1.

Table 22.1. Categories of websites and applications

	Dissemination/interaction	Guidance	Reading/writing link
Multimedia design tools (Prezi, Slideshare)	Yes, but problem of readership (see Bézard, 1998)	Only on the technological level	No, except for examples provided by the teacher
Themed networking sites (e.g., TripAdvisor, Livemyfood, recipe sites)	Dissemination varies according to the subject and its social utility.	Variable. Maximum guidance provided by the use of forms.	Strong link: texts are always present and can serve as models.
Humor sites (Birdsdessinés, Tu sais que)	Dissemination possible but may be restricted by moderators	Guidance strong in terms of the format but negligible in terms of the humor	Strong link
General social networking sites (Facebook)	Yes (link with personal pages)	Depends on how the site is used.	No defined genre

The following sections explore each of these four categories in greater detail.

2.3 Multimedia Design Tools

Some multimedia design tools have functions that can be used to produce a variety of writings or even lead to interactions. Productions can then be accessed via a website address, without a password if the access is configured not to need one.

First, even though creating a video usually involves writing a storyline and/or script, the tasks in Dejean-Thircuir and Mangenot's (2014) corpus that required the use of *YouTube* or *VoiceThread* to create/share videos or audio slideshows were not considered writing tasks and were therefore excluded from the present research. *VoiceThread*, a teaching tool designed by an American university, allows viewers to add written, audio or video comments to each slide in an audio slideshow created by one or more learners. *Prezi*, a website that allows users to create non-linear, multimedia presentations including rich graphic animations, was used by task 12 to present Latvian films. Although most productions created using Prezi were written, some students also created attractive multimodal productions. Some students' productions can be found by entering the term "cinéma letton" in the site's internal search engine.

Other sites, for example, those to which videos and slideshows can be uploaded and whose main role is to share content (*Slideshare*, task 10), leave

more latitude as to the form productions can take. However, given the vast amount of content hosted by these sites, the chances of a learner's production finding an audience are slim.

2.4 Themed Networking Sites

The aim of most themed networking sites is to create a community based round a specific topic; therefore, one would expect these sites to be visited by people interested in these topics. Tasks involving these sites are carried out on the social web. The context in which they appear gives them meaning and value, and guides the production of content (the sites used in the present corpus were *TripAdvisor*, *Live My Food*, *Cinétrafic*, *Le Journal des Femmes* and *750g.com*). Scaffolding can go as far as providing a precise format for submissions, as is the case with *Live My Food* (a French website that presents itself as a social network dedicated to the world's cuisines), where users present themselves via a standard form (favorite dish, best culinary memory, worst culinary memory, etc.). Choosing "Latvia" in the list of countries on *Live My Food*'s homepage leads to the profiles of the learners from task 5; however, none of these profiles has been rated by other members of the community. In the case of *750g.com* (task 4), recipes are entered via a detailed form, which helps contributors respect the genre. Conversely, users of *TripAdvisor* (task 2) and *Cinétrafic* (task 6) are asked to write their own reviews of a restaurant or film without any guidance as to the format or content of the review, not even with respect to its length (the lengths of the reviews posted on these two sites vary enormously). Nevertheless, some guidance is given by the suggestion of themes, the texts already published on the sites, and encouragement to describe one's subjective experience (e.g., *Cinétrafic* uses the term "recommendations" rather than "reviews"). In addition, texts submitted to *TripAdvisor* are assessed by a moderator before being published (usually within 48 hours of being submitted), which encourages contributors to respect the genre.

2.5 Humor Sites

Humor sites were placed in a separate category because they have a very different objective to other social media sites—their aim is to amuse, not to inform. In France, these sites are exemplified by *Vie de merde*, once very popular among teenagers and young adults, on which users described the trials and tribulations of everyday life, ending their story with "Vie de merde!" This site was even exported into the English-speaking world under the name FML ("Fuck My Life"). *Birds dessinés* is the only site in our corpus to belong to this category.

However, *Vie de merde* was used for a task in 2010 and, in 2013, two masters students used the application *Tu sais que* to provide humorous insights into student life in Riga. In this latter case, students had to complete the sentence “*Tu sais que tu es étudiant à Riga quand . . .*” (“You know you’re a student in Riga when . . .”) after reading example sentences about Grenoble written by the tutors. *Birds dessinés* allows users to publish their own comic strips, with no scrutiny by a moderator, whereas on *Tu sais que* and *Vie de merde*, other users of the site provide a sort of evaluation (and moderation). A potential difficulty with using these sites in a foreign language is that humor is eminently cultural: something that makes one person laugh may leave another person stony-faced.

2.6 General Social Network Sites

Although general social network sites do not provide any models or scaffolding for productions, they can be used to promote reading/writing and the socialization of productions. None of the 2011 or 2012 students used the most famous of these sites, *Facebook*; however, in 2013, two students who had seen that their learners’ productions were not appearing on *Tu sais que*, created a *Facebook* “group” and asked around 30 of their French-speaking *Facebook* “friends” to write *Tu sais que* sentences about student life in different countries. As a result, 80 *Tu sais que* sentences were exchanged, many of which were “liked,” although few of them were commented on. (For example, “You know you’re a student in Riga when you don’t know what language you should be speaking: Latvian, Russian, English or French.”) The reason for describing this task, even though it was not part of the initial corpus, was because its *modus operandi* demonstrates a way of using one’s virtual entourage to guarantee a minimal level of online interactions, which cannot be done with the sites in the other categories. Paradoxically, this possibility of interaction is achieved to the detriment of widespread dissemination, as only members of the group have access to productions. Nevertheless, this system at least ensures that productions are read by people outside the class.

3. Conclusion

The most interesting sites with respect to the didactic criteria listed above are those in the themed social network category, as these sites provide learners with examples of texts they can use as models for their writings, they allow for the “authentic” dissemination of learners’ productions (as long as they are approved by the moderator) and, in some cases, they provide scaffolding that can aid writing. General social network sites, as long as they are used within a

suitable teaching scenario, have a different advantage in that they can achieve greater socialization of productions.¹ In every case, supervision by a teacher is needed, even if the teacher becomes more of a resource person than a purveyor of knowledge.

Note

1. Reviews of restaurants in Riga (task 2) were published on *TripAdvisor* (where they can still be seen and used by tourists), as were the *Wikipedia* entries written by Ollivier's students (*see above*).

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Appendix. Presentation of the Tasks Analyzed

	Objective	Web 2.0 tool, control	Writing guidance (models, scaffolding)	Dissemination of productions
1	Share memories of a food or a dish associated with one's childhood	Blogspot.com Private but open blog	The "childhood memories" workshop on the <i>Marmiton</i> website gave the idea for the task. In order to provide a "model," each of the two tutors wrote a personal note for a specially created blog.	Productions are available on the blog that was created, but who will read them?
2	Share knowledge about restaurants in Riga	TripAdvisor.fr A priori moderation	<i>TripAdvisor</i> sets out a series of rules (e.g., "... we do require reviewers to certify that they are reviewing their own experiences before they can submit their review ...").	Reviews of Latvian restaurants are available on the site alongside reviews written by other site users. Some have been tagged as "useful."

	Objective	Web 2.0 tool, control	Writing guidance (models, scaffolding)	Dissemination of productions
3	Talk about your relationships (“pet names” for one’s partner)	<i>Journal des Femmes</i> , personal accounts. A priori moderation	Productions guided by the requirement to answer questions. Model supplied with an associated vox-populi video.	Productions by the Latvian students were published on the <i>Journal des Femmes</i> website (psychology/couple section) alongside those from other site users, but it is one discursive space among hundreds.
4	Write and publish a recipe	750g.com A priori moderation.	Production guided by the form that has to be filled in.	Only one learner uploaded a recipe to the site.
5	Share the culinary habits and specialties of one’s home country	Livemyfood A posteriori moderation	Production (of one’s “culinary tastes and experiences” and the country’s specialties) guided by the form that has to be filled in.	Learners’ productions can be found on the site by searching for “Latvia.”
6	Recommend a film on a social network for cinemagoers	Cinетрафic No moderation	Little guidance given for productions (“recommendations”), even in terms of their length. Subjectivity and positive reviews are encouraged.	Some of the learners’ productions can be found by searching for “cinéma letton” (Latvian cinema).
7	Share a recipe on a specialist website	Marmiton.org A priori moderation	Learners worked on a Recipe Book (Private Area).	Recipes were not made accessible to site users, even though it would have been possible to do so (after selection).
8	Play on stereotypes by creating a comic strip	Birds dessinés A posteriori moderation	Form of writing with restrictions (max. 6 panels, characters=birds, finish on a point).	The tool was used as a model for creating the comic strips, not for disseminating them (the comic strips were not published).

	Objective	Web 2.0 tool, control	Writing guidance (models, scaffolding)	Dissemination of productions
9	Present a typical recipe from one's home country.	<i>Journal des femmes</i> , "cookery" column. A posteriori moderation.	Form with 21 fields, 9 of which are obligatory, corresponding to the different parts of a recipe. Some fields are accompanied by writing suggestions (e.g., for the "Comments" field: "X's favorite dish, a recipe from ..., a dish I make for ..., or any other ideas you may have").	The Latvian learners' recipes can be found on the site.
10	Produce a CV in the form of a slideshow.	Slideshare No moderation	No guidelines other than the format of the files accepted (slideshows, documents and videos).	
11	Present a Latvian recipe	Cuistos.com Type of moderation not specified.		The learners did not publish their recipes until their productions had been corrected because the site no longer allowed registrations from new members.
12	Produce an attractive presentation of a Latvian film.	Prezi.com No moderation	The tutors created a Prezi presentation of the film <i>The Intouchables</i> as a "model."	Productions accessible by searching for "cinéma letton" (Latvian cinema).
13	Share "Tu sais que" stories about one's home town or country	tu-sais-que.com website, then Facebook group. <i>TSQ</i> is moderated: only the best <i>TSQ</i> stories are published.	Syntactical guidance as sentences must follow the format "Tu sais que tu ... quand tu ..." (You know you are .. . when) + respect the humor genre.	When the <i>TSQ</i> website failed to publish the learners' stories, the tutors created a <i>Facebook</i> group and invited 30 of their "friends" to take part. As a result, the learners' <i>TSQ</i> stories were mixed with native French speakers' stories, with reciprocal comments.

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By means of a study of didactic design in secondary school classrooms, we describe the actions that two teachers take so that students read and write to widen their understanding of difficult concepts related to Molecular Biology. Our observations show that students resorted to reading only when the teacher was able to involve them in a reading purpose and gave them situated guidance on how to use the texts. Furthermore, students turned to reading to write about Protein Synthesis when the teacher delayed the institutionalization of concepts and monitored how to check divergent interpretations through consulting the literature. On the contrary, reading was considered superfluous when the teacher provided early validation to incipient students' knowledge.

Cette étude didactique décrit les interactions enseignants-élèves observées lors de l'intégration du travail de lecture et d'écriture dans deux classes du cours de biologie du secondaire. Elle vise à identifier les démarches des enseignants favorisant ou contrariant l'engagement des élèves dans l'activité de lire pour élargir leur compréhension. Notre étude porte sur une séquence didactique consacrée à la synthèse de des protéines et comportant sept séances, menée dans deux classes, pour des élèves en douzième année de scolarité. Nos observations montrent que les élèves n'ont recours à la lecture que lorsque l'enseignant a pu les engager en leur fournissant un but de lecture et leur a donné des indications sur l'utilisation des textes. Plus précisément, les élèves se sont engagés dans la lecture afin d'écrire au sujet de la synthèse des protéines lorsque le professeur a différé l'institutionnalisation des concepts et les a engagés à mettre à l'épreuve les interprétations divergentes en consultant la littérature scientifique. À l'inverse, la lecture est apparue comme superflue lorsque l'enseignant a validé précocelement les interprétations orales des élèves.

1. Introduction

In Argentine secondary schools reading and writing tasks across different subjects are usually limited to the teacher assigning a text to read, students reading the text (or not) on their own, and then completing simple questionnaires.¹ It is seldom considered that reading and writing may enrich students' learning. In this context, we wonder what teaching situations can promote students' interaction with "difficult subject matter" by means of reading and writing. Since these teaching situations are not typical, we resorted to a study of didactic design in which researchers together with teachers planned a teaching sequence on Protein Synthesis intertwining reading comprehension practices with subject matter. In this chapter, we analyse the implementation of this teaching sequence in two Biology courses, each in a different secondary school. Through the analysis of classroom interactions, we identified which teacher actions promoted student engagement with reading and writing as a means to widen their understanding of the concepts that they were dealing with.

Our study aims to discern and characterize the learning opportunities that are created when teachers integrate reading to write tasks while teaching science concepts. Authors such as Hand, Prain, Lawrence and Yore (1999), Hohenshell and Hand (2006), Jorba, Gómez, and Prat (2000), Lemke (1997) and Sutton (2003) state that reading, writing, and talking must become *objects of teaching* in order to work as *tools for learning*. However, what does this mean? Two different approaches emerged in our literature review.

Some authors (e.g., Izquierdo and Sanmartí, 2000; Márquez & Prat, 2005; 2010; Morgan, 2013) suggest teaching reading and writing in sciences in the same declarative way conceptual lessons are taught. They propose, for instance, that the teacher explains types of texts ("description," "argumentation," etc.) for the students to apply when reading and/or writing science texts. They also suggest creating communication situations in the classroom to work on aspects of language and, in parallel, the subject content.

In contrast, other authors analyze experiences in which reading, writing, and talking about texts are intertwined—as study practices—with the teaching of the subject content (Carlino, 2005; Carlino et al, 2013; Espinosa, Casamajor, & Pitton, 2009; Hand, 2012; Hohenshell & Hand, 2006; De Michelis & Iglesia, 2012; Orange, 2012; Roni & Carlino, 2013). As an example, Biology teachers share with students their conceptual knowledge along with their practical knowledge about taking part in specialized literacy events. This implies, for instance, guiding students in selecting ideas in a text to answer challenging questions, debating divergent interpretations related to reading

material, helping them to weigh the value of some fragments or quotes to solve comprehension problems, and discussing how to highlight and annotate texts to hierarchically organize and relate ideas, etc. According to these authors, teaching reading and writing in the content areas means enculturing students into such events through supporting their participation.

This chapter describes the study of a teaching sequence that, following this second approach, interweaves molecular biology topics with literate practices. Our research aim was to explore its learning potential and, in particular, to critically ascertain which teacher actions promote or hinder secondary school students from adopting these practices as epistemic tools.²

2. Conceptual Framework for the Design of the Teaching Sequence

The teaching sequence integrated reading, writing and multivoiced dialogue into Biology classwork to increase students' cognitive activity regarding the content being taught. Following the principles of writing across the curriculum, reading and writing to learn, and dialogic teaching (Bazerman et al., 2005; Dysthe, 1996; Dysthe, Bernhardt, & Esbjorn, 2013; Russell, 2002; Tynjälä, Mason, & Lonka, 2001), we tried to involve students in situations of interaction with disciplinary topics through reading, writing and talking about science texts. This was a challenge, since introducing reading and writing as classwork does not ensure their epistemic use, which depends on the conditions in which these activities are performed (Carter, Ferzli, & Wiebe, 2007; Langer & Applebee, 2007; Ochsner & Fowler, 2004; Wells, 1990).

In order to plan teacher's interventions, we resorted to the Theory of Didactical Situations (Brousseau, 2002, 2007) and the Joint Action Theory⁴ (Sensevy, 2011, 2012; Sensevy & Mercier, 2007), in which teachers are expected to perform four actions (define, devolve, regulate and institutionalize) to help students build the necessary knowledge to learn.³

The teacher **defines** the "didactic milieu" (educational setting) when he or she explains the rules that the student will have to observe to interact with a challenging object of knowledge. Additionally, she **devolves** (i.e., returns) problems (makes questions and pauses, poses tasks) that seek to genuinely engage students, and shows reticence (does not explain everything she knows). This function is based on the premise that learning is possible as long as students experience the need to search for more knowledge. The third function, **regulation**, occurs when the teacher guides the task; e.g., when she encourages students to refocus their work towards the lesson objectives.

When defining, devolving and regulating the classroom task, the teacher

situates students in the role of producers of knowledge, although this knowledge is not yet explicitly related to the subject knowledge. For that to be possible, the teacher *institutionalizes* it, i.e., validates the knowledge produced by students and establishes links between their knowledge and subject concepts, helping them become less dependent on the teaching context and therefore potentially more capable in the future in another situation.

To sum up, in the design of the teaching sequence we took into account the contributions of two main traditions: the US WAC movement and the French Didactics. This chapter analyses whether and how reading, writing, and talking about texts, in two Biology classrooms, were useful for involving students in study practices.

3. Methodology

We developed a design-based study (Sawyer, 2006; Kelly & Lesh, 2000; Kelly, Lesh, & Baek, 2008) inspired by Didactical Engineering (Artigue, Douady, Moreno, & Gómez, 1995; Buty, Tiberghien & Le Maréchal, 2004). This methodological approach is used to understand the functioning of unusual teaching systems (the interaction among teacher, students, and knowledge to be taught) that have to be built by the research team so as to be observed in the classroom (Brousseau, 2007; Chevallard, 1997; Sensevy, 2012). The design combines top-down and bottom-up components because the teaching situation to be studied is based on theoretical knowledge and, at the same time, the analysis of classroom observations empirically supports (reasserts, specifies) or challenges (limits, questions) the validity of the educational theories on which it is based (Pieters & Jochems, 2003; Rickenmann, 2006; 2007; Sandoval, 2004; Vanderlinde & van Braak, 2010).

Two teachers from different secondary schools were selected to participate. They showed high commitment to the learning of their students and were enthusiastic about working together with the research team. The teachers belonged to contrasting institutions, attended by students of different socio-economic backgrounds. Classroom A school exhibited an educational project of high academic expectations for its students, who belonged to middle-class families with a university background. In contrast, Classroom B school was attended by students of working-class families, with parents that had not always been able to finish their secondary education. Many of the students in Classroom B had repeated grades or interrupted and, then, started over, therefore being overage. Both teachers taught the penultimate grade of the secondary level.⁵ Classroom A had 27 students between 16 and 17 years, and Classroom B had 20 students between 16 and 20 years.

The research process, as a study of teaching design, was developed in three stages. In the first stage, we worked with both teachers for a year and a half in order to develop shared criteria to design the teaching sequence. Six-months before implementing the final teaching sequence, a pilot sequence was jointly designed and performed so that teachers and students could become familiar with reading and writing to learn tasks. The pilot sequence was also an opportunity to get used to the presence of an observer in their classes.

As a result of the first stage, a final teaching sequence of seven lessons about the process of Protein Synthesis (PS) was designed. We chose this topic based on two criteria: it was an important content in the syllabus and it had been usually found difficult by students, according to the teachers' experience. Designing the sequence around this content contrasts with most published studies or innovative experiences, which have dealt with more peripheral or less challenging topics (Roni, Rosli, & Carlino, 2010).

During the second stage, teachers implemented the final sequence and had weekly meetings with the first author to monitor purposes, maintain or modify agreements and consider the unexpected. The first author observed and recorded the lessons, and took notes about them. Her notes and class transcripts were then entered into a written record of the interactions (Guber, 2001). Classroom documents and teachers' field diaries were collected. Teachers and 9 students in each school were interviewed before and after carrying out the sequence. The implementation of the planned lessons in Classroom A always preceded that of Classroom B by one week. As a consequence, the situations arising in Classroom A were revised and slight changes in the sequence were agreed with the teachers before the lesson was given in Classroom B. As well, emerging challenges were periodically discussed with the second author and with other members of the GICEOLEM (Group for an Inclusive and Quality Education by Taking Care of Reading and Writing in all Subjects, <https://sites.google.com/site/giceolem>).

In the third stage, a qualitative analysis of the data from the lessons was conducted using a descriptive-interpretative approach. We focused on the "didactic action" (Brousseau, 2007; Chevallard, 1997; Sensevy, 2012). To understand how the teacher's interventions fostered or discouraged involvement with reading/writing to learn, we analyzed 28 hours of observation data (14 hours in each classroom), transcriptions of teacher and student interviews (1 hour and 20 minutes each on average, respectively), and the teachers' field diaries.

For this chapter, we examine lessons III and IV, in which new content knowledge was introduced (the processes of Transcription and Translation of PS). The records of both lessons were independently scrutinized by each of

the authors, who categorized the teacher's interventions according to function (definition, devolution, regulation and institutionalization), discussed their categorization, and reached a final agreement. This descriptive analysis was used as a basis for an interpretative analysis to identify what teacher actions had promoted specific student actions related to reading and writing to learn. Thus, recurrent and distinctive patterns were identified, from which explanatory hypotheses about the relationship between teacher actions and student activities were formed.⁶

3.1. Teaching Situations Analysed as a Didactic Milieu

Lessons III and IV of the teaching sequence comprised two situations: *watching to discuss what is beginning to be understood*, and *reading to understand more and write*. Both situations, which took place during the same lesson, constitute a didactic milieu (Brousseau, 2007; Sensevy, 2012), i.e., a setting for teachers' and students' joint action regarding the specific content of transcription (lesson III) and translation (lesson IV) in the protein synthesis process. The same didactic milieu was recreated four times: twice in Classroom A and twice in Classroom B (Figure 23.1).

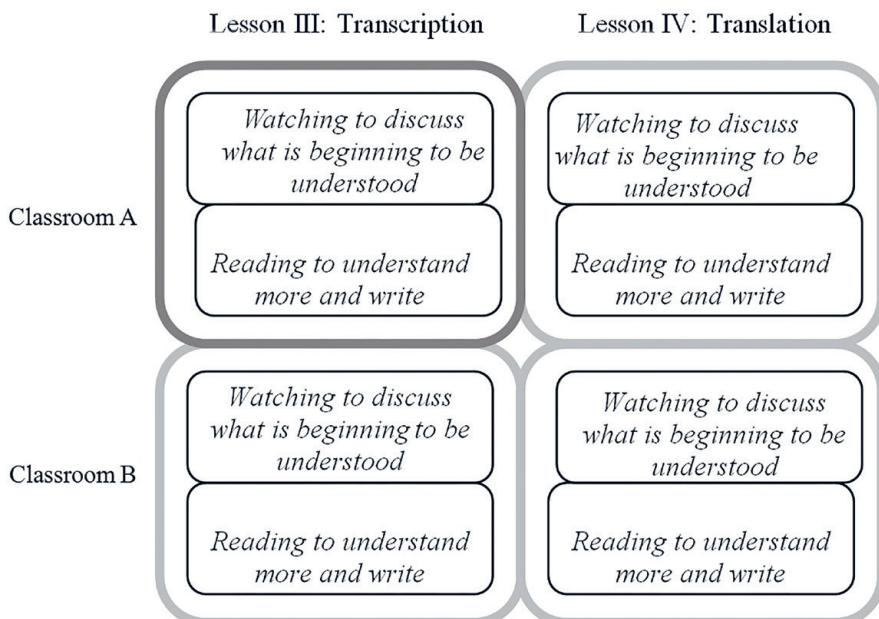


Figure 23.1. A similar didactic milieu in classroom A and B during both lesson III (protein synthesis) and IV (protein transcription)

In the first situation, students watched an animation about the two stages of the PS process, during which they took notes and discussed their interpretations.⁷ In the second situation, *reading to understand more and write*, students were required to write explanatory figure legends of images taken from the animation, for which they had to consult class notes and texts from a reading dossier. (Texts for the *dossier* were selected from different sources. They supplemented each other in information and level of complexity.)

Hence, the designed didactic milieu involved familiar situations (e.g., note-taking and exchanges with the teacher), but also posed challenging tasks to promote learning. Particularly it required that students, in order to write the figure legends, link ideas discussed orally about the animation with information in the reading material.

4. Results

In Classrooms A and B, the situation we referred to as *watching to discuss what is beginning to be understood* aimed to prepare students to write figure legends after a reading activity (*reading to understand more and write*). However, the functions embodied by the teachers led to different actions on the part of the students.

Our analysis reveals that in the first three implementations of the milieu, two in Classroom A (lessons III and IV) and one in Classroom B (lesson III), the teacher institutionalized the conceptual subject knowledge before reading. As a result, students did not feel the need to read in order to write the figure legends. The premature institutionalization of knowledge had the undesired effect of discouraging students from making use of subject texts to access richer conceptual and rhetorical meanings. In contrast, when this didactic milieu was recreated for the last time in Classroom B (lesson IV) and subtle changes based on the previous experiences were made, the institutionalization of subject knowledge was delayed. First, the teacher encouraged students to read specific texts to validate their oral interpretations of the animation and regulated how this validation was done. Consequently, when writing the figure legends, students resorted to this reading procedure, which was meaningful for them due to the teacher's prior interventions.

Further insight into this analysis is provided through lesson transcripts.

4.1. Interactions Centered on Conceptual Content

Lesson III in Classroom A began with students watching the animation and taking notes. The teacher encouraged them to share their interpretations and then reformulate them using the scholarly knowledge corresponding to the

subject. He devolved problems, regulated student efforts, and institutionalized their converging answers. Table 23.1 shows their interactions.

Table 23.1. Classroom A - Lesson III. Situation "Watching to discuss what is beginning to be understood." The teacher institutionalized the concepts before the students read.

203. [0:09:39] Dina: I wrote that " <i>a gene is a DNA nucleotide sequence that carries a protein's amino acid sequence.</i> " So I am adding what the nucleotide sequence does to what Silvio wrote. [Silvio had already read his gene definition]	
204. Teacher: She is saying that the DNA has the information to construct a protein; we already know this from the other [previously read] definitions. But Dina is also clarifying that the DNA shares its database.	Micro-institutionalization of the information that has been agreed on and regulation of the discussion.
205. Joaquín: It depends on how the databases are arranged.	
206. Julia: But . . . Doesn't it depend on the order of the amino acids?	
207. Teacher: Who can answer her question?	Devolution of the responsibility to define the relationship between bases and amino acids.
208. Sonia: Could you repeat the question?	
209. Teacher: Go on.	
210. Julia: You [Joaquín] talked about the order of the databases, but we had only discussed the arrangement of the amino acids. How does that work?	
211. Teacher: Could we come up with a single definition for both of these concepts? [Students are taking notes in their notebooks.]	Regulation by focusing attention on how two components relate to one another and devolution of the problem so that the students are the ones to answer the question.
212. Juan: The arrangement of nucleotides will affect the arrangement of the amino acids.	Autonomous and converging exchanges of students on the functions of the nucleotides and the amino acids in the translation process.
213. Tito: Sure, one determines another.	
214. Julia: The arrangement of the nucleotides determines the arrangement of the proteins [she should have said <i>the arrangement of the proteins' amino acids</i> .]	Institutionalization of the knowledge constructed by the students.
215. [0:12:40] Teacher: Exactly. The gene is in the DNA; therefore, the gene information is in the arrangement of the nucleotides. Now, by means of these two processes we are studying, first transcription and then translation, we finally obtain a protein that has an arrangement of amino acids.	

Note: The speaking order has been numbered for clarity since the start of the lesson (at 0:00).

Table 23.2. Classroom B—Lesson III. Situation "Watching to discuss what is beginning to be understood." The teacher institutionalized the concepts before the students had read or discussed them.

162. [1:20:12] Teacher: Do you realize how short this video is? Let's examine it frame by frame. Here is the first image. [...] What is this? [pointing to DNA on the screen]	Definition of the milieu: watching frame by frame and identifying what is there.
163. Students: The DNA.	
164. Teacher: All the DNA?	Regulation by asking students to distinguish between the DNA and the gene.
165. Germán: No, part of it.	
166. Teacher: Which part? What's it called?	
167. Students/Germán [shouting]: The gene.	
169. Teacher: So this is the gene. Now some of you are taking notes. [She says this so that other students will also take notes.] And the gene has a region known as a promoter. What is a promoter? It is a transcription start site, a signal. Who receives the signal? The enzyme. So, the gene has a transcription start site biologists call the TATA box. Why is it called TATA?	Micro-institutionalization of the information about the gene. Regulation so that every student takes notes. Further explanation.
170. Fernando: Because it only has Ts and As.	
171. Teacher: Very good! Thymines and Adenines.	Micro-institutionalization and precise information.
172. Flor: What's it called? [She is asking the teacher to dictate.]	
173. Teacher: The TATA box sequence. That is the promoter of the gene, [i.e.,] the transcription start site. That would be the promoter. So transcription starts when the enzyme called RNA Polymerase recognizes the promoter.	Teacher answers and explains further (instead of devolving the question to the classroom group).
174. Germán: What's the enzyme called?	
175. Teacher: RNA Polymerase. [Everybody copies in silence. Natalia repeats the questions and the teacher repeats the answer. The lesson has become a dictation.] [...]	Teacher answers (instead of devolving the question).
179. Fernando: What does it recognize? [He wants the teacher to complete the sentence.]	
180. [1:29:26] Teacher: ... the promoter. Let's take a look at the next image. The enzyme recognizes the promoter and binds to that promoter ...	

As observed on Table 23.1, Classroom A students were able to express their ideas because the teacher shared his responsibility in interpreting and delivering the information. By not answering Julia's question immediately

(206), he encouraged peer interaction and consistently devolved the problem to the whole group (207, 209, 211), serving as merely a guide throughout the exchange (204, 211). These actions helped students to connect different interpretations (205, 212), improving or adding on to their peers' interventions (203, 213), and building pertinent knowledge (214). The teacher institutionalized (215) the understanding that had been reached once the students' ideas converged. He corroborated the agreement reached by the class and presented it in a way that approached the scholarly knowledge.⁸

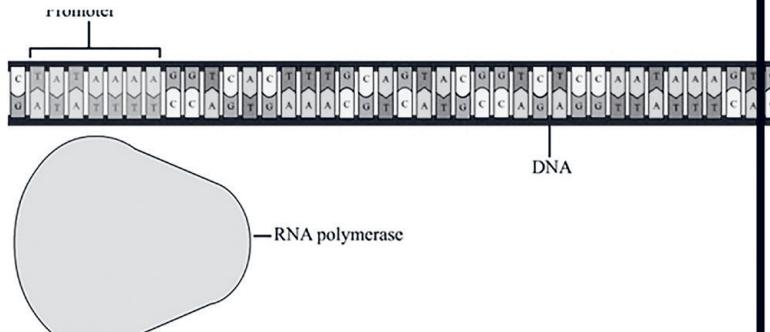
However, in the following situation, *reading to understand more and write*, when students began to write the figure legends, they did not feel the need to consult the reading material. They expressed: "My notes have all the information and they're easier to understand," "I don't understand the readings," "It's a lot of work to do in the classroom," "The information we discussed in class is enough." Thus, despite their familiarity reading difficult texts, students did not consider it necessary to consult the readings in order to do the required writing assignment. Their notes taken during the animation were enough. The same occurred in lesson IV.

Likewise, during lesson III in Classroom B students did not consult the reading dossier to write the figure legends, although the activity had been slightly modified based on the results in Classroom A. During the discussion, students were asked to take notes on photocopies showing images of the animation. They would then re-write their initial notes informed by the readings.

However, this did not happen; on the contrary, the authorized voice of the teacher was even more pervasive than in Classroom A. The activity *watching to discuss what is beginning to be understood* turned to a radial exchange between students and teacher, who unintentionally began to dictate how each frame of the animated lesson should be interpreted (Table 23.2). As shown in Table 23.2, the teacher's knowledge took precedence (169, 173, 175 and 180) over the intended exchange of interpretations. She provided the students with the text for their figure legends. Later, in the activity *reading to understand more and write*, they did not take it upon themselves to look up information in the reading material to enrich their knowledge. As a result, their figure legends were conceptually poor, similar to the notes they had taken during the animation.

The figure legends of this frame (Figure 23.2) should have read as follows: "The transcription process begins when the enzyme RNA Polymerase recognizes the DNA promoter sector, called the TATA Box due to its thymine and adenine bases." Marcos's and Julia's legends left out the element that recognizes the promoter, providing an incomplete explanation. Facundo and Marcelo, who decided to work together, did not write any legend at all.

Frame 1



a- [Marcos]

Gene → Promoter (initiation sequence)

RNA Polymerase recognizes the promoter

b- [Julia]

*When the DNA sequence transcription begins it
recognizes the promoter*

c and d- [Facundo and Marcelo]

Figure 23.2. Figure legends by Marcos, Julia, and Facundo with Marcelo
- Lesson III of Classroom B

As reflected in the students' output, the teacher's actions in Classroom A and during this particular lesson in Classroom B did not encourage students to make sense of the proposed activity: "I read because I need to know more in order to write the figure legends." We believe this happened because teachers explained the contents of the text instead of helping to understand the purpose and procedure of reading. As a result, students did not have any reason to carry out the laborious task of reading because during the oral exchange

they had obtained an explanation of the PS process, written a sentence for each projected frame and handed in what they assumed the teacher expected. The teacher's voice ranked higher as a reference than their own work with the material. Through resorting to specialized texts, they could have written figure legends that approached scholarly knowledge, but they did not adopt this as their objective, or rejected it as inaccessible.

4.2. Interactions Centered on Content-Area Reading and Writing

By the fourth implementation, the activity had been redefined as *watching and reading* to discuss what is beginning to be understood. Table 23.3 shows how the teacher repeatedly encouraged students to consult the dossier to defend, enrich, and validate their interpretations about the location and function of codons and anticodons in the translation process. Specialized concepts and reading practices were thus taught simultaneously.

Table 23.3. Classroom B—Lesson IV. Situation “Watching and reading to discuss what is beginning to be understood.” The teacher institutionalizes based on students’ reading

<p>[The teacher stopped the animation and, asked students to read out loud a brief text containing an illustration of the tRNA and the mRNA in the Translation process. Students were then asked to share what they had understood from both the animation and the reading. Marcos mistook codons (or triplets) with anticodons (a frequent mistake) so the teacher decided to pause to address the concept through the reading to solve the problem.]</p>	<p>Definition of which text would be useful for students to understand the animation.</p>
<p>72. [0:33:11] Teacher: Let’s see . . . Marcos says that tRNA has three tips, and that these are the triplets [or codons]. Does everyone agree?</p>	<p>Regulation on what topic to focus the interpretation work.</p>
<p>73. Alejandro: Which one is the anticodon?</p>	<p>Devolution of Marcos’s interpretation as a question for the rest of the class, searching for convergences and divergences regarding the location of codons.</p>
<p>74. Teacher: Which one is the anticodon? [Is it in the tRNA or in the mRNA?]</p>	<p>Devolution of Alejandro’s question to the rest of the class.</p>
<p>75. Jonathan [almost inaudible]: The anticodon is in the lower part of the tRNA. [He points to the illustration and contradicts Marcos.]</p>	
<p>76. Teacher: He [Marcos] pointed to the three tRNA tips [in the illustration], and here Jonathan is saying that they actually form the anticodon. Let’s see, what part of the text helps you identify which is the codon or triplet?</p>	<p>Devolution of two opposite interpretations regarding the location of codons. Defining a specific reading purpose. Regulation of how to read</p>

[...]	
79. Juan: But isn't the triplet these three alone? [He insists on solving the problem by pointing to the illustration instead of reading nearby in the text.]	
80. Teacher: It's these three down here [referring to the illustration]. Can you see that it says UGA? These are the three nucleotides, the anticodon. And where is the triplet or codon? Are they in the tRNA? Go back to the reading to find where the codons are.	Upon Juan's insistence, she micro-institutionalized and devolved part of the question that Juan left unanswered regarding the location of the codon regulating the reading.
[...]	
96. Teacher: Keep looking [in the text], find where the codons and the anticodons are. It is in the text. Look for that part. Do not look for the answer in the illustration: use the text, guys. The text is what helps you understand the illustration.	Regulation of how to read in order to answer the question by explaining that it is necessary to relate the illustration (paratext) to the text.
[...]	
105. Natalia: mRNA! [She points to words in the text].	
106. Teacher: Please read that part.	Devolution and regulation to show that the text would enable the student to justify her claim.
107. Natalia reads: "The message that the messenger RNA has is decoded three nucleotides at a time. Each of these units of the ribonucleotide sequence is called a triplet or codon."	
108. [0:36:03] Teacher: Where are the codons or triplets? In the messenger RNA. So the transfer RNA has anticodons that are complementary to the mRNA codons, right?	Institutionalization of the conceptual content.
[...]	
119. [0:37:25] Teacher: OK! Underline that part of the text because it will be useful when you're writing your figure legends. Look at my text [she shows some pages of the readings that have been highlighted and annotated]. It has a lot of notes and is underlined. Let's work directly with the text to see if it gives me the information there.	Regulation of how to read by showing that reading to learn requires underlining and making notes on the margins.

As shown in Table 23.3, Classroom B students were involved in building knowledge when the teacher repeatedly devolved a question on how to interpret the animation (72, 74, 76 and 80). In this case, the teacher did not institutionalize student interventions that seemed to be approaching scientific knowledge (75, 79 and 105).⁹ In contrast, she pointed out the differences in their interpretations (76), devolved the problem to the students and monitored text use to gauge their understanding of the animation (76, 80 and 96). In intervention 106, she asked Natalia to read out loud to account for her interpretation. The text -not the teacher- validated the student's understand-

ing (107). The teacher finally corroborated the resulting knowledge (108) and regulated the reading practice by showing her text annotations (119).

This excerpt exhibits an intricate exchange that gave sense and purpose to reading. By devolving responsibility, delaying the institutionalization of knowledge and guiding students in their reading, the teacher also gave them the opportunity to build conceptual, rhetorical, and procedural reading knowledge. Consequently, as the situation progressed, students increasingly used the reading dossier to understand the animation images (Table 23.4).

Table 23.4. Classroom B—Lesson IV. Situation “Watching and reading to discuss what is beginning to be understood.” The teacher institutionalizes based on students’ reading

120. [40:26] Teacher: OK, let’s take a look at the next one. [She changes to the next animation frame.] What happened here? The transfer RNA comes ...	Regulation to start with the tRNA to discuss the projection.
121. Fede: ... with an amino acid.	
122. Teacher: With an amino acid, what else do we have?	Devolution and regulation to alert students that there is more information to be obtained.
123. Natalia: The large subunit	
124. Teacher: The ribosomal large subunit, right? So, here comes the messenger RNA ... Find the part of the text that explains this.	Regulation making the information given by Natalia more precise, and focusing on one element in order to guide the reading.
125. Jonathan [reads]:The messenger RNA is decoded three nucleotides at a time.”	
126. Teacher: Is that information relevant to what we just watched?	Devolution and regulation of how to read by asking students to determine whether the text helps to interpret the projection.
127. Germán: No.	
128. Teacher: Part of it is, why?	Regulation by guiding the solution to her question in 126 and devolution
129. Federico: To know that it will happen three nucleotides at a time.	
130. Teacher: Right, to know that it will happen three nucleotides at a time. But there is something more. Keep on reading. Let’s see ... Ana [who was raising her hand], read it out loud, so everyone can hear.	Microinstitutionalization and regulation by stating that something more is expected, and that students should continue reading.

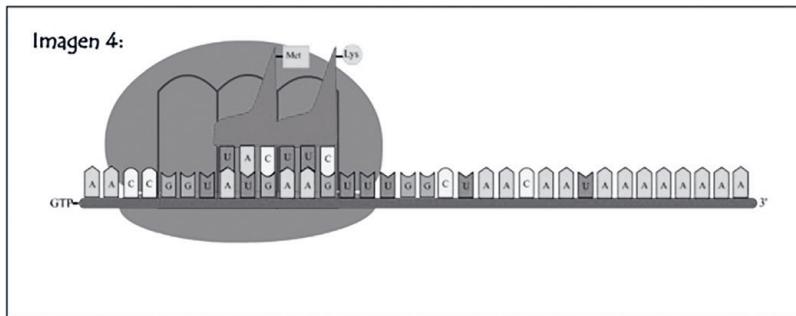
131. Ana: "Now the transfer RNA appear; each contains the corresponding amino acid."	
132. [0:43:42] Teacher: Very good! Look, the text continues to refer to the ribosome that is moving. However, Ana has gone back to the earlier segment corresponding to this particular moment: " <i>Now the transfer RNA appear; each contains the corresponding amino acid.</i> " So, is that the only useful excerpt? Let's keep reading ...	<p>Institutionalization of Ana's contribution and of her practice of reading previous paragraphs.</p> <p>Regulation of how to read: continue reading to determine if there is more relevant information.</p>

Table 23.4. shows how the teacher prompted students to identify whether the text provided the information they were searching for (126), and insisted that they kept reading to see if the subsequent text was still relevant (130, 132). In contrast with lesson III (Table 23.2), students did resort to reading to understand the images (125, 129, 131). Ana even took the lead by going back in the text to find the information.

Students' actions can be thought of as a "reaction" (Sensevy, 2011) to consistent teacher interventions (Tables 23.3 and 23.4). The teacher guided students on reading to develop and rework their interpretations of the animation, taught them how to use the text to validate these interpretations, showed them how to search for additional information, link the illustrations with the written word, determine whether the information they read served a specific purpose, etc.

The approach used in lesson IV affected the next activity, *reading to understand more and write*. Classroom B students immediately turned to the dossier after the assignment was explained. The recording and observation notes of the classroom account for more than 40 minutes of uninterrupted work in pairs with the texts when writing the figure legends. It was also noted that students worked for several minutes past break time until they considered the task was ready to hand in to the teacher. We believe this happened because the teacher had successfully shared not only the tools for performing a specialized reading practice but also the reason for doing so.

The resulting figure legends (Figure 23.3) were different from those produced in lesson III (Figure 23.2). Students offered sophisticated explanations of a major process, briefly describing element, location, and function, etc. In addition, two of the students who had not completed the activity in lesson III were able to do it this time. One of the students, Facundo, received the following comment from the teacher on his legend: "*Way to go, Facundo! This is the first time I've read a text of yours because you hadn't written them or handed in a blank piece of paper ... keep up the good work!*"



- a- [Marcos] *A new tRNA bound to an elongation factor and to the corresponding amino acid attaches to the next triplet, and the two tRNA are each left with their amino acid side by side.*
- b- [Julia] *Then another tRNA is incorporated, that binds to the following triplet, and thus the tRNAs, each containing their amino acids, are side by side.*
- c- [Facundo] *Then another tRNA is put into place; this tRNA links to the next triplet, and thus the tRNAs each have their amino acid.*
- d- [Marcelo] *Another tRNA is placed with its corresponding amino acid and its complementary nucleotides that attach to its triplet.*

Figure 23.3. Figure legends of Marcos, Julia, Facundo, and Marcelo - lesson IV of Classroom B

Although no figure legends written after consulting the dossier copy the source text word for word they do exhibit the vocabulary that is typical of the subject and reveal that students have adequately used complex concepts that identify the function and location of codons (or triplets) and anticodons.¹⁰

According to these results, the first three recreations of the didactic milieu (two in Classroom A and one in Classroom B) were not able to engage students with the practice of reading to write. Even in the third recreation, the implemented change had the paradoxical effect of making students more dependent on the teacher's voice. Only the fourth recreation, that had been redefined to enable the joint work of teacher and students around a text, managed to make students subsequently resort to autonomous reading in order to write.

What are the interaction patterns that characterize the four implementations of the didactic milieu studied in this paper? In the first three implementations, the teacher provided a premature *institutionalization* of the subject content through an oral explanation before the students had read, or –without intention—ended up dictating to the students her own understanding of the lesson. Thus, the students chose to take the teacher as the only source, since his or her voice was “easier” to understand and more “concise” than the readings. In contrast, in Classroom B lesson IV, the teacher delayed the validation of incipient knowledge and showed students how texts could be used for this purpose; she made room in class for reading a text to interpret the animation, and regulated text use to deepen the understanding of the topic. Consequently, students then read *motu proprio* texts that usually find too difficult, and wrote from them. Their figure legends reveal an appropriate use of sophisticated concepts, without being a copy of the texts.

Even though by means of the analysis of the interactions it is not possible to state that these literacy practices were firmly learnt, it can be seen that the teacher’s action began to create opportunities to that end. Taking into account the fact that Classroom B students came from families in which these academic reading comprehension practices were unusual, the opportunity to perform them together with the teacher was probably a necessary condition to gradually internalizing them.

5. Conclusion

Embedding reading and writing tasks in science classrooms does not necessarily help students make use of their epistemic potential. In this chapter, we have characterized the circumstances in which integrating specialized literacy work when teaching Biology manages to engage secondary students with study practices. Through a qualitative design-based research, in which a teaching sequence on protein synthesis was planned and implemented, we analyzed the interactions between teachers and students in two classrooms.

Thus, we identified teacher actions that promoted students’ reading to develop their understanding of the concepts they were asked to write about. During the implementation of a similar didactic milieu in four opportunities, we noted that students resorted to reading only when the teacher delayed the institutionalization of their incipient knowledge, devolved the responsibility of justifying and adjusting their knowledge through reading, regulated *in situ* how to use texts for this purpose and helped students to perform this study practice. On the contrary, when this incipient knowledge was completed through the teacher’s explanation and prematurely validated, students chose to write with-

out consulting the texts, and their figure legends were conceptually poor.

These results contribute to specify ideas originated from two theoretical fields: the North American movement WAC/WID -about how to actualize in the content areas the epistemic potential harbored by reading and writing-, and the French didactic theories (TDS/JAT) -about classroom conditions that enable students to become producers of knowledge instead of mere information recipients.

In this regard, we have attempted to understand what instructional decisions help students gain access to epistemic uses of reading and writing in the disciplines. Our findings reveal that, besides the designing of the tasks, the *functions performed by the teacher* must be taken into consideration. According to our analysis, it was necessary that the teacher devolved to the students the problem of broadening and validating their comprehension through reading-while at the same time she regulated how to do it-so that reading to write about a challenging topic made sense for them.

It is beyond the scope of this study to confirm the general validity of the didactic procedure identified here. Nevertheless, this joint action pattern is worth further study and broader confirmation in a variety of contexts. The recurrent feature that was found--the fact that early institutionalization of knowledge prevents students from resorting to reading in order to write--was not expected during the design of the teaching sequence. On the contrary, the examination of what occurred in classrooms allowed us to redefine the situation to improve the learning opportunities.

Notes

1. Typical questions require finding certain information in the text, which can be accomplished without understanding since the phrasing of the question matches the answer in the text.
2. The study is part of a Research Grant (PICT 2010-0893 *Writing and Reading to Learn. Approaches and Practices in Various Subject Areas*) directed by the second author and funded by the National Agency of Scientific and Technological Promotion of Argentina.
3. The Theory of Didactical Situations (TDS) originated in the '70s in the field of Mathematics Education. It is based on Piaget's theory on cognitive development as a constructive adaptation process, and Bachelard's notion about the progress of knowledge through tackling epistemic obstacles (Brousseau, 2007; Buty, Tiberghien and Le Maréchal, 2004; Sadovsky, 2005).
4. The Joint Action Theory (JAT) expands the TDS.
5. It corresponds to grade 12 (of a total of 13) of compulsory education in Argentina. Students usually begin when they are 5 years old, and ideally graduate

- when they are 18.
6. The microgenetic analysis of classroom interactions helps to explore the incidence of subtle changes of the didactic milieu on students' activity.
 7. The stage corresponding to DNA Transcription was projected in lesson III whereas the stage corresponding to RNA Translation was projected in lesson IV. See both animations at <http://www.stolaf.edu/people/giannini/flashanimat/molgenetics/translation.swf> and <http://www.stolaf.edu/people/giannini/flashanimat/molgenetics/transcription.swf>.
 8. He reformulated the content of previous exchanges, especially 214, in which Julia made a subtle mistake.
 9. Note in Table 23.2 that when students seemed to be missing a chunk of information, the teacher supplemented what they already knew.
 10. The text that might have inspired the figure legend of the frame included in Figure 23.3 says, "First, a tRNA that has the complementary anticodon to the AUG codon is delivered to the ribosome. Then another is delivered; this tRNA attaches to the next triplet, and thus both tRNA, each with its amino acid, are side by side," (De Michelis A., L. Donato, P. Iglesia, & P. Otero. *Acerca de Organismos, Células, Genes y Poblaciones*. Buenos Aires: Ediciones Villoldo Yanele, p. 5).

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24 The Issue of Professional Writing in the 21st Century: Multidisciplinary Tools for High-Level Writing

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This chapter explores the act of professional writing. The analysis shows that a professional writer needs to master the linguistic code but also high level written communication skills (Beaudet, 2010; Clerc & Beaudet, 2008; Labasse 2008).

By analogy to the research about the two processes reading, analytical reading and global reading, we hypothesize that the expertise of a “professional writing” is on the co-management of the analytical writing and the global writing. The writing process must be done within an overall writing effort integrating elements of denotation and connotation of the co-enunciators. For that, we will compare the practice of professional writing to his “interactional effectiveness” (Clerc & Beaudet, 2008; Romain, Pereira & Rey, 2015).

Our corpus consists of editorials, claim forms, and other written communication published by a general council and by a French city, and written materials for a site on urban densification. The goal of this analysis is to identify the elements of the functional writing and those of professional writing by studying the language skills: technical writing, discourse analysis, interactional pragmatic, linguistic politeness, and rhetoric. We will observe the organization of the technical elements of writing; language choices (methods of inquiry and skill, speech acts,...) leading to the development of an interpersonal relationship and specific interdiscursive elements; tools of linguistic politeness in the service of clarity and informativeness; and tools of rhetoric in the service of persuasion and the fit between form and content.

Par analogie aux travaux sur la lecture distinguant une lecture analytique d'une lecture globale, nous émettons l'hypothèse que le savoir-faire d'un expert en écriture professionnelle porte sur sa co-gestion de l'écriture analytique et de l'écriture globale.

Par analogie avec les travaux sur la lecture qui distinguent distinguant une lecture analytique d'une lecture globale, nous émettons l'hypothèse que le savoir-faire d'un expert en écriture professionnelle porte sur sa co-gestion de l'écriture analytique et de l'écriture globale. Le maniement du code linguistique écrit doit se réaliser à l'intérieur d'une écriture intégrant les fonctions pragmatiques du langage, c'est-à-dire son « efficacité interactionnelle » (Clerc & Beaudet, 2008 ; Romain, Rey & Pereira, à paraître).

Notre contribution se fonde sur l'analyse d'un corpus composé de deux ensembles de documents, l'un constitué des documents commerciaux ou règlementaires relatifs à la fourniture d'électricité, l'autre de documents édités par un service administratif. Notre analyse vise à identifier les éléments qui relèvent de l'écriture analytique technicité de l'écriture, choix linguistiques, méthodes d'enquête, actes de langage) et ceux qui relèvent de l'écriture globale professionnelle en étudiant comment se manifestent les habiletés langagières à travers les aspects pragmatiques et interactionnels, la politesse linguistique et la rhétorique, la conjonction des deux étant constitutive de l'écriture de haut niveau.

This chapter examines the act of professional copywriting through linguistics. Our analysis aims to show that copywriting expertise involves skills in writing code but also reveals high-level writing skills and communication (Clerc & Beaudet, 2008; Labasse, 2008).

By analogy with works on reading which distinguish between analytical reading and global reading we hypothesize that the expertise of a professional writer is based upon the ability to articulate analytical writing (to master the linguistic code in its complexity) and global writing (command of the communication situation, management of the relationships involved, and ultimately the efficient transmission of a message.). Graphic units and the order of these units within textual sequences, are dealt with within global writing, incorporating elements of co-enunciator denotation and connotation. If this is confirmed, our study may further support studies which consider professional writing and “interactional efficiency” (Clerc & Beaudet, 2008; Roman & Rey Pereira, forthcoming).

In this study we concentrated on the production of the writings from two complementary angles:

- Analytical Writing, that is to say, communicative writing which deals purely with information (the linguistic code in its complexity) and whose objective is to efficiently transmit information;
- Global Writing, that is to say texts saying favoring a co-management form of communication, so that the text is read with relational efficiency (and not simply with informational efficiency). The professional thus ensures a mediating role between the information to be transmitted and the reader.

Our corpus is composed of two sets of documents:

- The General Conditions of Sale of Electricity in 2014 (henceforth referred to as GCE) with regulated rates for residential customers for EDF (The French National Electricity Board) in mainland France, and the special issue on GCE “The Letter EDF & I” from July to December 2013 (letter accompanying the publication of the new GCE and incorporating the main changes);
- The set of rules published by the socio-cultural department in a welcome booklet providing information for families concerning activity centers for children in a French municipality.

In each of these sets of documents, the second document (i.e. “The Letter EDF and I” or the information brochure for child placements) aims to provide easier access for citizens and customers to the contractual and regulatory documents (the GCE and the set of rules). It is interesting to note here that both these documents are intended to accompany the documents which they refer to, but not to replace them.

Our goal is to shed light on the choices made by the professional to produce documents designed to facilitate the readability and accessibility of information, found in contractual or regulatory documents,

We believe that these changes attempt to open another channel of communication. This new channel is less formal and more relational. From the outset we observed that the more formal a document, the more the information contained in it stifled the relational aspects of communication. We therefore established a hypothesis that although the transformation and simplification of a document seems necessary to achieve readability, it is nevertheless, primarily, the attention given to the relationship with the intended reader which determines whether the information indeed becomes easily accessible. Thus, in the context of contractual or regulatory texts, the

expertise of a professional copywriter involves establishing a specific relationship between the writer and the intended reader and aims to dissolve notions of authority which are unsuited to a situation where the reader gains access to information.

The analysis of our corpus aims to identify the elements of professional editorial writing by questioning the linguistic and rhetorical skills demanded by regulatory or contractual texts and by the texts whose purpose was to make the latter more accessible, considering both technical writing, discourse analysis, interactional pragmatics and linguistic politeness. We studied the organization of technical elements of the writing; the language choices (such as processes of interpellation and address, impersonal forms and speech acts) leading to the development of an interpersonal relationship, a specific interdiscourse; and finally linguistic tools of politeness as a means of addressing the faces and providing information and clarity.

1. The Theoretical Approach

Every piece of writing requires both specific language skills and rhetorical and pragmatic goals to be taken into account (Kellogg, 2008). Furthermore, a specific relationship can be determined by these goals (Beaudet, 1998; Labasse, 2002; Roman & Rey Pereira, forthcoming). Our interest is in how these skills develop an interdiscursive relationship using elements to achieve pertinence and co-operation (or even negotiation under pressure) and requiring processes to manage the faces (threat attenuators).

Our analysis is inspired by the studies conducted both in pragmatic and interactional linguistics which have helped to further our understanding of the act of enunciation, as described by Benveniste, when exploring the relationship between the speaker and his statement. Thus, we will focus on the enunciative dimension of the written document, questioning the links between the writer and written production. We will look at the message through the traces of subjectivity (Benveniste, 1966, 1974; Ducrot, 1979; Kerbrat-Orecchioni, 1992, 1996, 2005), that is to say, through the inclusion of topics in the message (Vion, 1999, 2001) by the language choices (lexical and syntactic structure) and discourse.

More generally, we will focus on how language can act on others and on their choices (whether a text is read or not read in particular). This will lead us to consider not only the studies on the concept of face and those on representation through the definition of face work (Goffman, 1973ab; 1974) but also those on linguistic politeness (linguistic tools mitigate face threats carried by certain face threatening acts toward another (FTA) as

Brown and Levinson, 1978, 1987; studied tools in their perspective flattering acts (FFA) in the interaction by Kerbrat-Orecchioni, 1992, 2005). We also attempt here to further an influential definition of rhetoric (Meyer, 1993, p. 22): "negotiate the distance between subjects." This leads us to observe how the construction of the discursive ethos plays on the distance, and therefore, the relationship between the writer and the recipient.

Our study is an opportunity to ask questions about the links between the relationship set up by the professional and the mediation that his writing can establish between himself and others. Rousseau, who was interested in the concept of mediation (see especially 1992), emphasizes the same challenge of symbolic mediation with regard to the relationship between individuals. According to his work, mediation has a greater influence on social integration than reason does. Carmelites (2010), referring to Rousseau, establishes a link between social regulation and mediation, and articulates the integration (as group cohesion and points of view) and regulation (as negotiation of a dispute). Using these works as a basis to build upon, we hypothesized that linguistic and discursive choices lead to mediation between the recipient and the sender and therefore give rise to what is commonly called a specific relationship, which is pre-established but also transformed by the interaction. This mediation would go hand in hand with the search for a certain link consensus, which is both the interactional and therefore relational and more generally the search for the social bond between sender and recipient. Indeed, this notion of mediation is directly related to the notion of interactional negotiation defined by Kerbrat-Orecchioni (2005, p. 103).

Any process of interaction that can occur when a dispute arises between the interactors on any aspect of the operation of the interaction, and whose purpose is to reduce the dispute to allow the continuation of trade.

By analogy, we consider that writing a contract or procedural rules requires some negotiation, resulting in mediation in the progression of the document. This negotiation involves rewriting the document in a simplified form (amendments, cover letter, or welcome book) to allow the sender to access information in a linguistically and discursively mediated context.

We pay particular attention here to the fact that, this by no means constitutes a form of popularization of the formal documents, but rather to transform from a relational point of view, so as to circulate the information contained in them. The information being present in both documents, it is interesting to speculate on the tools / processes summoned to produce

a greater link. This mediation aims at articulating views towards a certain consensus and thus to create or re-create the link, the relationship. So, through the study of our corpus, our goal is to describe how the perspectives are taken into account by the professional. Rabatel (2012) describes three types of views: co-enunciation (co-building a common perspective: the speaker thinks and they speak with each other), over-enunciation (construction of a point view overlooking the benefit of a single enunciator) and the under-statement (construction of a dominant point of view in favor of an enunciator). As for Morel and Danon-Boileau (2003), they describe the joint statement as:

The representation of the other in the speech of speaker, to better prevent its reactions to facilitate consensus. (2003, p. 236-238)

In this study, we consider that co-enunciation is the fact that a writer / speaker includes the other's viewpoint and that s/he argumentatively articulates it within his/her own speech (admittedly an oversimplification but it nevertheless offers a simultaneous view of both negotiator and cooperator rather than imposing an overall view with no mention of negotiation, in an argumentation register).

2. Corpus Analysis

In interaction analysis, we identify two types of relationship between individuals: the vertical relationship (based on an initial asymmetrical relationship—the hierarchical relationship is the prototype) and the horizontal relationship (based on a more equal relationship, even familiar). The type of relationship that governs an exchange is thus determined beforehand.

2.1 The Letter “EDF and I”

The relationship between the energy supplier and its customers, as well as that between the municipality and its citizens, is an asymmetrical relationship. On the contrary, the letter “EDF and I” aims to make the new changes to the GCE readable and therefore accessible and mitigates or at least reduces the initial distance between EDF and its customers.

Similarly, the welcome booklet prepared by the municipality aims to make elements of their internal regulations readable. This information, as evidenced by their repeated complaints, had previously been both little read and little understood by users.

Using the corpus, we will identify and comment upon the processes used to transform the information, raising the question of which forms of language and which discursive strategies are required.

Les Conditions Générales de Vente du Tarif Bleu Évoluent.

Les nouvelles conditions générales de vente, jointes à la présente lettre, s'appliqueront à votre contrat le 1er février 2014. Plus claires, elles prennent notamment en compte les dernières dispositions législatives et réglementaires. Les modifications apportées ne concernent pas le prix de votre contrat (le tarif réglementé de vente étant fixé par les pouvoirs publics).

Notre démarche ? Vous aider à mieux comprendre les principales évolutions de ce document. Ainsi, vous trouverez dans cette lettre les principaux changements résumés en quelques lignes.

This document deals with the transformation of the annual GCE, consisting of different articles in a letter outlining the main changes in the next year. In other words, if the first document's function is to convey multiple elements of information (at least one per article), the second document focuses more on information in a broader context, that of a cooperative communication (relational idea of efficiency and not only transmission of information).

The purpose of the letter is mentioned in the title—"changing conditions of sale for the blue tariff"—then the reasons for the changes are explained, "notably in order to comply with recent legislative and regulatory provisions." Finally, the letter itself is justified in its purpose: "to help residential customers in continental Metropolitan France to better understand the changes in Terms and Conditions."

The introductory paragraph is personalized with regard to the reader, whom it refers to directly as "you." The letter is also signed personally with the name of the Director of Private Clients. The appearance of an utterer identified as an individual modifies the relationship between EDF and the customer. In the original document, only EDF is identified as utterer. The character and ethos are built in the GCE by the authority figure rather than by a third party (Meyer 1993, p. 119), in the "the licensing authority" case and "law" of the French Republic:

Le service public de l'électricité est organisé par les autorités concédantes (les communes, ou leurs groupements, ou ex-

ceptionnellement les départements, auxquels la loi a donné compétence pour organiser localement le service public).

Le service public ainsi concédé se décline en deux missions confiées respectivement au fournisseur Électricité de France (EDF SA) et au distributeur Électricité Réseau Distribution France (ERDF SA).

Obviously, it is to be expected that contractual documents would make such a definite reference to the authority which governs the contract. It is a commonplace of the exordium in rhetoric and may well be a first step in establishing that the writer is worthy of the reader's trust. The written content is legitimized by the recognized authority and accepted by the recipient. However, no sooner than the discursive ethos of EDF has been outlined the enunciator is erased by the very contractual nature of the document.

The opportunity to continue negotiating distance with the reader disappears.

By contrast, in "The Letter EDF & I," the explicit presence of a human utterer ensures negotiation. The construction of the discursive ethos still instrumentalizes the commonplace use of the authority, with mention of the function, "Director of Private Clients"—but in this case, the value of the speaker comes with a text which is assumed to be in the first person. The inclusion of the first name and surname of the director guarantee the existence of the utterer, providing the basis for the creation of an interpersonal relationship discourse overcoming the asymmetrical relationship between EDF and its individual customer.

What follows is the listing of the articles in which there have been main developments. This information is important as it tells the reader directly which articles have been changed. As well as stating the article, there is also an explanation of the changes involved. Six processes are observed:

1. The article or paragraph is fully summarized. It is observed that this process occurs when the changed passage is just a short passage (one sentence), which does not give rise to a reformulation or a particular introduction.
2. A general term referring to a complete list with detailed, briefly mentioned, or specific GCE. For example:

Article 7.2 / Modalités de Facturation

Les modalités de calcul des factures reposant sur des estimations de consommation sont davantage détaillées.

3. Extra terms to improve understanding:

Article 7.2 / Modalités de Facturation

Lorsque le client souhaite que ses factures soient établies sur la base de ses consommations réelles, il peut transmettre à EDF les index qu'il relève lui-même (auto relevés).

The “self-identified” formulation by reinforced use of personal pronouns, which is not the case in the original document: “If the customer wishes that these intermediate invoices are established on the basis of his meter readings, he can send the readings to EDF in the self-statements index.”

4. Partial explanation or reformulation in order to simplify, accompanied by language elements aiming to valorize (auto FTA self-addressed by EDF) and careful attention to the faces (auto FTA to the client).
5. Passive structures and improved lexicon:

“The customer is informed that” “the consumption calculation methods used to establish the cancellation bill . . . are clarified” or “the arrangements for informing the passage of reliever supplemented.”

EDF uses passive forms (sometimes omitting the complement of agent, sometimes not) which place the customer (object of the phrase) in the subject/ actor position in order that the customer has a central position in the text. Moreover, these transformations require an introductory lexicon emphasizing the clarity and intelligibility of contractual information provided by EDF (“clarified, completed and informed”).

The text presents itself as functional, intelligible and understandable and at the customer's service. The lexical choices concern subjective lexical units.

6. Simplified Syntax: The GCE for example, specifies:

EDF adresse au client une facture établie en fonction de ses consommations réelles au moins une fois par an, sur la base de ses index transmis par ERDF, si le client a permis l'accès à ses index à ERDF.

The writer of the letter has transformed this complex sentence by a juxtaposition of two sentences:

Article 7.2 / Modalités de Facturation

EDF adresse au client une facture établie en fonction de ses consommations réelles au moins une fois par an, sur la base des index transmis par ERDF. L'établissement de cette facture suppose que le client permette à ERDF l'accès à ses index.

The original sentence is split into two separate sentences; one concerns the sending of the detailed invoice by EDF to its client and the second concerns the conditions in which it will be sent (access given by the client to the index).

The latter condition is no longer subordinate to the client's action (in terms of syntax) as it was in the GCE. Thus the client has the possibility to have an invoice based on actual consumption, or not, and is not central in this reformulation. The result of this transformation or / rewriting is to make it possible for the reader (the client) to distinguish what both the client and EDF can do and what the client's responsibility is. Whereas in the initial contractual document, the two options are presented as dependent on each other in the same complex sentence (with a subordinate clause introduced by the subordinating conjunction "if," which focuses on the customer's behavior). There is a sort of distancing of the fault caused by the customer.

The following discussion concerns a long article of GCE:

Dans le cas où ERDF n'est pas en mesure d'honorer un rendez-vous, il lui appartient d'en informer le client, au moins deux jours ouvrés avant. Si elle ne le fait pas et que le rendez-vous est manqué du fait d'ERDF, EDF verse au client qui en fait la demande, un montant égal à celui facturé en cas de déplacement vain. Si le ren-dez-vous nécessaire à la réalisation de la prestation est manqué et non annulé au moins deux jours ouvrés avant du fait du client, EDF facture au client le montant correspondant à un déplacement vain qui figure dans le Catalogue des Prestations ou est obtenu sur simple demande auprès d'EDF.

This article has been transformed to be included in the letter:

Article 7.1 / Établissement de la Facture

Lorsque ERDF n'est pas en mesure d'honorer un rendez-vous

pour une prestation technique et qu'elle n'en informe pas le client, celui-ci peut bénéficier, à sa demande, du versement d'une somme égale à celle qu'il devrait lui-même payer, en cas d'absence à un rendez-vous convenu avec ERDF.

If the original article is composed of two complex sentences evoking two possible scenarios, one observes that subjects (main and subordinate clauses) are sometimes ERDF sometimes EDF.

In the rewriting (simplification), we observe on the one hand that a single complex sentence whose subject in the subordinate clause is ERDF and that the client is in the principal position in the main clause.

The use of the phrase "may benefit" is in favor of the client and of his/her own interests. The negative measure has been relegated in the grammar to the end of the sentence as a complement.

We see here that the structure of this rewriting is based not only on a commitment to brevity but also on the position of the client, to show his advantages among the recent changes.

This discursive strategy, like the previous one, aims at customer satisfaction. The discursive strategy is cooperative (pedagogical), co-enunciative (articulation of views) and negotiating (taking measures to prevent tension and conflict). In the letter, the analytical dimension (the GCE) is associated with a more global dimension of writing aiming at a specific relationship between EDF and its customer (understanding the value of changing the GCE for the customer himself) as evidenced by the lexical field of information (inform, clarify, complete, etc.) and passive forms, changes in syntax, positioning the client or object in subject position, with the deletion of the complementary Agent (EDF).

Thus, the electricity supplier is attempting to establish of a cooperative relationship between the client and the company. The vertical dimension of this relationship is reduced and the text aims to give the impression of an inverted hierarchy by which the client is beneficiary. This particular relationship, added to the information to be transmitted to the client, results in a positive and efficient communication between the provider and the client. To achieve this, EDF places itself discursively at the client's service, making the strictly analytical information accessible and endeavoring to present the content in the client's interest. In sum, this cooperative relationship falls within the scope of mediation and negotiation of tension (with the risk of conflict given the amount of information to convey).

2.2 From the Set of Rules to the Welcome Booklet.

We will now consider the regulations set out in the welcome booklet of the

socio-cultural department of a municipality in France. Upon publication of the paper, the families had complained of its opacity. The city hall then decided to produce a more readable document and asked a professional to write a welcome booklet.

In the set of rules, the establishment of ethos of the enunciator is founded on reference to an authoritative body (as in the GCE).

In this case, various administrative bodies are referred to including the French Republic, the county and the municipality. Once more, however, the establishment of a discursive ethos is not followed up by negotiation. Legitimacy is not transposed to the enunciator who could maintain a discursive relationship of trust with the reader. Effectively, the regulatory document has to remain formal and impersonal. In the welcome booklet, there are also references to the authorities, thanks to the coat of arms and the name of the town. However, once the legitimacy of the writer is consolidated, the writer begins to negotiate the distance using a specific procedure alternating the pronouns “you” and “us.”

2.2.1 References

From the very first page, the welcome booklet answers questions of personal and spatial reference (but also further time reference and more general references throughout the document): Who are we? Our Objectives, Contact Us, Our team, etc., as evidenced by the following excerpts:

Qui sommes-nous ?

Au sein du service municipal de l'animation socioculturelle **nous mettons en place des projets à l'attention des enfants, des jeunes et de leurs familles.** Nos missions sont variées, et ont trait autant à l'organisation et l'encadrement d'animations culturelles, sportives et pédagogiques (ateliers, sorties, spectacles) qu'à l'aide à l'insertion socioprofessionnelle.

Nos missions

En réponse à la diversité de nos missions, nous avons mis en place différents pôles ayant chacun une organisation et des objectifs spécifiques.

Ce livret d'accueil vous permettra de vous familiariser avec nos bureaux, et de prendre connaissance de leur fonctionnement, de leurs horaires ainsi que de leurs équipes.

Nous contacter

Tous les bureaux de l'Espace socioculturel partagent les mêmes coordonnées:

The service is personified by the names of various managers/contacts listed in the document:

Notre équipe

Cette équipe de choc vous accueille, vous écoute, vous conseille et répond à toutes vos questions. Elle est aussi très sympathique !

- Sylvie** Directrice de l'Espace socioculturel
- Mélanie** Accueil enfance
- Sabrina** Accueil enfance et Insertion professionnelle
- Audrey & Amélie** ALSH Enfant
- Issam** ALSH Jeune
- Audrey** Accueil de loisirs périscolaire et extrascolaire
- Didier** Activités Educatives Complémentaires (AEC)

2.2.2 Articulation of "us" with the "you"

The purpose of the handbook is clearly stated on the first page: it presents the sociocultural service through its various projects. In fact, the rights and requirements of families wishing to benefit are discussed. This discussion, however, does not emanate from a regulatory point of view. It emanates from more systemic presentations where everyone plays a complementary role. This is evidenced by the following excerpt where an articulation between "our service" and "you / your / your" tends to emphasize the link, articulation and appropriateness of respective roles in the ideal operation of the service.

In response to the diversity of our missions, we have implemented various services each with specific organization and objectives. This handbook will help you to familiarize yourself with our office and learn about our operations, our schedules and our teams.... We would be happy to meet you in the Socio-Cultural Department Offices, or answer your calls. We provide a service which welcomes your chil-

dren . . . At our after-school and extracurricular “Activity Center,” we organize activities such as games, workshops or music time. . . So, your child can start and end his day gently, in keeping with his natural routine.

The discursive operation of the booklet is therefore based on a summons and a specific link between the personal pronouns “we” and “you” and also the rules of procedure based on an injunctive content and an asymmetrical relationship as illustrated in the excerpt following:

Règlement intérieur de l'accueil enfance N°1—Juillet 2013
année 2013/2014

Article 1: Objet

Le présent règlement a pour objet de préciser les modalités de fonctionnement du service enfance regroupant les services restaurant scolaire, accueil de loisirs périscolaire, accueil de loisirs enfant et activités éducatives complémentaires à l'enseignement scolaire de la mairie de Cuges les Pins ainsi que les droits et obligations des familles.

Article 2: Validite Du Present Reglement

Le présent règlement est valable du 1er septembre 2013 au 31 août 2014.

Article 3: Tarifs Et Reglements

3.1 Tarifs

2.2.3 Linguistic Politeness: FTA

The following example shows the concern of a professional copywriter to lessen some potential threats to the recipient's face in the booklet:

In the case of a medical appointment or if your child is absent from one of the Activity Centers at which he or she is registered, you are asked to contact the Activity Center and to write a note in the home liaison diary.

The writer chooses the passive phrase “you are asked” which mitigates the implicit injunction of the justification of children's absences from activities.

Thus,

- While the rules need to be written in analytical form founded solely on their informational content, the welcome booklet requires a global form both conveying the information and establishing a co-operative relationship with the citizens of the municipality.
- While the rules require the reader to be reduced grammatically to third person forms, as in a legal document, illustrating a clearly vertical relationship, the welcome booklet uses personal pronouns and polite linguistic forms to create a co-operative and negotiating relationship between “we” and “you,” with the “we” clearly at the service of “you.”

3. Synthesis

According to our analysis, our hypothesis is confirmed: processing / simplification of information contained in regulatory and contractual texts, is necessary for readability but also information visibility. In other words, there is an inverse correlation between how formal a document is and signs of the presence of a co-operative, co-enounced, and negotiating relationship within the text. This type of relationship determines whether information is effectively “conveyed” and also, and especially whether it is “received.” In the new versions we perceive a desire for greater co-operation. Beyond the transformation and/or the simplification of the linguistic code (analytical code of information) the modification of the global code and establishment of an interdiscursive, co-operational and negotiating relationship between the writer and reader which seems to determine the outcome, as evidenced in the use of more assertive language acts (such as clarifying, specifying, enrolling, attaching, proceeding, etc.).

Indeed, the latter seeks to use a documented transmission of information, but also, and above all, a co-enunciated transmission of this same information in which “you” and “we” combine in a constructive relational system (cf. welcome booklet) and where linguistic processes of politeness are used as processes of managing face of the actors in the relationship, to assist interactional negotiation (cf. EDF letter).

In sum, a rewrite of the original document cannot be reduced to a simplification. Indeed, there has also been an argued and co-transmission set of information.

The latter is based on linguistic politeness (a process to mitigate face threats) inherent in the original documents (where authority reigns because the text itself is “force of law” as in the GCE and the Set of rules): the rights and duties are based primarily on injunctions but are always presented so as

to mitigate the threat they carry to the recipient's face (e.g., impersonal forms substituting for injunctions).

Thus the accompanying documents ("Letter from EDF" and "Welcome Booklet") have articulated the rights and duties with a constructive relational system. The linguistic politeness processes are central in that they are aimed at serving the relationship and the interactional negotiation. This process constitutes an effective interaction requiring:

- Analytical and global writing, hence the importance of extending professional writing to multi-disciplinary domains of the science of writing.
- Writing with commentary ("a gloss") to create a relationship with the reader.
- Simplified documents, making them more accessible by creating a relationship with the reader.

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Part 3. Cognitive Linguistic Approaches to Writing

25 Informative Differences: An Argument for a Comparative Approach to Written, Spoken, and Signed Language Research

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Despite the existence of many similarities in the cognitive architectures that support written, spoken, and signed processing, psycholinguistic research in each domain has proceeded largely independently of the others. I argue that a comparative approach that examines the similarities and differences of performance across these domains can be an extremely useful tool for distinguishing competing theories within a domain. As case studies, two theoretical questions about language production are considered. The first concerns whether the orthographic representations that support spelling contain information about syllable structure. While it is difficult to answer this question in hearing individuals, important progress has been made by comparing the spelling errors of deaf and hearing individuals. I review studies that find that in both populations, spelling errors are syllabically constrained, indicating that syllabic structure can develop on the basis of experience with orthography alone. The second topic focuses on the question of whether certain phenomena observed in speech result from learned grammatical computations or rather are the by-products of the processes involved in speech production. Here, I review a number of studies that have found very similar phenomena in written production. I argue that since the patterns in written production are extremely unlikely to have been learned and grammaticalized, this suggests that grammatical accounts are not necessary to account for these specific phenomena in either domain. This chapter thus provides a sketch of how a comparison of production behavior across modalities can be used to constrain theories of language processing.

Malgré l'existence de nombreuses similitudes entre les architectures cognitives qui assurent le traitement du langage écrit, parlé, ou signé, les recherches psycholinguistiques ont abondamment procédé de façon indépendante dans chacun des domaines. Je défends l'idée qu'une approche comparative qui examine les similarités et les différences de performances au travers des différents domaines peut être extrêmement utile pour différencier les théories concurrentes au sein d'un domaine. Deux questions théoriques au sujet de la production du langage seront considérées en tant que cas d'étude. La première concerne le fait de savoir si les représentations orthographiques qui sous-tendent l'orthographe contiennent des informations sur la structure syllabique. Alors qu'il est difficile de répondre à cette question en écoutant les individus, d'importants progrès ont été faits en comparant les erreurs d'orthographe commise par les sourds et par les entendants ; Je passe ne revue des études qui constatent que dans les deux populations, les erreurs d'orthographe sont contraintes sur le plan syllabique, mettant en évidence que le développement de structure syllabique peut s'opérer sur la seule base de l'orthographe. Le second thème porte sur la question de savoir si certains phénomènes observés dans le langage oral résultent de calculs ou sont plutôt des sous-produits des processus mis en œuvre dans la production langagière. Là je passe en revue un certain nombre d'études qui ont constaté des phénomènes tout à fait semblables dans la production d'écrit. Je défends l'idée que, puisqu'il est extrêmement improbable que les modèles de production écrite aient été appris et grammaticalisés, cela suggère que les calculs grammaticaux ne sont pas nécessaires pour ce type spécifique de phénomène, et cela dans chacun des domaines. Cet article fournit ainsi une esquisse de la manière dont la comparaison entre des comportements de production verbale recourant à différentes modalités peut être utilisée pour restreindre les théories de la production langagière.

1. Introduction

One of the most basic yet powerful techniques in psychology is the comparative approach. In this approach, performance across theoretically relevant groups or domains is contrasted: humans and animals, adults and infants, typically developing children and children with genetic abnormalities, speakers of different languages, performance in comprehension vs. production, and so on. Patterns of similarity and dissimilarity across these comparisons

provide critical information about—first and foremost—the similarity and dissimilarity of the relevant neural and cognitive systems but also the genetic, maturational, and environmental (e.g., linguistic) factors that are necessary and sufficient for the development of these cognitive systems.

The comparative approach has been especially useful in research on written language processing, particularly to understand how the properties of a language's orthographic system influence how reading and writing are achieved. Numerous studies, for example, have contrasted performance across production tasks (e.g., Bonin, Méot, Lagarrigue, & Roux, 2014), shallow and opaque orthographies (e.g., Cuetos & Labos, 2001; Toraldo, Cattani, Zonca, Saletta, & Luzzatti, 2006), alphabetic, syllabary, and logographic systems (e.g., Okano, Grainger, & Holcomb, 2013; Weekes, Yin, Su & Chen, 2006), and languages with concatenative and non-concatenative morphologies (e.g., Velan & Frost, 2011). Comparisons between written comprehension and production have also been informative, for example in shedding light on whether reading and writing rely on a common orthographic lexicon (e.g., Holmes & Carruthers, 1998) and positional representation scheme (Fischer-Baum, McCloskey, & Rapp, 2010; Fischer-Baum, Charny, & McCloskey, 2011).

Many similarities and differences exist between written, spoken, and signed language which should provide enormously fertile ground for advancing our theories of processing through the comparative approach. Unfortunately, though theories in these areas have converged on a generally similar processing architecture (e.g., the major stages of processing: semantic processing → lexical processing → segmental planning → motor planning → execution) and computational paradigm (interactive spreading activation), research within these domains generally proceeds exclusive of input from the others (though see Chen & Mirman, 2012 and Caselli & Cohen-Goldberg, 2014, for examples of recent attempts to bridge these domains). For example, in Levelt's (1989) seminal work on spoken language, *Speaking*, only one out of the 566 pages mentions research from written language. When interaction does occur between these domains, it tends to be from spoken production to written and signed production, rather than in the reverse direction.

The present paper is a call for an ongoing, mutually-informing, integrated approach to written, spoken, and signed production research. I argue that while there are numerous topics that are unique to each domain (e.g., phoneme-grapheme conversion is unique to written language processing), important theoretical advances can be made by exploiting the similarities and differences between written, spoken, and signed language in a comparative fashion. The paper is organized into two sections. The first section focuses on how the comparative method may be used to advance research on written

production. In particular, I examine the issue of how one may disentangle orthographic and phonological information when investigating the nature of the writing system. As a case study, I review how researchers have compared the spelling performance of hearing and deaf individuals to probe the nature of orthographic representations, free from the influence of phonology.

In the second section, I describe how research on written language may constrain theories of spoken production. I first review two phenomena in spoken production where there is debate not only as to which theory best accounts for the data but which general approach is most perspicacious (specifically, grammatical or non-grammatical explanations). I then describe some findings from written production research that I believe constrain the choice of theories in spoken production, in this case in favor of non-grammatical mechanisms.

2. The Comparative Approach in Written Production Research

One of the fascinating aspects of written language is its close relationship to spoken language. In languages with alphabetic and syllabary orthographies the basic graphemic units correspond to phonological units, making written words simultaneously representations of lexical items and sounds. The close relationship that exists between orthography and phonology, however, often makes it difficult to determine which properties of the written language system are unique to the written modality and which may have their origin in the spoken modality. This question is critical not only for determining the architecture of the reading and spelling systems but also for understanding the nature of orthographic representations and how they develop.

Some aspects of written language are clearly unique to orthography. For example, the ways that written words are articulated are entirely different from the way spoken words are articulated (e.g., the writing of letter shapes or the typing of keys vs. the constriction of the vocal tract). As another example, some facts about spelling are unrelated to the language's phonology. In English, for instance, consonants may not be doubled word-initially (the non-word /farp/ could be spelled FIPE but not FFIPE) and words may not end in J (the non-word /bldz/ could be spelled BIDGE but not BIJ) but there are no phonological correlates of these facts.

Unfortunately, however, many of the computations involved in written production and comprehension could in theory be in some way influenced by or wholly derived from phonology. Perhaps the earliest of such debates concerned the role that phonology plays in the cognitive architecture of writ-

ten word production. The debate has centered on whether individuals may directly access a word's spelling on the basis of its meaning (and vice versa in comprehension) or whether access between print and meaning is obligatorily mediated by phonology. Specifically, the debate concerns whether individuals may directly access a word's orthographic form on the basis of its meaning or whether spellers must first access the word's entry in the phonological lexicon and then either convert the phoneme string into a string of graphemes using sub-lexical conversion processes or access an orthographic lexical entry before writing the word. On the former view, written language processing may occur independently of the phonological system while on latter view, written language is parasitic upon existing spoken language access mechanisms (see Shelton & Weinrich [1997] and Rapp, Benzing, & Caramazza [1997] for reviews and evidence in favor of direct access).

Another area where the close relationship between orthography and phonology has been particularly problematic is in the domain of spelling. Here, an important theoretical goal is to uncover the content of orthographic representations, determining how letters and their positions are represented. An interesting and important empirical finding is that spelling errors made by neurologically intact and brain-damaged individuals are frequently constrained, with some errors being far likelier than others. Non-phonologically plausible errors—errors that are not possible spellings of a word's phonological form—frequently preserve the consonant/vowel status of the target letter (e.g., MASK → MALK rather than MAIK; Caramazza & Miceli, 1990; Buchwald & Rapp, 2006) and rarely result in illegal sequences of letters (e.g., MASK → MALK rather than MAPK). The relatively constrained nature of these errors suggests that structural knowledge of some sort—statistical or linguistic—influences the spelling process. The fact that phonological information may become activated during the spelling process makes it difficult to determine the origin of this knowledge, however. While MAPK may be an unlikely error for MASK because PK is an illegal sequence of word-final letters, it is also possible that it is unlikely because no English word ends with the sounds /pk/. Spelling errors could thus be the result of orthotactic constraints, phonotactic constraints, or both. The correlation between orthography and phonology makes it difficult to determine the origin of this influence and thus, makes it difficult to make inferences about the structure of orthographic representations.

While it may be difficult or impossible to remove the influence of phonology on spelling tasks in hearing individuals, deaf individuals represent a population that has by and large learned to read and write in the absence of a phonological system. By testing deaf individuals who demonstrate mini-

mal spoken language abilities, one may gain an insight into what the written language system may look like when it develops on the basis of orthographic information alone. Using the comparative approach in this way, written language researchers have been able to investigate whether the constraints described above are necessarily derived from phonology or can develop independently, from orthography.

To this end, some studies have used syllable counting (Sterne & Goswami, 2000) and illusory conjunction tasks (Olson & Nickerson, 2001) to infer whether knowledge of syllable structure may develop in the absence of phonological input. Other studies have investigated whether deaf readers have knowledge of orthographic legality by testing memory performance for legal and illegal letter strings (e.g., Aaron, Keetay, Boyd, Palmatier, & Wacks, 1998; Gibson, Shurcliff, & Yonas, 1970). These and other studies have found that deaf individuals have knowledge about syllable structure and letter sequences, suggesting that syllable structure is not necessarily derived from phonology. Consistent with these findings, Hanson, Shankweiler, and Fischer (1983) reported that 96% of the spelling errors made by deaf participants were orthographically legal, mirroring the performance of hearing individuals (see also Padden, 1993).

One especially elegant study illustrates the particular power of the comparative approach to disentangle orthographic knowledge from phonological knowledge. Olson and Caramazza (2004) examined the spelling errors made by reading-level matched deaf and hearing participants. The majority of the spelling errors made by the deaf participants were phonologically implausible while the majority of the spelling errors made by hearing participants were phonologically plausible (e.g., SUBSTITUTE → SUBITUSE vs. SUBSTATUTE). This basic analysis in and of itself demonstrates the relative influence of phonology in the spelling of these different populations. Fascinatingly, despite their dissimilarity with respect to the overall influence of phonology, the two groups' spelling errors were very similar when phonology was controlled. When only the phonologically *implausible* errors were analyzed, it was found that the two groups nearly always made orthographically legal errors (Deaf: 92%, Hearing: 93%). In further analyses, Olson and Caramazza argue that this extremely low rate of illegal errors was not due to chance, did not correlate with the deaf participants' level of hearing, and was not plausibly the result of letter bigram frequency. They conclude that the spelling errors were thus constrained by syllable structure. Since these patterns were observed in the deaf participants, they further concluded that syllable structure can develop on the basis of experience with orthography alone. Olson and Caramazza were careful to state that their results do not rule out

the possibility that phonological information influences the development of orthographic syllable structure in hearing individuals, just that “syllabic structure can be relatively independent of the peripheral systems devoted to speech.” (Olson & Caramazza, 2004:412). Thus used, the comparative method can allow us to discover the nature of orthographic representations despite the intimate relationship between orthographic and phonological processing in most readers.

3. The Comparative Approach in Spoken Production Research

In this section, I examine how the comparative method can use data from written production to inform theories of spoken production. First, it is useful to explore the differences between the articulation of written and spoken language and how they relate to the learning of grammatical patterns.

3.1 Grammar and the Differences in Articulatory Transmission Between Written and Spoken Production

As framed by contemporary linguistics and psycholinguistics, a grammar is an unconscious set of rules or principles that determine which structures are well-formed within a particular linguistic domain. The notion of a grammar has typically been invoked in reference to spoken and signed language, although some researchers have argued that it may have explanatory value in written language as well (e.g., Eden & Halle, 1961; Myers, 1996, 2011; Goldberg & Cohen-Goldberg, in prep). While many theories of spoken and signed grammar have argued that some grammatical components are innately specified ('Universal Grammar', Chomsky, 1965; Prince & Smolensky, 1994/2004), all theories assume that the bulk of an individual's grammatical knowledge is learned on the basis of *experience* with a language. This fact places a lower bound on the sort of information that can be encoded in a grammar. Fundamentally, for a pattern to be grammaticalized it must be detectable in the linguistic signal. It is here that differences between spoken and written language begin to manifest.

In spoken language, sub-phonemic phonetic properties such as vowel-to-vowel coarticulation (Beddor, Harnsberger, & Lindemann, 2002; Manuel, 1999), voice onset time (e.g., Cho & Ladefoged, 1999), and vowel nasalization (Clumeck, 1976; Henderson, 1984; Rochet and Rochet, 1991) have all been shown to vary across languages. For example, Cho and Ladefoged (1999) report that in their sample of 18 languages, velar stops range in aspiration

from 20 ms to 160 ms. There thus appear to be language-specific settings for aspiration. Though these values span what might be considered to be different phonetic categories (e.g., unaspirated to highly aspirated stops), significant variation was found within categories as well. For example, among the languages classified as containing aspirated velar stops, aspiration varied by as much as 20 ms (26%). These findings indicate that very subtle facts about articulation 1) manifest in the auditory signal, 2) are detectable by listeners, and 3) are learnable as grammatical rules (see, e.g., Morley, 2013). The fact that phonetic properties such as these are learnable is due at least in part to the fact that speech is continuous, allowing subtle changes in articulatory parameters to have a direct physical impact on the acoustic signal. A longer delay between the release of a stop constriction and the onset of vocal fold vibration leads to a longer period of high-frequency noise in the acoustic signal, giving longer aspiration.

Written language presents a very different picture from spoken language. Apart from cursive and calligraphic writing which in many respects mirror the continuous articulation found in spoken language, much of the graphic form of writing is divorced from the details of its articulation. Consider, for example, block uppercase writing, which is the typical script used in psycholinguistic experiments. Many aspects of how block letters are written—the amount of time it takes to write a letter, the amount of time that elapses between letters or strokes—simply do not have a necessary effect on the graphic form of the letter. For example, one may write a relatively small and a relatively large letter W in the same span of time; conversely, one may spend a short or long amount of time writing letters of the exact same size. The same thing is true for the amount of time that elapses between strokes. The discrete nature of block writing further implies that each letter is executed independently of the letters that surround it, minimizing if not eliminating coarticulatory influences. Together, these facts entail that many of the gradient properties of written articulation will not manifest in the graphic output. This is taken to the extreme in the most common form of written communication today—printed text—which reveals absolutely no information about the process that produced it (e.g., the amount of time elapsed between keystrokes is not in any way revealed by printed text).

The difference in the way articulatory details are transmitted between the spoken and written modalities has significant consequences for the likelihood that gradient details may become grammaticalized in spoken and written language. Gradient articulatory details are frequently observable in the acoustic signal, making it plausible that these facts could be learned by speakers and internalized in a grammar. By contrast, the fact that many details of the writing

process are not evident in the graphic form of written language makes it highly unlikely that readers could encode and grammaticalize these details.¹ Crucially for the present purposes, this entails that the gradient patterns we observe in written production do *not* arise from learned, grammatical computations.

3.2 Patterns in Spoken Production

The fact that written and spoken language differ in the inherent ability to grammaticalize facts about articulation can serve as a useful point of comparison when attempting to determine whether we need to appeal to a grammatical account of some pattern in production. In this section, I describe two phonetic patterns that have been described in spoken production as well as the various accounts that have been proposed to explain them.

The first case is the phenomenon of *pre-boundary lengthening*. According to prosodic accounts of phonology, utterances are parsed into hierarchical constituents such as prosodic words and intonational phrases that govern the prosodic properties of the utterance (e.g., Nespor & Vogel, 1986; Selkirk, 1984). Numerous studies have shown that phonemes tend to be pronounced with longer durations before prosodic boundaries than in other environments (e.g., Oller, 1973; Lehiste, 1973; Klatt, 1975, 1976; Lehiste, Olive & Streeter, 1976; Cooper & Paccia-Cooper, 1980; Wightman, Shattuck-Hufnagel, Ostendorf & Price, 1992; Ladd & Campbell, 1991; Fougeron & Keating, 1997; Byrd & Saltzman, 1998). Pre-boundary lengthening has also been shown in some cases to correlate with the level of the constituent—longer durations are observed at the end of higher-level prosodic constituents (e.g., Wightman et al., 1992). Lengthening has been observed in many languages (even languages with phonemic length and tone, where lengthening could interfere with the perception of these features; Duanmu, 1996; Hockey & Fagyal, 2008) leading some researchers to suggest that it may be a universal property of spoken language (Hayes, 1995; Vassière, 1983).

The second phenomenon is the fact that suffixed words in English tend to have longer durations than monomorphemic words, a fact that will be referred to here as *multimorphemic lengthening*. A number of studies have compared the pronunciation of homophones that differ only in their morphological structure and have found that segments in multimorphemic words tend to be longer than their monomorphemic counterparts: plural *-s* is longer than non-morphemic /s/ (*lapsɪ* > *lapsɛ*; Walsh & Parker, 1983; Schwarzlose & Bradlow, 2001; Song, Demuth, Evans & Shattuck-Hufnagel, 2013; see also Song, Demuth, Shattuck-Hufnagel & Ménard, 2013); past tense *-ed* is longer than non-morphemic /d/ (*banned* > *band*; Losiewicz, 1995); vowels in suffixed

words are longer than vowels in monomorphemic words (*passed* > *past*; Frazier, 1995), and the same thing is true for VC rhymes more generally (*missed* > *mist*; Sugahara & Turk, 2009).

A variety of theories have been proposed to account for both of these phenomena. In the case of pre-boundary lengthening, both grammatical and non-grammatical theories have been proposed; in the case of multimorphemic lengthening, only grammatical theories have been advanced. These proposals will now be briefly reviewed.

3.3 Theoretical Accounts

3.3.1 Accounts of Pre-Boundary Lengthening

A number of theories have proposed that pre-boundary lengthening is the direct result of a grammatical rule. Duanmu (1996) proposes that while all languages undergo pre-boundary lengthening, English contains a rule that causes *additional* lengthening to occur in order to satisfy a grammatical constraint requiring all feet to be binary. Selkirk (1984, 1990) argues that the temporal properties of an utterance are derived from a phonological structure constructed by the grammar. According to her proposal, pre-boundary lengthening is the phonetic realization of abstract timing units (“virtual pauses”) that are assigned by rule to prosodic boundaries. Finally, Vassière (2008) proposes that final lengthening has been grammaticalized as a way to signal constituent structure to listeners. Indeed, many studies have found that listeners can use segmental lengthening as a cue to parsing (e.g., O’Malley, Kloker and Dara-Abrams, 1973; Macdonald, 1976; Lehiste, Olive and Streeter, 1976; Streeter, 1978).

While all of these theories assume that listeners lengthen segments before boundaries as a result of a learned grammatical computation, a handful of theories have proposed that lengthening instead has its origins in the psycholinguistic processes responsible for planning and ordering speech. Cooper and Paccia-Cooper (1980:199, as cited in Cutler, 1990), state “The lengthening effect could be attributable to execution . . . [and] represents a general relaxation response . . . The internal clock, in effect, runs more slowly at the ends of major constituents, presumably due to processing fatigue.” Watson and Gibson (2004) propose that lengthening before prosodic boundaries results from the increased cognitive load that occurs when speakers plan upcoming syntactic constituents. These accounts differ from the grammatical theories in that they propose that lengthening arises epiphenomenally from other aspects of processing. Lengthening is thus proposed to be neither learned nor the specific result of a computation, it is simply a side effect of the way that the mechanisms that produce language function.

3.3.2 Accounts of Multimorphemic Lengthening

Similar to pre-boundary lengthening, a variety of grammatical proposals have been advanced to account for the lengthening observed in multimorphemic words. Walsh and Parker (1983) propose that speakers have a grammatical rule that lengthens suffix phonemes. Specifically, they propose a rule that adds the feature [+long] to the phonological specification of the plural morpheme prior to articulation. Frazier (1995), working within the phonological framework of Optimality Theory, proposes a paradigmatic explanation for why vowels in suffixed words are longer than their counterparts in monomorphemic words. She proposes that grammars compute the length of a word's root (e.g., *pass*) and then factor this information into the computations that determine the length of the suffixed word (e.g., *passed*). Thus, Frazier proposes that the phonological grammar of English is organized in such a way as to maintain the durational properties of a root as much as possible in its suffixed forms.

Finally, Sugahara and Turk (2009) propose multimorphemic lengthening is simply a special case of pre-boundary lengthening. Working within the framework of Prosodic Phonology, they propose a two-part explanation: English speakers assign prosodic structure to multimorphemic words and the boundaries of these constituents trigger pre-boundary lengthening. In particular, they propose that in words containing inflectional and highly productive derivational suffixes ("Level-2" morphology), both the entire word and the stem are parsed into prosodic words. For example, the phonological representation of the word *missed* with its fully elaborated prosodic structure would be: /((miss)_{PWD} -ed)_{PWD}/'. Pre-boundary lengthening would then apply to the segments immediately preceding the prosodic word boundaries, lengthening them relative to monomorphemic words, which are proposed to have only the whole-word prosodic structure (e.g., *mist* /(*mist*)_{PWD}/').

Finally, as with pre-boundary lengthening, there has been some suggestion that multimorphemic lengthening may occur in order to facilitate comprehension. Frazier (1995) reports experimental data indicating that listeners can use differences in vowel duration to guide their decisions about the morphological structure of homophonic words. She concludes that vowel duration is "actively used by speakers to avoid ambiguity" (Frazier, 1995:9). According to this account, a grammatical rule for multimorphemic lengthening may exist to differentiate mono- and multimorphemic words for listeners.

3.3.3 Summary

To summarize, pre-boundary and multimorphemic lengthening have primarily been proposed to be the result of grammatical processes. These ac-

counts propose that phoneme lengthening before boundaries and in multimorphemic words are teleological rather than epiphenomenal outcomes: speakers learn a computation or set of computations that specifically calculate word duration and these computations are organized in such a manner that segments before prosodic boundaries and in multimorphemic words are given longer durations than segments in other environments. These theories contrast with a handful of accounts that propose that lengthening is simply the by-product of the way that the processes responsible for the timing and planning of sequences function. Currently, there does not appear to be any evidence or theory-internal data that suggest which theory (or even class of theory, grammatical or non) best accounts for the data. It is here, I propose, that data from written production could be useful.

3.4 Data from Written Production

Beginning with the issue of pre-boundary lengthening, a very similar result has been reported in typewriting. Sternberg, Monsell, Knoll, and Wright (1978) examined inter-key intervals ('IKIs'; the amount of time that elapses between successive keystrokes) in the production of random 5-letter sequences. They found that IKIs increased across positions, peaking just before the end of the sequence. Converging evidence comes from similar investigations of pressure in handwriting. Using a pressure-sensitive plate, Kao (1983) had participants trace 5 different simple figures (e.g., a circle, a single line, and two lines joined at 3 different angles) 10 times each using a ball-point pen. He found that both the pressure and the standard deviation in the pressure increased across the ten tracings, peaking uniformly on trial 9. Although Kao (1983) speculated that the effect may be limited to cases where the same motor task is performed repeatedly, Kao, Mak, and Lam (1986) observed it within a single trial, finding increasing pressure and variability in pressure from the beginning to the end of a single sequence of strokes (see also Figure 23.2 of Portier, van Galen, & Meulenbroek, 1990). This progression was also found across different types of stimuli (linear vs. cursive strokes) and tasks (e.g., tracing, copying, etc.). Finally, Wann and Nimmo-Smith (1991) found the same result in the writing real words. Together, these results suggest that the progressive increase in pressure is a general property of written serial production.

Although these experiments examined specific letter and stroke sequences rather than abstract prosodic structure, their results can be aligned with pre-boundary lengthening in that both relate to how production varies near the end of a constituent. We see that duration, pressure, and variability in pressure peak just before the end of a sequence, similar to how phoneme duration peaks just before the end of a prosodic constituent.²

Turning now to the issue of multimorphemic lengthening, a recent study by Kandel and colleagues (Kandel, Spinelli, Tremblay, Guerassimovitch, and Alvarez, 2012) analyzed handwriting data to investigate the way that mono- and multimorphemic words are produced in written production. In their study, Kandel and colleagues compared French suffixed words (e.g., *boulette*, containing the diminutive suffix *-ette*) to monomorphemic words containing the same final sequence of letters (e.g., *omelette*, which does not contain the diminutive suffix). The English analog would be the words *teacher* and *father*, which do and do not contain the agentive suffix *-er*, respectively. Kandel and colleagues found that inter-letter intervals ('ILIs', the amount of time between the end of one letter and the beginning of the next) were longer for the two letters preceding the morpheme boundary in suffixed words (e.g., between U and L and L and E in *boulette*) than the corresponding letters in monomorphemic words. They also found that the stroke duration of the same letters (how long participants spent writing the letters) was longer in multimorphemic words than the monomorphemic words. Similar results with longer IKIs have been found in the typing of English compounds and pseudocompounds (Libben & Weber, 2014; Spalding, Gagné, Nisbet, & Park, 2014). In sum, this pattern directly replicates the pattern reported in the spoken production of English suffixed words.

3.5 Implications

Stepping back, we see that very similar phenomena have been observed in both spoken and written production. In spoken production, phonemes are lengthened near the ends of prosodic constituents; in written production, typing durations and pen pressure peak near the ends of words. In spoken production, phonemes are lengthened in multimorphemic words relative to monomorphemic words; in written production, letter durations and inter-letter intervals are similarly lengthened in multimorphemic words.

How then should we interpret these results? What does it mean for the same results to be observed in both spoken and written production? The crucial observation is that grammatical accounts, while plausible for spoken language, are not plausible for written language. Given that the temporal properties of typing are in no way evident in printed text, it is simply impossible for typing durations to be learned and subsequently encoded as a grammatical rule. While pressure, pressure variability, duration, and ILI could all in principle manifest in handwriting, the fact that these are likely to be extremely subtle effects, coupled with the fact that most readers have very little exposure to handwriting suggests that a learned, grammatical account of these effects is highly unlikely.

We can thus conclude that the phenomena observed in written production are neither learned nor produced for the benefit of readers—they arise epiphenomenally from the functioning of non-grammatical processes. This raises the possibility that the same thing is true for spoken language. If grammatical processes are not responsible for these patterns what is? The most likely account appears to be the one suggested by Cooper and Paccia-Cooper and Watson and Gibson: these effects arise from the processes that plan and sequence linguistic units for production. A similar proposal was made by Kandel et al. (2012) in their investigation of written production. Kandel and colleagues argue that the increased stroke durations and ILIs observed in suffixed words result from the way that multimorphemic words are planned in written production. They argue that their data provide evidence that the written production system plans the production of the suffix *while* the stem is being written. In particular, they argue that the suffix morpheme is activated during the articulation of the stem, which either 1) causes information to cascade from central to peripheral processes or 2) places additional load on the peripheral processes due to limited resources shared with central processes. In both cases, this additional information/load is proposed to slow the motoric execution of the stem letters (see Orliaguet & Boë, 1993 for a similar load-based account).

It turns out that a planning/cascading account is plausible for spoken production as well. Psycholinguistic research has demonstrated that information cascades during spoken production (e.g., Dell, 1986; Rapp & Goldrick, 2000; Peterson & Savoy, 1998) and that upcoming units may be planned during the articulation of other elements (e.g., Meyer, 1990, 1991; Roelofs, 1996; Jacobs & Dell, 2014). It is thus plausible that the incremental processing of a stem and suffix in an interactive system (e.g., cascading activation, yoked resources) results in temporal disfluencies in suffixed words relative to form-matched monomorphemic words in both spoken and written production.

It is important to note that the comparison with written production does not rule out the possibility that these lengthening effects have been grammaticalized in spoken production, it simply makes the case that this position is not *necessary*. It could be the case that these effects initially arose epiphenomenally from planning processes and then were subsequently learned as a grammatical rule by listeners. In this way, lengthening would be caused by non-grammatical mechanisms in written production and by both non-grammatical and grammatical mechanisms in spoken production.

4. Discussion

This chapter reviewed two examples of the comparative approach where com-

paring production across domains can reveal facts about processing that are difficult to determine when working within just a single domain. In the first example, data from deaf and hearing spellers were compared to determine the nature of orthographic representations. In the second example, data from written and spoken production were used to make inferences about the origins of two phonetic phenomena. In both cases, the argument was the same: if similar performance is observed in two domains that differ in the presence/absence of a particular property, this implies that that property is not necessary to obtain that performance. In the first example, the fact that deaf and hearing spellers make similarly constrained spelling errors despite the fact that the former were never exposed to phonological information implies that the operative constraints are not necessarily phonological in origin. In the second case, the fact that similar lengthening phenomena are observed in written and spoken production despite the fact that grammaticalization is unlikely in the former suggests that the phenomena are not necessarily the result of grammatical computations. The comparative approach is particularly useful in cases where the property of interest is not amenable to experimental manipulation. Rather than attempting to artificially control the property, the comparative approach makes use of natural patterns of similarity and dissimilarity to reveal what conditions are sufficient to give rise to a particular effect.

The reviewed research and the novel analysis presented in this chapter provide a sketch of how a comparative approach can allow research in different domains to both inform and mutually constrain each other. Similar comparisons can and should be made among all three modalities: written, spoken, and signed production. Where a pattern has been attributed to a property that is unique to a domain, finding a similar pattern in another domain provides evidence against that property as the sole underlying cause.

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Notes

1. Note that macro-level properties of written language are clearly observable in the graphic signal. For example, Arabic numerals often differ in form by geographic region (7 vs. ٧, ٠ vs. Ø), indicating that writers must be able to encode and reproduce these features.
2. It is important to note that the effects are not identical across modalities—while pre-boundary lengthening is typically only observed immediately before a

- boundary, the effects in written production increased throughout the sequence. More research is clearly needed in this area.
3. Nearly entirely composed of texts springing from the daily and weekly French press, this annotated corpus will soon be the object of an on-line publication on the ATILF site: <http://www.atilf.fr/>
 4. Or one of several alternatives based on a play on words of the 1976 Yves Robert film title.

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26 Syllables as Representational Units in English Handwritten Production?

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When individuals write words, does syllable structure influence the preparation and execution of the responses? Recent studies conducted with French and Spanish participants have suggested that this is the case; specifically, interletter pauses when writing in uppercase tend to be prolonged when the critical bigram straddles a syllable boundary, compared to when the same bigram occurs within a syllable. This implies that higher-level abstract linguistic properties such as syllable structure emerge in the motoric properties of the written response. The current work investigated whether similar syllabic effects are found in English, a language in which syllable boundaries are oftentimes vague and ambiguous, and due to less perceptual salience syllables might be less relevant as organizational principles in orthographic output tasks.

La structure syllabique influence-t-elle la préparation et l'exécution de l'acte graphique ? C'est ce que suggèrent des études récentes menées en français et en espagnol, où il a été montré qu'un scripteur qui écrit en majuscules tend à effectuer une pause plus longue entre deux lettres lorsque ces dernières appartiennent à des syllabes différentes plutôt que lorsqu'elles appartiennent à une même syllabe. Il y aurait donc un niveau de traitement supérieur, à partir duquel la structure syllabique guiderait les aspects moteurs de l'écriture. La présente étude a examiné si des effets similaires sont visibles en anglais. Dans cette langue, les frontières syllabiques sont plus ambiguës et moins marquées qu'en français ou en espagnol, et donc on

pourrait s'attendre à ce que la syllabe y joue un rôle organisateur moins important. Des participants de langue anglaise avaient pour tâche de copier, à l'aide d'une tablette graphique et en majuscules, des mots deux syllabes présentés visuellement. Les stimuli consistaient en des paires de mots partageant les trois premières lettres, de sorte que le bigramme cible soit était à cheval sur la première et la deuxième syllabe (BA.SIS), soit terminait la première syllabe (BAS.KET). La durée d'exécution des première et troisième lettres était aussi mesurée. Nous n'avons trouvé aucun effet de frontière syllabique, que ce soit dans la durée des pauses ou dans celle d'exécution des lettres. Dans les langues à frontières syllabiques peu marquées, les sujets ne semblent donc ni planifier ni exécuter leurs actes graphiques en termes syllabiques. Nous donnons plusieurs explications à cela.

1. Syllables as representational units in English handwritten production?

The act of writing can be characterized as the (sometimes creative) act of composing a text. However, writing can also be considered in a more technical sense, namely as a specific form of cognitive generation of output codes. Within such a definition from the cognitive sciences, writing is a form of non-oral, orthographic language production skill. According to this view, just as the speaker intends to express thought via spoken words, the writer expresses thought in written form, and in the process of a transformation from meaning to orthography the mind/brain carries out a number of stages of information processing. From this standpoint, the content of the written output is of lesser interest, whereas the main emphasis is on mental representations and transformations which are involved in writing. An insight into how writing is accomplished from a cognitive perspective is by itself of great interest to psychologists, but it also holds potential relevance for educational settings because acquisition of handwriting skills represents a key educational achievement for language learners.

When individuals prepare and execute written words, which types of mental representations and processing units are involved? Compared to other areas of research in the psychology of language such as speech comprehension, production, and reading, relatively less work has been conducted to explore the cognitive mechanisms underlying orthographic output tasks such as handwriting, typing, and spelling. For some while, researchers have examined spelling errors generated by individuals with acquired brain damage,

but only relatively recently have psychologists begun to explore orthographic production in unimpaired individuals via experimental tasks. Recent reports have demonstrated that in languages such as French and Spanish, syllable boundaries emerge in the timing of handwritten word production. The study reported below investigated whether this is also the case in English, a language with relatively ambiguous syllabic structure.

Written production involves a series of processing stages: conceptual activation, semantic retrieval, orthographic encoding, access to the graphemic buffer, to the allographic store, retrieval of graphemic motor patterns, and neuromuscular execution (Rapp & Caramazza, 1997). One of the most fundamental issues concerns the structure of orthographic representations underlying written production. Neuropsychological case studies have broadly supported the view that written word production does not merely involve linearly-ordered strings of letter identities, but is also constrained by more complex high-level linguistic units of orthographic representations (see Tainturier & Rapp, 2001, for an overview). In a seminal neuropsychological case study, Caramazza and Miceli (1990) observed that the spelling errors produced by an Italian dysgraphic patient were constrained by some sublexical units. For example, the patient's spelling showed a tendency to simplify the syllabic structure of words. Letter omissions frequently took place in letter clusters, leading to simpler syllabic structures (e.g., *creatura* → *retura*), whereas omissions never occurred in the context of simple consonant-vowel (CV) structure which would cause more complex syllabic structures. Better performance was shown for words with simple syllable structure (e.g., CV-CV-CV) than for those with more complex syllable structure (e.g., CCV-CVC). Moreover, substitution errors always involved the substitution of a consonant for a consonant or a vowel for a vowel, i.e., substituted letters preserved CV status (e.g., *fanale* → *farale*, *tesoro* → *tesera*). Also, exchange errors involving geminate consonants always respected the geminate features (e.g., *sorella* → *solerra*, but not *sorella* → *solerla*). Based on these findings, Caramazza and Miceli proposed that orthographic representations involve multiple dimensions which contain syllable structure, CV status, geminate clusters and abstract graphemes (see also Buchwald & Rapp, 2006, for a similar view).

Experiments conducted with unimpaired individuals have broadly supported the notion that higher-level linguistic variables such as syllable structure and grapheme status constitute important processing units. Studies of this type generally either involve individuals writing responses on a digital graphic tablet, which allows the measurement of detailed properties of movement execution, or the typing of responses on a computer keyboard. Substantial evidence now suggests that written production is characterized by "cas-

caded” information flow between central response selection and peripheral response execution stages, i.e., higher-level linguistic properties emerge in the low-level characteristics of written output (e.g., Bogaerts, Meulenbroek, & Thomassen, 1996; Delattre, Bonin & Barry, 2006; Gentner, Larochelle, & Grudin, 1988; Zesiger, Mounoud, & Hauert, 1993). For instance, Zesiger et al. (1993) revealed the influence of lexicality in handwriting execution duration: movement duration and trajectory length of the first trigrams were shorter when the sequence was embedded in words than in pseudowords. Apart from lexicality, it was found that word frequency also affected movement duration, that is, duration for typing (or writing) high-frequency words was shorter than for low-frequency words, which in turn was shorter than for non-words (e.g., West & Sabban, 1982; Sovik, Arntzen, Samuelstuen, & Heggberget, 1994). In addition to letter movement durations, previous research has also examined interletter intervals (or inter-keypress intervals) as dependent measures to identify processing units in orthographic production. For example, Gentner et al. (1988) observed that inter-keypress intervals were affected by word frequency; e.g., the interval between “s” and “t” was shorter when the sequence was embedded in the high-frequency word “system” than in the low-frequency word “oyster.” These findings suggest that if one is interested in exactly how individuals generate written responses, then the temporal characteristics of response execution (as revealed by the measurement of properties of writing execution) can provide a window into high-level cognitive processes (i.e., which mental codes the writer manipulates in order to generate the orthographic response).

More recent studies on handwriting have highlighted the role of abstract graphemes (e.g., Kandel & Spinelli, 2010; Kandel, Soler, Valdois & Gros, 2006), as well as suggesting a possible role of morphological structure (e.g., Kandel, Álvarez, & Vallée, 2008). Particularly critical for present purposes, a number of recent studies have examined temporal features of writing execution (e.g., letter movement duration or interletter intervals) to explore whether written production of French and Spanish is constrained by syllabic structure. Kandel, Álvarez and Vallée (2006) asked French participants to copy words in uppercase letters on a digitizer. Response words, selected in pairs, shared the initial letters but had different syllable boundaries (TRA.CEUR—TRAC.TUS; the dot marking syllable boundary was not shown in the experiment). In this example, the bigram (i.e., two-letter sequence) AC is inter-syllabic in TRA.CEUR but intra-syllabic in TRAC.TUS. Kandel et al. observed that interletter intervals were longer between than within syllables. This pattern was only significant when words consisted of relatively complex syllabic structures (e.g., CCV vs. CCVC), but it was not reliably

significant for words with simple syllabic structures (e.g., CV, “PA.RENT” vs. CVC, “PAR.DON”). In a second experiment, Kandel et al. asked French and Spanish participants to copy cognate words with an embedded bigram (GN) which was always intra-syllabic in French but inter-syllabic in Spanish, and words with an embedded bigram (GM) which was always inter-syllabic in both languages. They found that the GN interletter intervals (within syllables) were shorter than the GM ones (between syllables) in French; by contrast, GN (between syllables) and GM (between syllables) intervals were equivalent in Spanish.

The general finding that interletter intervals were modulated by syllabic structure (see also Kandel, Peereman, Grosjaques & Fayol, 2011; Sausset, Lambert, Olive & Larocque, 2012, for related evidence with French participants) was subsequently replicated in other tasks such as writing-to-dictation and written picture naming with Spanish writers (Álvarez, Cottrell, & Afonso, 2009). Further studies revealed that the relevant processing unit in handwriting appears to be orthographic, rather than phonological, syllable structure. Kandel, Hérault, Grosjacques et al. (2009) asked 4th and 5th graders to write words (e.g., “barque”) that were phonologically monosyllabic but orthographically bisyllabic (“bar.que”), and performance was compared to words which were both phonologically and orthographically bisyllabic (e.g. “balcon”). Handwriting measures indicated that children used orthographic rather than phonological syllables to program the words they wrote. It should be noted that similar findings have also been observed in other modalities of orthographic production such as typing (Nottbusch, Grimm, Weingarten, & Will, 2005; see Weingarten, Nottbusch, & Will, 2004 for a review). Nottbusch et al. conducted a typing task with German deaf participants and found that, as was the case for unimpaired individuals, interkey intervals were longer at syllable boundaries than at common letter boundaries. This suggests that syllabification in orthographic production is largely independent of experience with spoken language, and highlights the relevance of orthographic rather than phonological syllables.

Effects of syllabic structure manifest themselves not only in interletter intervals, but also in the time it takes to write individual letters. In a developmental study with French children, Kandel and Valdois (2006) asked first- to fifth-graders to copy French words and pseudo-words, and letter movement duration was measured. It was found that for children at different school levels, letter movement duration systematically peaked at the first letter of the second syllable of words, suggesting a cognitive load associated with processing the second syllable during writing its first letter. This finding suggests that French children use syllable-by-syllable processing to prepare

writing, and thus further highlights the critical role of syllables as processing units underlying written production, at least in languages with relatively clear syllable boundaries (see below).

In summary, existing results have highlighted the importance of syllabic representations in handwritten word production. However, the evidence mainly stems from experiments conducted in French and Spanish. In these languages, syllabic boundaries are generally well-defined and clear, and individuals agree to a large extent when asked to define where syllables begin and end. In other languages such as English, syllabic boundaries are overall less clearly defined; for instance, intervocalic consonants (such as the “m” in “camel”) are difficult to assign clearly to either the first or the second syllable. This has led to the common linguistic proposal that they are “ambisyllabic,” i.e., governed by both syllables simultaneously. Hence, it is not impossible that systematic differences among languages with regard to certain properties (in this case, syllabic structure) could impact on language use (here, the issue whether syllable boundaries are relevant in handwriting). Indeed, in the extensive literature on spoken language processing, early experimental work conducted with French individuals (Mehler, Dommergues, Frauenfelder & Segui, 1981) suggested a clear role of syllables, which subsequently did not replicate in equivalent experiments conducted with English individuals (Cutler, Mehler, Norris & Segui, 1986). Cutler et al. postulated that the discrepant results from French and English participants might result from systematic differences between languages: “French speakers consistently make use of syllabification in segmentation; English speakers do not . . . this difference reflects the phonological differences between French and English . . . speakers of any language with clearly bounded regular syllables should show syllabification effect, while speakers of any language with irregular, hard-to-segment syllables should not” (p. 397). In this way, effects might mirror the distinction originally proposed by Pike (1945) between “syllable-timed” languages in which every syllable is perceived as taking up roughly the same amount of time (e.g., French, Spanish, Italian, Mandarin), and “stress-timed” languages in which syllables are perceived to occupy a fairly constant average amount of time between consecutive stressed syllables (e.g., English, German, Dutch, Russian, Portuguese). Although such a strict division into syllable- and stress-timed languages is no longer tenable, it is clear that languages do indeed differ in the relative prominence of the syllable.

However, since the seminal work by Mehler et al. and Cutler et al. on this topic, syllabic effects have been documented in Dutch, a syllable-timed language (Zwitserlood, Schriefers, Lahiri & Van Donselaar, 1993). And in fact,

syllabic effects can be found even with English participants, at least in some experimental tasks (such as the “migration paradigm”; Mattys & Melhorn, 2005). Overall, as argued by Kolinsky (1998), it appears to depend on a complex interaction between specific task demands and properties of the target language whether or not syllabic effects arise in speech segmentation.

In the literature on neuropsychological impairments of handwriting, the possibility has also been raised that “languages differ in the organization of the graphemic buffer just as they differ with respect to the perceptual salience of the syllable. Spellers of Italian and English might differ in the number of tiers in the graphemic buffer” (Jónsdóttir, Shallice, & Wise, 1996, p. 190; see also Kay & Hanley, 1994, but see Ward & Romani, 2000, for contradictory evidence). Given this possibility, the experiment below investigated whether syllables constitute processing units in handwriting for unimpaired writers of English, a language with vague syllable boundaries. As in Kandel et al. (2006), a task was used in which individuals copied words in uppercase letters onto a digitizer. These words, selected in pairs, shared the first trigram but had different syllable boundaries (e.g., BA.SIS—BAS.KET). Interletter intervals between the critical bigram (AS in this example) and letter movement durations of first (B) and third letter (S) were measured. If these are modulated by syllabic structure, we would predict: a) longer interletter intervals if the critical bigram straddles a syllable boundary (AS in BA.SIS) than when it does not (AS in BAS.KET), b) longer durations for the initial letter (B) if it is embedded within a complex syllable (BAS) than when embedded within a simple syllable (BA) due to higher processing load associated with the first, compared to the second, case, c) longer durations for the third letter (S) if it occurs at the beginning of the second syllable (BA.SIS) than when at the end of the first syllable (BAS.KET). If interletter intervals and letter movement durations in English are modulated in the same way as they have been previously shown in French and Spanish, the results would highlight an important, cross-linguistically invariant principle of the organisation of handwritten word production.

2. Method

2.1. Participants

Twenty right-handed undergraduate students at the University of Bristol, all of whom had grown up with English as their first language, took part in the experiment and were given course credit for their participation. All participants had normal or corrected-to-normal vision and no dysgraphia.

2.2 Materials

Stimuli were adapted from work by Schiller (2000) on the role of syllables in spoken word production. 21 pairs of bisyllabic, monomorphemic words with clear syllable boundaries were used; three pairs with polymorphemic response words were removed from the original materials. Of each pair, one word had an initial CV syllable (henceforth referred to as “CV words”) while the other had an initial CVC syllable (referred to as “CVC words”). Word pairs shared the first trigram but differed with regard to syllable boundaries (e.g., BA.SIS vs. BAS.KET). For both types of words, critical interletter intervals were located between the second and the third letter (in the above example, the interval between A and S) so that they straddled syllabic boundaries for CV words (intersyllabic condition) but occurred within syllables for CVC words (intrasyllabic condition). The lexical properties for both types of words are shown in Table 26.1. They were statistically matched on logarithmically transformed data (log), which is commonly used in psycholinguistic studies to reduce skewness in frequency measures, Kučera-Francis (1967) frequency, log CELEX (Baayen, Piepenbrock & van Rijn, 1993) written and spoken word frequency, log overall token bigram frequency, and orthographic neighborhood, with the latter two measures obtained from N-Watch (Davis, 2005). However, CVC words were statistically longer (in terms of mean number of letters) than CV words ($t(20) = 5.876$, $p < .001$), a confound which is difficult to avoid because differences in syllabic complexity necessarily imply differences in length. See Appendix A for a full list of materials.

Table 26.1. Mean lexical properties of words used in the experiment

	CV words	CVC words
Kučera-Francis frequency (log)	1.4	1.5
CELEX: written frequency (log)	1.2	1.4
CELEX: spoken frequency (log)	0.8	1.2
Bigram frequency: token (log)*	2.9	3.0
Orthographic neighborhood	1.9	1.5
Number of letters	5.1	6.2

* Bigram frequencies were taken from N-Watch (Davis, 2005) and based on the COBUILD corpus.

2.3 Procedure

Participants were tested individually. The experiment was conducted with the software package Ductus (Guinet & Kandel, 2010). Each word was present-

ed in uppercase Times New Roman size 18 in the centre of a 17-in screen of an IBM-compatible computer. Participants were asked to copy the words in uppercase letters on a WACOM Intuos A4 graphic tablet, using a WACOM inking pen. They were instructed to lift the pen slightly above the answering sheet to get ready to copy words, and to write the words at a natural speed. As in previous studies (e.g., Bogaerts et al., 1996; Kandel et al., 2006), participants were required to carry out an articulatory suppression task while they were writing their responses: they were instructed to count out aloud, starting from one, as soon as a target stimulus appeared on the screen, and to continue counting until they had written their response. This was done to diminish the influence of phonological encoding and associated potential syllabification during visual word recognition.

Participants first practiced lifting the pen naturally between letters by writing their names in uppercase letters several times. After the practice phase, participants were presented with two blocks of 42 trials with each word appearing once in each block. In each trial, participants first saw a fixation point at the centre of the screen (1,500 ms) prior to a visual word. Once a participant completed writing the word, the experimenter clicked on a button located at the bottom right of the screen to initiate the next trial. The order of trials was randomized within a block. The entire experiment lasted approximately 30 min per participant.

3. Results

The data were smoothed with a Finite Impulse Response filter (Rabiner & Gold, 1975) with a 12-Hz cutoff frequency. The critical interletter intervals between the second letter and the third letter (intersyllabic in CV words but intrasyllabic in CVC words) and movement durations for first and third letter of the shared word-initial trigrams were measured. The interletter interval was defined as the period from the end of the letter, which corresponded to pressure = 0, to the onset of the next letter, which corresponded to the initial pressure > 0. Letter movement duration was defined as the period from the movement initiation point, corresponding to pressure > 0, to the movement ending point, corresponding to pressure = 0.

Results from two participants were excluded from the following analysis, one due to the failure of the technical device and the other due to generating too frequent connected letters (more than 30%). For the remaining responses, trials with copying errors or connected letters in the critical interletter intervals (4.3%) were excluded from the analysis. Additionally, interletter intervals more than two standard deviations above or below the mean for a participant

(4.3%) were excluded from the analysis. There was no significant difference in error rates between the two types of words (4.8 vs. 3.7%; $t(17) = 0.968$, $p = .346$). Table 26.2 presents means and standard deviations of the interletter intervals and letter movement durations for CV words and CVC words.

Table 26.2. Interletter interval for critical bigram (in milliseconds), mean letter duration for first and third letter (in millisecond), and difference between the CV and CVC condition. Standard deviation in parentheses.

	CV words	CVC words	Difference
Interletter interval	151 (31)	152 (31)	1
First letter duration	626 (75)	627 (83)	1
Third letter duration	546 (87)	550 (92)	4

Interletter intervals were analyzed using a linear mixed effects model (Baayen, Davidson & Bates, 2008; Bates, 2005) that included fixed effects of Block (Block 1 vs. Block 2) and Condition (intersyllabic vs. intrasyllabic), and by-participant and by-item random intercepts. An analysis of variance showed an effect of Block, $F(1,377) = 10.82$, $MSE = 9514$, $p = .001$, arising from the fact that intervals were 6 ms faster in the second block than in the first one (154 ms vs. 148 ms), no effect of Condition, $F(1,377) < 1$, $MSE = 1$, $p = .970$, and no interaction between Block and Condition, $F(1,377) < 1$, $MSE = 32$, $p = .848$.

For the analysis of movement duration of the first letter, trials in which participants produced copying errors or did not lift the pen between the first and the second letters (6.9%) were excluded. The pattern of results was similar to the interletter intervals. An analysis of variance showed an effect of Block, $F(1,404) = 28.43$, $MSE = 206.249$, $p < .001$, arising from the fact that participants wrote the first letter 22 ms faster in the second block than in the first one (637 ms vs. 612 ms). There was no effect of Condition, $F(1,404) < 1$, $MSE = 11$, $p = .969$, and no interaction between Block and Condition, $F(1,404) < 1$, $MSE = 5842$, $p = .370$.

For the analysis of movement duration of the third letter, trials in which participants produced copying errors or did not lift the pen between the second and the third letter or between the third and the fourth letter (5.2%) were excluded. An analysis of variance showed an effect of Block, $F(1,429) = 7.02$, $MSE = 364.618$, $p = .008$, arising from the fact that average durations in the second block were 32 ms shorter than the first block (564 ms vs. 532 ms). There was no effect of Condition, $F(1,429) < 1$, $MSE = 398$, $p = .930$, and no interaction between Block and Condition, $F(1,429) < 1$, $MSE = 9692$, $p = .666$.

4. Discussion

A few recent studies have shown that the syllable constitutes an important processing unit in written word production. However, existing studies have focused on languages with relatively clear syllable boundaries. The main purpose of the present experiment was to test whether syllables also constitute processing units in languages with ambiguous syllable boundaries. With this aim, we investigated handwriting in English, a language with oftentimes ambiguous syllable boundaries. We used a task in which English-speaking participants were asked to copy visually presented words onto a digitizer; response words, in pairs, shared the word-initial trigram but had different syllabic boundaries. Contrasting from previous findings in equivalent experiments with French and Spanish writers, we observed that in English, the critical interletter intervals and letter movement durations were not affected by the syllabic structure of words. At face value, these results suggest that English-speaking individuals do not use syllabic structure to prepare and execute handwritten word production. A possible explanation might be in terms of systematic cross-linguistic differences between French/Spanish and English: because syllabic boundaries are typically clear in the former languages, writers use syllable-sized mental representations to prepare and execute orthographic output; by contrast, because syllable boundaries in English are oftentimes ambiguous and vague, writers do not use such mental planning units. In this sense, the results would support Jónsdóttir et al.'s (1996) conjecture that the organisation of the graphemic buffer differs between languages regarding the perceptual salience of the syllable.

Of course, it is generally problematic to derive inferences from a null finding (in this case, our observation that interletter intervals and letter durations are not affected by syllabic boundaries). Hence it is worth considering alternative explanations for the discrepancy between our results and the earlier ones obtained with French and Spanish individuals. One possibility is that the syllabic structures of the stimuli used in the present experiment (CV vs. CVC) were relatively simple, hence genuine syllabic effects might have been masked. Recall that Kandel et al. (2006) found reliably significant effects of syllabic structure on interletter intervals only with relatively complex syllable structures (i.e., CCV vs. CCVC), but syllabic effects were significant only by participants for words with simple syllable structures (i.e., CV vs. CVC). Kandel et al. attributed this pattern to the possibility that simple syllables can be processed automatically and only more complex syllables are associated with an increased processing load which subsequently emerges in interletter intervals. However, Afonso et al. (2009) reported syllabic effects on in-

terletter intervals with Spanish writers even with simple syllable structures, although in writing-to-dictation and written picture naming, rather than in visual copying.

Moreover, it is noteworthy that if the null effect in our study was partially due to overly simple word-initial syllable structure, we should still observe a trend in the predicted direction, as Kandel et al. (2006) did (6 ms longer interletter intervals for between- than within-syllable bigrams). In the present experiment, we observed a 1 ms effect in the opposite direction, which suggests that the statistical null finding is probably not due to overly simple syllable structure. Nevertheless, it would clearly be informative to repeat our experiment with more complex word-initial syllables such as CCV vs. CCVC (e.g., TRI.POD vs. TRIP.LET). Unfortunately, it turns out to be very difficult (if not impossible) to identify suitable stimulus pairs with sufficiently clear syllable boundaries.

We adopted the materials from a study by Schiller (2000) on the role of syllables in spoken word production. In languages with sometimes vague syllable boundaries, individuals don't always agree on where syllable boundary should be drawn, and linguistic theories also make partially contradictory predictions (Goslin & Frauenfelder, 2000). Despite the difficulties in identifying syllable boundaries in many English words, Schiller (2000) argued that all stimuli in his study had unambiguous syllabic boundaries. To further examine this issue, we conducted a metalinguistic syllable repetition task adopted from work by Goslin and Frauenfelder (2000). Five postgraduate students who had grown up with English as their first language, and with no hearing and language problems, volunteered for this task. Materials for the main experiment were presented in spoken form, and participants were asked to repeat either the first or second "part" of the words they heard (we avoided using the term "syllable" in the instruction in order to prevent participants from responding strategically). Stimuli were produced by a monolingual English speaker and were recorded at a sampling rate of 44100 kHz, and digitized at 16 bits per sample. The syllable repetition task was run using DMDX (Forster & Forster, 2003). Each participant was presented with two blocks of 42 trials each with 21 CV words and 21 CVC words appearing once in each block. The order of trials within each block was randomized and the order of the two blocks was counterbalanced among participants. Participants first received 10 practice trials before two experimental blocks were presented. Each trial started with the prompt "*" (500 ms), followed by a blank screen (500 ms), the target word presented over headphones, and an inter-trial interval (1,000 ms). Participants were asked to give responses as quickly as possible within a timeout interval of 2,000 ms.

Responses were analyzed separately according to whether instructions asked to repeat the first or second part of the word. Results showed that syllabification consistency across participants was higher for the second than the first syllable repetition condition. Specifically, responses were consistent across all five participants for all words when they were asked to repeat the second syllables, whereas responses for some words were less consistent in the first syllable repetition condition (e.g., prestige—pres.tige/prest.ige). This disparity in syllabification repetition consistency between the first and the second syllable accords with Goslin and Frauenfelder's (2000) findings, a pattern which led them to argue that repeating the second syllable is a more reliable way of defining syllable boundaries of words than repeating the first syllable.

Hence, according to our results from the second syllable repetition condition, the 42 words used in the present study had clear syllable boundaries. Of course, the repetition task was based on spoken presentations of the target word, whereas our main experiment investigated written syllables. Whether this is relevant depends on one's theoretical view of syllables: if they are seen as ultimately phonological principles of organisation, then there is no reason to assume that phonological and orthographic syllable structure should not always be the same. However, if it is assumed that orthographic representations are independently organized according to syllabic principles, then syllables constitute rather abstract entities. As outlined in the Introduction, the currently available evidence favors the second possibility (e.g., Kandel et al., 2009; Nottbusch et al., 2005; Ward & Romani, 2000). This leaves open the possibility that orthographic syllable boundaries in our materials differed from phonological ones, such that genuine (orthographic) syllable effects could have been obscured by our choice of materials. Further research is required to resolve this issue.

Perhaps an additional informative experiment might be to replicate the current design, but with typed, rather than handwritten, responses (e.g., Weingarten, Nottbusch, & Will, 2004). The advantage of typing over handwriting is that results render clear and precise interkeystroke intervals, and that responses tend to be executed more rapidly (at least by skilled typists) than the uppercase writing required in the current study, and hence might more adequately reveal automatic and fast planning of orthographic output codes. Of course, ideally one might also want to replace the current visual copying task with one based on the written naming of pictures (as in Afonso et al., 2009) in order to eliminate potential effects of input processing of the visually presented to-be-copied word. Unfortunately, it will probably be impossible to find enough stimuli in English which could be elicited by pictorial materials.

It is worth highlighting that identifying the role of syllables in handwrit-

ing English words is not merely of theoretical interest, but also potentially has impact in educational contexts. For instance, the “National Curriculum in England” specifies guidelines for competency in various areas (numeracy, literacy, etc.) that pupils are expected to meet at various stages. For the acquisition of handwriting, the curriculum requires the demonstration of “good handwriting habits” such as writing words with lowercase letters of the appropriate size, with adequate spacing between words, etc. But very little reference is made to psycholinguistic research which could inform educational strategies. For instance, one of the “statutory requirements” in spelling for Year 1 pupils is the correct “division of words into syllables.” However, being able to divide words into syllables is a “meta-linguistic” skill and as far as we are aware, there is little empirical evidence to determine whether English-speaking children do indeed mentally manipulate syllable-sized codes when writing words. Hence, results from future studies similar to those by Kandel and colleagues summarized in the Introduction, but carried out on English-speaking (rather than French or Spanish) children, might directly inform educational strategies which aim to maximize the “match” between learning strategies and children’s preferred mental codes and structures.

To conclude, the results of our study did not show an indication for the involvement of syllabic processing in English writing. Based on these findings, we tentatively propose that the role of syllables in English written production is relatively limited, or at least not as important as in languages with clear syllable boundaries such as French and Spanish. Given substantial differences in syllabic characteristics across languages, the role of syllables in written production might likewise be subject to cross-linguistic differences. More work is needed to further investigate this possibility. As far as the methodology is concerned, so far most existing studies on the influence of syllables in written production focused on measuring and analyzing the time course of written response execution, as was done in the current study. There is no doubt that this approach has provided a range of informative findings, but ideally converging evidence should be generated from studies in which response latencies of written responses are measured (hence assessing preparation rather than, or in addition to, execution; e.g., Lambert, Kandel, Fayol & Espéret, 2008). For instance, one could conduct masked priming studies with written responses, along the lines of the work conducted by Schiller (1998, 1999, 2000) with spoken responses. Overall, we conclude that further work is required to validate the possibility that the influence of syllables in the written production of languages with unclear syllable boundaries is limited.

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Appendix. Materials used in the experiment

CV targets	CVC targets
basis	basket
basil	bastard
bison	biscuit
caper	captain
coma	combat
cosine	cosmos
Danish	danger
donor	donkey
halo	halter

CV targets	CVC targets
humour	humbug
napalm	napkin
pilot	pilgrim
polo	polka
pony	pontiff
rumour	rumble
secret	section
serum	sermon
silence	silver
sinus	single
tumour	tumble
tuna	tundra

Additions After the Full Stop and Hierarchical Sentence Organization: A New Trend in Contemporary Writing

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Additions after a full stop have been the subject of a number of studies these last years, but the particular case of several successive additions was seldom observed for itself. This kind of construction, which tends to develop, cannot fail to raise a number of interesting problems, both at the syntactical level and at the discursive level. The question of the range of each addition arises when they are built in a parallel way, that is each addition is articulated directly on the initial structure of the sentence. When additions are arranged in a serial way, it seems rather different.

Our presentation addresses two aspects of this operation: we examine at first indications by which the writer can indicate these differences of range between successive additions. We then take up what appears to us, in the syntactic plan, as a search on the part of the writer for an alternative to the “complex sentence.”

Les ajouts après le point ont fait, ces dernières années, l'objet d'un certain nombre de travaux, mais le cas particulier de plusieurs ajouts successifs n'a guère été observé comme tel. Ce type de construction, qui tend à se développer, ne manque pas de soulever un certain nombre de problèmes intéressants, tant au niveau syntaxique qu'au niveau discursif. Se pose en effet la question de l'organisation des ajouts lorsqu'ils sont construits « en parallèle », c'est-à-dire que chacun d'eux s'articule directement sur la structure phrasistique initiale, l'autre montage des ajouts, « en série », semblant en revanche revenir au cas général.

Mais on trouve aussi un mélange d’ajouts multiples combinant plusieurs de ces structures.

Après une rapide typologie des différents modes de composition de ces ajouts multiples, nous en décrivons quelques aspects : l’effet créé par les ajouts en parallèle, les indices par lesquels le scripteur peut signaler d’éventuelles divergences de portée entre les ajouts successifs, pour finir par nous interroger sur ce qui peut apparaître, au plan syntaxique, comme la recherche, de la part du sujet écrivant, d’une alternative à la « phrase complexe ».

1. Multiple Additions: A Draft of a Typology

The phenomenon of fragments in literary texts following strong punctuation rules has been known for a relatively long time, but the use of “additions after the full stop” seems to be becoming more and more frequent in certain types of contemporary French texts, especially in journalistic writing. These “adjuncts,” the formal term often adopted to designate the syntactic units placed at the end of the statement and typographically isolated from the context to the left by a strong punctuation sign, constitute a specific case of syntactic structure and discursive organization. Several investigations have addressed the functioning of this particular case of hyperbaté (cf. M. Noailly, 2002; B. N. Grunig 1986, 1993, 1999, 2002; J. Authier-Revuz 2002; Combettes 2007, 2011a & b, 2013; C. Emmott & al., 2006a & b), although these studies are doubtless less numerous than those concerning internal sentence fragments (brackets, hyphens, etc. *cf.* Combettes 2012).

Two properties appear to be indispensable characteristics for the recognition of an addition (adjunct); on the one hand, the context to the left (which for convenience we will call the “matrix phrase”) is saturated and to be complete does not require, either from the syntactic or the semantic point of view, the presence of an addition; on the other hand, the detached fragment does not constitute an independent unit, provided one sets aside the case of nominal syntactic units that can be interpreted as averbal phrases.

Also, it must be remembered that, from a morphosyntactic point of view, the constituents concerned by this segmentation are characterized by their wide diversity. This is true whether it is a question of their grammatical nature, or of the syntactic function that the addition would occupy if it were integrated into the matrix phrase. It is possible to consider that, apart from several “tool words,” all syntactic units can theoretically occupy this position (cf. A. Gautier, 2010). The diversity of the discursive values that these adjuncts fulfill, beyond the morphosyntactic diversity, must also be underlined. This

defies convention firstly in the domain of enunciation and secondly in that of the informational organization of the statement. Concerning enunciation, the addition introduces the polyphonic dimension that is characteristic of rectification operations, correction, “retrospective” effects, and more generally a change of viewpoint.

Finally, it should be noted that the place of the addition in the general structure of the text is often important. Insofar as they correspond to a change in viewpoint, the indicative functions that we have just evoked are naturally linked to marking the end and/or beginning of a discursive sequence.

In this contribution, we concentrated on the study of a specific discursive structuration that corresponds to approximately a quarter of our corpus.³ In certain texts, we noticed the presence of successive additions. Thus, the number of additions is not limited to two. Two sorts of problem are imposed by such a fragment disposition: those of a syntactic order, with, in particular, the question of relationships maintained by successive additions to the matrix and those of a discursive order, with the determination of the range of different additions and the interpretation of their literal value. To better situate those structures whose function seemed to us particularly interesting, we will rapidly proceed to a presentation of the four major sub-categories of multiple additions.

A first configuration is constituted by what we will call the parallel adjuncts. From a syntactic point of view, the succession of fragments corresponds to the juxtaposition of constituents of a single rank. These fulfill the same function and would have the same range as each other if we recreated a linked statement with integrated additions. Thus, in the following passage, the two prepositional syntactic units in the infinitive form (to have given it a nickname / to have given the floor to) comprise an enumerative series that is open by the complement of having delivered content in the matrix phrase:

- (i) The Ex therefore does not hold it against the comic for having yielded to several “fantasies” during the 1981 campaign. **To have** nicknamed him the “jeweler” for his work as a silversmith alongside Bokassa, emperor of Centrafrica. **To have** given the floor to Claude Angeli in the autumn of 1980 during Antenne 2’s one o’clock to speak about the diamond affair that was censored by the media under orders. *Le Canard enchaîné*

Here, in a manner of speaking we find a transversal distinction that is pertinent for all types of addition: as in the example cited, the segmented element could be present in the matrix, but it could equally not be “announced”

by a symmetric constituent. This would be the case, for example, if the context to the left were modified by creating the infinitive complement of a first addition:

(r') The Ex therefore does not hold it against the comic. To have yielded to several “fantasies” during the 1981 campaign. To have nicknamed him the “jeweler” for his work as a silversmith alongside Bokassa, emperor of Centrafrica. To have given the floor to

In a second type of organization, the second fragment claims to be an addition to the first adjunct, the commentary of a commentary in a certain manner of speaking. In the following statement, it is the third, the anaphoric constituent that ensures the referential link with the addition that precedes it, no relation being established with the first phrase, which is only a matrix phrase for the first addition:

(2) The elephants made a huge mistake.⁴ Jospin first, who accumulates disasters. The third in a row for the ex for the ex Prime Minister, autodesignated guard of the party’s values.

Le Canard enchaîné

We will adopt the denomination of “serial adjuncts” to characterize this type of sequence. The pronounced difference compared to the parallel adjuncts is rather easy to demonstrate, at least in a first, somewhat simplified, approach: the permutation of the two additions is impossible in this second case, whereas it seems acceptable when the additions are on the same plane. As we will see further on, the semantic and discursive aspects mean that the syntactic parallelism is far from corresponding to a parallelism of contents of the elements concerned.

The third type of multiple adjunct could actually be considered as a variant of the serial adjunct. Effectively, it is a relatively complex situation, sometimes of ambiguous interpretation, where the second addition is articulated around the preceding addition as in the case that we have just evoked, but where it seems that the second addition can equally be associated with the matrix phrase. Thus, in example (2), the last addition bears no relationship to the first proposition, but this is not true for:

(3) The fact that they are mothers counts for more: it’s on their capacity for intuitively perceived love that they recruit. **On** the interest focused on the child, on a gaiety, a softness, a nursemaid’s body etc.

As many stereotypes attached to the mothers as that these active women precisely attempt to free themselves from! *Le Monde*

In this passage, we can interpret the second fragment (*As many stereotypes*) as being a serial adjunct. The “qualities” contained in the fragment that precedes it are commented on here, but we also see that a link is built up with the first phrase, the qualities (interest, gaiety, softness etc.) being the development of the “capacity for intuitively perceived love.” Thus, in this example, the vista of referential relationships is established thanks to anaphoric links, which allow the last addition to be indirectly linked to the initial phrase. In many cases, these additions, which we will call “global impact adjuncts,” relate not only to the fragment that precedes them but also to the whole. This is constituted by the context to the left or, more precisely, by the relationship already established between the first addition and its matrix phrase. The following example may illustrate this preaching setting:

(4) We were thus preparing ourselves to die for Teheran. Not without several reserves if the truth be told. Especially since certain signs allowed us to think that [...] *H. Calet*

All the more so that the connector does not link the fact of having reserves (P₂) and the existence of certain signs (P₃), but the fact of preparing to die with reserves (P₁ but P₂) and P₃.

A last category is made up of incident adjuncts, which, if they were integrated into a re-constructed sentence, could appear in brackets or between hyphens. While this category shares the property with the serial and global impact adjuncts of not being able to be moved, the incident adjunct can be suppressed, a property that is not the case for the two other kinds of fragment if they are in the position of the first addition. The following passage corresponds to this configuration:

(5) Another good means, or exchange of good practices, the American Congress promised to triple non-military aid to Pakistan. Namely, a total of 7.5 million dollars over the next five years. But on the condition that the team in place in Islamabad finally proves its desire to fight against terrorism.
Le Canard enchainé

This is a statement that could be transformed into:

(5') Another good means, or exchange of good practices, the American Congress promised to triple non-military aid to

Pakistan—namely, a total of 7.5 million dollars over the next five years—but on the condition that the team in place in Islamabad finally proves its desire to fight against terrorism.

(5") Another good means, or exchange of good practices, the American Congress promised to triple non-military aid to Pakistan. But on the condition that the team in place in Islamabad finally proves its desire to fight against terrorism.

Obviously, when the statement contains more than two additions, the diverse categories that we have just described are not exclusive. For example, an incident adjunct can follow on from a parallel adjunct, etc. In the rest of this study, we will limit the examination to two of these categories, parallel adjuncts and serial adjuncts, for certain aspects of function.

2. Parallel Adjuncts

In an immediate approach, this type of multiple addition, which corresponds to a juxtaposition situation, does not seem to present any special problems, whether these concern production or interpretation. Effectively, if (1) is considered, we face a list, an enumeration where the adjunct replaces, perhaps more clearly, a sequence of constituents separated by commas. Everything happens as though the choice of a first addition after the full stop led obligatorily to the presence of a series of successive additions of the same type. A comma or a semi-colon between the last two additions seems, effectively, less expected.

This type of enumeration, where all the elements on the list are on the same plane and can thus be permuted or suppressed without any particular constraints (cf. Blanche-Benveniste et al., 1990, p. 20), only corresponds in reality to a single case in point, without doubt the simplest, but not the most frequent. The term “parallel” is appropriate to describe the morphosyntactic properties of the addition, but is not always pertinent when it comes to characterizing the content that the different fragments house, as we will see. Consider, for example the following passage:

(6) The central reinsurance fund, whose capital is 100% public, will be solicited. However, this business does not fall within the jurisdiction of this fund. According to the law, it is supposed to take care of natural disasters and technological risks. **Not** financial catastrophes. **Nor** customer service for presidential speeches. *Le Canard enchainé*

Even if the correlation of the double negative *not* and *nor* establishes a perfect syntactic symmetry between the two additions, they are both identified as indirect objects of the verb “to take care of.” The difference from example (1) is clear if the content plan is taken into account. Although in (1) the adjuncts did not translate an enunciation change relative to the matrix phrase, the first addition brings a correction to the ironic mode. Furthermore, it can be noted that the use of a comma could imply that this fragment is under the impact of supervision *according to the law*, which would significantly weaken the coherence of the passage:

- (6') According to the law, it is supposed to take care of natural disasters and technological risks, not financial catastrophes.

As for the second addition, it corresponds equally to a change of level and expresses a rectification of the rectification, a situation that could be explained by: *and yet less customer service*. It can be seen how the matrix phrase and each of the two additions produces different systems of enunciation, with addressees, persuasions and diverse points of view.

It is not surprising that specific imprints arise often enough to underline the specific status of one or another addition, which are parallel only in appearance. For example, the order of the constituents can follow an argumentative progression, which means that the last fragment is of a different type to the previous ones. This difference will be marked by expressions such as: *on the other hand, above all, finally, without forgetting, etc.*:

- (7) Remains that, bluff or not, Free irks. Because their announcement shares the “cool” image that seduces clients. Because the operator draws up front the lowered prices of the future market of the optical fiber. Finally, because Niel threw a brick into the administrative pond. *Le Nouvel Observateur*

Or, by a simple “and,” which corresponds to one and the same, and above all:

- (8) Because we must also live with the President’s character. His energy. And sometimes his rather undiplomatic exasperation. *Le Monde*

The use of “and” in the following passage signals the movement of a domain—we leave the economic realities and the political situation to the role of the press—re-enforced by the typographic disposition that dedicates a specific alinea to the last adjunct:

(9) If François Hollande were constrained to underline faster than scheduled the painful aspects of his social-democratic program, this is because he was surrounded by emergencies.

Surrounded by the crisis, unemployment and the budget. Surrounded by the left side of the left that demands the application of the Mélenchon program, by the associations that use the Romanys and delinquency to call for the abandonment of repression, by the ecologists, who call for the end of nuclear power plants, by the right, who orders the application of Sarkozy's program or are outraged by its dismantlement.

And surrounded by the press who express a public impatience, with the doubt that accompanies it: "But what does the boss do? Is he there? Is there a pilot in the plane?" *France-Culture*

It is clear that the parallel adjuncts present interesting problems concerning the articulation of contents hosted on different successive fragments. Their treatment in the reception activity leads us to identify, beyond the construction symmetry, the organization into a hierarchy of enunciative levels, polyphony effects and their consequences in the informative and argumentative organization of the text. Next, we will examine serial adjuncts, and particularly mixed adjuncts, which raise other types of questions, especially those pertaining to the syntactic domain.

3. Mixed Assemblies

These combine several types of the adjuncts that we have just defined, beginning with incident adjuncts, which by definition are inserted in front of another addition. We will not consider this case, to concentrate only on combinations of the three following modes of connections: parallel, serial, and global.

To begin with a simple case, in (10) a serial adjunct is connected to the third parallel addition of the matrix. This serial adjunct is followed by a global addition that bears upon all four preceding adjuncts. In other words, this case concerns a total of five heterogeneous additions:

(10) The worst thing is that there are many other irritating people. Those who refuse to understand that GMOs are a wonderful invention. The Irish who vote no even though they have been told to vote yes. The French who obstinately

maintain Sarkozy last in the polls. And who are attached to the Social Security system. All these “hard cores” that we will need to attack . . . *Le Canard enchaîné*

In contrast, in the following example the range of the last addition is less obvious: is it connected only to the preceding adjunct or to the group of matrix + adjunct?

(ii) [. . .] his students must learn to “find the relevant data that can make the statistics more meaningful.” They must also learn to relativize, to accept that a proposition can produce opposite results without being false for all that. With Ricardo where each country specializes for the greater happiness of all. *Le Nouvel Observateur*

In contrast to the homogenous configurations considered above, the heterogeneous adjuncts thus pose a specific problem: the insertion point of each addition requires a specific calculation that cannot be inferred automatically from that of the preceding adjunct, contrary to the case of successive additions that are all mounted either in parallel or in series. The only indication given to the reader is the maximum punctuation sign, the full stop, for which the hypothesis is proposed that, relative to the comma, it is a “wide-range” marker. The full stop serves for the syntactic integration of the postponed constituent. In other terms, the “node” to which the adjunct is attached is not necessarily contiguous, neither linearly, nor hierarchically (Kuyumcuyan 2009).

Given this variation of the incidence of adjuncts on a common structure, potentially made up of all that precedes each of them (i.e. matrix ± addition 1 ± addition 2 etc.), we could end up with a group of variable perimeter that is susceptible to be impacted on at different levels by one or another addition. This situation evokes the problems caused by the representation of a complex sentence, especially one that concerns the insertion site of the subordinates into the matrix structure, except that with the additions, the sequences to attach to the global structure are neutralized on the morphosyntactic plan. Thus they can consist, as we detailed above, of any major or minor constituent (NG, AdjG, AdvG, VG, PG, P, etc.), whose function is also a priori indeterminate (a complete or partial predicate, N expansion, DC, circumstantial, etc.).

This is why, even if the theoretical and methodological problems (particularly of representation) are analogous, the organizational plan thus cleared seems in part independent:

- the breakdown by points corresponds to sequences that are syntactically heterogeneous,

- certain sequences of the same syntactic category can be integrated, while others cannot.

For all that, we cannot state whether the phenomenon is absolutely independent of syntax, since the segmentation is not also less obviously a function of syntactic articulation, even though it does not necessarily operate at the same level. There again, as in the complex sentence, the subordinates can be inserted at different levels of the matrix. All in all, it is a question of an original plan of organization, which requires the periodic organization (the division of sequences operated by the full stop) to be combined with syntactic organization (the position of the addition in the matrix structure), in an approach inspired by the modular one (cf. Roulet et al., 2001). The hypothesis that we would like to defend in the last section of this chapter is that by combining different types of assemblies, the sequences of mixed adjuncts display a sort of graphical alternative to the complex sentence, by substituting the graphic segmentation for the syntactic setting, which is often a source of incertitude for the writers.

4. Multiple Mixed Adjuncts and Their Setting

4.1 Presentation Conventions

The representation that we will adopt henceforth is inspired by the work of C. Blanche-Benveniste (1997, p. 135-136) who wrote about the transcription of an oral passage:

It is difficult to imagine a written equivalent (with what punctuation?), where a sentence would be left up in the air to be taken up again later, after having started two other sentences.

Because it seems to us that the punctuation using the “non-conventional full stop” is able to face the challenge indicated by the author.

On the periodic level, graphic sentences, i.e. linear segments preceded and followed by full stops, are evidenced by a carriage return. As for syntactical organization, a star indicates the syntactical node where the addition is inserted, an addition being placed by hypothesis on the -1 rank compared to the matrix because the former is dependent on the latter. A tabular representation results, which schematizes each uncoupling by means of a carriage return and an indentation relative to the host structure—whether it concerns the matrix or an adjunct. Applied to example 10, here is the result of this schematization:

The worst thing is that there are many other irritating people *.

1. Those who refuse to understand that GMOs are a wonderful invention. *
2. The Irish who vote no even though they have been told to vote yes. *
3. The French *who obstinately maintain S. last in the polls.
4. And who are attached to the Social Security system. *
5. All these “hard cores” that we will need to attack . . .

This tabular representation marks three levels of insertion of adjuncts: a first level with three parallel adjuncts appended to many other irritating people, a second level with one serial adjunct inserted into the last parallel adjunct (the adjuncts are thus recursive, just like the setting), a third level with a last global adjunct whose range extends over the (3+1) preceding adjuncts, as indicated by the star displaced on three occasions.

The organization thus brought out is therefore not congruent with the syntax (in which case it would be without an object), effectively:

- two relatives of the same syntactical rank occupy different periodical levels (internal to the 3rd addition and co-extensive to the 4th addition, respectively),
- three additions constitute appositions to a single NG “many other irritating people,” whereas a single apposition “All these ‘hard cores’ that we will need to attack . . .” is a common factor to these three NG: “those who refuse . . . The Irish . . . The French . . .”

The incidence of adjuncts results from syntactic information (for example, the insertion point of a relative for the adjunct 4) but also semantic information. Effectively, it is because of the anaphoric expression “All these ‘hard cores’” where we infer that the last adjunct bears on the three preceding ones but not directly on the NG base in the matrix, since it implies a globalizing reference to a group that was previously divided into discrete units.

Example 12 illustrates the same partial disconnection between the graphic organization and the syntactic structuring of the written statement:

- (12) She is a travelling baker in a deserted countryside. Who calls herself Eve. Who describes herself carried away by an

exceptional love story. And is delighted to approach a bit nearer each day the man that she has come to find. The man who abandoned her. That she no longer has the right to see. But whom she wants to reconquer. To give a sense to that which they shouldn't have shared. (Summary of the movie *Sois sage*)

Effectively, we observe once again that the division brought about by the full stops corresponds to sequences that are heterogeneous in terms of syntax:

- adjuncts 1-2-3 consist of VG
- adjunct 4 is an expanded NG
- relative epithets form adjuncts 5 and 6
- finally, adjunct 7 is constituted by a PG

The type of adjunct / matrix relationship is equally variable: independence (parallel adjuncts 1-2-3—co-ordination relationship), weak dependence (serial adjunct 4—apposition) and strong (relative adjuncts 5 and 6 then the final infinitive construction 7). The criterion to distinguish between a weak or strong dependency of an addition is the rection mark or the setting tool at the head of the addition. There is thus no isomorphy between the graphic and the syntactic division, especially as, like example 12, all the subordinates are not distinguished by full stops, nor by appositions, or even lists, as seen for other examples. As a result, the tabular representation of example 12 distributes three subordinates of the same hierarchical rank on the syntactic plan—particularly with the same antecedent—on different periodic plans (adjunct 4 on the one hand and 5 and 6 on the other hand):

- o. She *is a travelling baker in a deserted countryside.
 1. Who calls herself Eve.
 2. Who describes herself carried away by an exceptional love story.
 3. And is delighted to approach a bit nearer each day *the man that she has come to find.
 4. The man *who abandoned her.
 5. That she no longer has the right to see.
 6. But whom she wants to reconquer*.
 7. To give a sense to that which they shouldn't have shared.

Incontestably, this is a question of a form of “syntax,” in the literal sense of *dispositio*, independent of syntax in the grammatical sense of the term, because the final material disposition of the units on the page redistributes the hierarchical organization of the syntax, bending it to the constraints of the

linear organization of the speech, which concerns equally the written and the oral word, hence the common denomination of periodic organization, respectively phono-prosodic or graphic, as recommended by Roulet et al., 2001 (51).

The necessity of a “modular approach” seems to us determined by this “multiple constraint”: the data that apprise the final achievement are heterogeneous, which is the same as saying that they are neither strictly syntactic, nor exclusively periodic (i.e. “graphic” for the written word). “That mixture of the two” is so complete that a model is required that will allow the two to be considered at the same time:

1. The autonomous description (the syntax of functions and relationships / graphic segments)
2. The articulation between the two

Although it is more than probable that we cannot manage with only these two modules: the semantic and enunciative dimensions are also certainly not foreign to the division into periodic units. Effectively, the graphic organization is probably not *sui generis* and arbitrary data; particularly, it is constrained by considerations of sense and management, of “polyphony,” that cannot be neglected. Nevertheless, if for the moment we only consider the syntax / punctuation relationship and neglect the other factors, what can we see?

The matrix / adjunct relationship seems unendingly aspirated by the complex sentence model. However, this tropism is misleading for different reasons. As detailed above, the adjunct does not necessarily have a phrasal structure, but also the adjunct matrix is not a “matrix phrase” in the syntactic sense of the term: the syntactic matrix is an encompassing macrostructure, which contains “from the beginning” its subordinates and that cannot even do without some of them. The organization of the matrix phrase is not linear but is hierarchical. In contrast, the adjunct matrix is completely independent from its additions, which by definition it does not need: the relationship is one of strict dependence; never interdependency (otherwise it is not an adjunct). Unlike a syntactic matrix, the adjunct matrix makes one consider the late “main proposition” of logical analyses of bygone days. Effectively, this latter was defined as “what remains when the subordinates are removed,” namely an exclusively linear discursive entity. This is the precise reason why we have renounced syntax: the constituents are not placed end-to-end even if they are linked linearly; they are organized hierarchically, as has been frequently underlined (cf. among others P. Le Goffic 1993). However, it is precisely because it is linear that this notion is operational for the adjuncts and their matrices, because both these elements are also linear realities, facts of discourse inscribed in the “live” realization of speech and not in reconstructions

or linguistic models. Facts of discourse are concerned here, not language. This is why we cannot imagine a model for the additions, we can only make lists of them.

Once the basic sentence (matrix or principal) is stated, the writer, just like an oral speaker, feels the need to add complements, proceeding as a co-enunciator in a dialogue, according to T. Jeanneret (1999), with adjuncts “for repair” or “attached.” Thus, the progression follows a dynamic process that is deleted neither from the written form nor from the oral, but which piles up enunciative strata one above another. We think of a trunk with grafts inserted at strategic points, syntactic nodes situated at different levels whose remote literary inspiration would be Proust with his famous quills. Effectively, we cannot neglect the unconstrained aspect of adjuncts, their pleasant side, including that for the analyst: it is syntax that indicates the vocabulary that we are tempted to use to describe them (range, incidence point), but it is “light” syntax in a manner of speaking; without a generative model on the analysis side, without planning at medium distance on the production side. We are led to ask whether the adjuncts are not a means to circumvent the pitfall of the complex sentence by the bias of periodic organization, joining brief “enunciative cells” to a basic structure. Their massive use in contemporary writing would thus result in the hybridization of two factors:

- the necessity of adding a superior unit of discourse to the minimal proposition (the “full stop” for the Fribourg group, 2013, the intervention of Roulet et al., 2001)
- the difficulty to negotiate this necessity by means of the syntax of the complex sentence (which implies not only a true planning, but also the management of verbal modes for certain subordinates, the morphology of the relative and other diverse difficulties)

The adjunct thus allows the conflict between syntax and enunciation to be resolved, by indicating that the previous sentence does indeed continue and that, in any event, we remain in the same discourse unit. The sentence with additions thus represents an alternative to the long concurrent segment of the complex phrase, whose watchword must be: long live enunciation, and let syntax cope as best it can!

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Pausal Behavior in the Writing Processes of Foreign and Native Language Writers: The Importance of Defining the Individual Pause Length

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This study aims to increase knowledge of pausal behavior in L₁ and L₂ writing during the online process of writing and to contribute to the field of L₂ writing fluency. Previous research has shown that fluency is closely related to pause length and location, and that writing has much individual variation; this variation has been neglected when defining pauses. Here, however, the pause length is defined at a personal level by means of the Hidden Markov Model. The online data were gathered from eleven Finnish university students studying French and six French speaking Erasmus students. The results show language-related differences in the pausal behavior in L₁ and L₂ writing. The individual pausal behavior varied between students, which confirms the relevance of using individual pause lengths in experimental studies.

Cet article présente les résultats d'une étude de cas empirique portant sur les processus rédactionnels en temps réel, à savoir sur le comportement pausal en langue seconde (L₂) et en langue première (L₁). Il s'agit d'une recherche interdisciplinaire s'inscrivant dans le cadre des travaux sur l'activité rédactionnelle en tant que processus cognitif, des travaux sur l'écriture en langue seconde et des méthodes d'étude en temps réel. Pour recueillir le corpus, nous avons utilisé deux méthodes, notamment la méthode chronométrique (le logiciel ScriptLog) et la méthode de verbalisation rétrospective, à savoir le rappel stimulé. La longueur des pauses a été définie selon les critères

individuels à l'aide du modèle de Markov caché (MMC). Le recours au modèle MMC nous a permis de définir pour chaque scripteur trois états de pause (état d'aisance, état de moindre aisance et état de non-aisance). Les textes étaient rédigés par onze finnophones étudiant le français au niveau universitaire et par six étudiants Erasmus français. Les résultats montrent que le comportement pausal des finnophones en finnois (L_1) diffère de celui des francophones en français (L_1). Nous avons discerné un seuil de signification hautement significatif ($c_2(6) = 27.722$, $p < 0.000106$). Les scripteurs franco-phones semblent demeurer dans l'état d'aisance, tandis que les scripteurs finnophones passent plus facilement de l'état d'aisance à l'état de moindre aisance. Les pauses de non-aisance sont également en moyenne plus longues en finnois (L_1) qu'en français (L_1). Les apprenants finnophones rédigeant leur texte aussi bien en L_2 qu'en L_1 ont besoin de plus de temps pour leur rédaction en langue seconde mais certains font des pauses plus longues en L_1 qu'en L_2 , d'où des résultats mitigés. La variation individuelle est relativement grande à l'intérieur des groupes, surtout celui rédigeant son texte en L_2 . La variation individuelle s'avère donc un facteur important dans l'activité rédactionnelle et de ce fait, il semble que l'on puisse plutôt déterminer un niveau seuil individuel de la longueur de pause. L'expérience confirme en effet que les scripteurs individuels expérimentent la lenteur relative des processus rédactionnels de manière dissemblable.

1. Introduction

In studies on writing fluency, verbal fluency is based on the relationships among three main cognitive processes, namely planning, formulation, and revision (Ellis & Yuan, 2004; Roca de Larios, Manchón, Murphy & Marín, 2008; Sasaki, 2000, 2004).¹ Pause analysis provides bases for interferences about these processes, especially in terms of pause location and pause duration location (Gunnarsson, 2006; Mutta, 2007; Spelman Miller, 2000; Wengelin, 2002). The main cognitive functions seem to overlap during the writing event, so the processes are of a cyclical nature, and thus dynamic (see Roca de Larios et al., 2008; Olive, 2014). According to Olive (2014), earlier studies, mainly described cognition in terms of sequential or serial processing steps, but various empirical findings argue for parallel and cascading writing processes like those in speech production (see also Piolat, 2011). Among others, the model proposed by Kellogg (1996) emphasizes the role of working

memory in writing processes, especially the importance of the central executive forming a multipurpose, limited-capacity system, which is responsible for, for instance, solving problems. The key term in Kellogg's model is the "limited capacity" of working memory, or more precisely of the central executive. The limited capacity forces the writer to choose which processes s/he favors when producing a text as quickly as possible under great pressure (see also McCutchen, 2011). The analysis of verbal fluency is thus closely related to the writer's textual organization at micro- and macrostructural levels. The writer tries to control the processes of conceptual, internal representations and ideas, and then converts these into language, which means that manifold ideas are converted into a linear text (cf. Olive, 2014). Writing on a computer affects the planning and editing part in such a way that writers plan and edit less or in a different way on a computer than they do when writing with pen and paper. Moreover, writing on a computer fragments the activity even more and enables the overlapping of the three main processes perhaps more often than when writing with pen and paper (see Pennington, 2006; van Waes, 1992; for technical rapidity on keyboard, see Gaonac'h & Larigauderie, 2000; Wengelin, 2002; Grabowski, 2008).

The pause is a basic unit in studies on temporal aspects of language-production processes. As pauses reflect the covert cognitive activity, pause length, frequency, and location interest writing-process researchers; the covert cognitive activity seems to become visible through pauses (Janssen, van Waes & van den Bergh 1996). The longer the pause, the more attention and reflection are paid to ongoing processes by the writer. The automaticized processes are produced with rather few short pauses, whereas high-level processes invite longer pauses. It has been found that pauses have a hierarchical order: the shortest pauses are within a word, then between words, between sentences, and finally between paragraphs (Fayol, 1997; Olive, 2002; Gunnarsson, 2006). In other words, the lower level processes, like orthography, should be automaticized in order to avoid overloading the central executive, and to leave sufficient cognitive resources for executing higher level processes, such as planning, generating ideas, and revising.² In this manner, the activity of writing is not interrupted by unnecessary pauses. Furthermore, it is assumed that writing in a foreign language (L_2) makes the pauses even longer at every location, and that there are more pauses within words, which is supposed to be the most fluent position in writing (Coirier, Gaonac'h & Passerault, 1996; Spelman Miller, 2000).

A pause criterion is often stipulated to suit the aim of the research or to allow comparison with other research. Several studies have used the stipulated criterion of two, three, or five seconds. Among others, Severinson,

Eklundh, and Kollberg (1996), Spelman Miller (2000), Wengelin (2002) and Mutta (2007) have set the minimum criterion at two seconds because the tool they used to collect their corpus automatically gives this threshold level. This stipulated criterion seems thus to cover all pauses that should really be considered as pauses, and exclude, for instance, so-called “technical pauses,” which are due to correcting typographical errors. To measure the reactivity effect of think aloud protocols in writing processes, Janssen et al. (1996) used a minimum pause length of three seconds “for practical reasons,” because in a one-hour writing session there would have been too much data to analyze. They used a software program called Keytrap. For her part, Sasaki (2000, 2004) considered a three second minimal level of inactivity as a pause because of her corpus collection method, namely, videotaped sessions of writing processes. She used a stimulated recall verbalization, and asked the participants to comment on all the pauses that were longer than three seconds on the tape. The mean pause duration is often even longer (Janssen et al., 1996; Spelman Miller, 2000), and thus the stipulated criterion is set at the five second level in some studies. Ransdell, Arecco, and Levy (2001) used a five second criterion in their two experiments studying the effects of working memory load (i.e. irrelevant speech and concurrent 6-digit load) in bilingual writers. They used a program called FauxWord. They were especially interested in pauses located at clause or sentence boundaries. A pause that is ≥ 5 seconds long can be treated as a long pause; it manifests the working memory load, which seems to be related to cognitive writing processes such as planning or revising.

Another way of analyzing pausal behavior is to set an individual pause criterion for each participant. Since writing processes have a great deal of individual variation (see e.g. Coirier et al., 1996; Fayol, 1997; Janssen, et al., 1996; Olive, 2002; Spelman Miller, 2000), so does pause length. If we take this supposition into account, it seems quite normal to set an individual pause criterion. This has been done in some studies; for instance, the study on writing apprehension by Madigan, Linton, and Johnson (1996) measured a pause as the time from the end of the previous word to the first letter of the next word. According to Wengelin (2002: 235), this is a good solution for counting pauses, but can make the comparison of durations and the analysis of the reasons for pauses more difficult, and therefore the stipulated pause criterion is more commonly used. However, when the stipulated pause criterion is used, some valuable information on individual pausal behavior can be excluded from the analysis (e.g. it can leave out some pauses or include some transitions that are not pauses; Wengelin, 2002), and the results might present an overgeneralized picture of a complex phenomenon.

In this chapter, we report on the attempt to define the individual pause

length for each writer and give some examples of how it is manifest in the writer's profile and pausal behavior. The following research question was formed to shed light on this issue: How is the writers' individual pause length manifest in their pausal behavior?

This chapter strives to gain insight into the complexity of pausal behavior in the process of online writing. Its originality lies in the fact that we attempt to clarify this phenomenon from a new angle. The starting point is to define three kinds of pauses illustrating fluent, thinking, and reflective writing states and to set individual pause thresholds; the Hidden Markov Model is utilized to do so. The research method provides a more detailed analysis of pauses and thus enlightens the variability necessary to observe the individual pausal behavior. Some of the participants wrote in both L₂ and L₁, which enables a comparison of these pausal behaviors and their relationship. As the article strives to open up this complexity, it contributes to the field of L₂ writing fluency.

2. This Study

The possibility of defining the pause length at a personal level was explored in order to study the pausal behavior of writers either in their first language (L₁) or in a foreign language (L₂). As several median pause lengths were over seven seconds in the corpus, a third criterion was added to study three different pause lengths: short, medium, and long pauses. In this study, short pauses manifest normal writing fluency (see also Olive, 2014: 176), whereas medium and long pauses reveal increased working memory load. This gives more detailed information on individual pausal behavior than the stipulated pause criteria do. Therefore, we ran an experiment to define these three pause lengths. The Hidden Markov Model (HMM), which is often used in speech recognition (Rabiner, 1989), was relied on.³ The HMM is a statistical model that describes the finite states of a phenomenon and its purpose is to distinguish the hidden parameters of a phenomenon from the observable parameters. Each state has a probability distribution referring to the transitions between the hidden states, i.e. transition probabilities (MacDonald & Zucchini, 1997; Uusipaikka, 2006). The number of states depends on the phenomenon under study; here we decided to use a three-level scale: short, medium, and long pauses, and thus three states, respectively. The argument for using this model is based on several assumptions: firstly, HMMs are known for their application in temporal pattern recognition such as speech, and, as mentioned above, writing processes resemble speech processes (Ellis & Yuan, 2004; Fayol, 1997; Olive, 2014). Therefore, HMM could be used in

describing the hidden states in a writing activity. In this case, the pauses represent the observable finite states, whereas the hidden sequences of the states represent other cognitive processes behind the pauses. Secondly, the model takes into account the context around the phenomenon, which diminishes fortuitous results, in accordance with the principals of statistical logic. Thirdly, the model is used here to represent the states of pauses, which reflect the cognitive processes behind these pauses (see e.g. Janssen et al., 1996; Fayol, 1997; Olive, 2002). They describe the switch between a fluent and less fluent writing activity. Finally, these three states of pauses were named: 1) state of fluent writing (state 1, short duration), 2) state of thinking writing (state 2, medium duration), and 3) state of reflective writing (state 3, long duration). The state of fluent writing consists of short pauses and, hence, together with the actual writing, i.e. typing ideas, they create the general fluency of the writing activity. This means that the fluent writing activity contains pauses in the same way that normal speech is interrupted by pauses (see also Olive, 2014).

3. Method

3.1. Data Collection and Participants

The participants were eleven Finnish students of French language and six French ERASMUS students. All the Finnish students were female, with ages varying between 20 and 23 (mean age = 21.6 years). Ten of the students studied French as their major subject, while one had Swedish as her major and French as a minor subject. They were mainly third-year students. The French ERASMUS students included four female and two male students between 20 and 24 years of age (mean age = 21.7 years). Their main subjects varied from political science to SLA studies so the group was very heterogeneous and they were recruited from several departments in the university. All students participated in the test voluntarily, and furthermore, the Finnish students received feedback on their end product from native French teachers.

The data were collected through two sessions: a writing session which was carried out by means of the ScriptLog computer program which allows one to carry out research on the on-line process of writing (Strömqvist & Ahlsén 1999); and a stimulated recall verbal protocol. This means that the writing activity was recorded by the tool so that afterwards we could analyze the writers' pausal behavior, as well as the end product. The recorded activity was used as a stimulus during the audiotaped and transcribed verbalization sessions. The data collection is presented in Figure 28.1.



Figure 28.1. Data collection

Each participant wrote one French essay (L_2 or L_1) and in addition to this, five of the Finnish students wrote one essay in Finnish (L_1). Moreover, these Finnish students and all the French students verbalized retrospectively on the task they had just completed. The verbalizations took place in the students' mother tongues. Eleven students wrote in their L_2 (French) and eleven in their L_1 (French 6, Finnish 5). Although the number of participants reveals that the study was a small-scale experiment, the amount of data collected on pausal behavior by means of the ScriptLog tool was sufficiently large to allow for some conclusions regarding L_2 and L_1 pausal behavior in this corpus.

3.2. Procedure and Analysis

The participants wrote an expository essay in French on the topic of the single European currency, the Euro, which had just been introduced in several European countries at the time of the test. They were asked to write approximately 150 to 200 words on the topic, and the time was limited to one hour. They were not allowed to use dictionaries or other resources. Five Finnish students also wrote an essay in Finnish on a different topic, namely, their voice as an image of their personality. We were aware that it would be ideal to use the same topic in both tasks (Manchón, Murphy & Roca de Larios, 2005; Roca de Larios, Manchón & Murphy, 2006), but in order to avoid any topic effect we decided to use different topics in the L_2 and L_1 writing as some other researchers have done (Sasaki, 2000, 2004; Whalen & Ménard, 1995;

Wengelin, 2002). We used a similar task with a different topic, but nevertheless, chose a topic that is real and familiar to the writers (cf. Wengelin, 2002). Nevertheless, according to the verbalizations, both the topics proved to be quite difficult for the writers both in L₁ and L₂. We must acknowledge that a confounding topic and language may provide an alternative interpretation of the results.

After the writing session, some of the participants spoke retrospectively in their mother tongue about what they had just written (see Figure 28.1 above, session 2). Several other researchers have used concurrent protocols in the belief that they would obtain a more accurate picture of the writing activity (Gunnarsson, 2006; Hayes & Flower, 1980; Manchón et al., 2005, 2009; Roca de Larios et al., 2006, 2008; Sasaki, 2000, 2004; Spelman Miller, 2000; Wengelin, 2002). Ericsson and Simon (1993) especially used this kind of “think-aloud” protocol, but this procedure has been criticized by, among others, Bowles (2010) because of the phenomenon of reactivity, i.e. the act of thinking aloud acts as an additional task and potentially influences the participants’ cognitive processes while performing the main task, for instance a writing task (see also Ericsson & Simon, 1993; Olive, 2002; Schooler, Ohlsson & Brooks, 1993). On the other hand, the retrospective protocol produced after the task has been criticized because participants may not accurately remember their states of mind during the task, and thus the veridicality of the thought processes is at stake. Bowles (2010: 14) thus concludes that the retrospective verbal reports may not be accurate reflections of thought processes (see also Gufoni, 1996: 26; Olive, 2002: 140). In order to avoid the concurrent verbal protocol’s interference with the main task and the oblivion of earlier heeded information in retrospective verbalization, we used a stimulated recall protocol, where the participants’ own writing appeared on the screen immediately after they finished the writing activity; this acted as a stimulus (cf. Gufoni, 1996; Mutta, 2007; Mutta & Johansson in press; Turcotte & Cloutier, 2014; see also Bowles, 2010: 10–11). The verbalization took place directly after the writing session; the participants were left alone in the testing site, and could manipulate the recorder buttons themselves (i.e. stop, pause, fast forward). They were asked to say what they were doing during the writing session and to comment on any relevant items. They could choose which part of the text they wished to comment on; that is, they could select sections that received their conscious attention in the writing process. Verbalizations were intended to reveal some hidden cognitive processes during the writing activity, even if not all processes are verbalizable, for instance, automaticized processes, i.e. implicit knowledge and cognitive operations leading to another operation cannot be detected (Schooler & Fiore, 1997; see also Ericsson & Simon, 1993; Olive, 2002).

The individual pause lengths were defined by means of the Hidden Markov Model, the state of fluent writing, the state of thinking writing, and the state of reflective writing, and each writer's individual pause behavior and typical state of pause were studied. The transition matrix (Markov chain) of the different language groups was estimated, and individual writing profiles were created according to a modified classification of van Waes (1992), i.e. initial planners, fragmentary first-phase writers, second-phase writers, and non-stop writers.⁴

4. Results: Individual Pause Lengths

To study the writers' pausal behavior, individual pause states were defined according to the Hidden Markov Model (see Section 2 and Table 28.2); the three states were state of fluent writing (state 1), state of thinking writing (state 2), and state of reflective writing (state 3). This was done because several of the participants' median pause lengths were over seven seconds in the corpus, and the stipulated pause values (≥ 2 and ≥ 5 seconds) given automatically by ScriptLog seemed to exclude some important information on their pausal behavior. Furthermore, we decided to use median values of these states because, for instance, the participant Fi8 had a mean pause length of 15.85 seconds, and a median pause length of 7.11 seconds. It is supposed that the median value gives a more accurate picture of phenomena under study. Before presenting the individual pause states, in order to illustrate differences in L₂ and L₁ writing processes, average values of the states of pauses at group level are shown in Table 28.1.

Table 28.1. Average values of states of pauses according to the Hidden Markov Model

Writing language	State 1		State 2		State 3	
	M	S. D.	M	S. D.	M	S. D.
L1	3.08	0.21	7.47	0.54	25.30	6.55
L2	3.09	0.42	7.48	1.76	23.69	9.56
L1 Fr	2.94		6.98		18.58	
L1 Fi	3.27		8.08		29.82	

Notes: State 1 = state of fluent writing (short pauses), state 2 = state of thinking writing (medium pauses), and state 3 = state of reflective writing (long pauses). Time is indicated in seconds. Fr = writing in French, Fi = writing in Finnish.

The estimation of the transition matrix (Markov chain) of the state values of the different language groups was calculated. The calculations showed that the observed significance level was statistically significant between L₂ and

L₁ writers in French [$c_2(6) = 28.711$, $p < 0.000069$], indicating that the writers' pausal behavior diverged in L₂ and L₁ French: the L₁ writers in French were more likely to remain in a fluent state of writing, whereas L₂ writers in French passed more easily from the fluent state to the reflective state of writing. Moreover, the pauses of this state were on average longer in L₂ than in L₁ [the 0.95-level confidence interval (1.12, 13.81)]. The calculations also showed that the observed significance level was statistically highly significant between L₁ writers (Finnish and French) [$c_2(6) = 27.722$, $p < 0.000106$], which means that the writers' pausal behavior diverged in L₁ Finnish and in L₁ French. The L₁ French writers were more likely to stay in the fluent writing state, whereas the Finnish L₁ writers passed more easily to the state of thinking writing. The pauses in the reflective writing were on average longer in L₁ Finnish than in L₁ French [the 0.95-level confidence interval (2.60, 20.36)]. However, the small number of participants could have affected this result. The individual states of pauses are shown in Table 28.2.

Table 28.2. Individual states of pauses according the Hidden Markov Model

L ₂				L ₁			
Participant	State 1	State 2	State 3	Participant	State 1	State 2	State 36
1. Fi1	3.10	7.68	23.56	1. Fr1	3.07	8.25	16.38
2. Fi2	3.09	7.22	42.61	2. Fr2	2.95	7.02	21.75
3. Fi3	2.83	8.19	24.26	3. Fr3	2.85	6.83	15.33
4. Fi4	2.65	6.77	25.29	4. Fr4	2.83	6.60	16.89
5. Fi5	3.07	7.02	19.14	5. Fr5	2.89	6.41	28.05
6. Fi6	3.47	8.32	21.10	6. Fr6	3.03	6.80	13.07
7. Fi7	3.22	7.09	18.83	7. Fr7	2.79	6.92	24.36
8. Fi8	3.08	8.10	29.85	8. Fr8	4.24	12.59	46.83
9. Fi9	3.05	7.62	22.87	9. Fr9	2.91	6.95	28.03
10. Fi10	3.12	7.07	26.31	10. Fr10	2.98	7.09	29.95
11. Fi11	3.23	7.04	24.52	11. Fr11	3.42	6.83	19.91

Notes: State 1 = state of fluent writing (short pauses), state 2 = state of thinking writing (medium pauses), and state 3 = state of reflective writing (long pauses). Pause durations are indicated in seconds. Fr = French, Fi = Finnish.

As shown in Table 28.2, the fluent state pauses ranged from 2.65 to 4.24 seconds, the thinking state pauses from 6.41 to 12.59 seconds, and finally, the reflective state pauses from 13.07 to 46.83 seconds. At the individual level, for instance, Fi8 seemed to think for quite a long time during the writing activity, especially in L₁, when compared with the others. According to our definition,

the state of fluent writing consists of short pauses and hence, together with the actual writing, i.e. typing ideas, they create the general fluency of the writing activity. On the basis of these results, it was evident that fluency varied at an individual level.

In order to find out how these individual pause lengths influenced the writer's pausal behavior, the typical pause states of each writer were studied. These new values of states of pauses were run with the ScriptLog tool; all the values were rounded downwards to whole numbers, e.g. 7.68 and 23.56 seconds to 7 and 23 seconds respectively. The percentages of the individual states are presented in Table 28.3.

Table 28.3. Percentages of individual states

L2				L1			
Participant	State 1	State 2	State 3	Participant	State 1	State 2	State 3
1. Fi1	45	38	17	1. Fr1	68	25	7
2. Fi2	43	42	15	2. Fr2	71	21	8
3. Fi3	57	29	14	3. Fr3	73	22	5
4. Fi4	52	33	15	4. Fr4	73	20	7
5. Fi5	56	29	15	5. Fr5	60	26	14
6. Fi6	42	34	24	6. Fr6	32	36	32
7. Fi7	60	32	8	7. Fr7	73	25	2
8. Fi8	60	34	6	8. Fr8	50	35	15
9. Fi9	42	39	19	9. Fr9	55	37	8
10. Fi10	41	40	19	10. Fr10	61	28	11
11. Fi11	48	39	13	11. Fr11	45	40	15

Notes: Values correspond to the percentages of each state frequency. Fr = French, Fi = Finnish.

As shown in Table 28.3, some writers remained almost continuously in a fluent state of writing, whereas others spent almost as much time in the fluent state as in the thinking state. For instance, Table 28.2 illustrated that Fi8 seemed to think for quite a long time during the writing activity, especially in L₁, when compared with the others. Nevertheless, on the basis of percentages of pauses in these states, 60% of her pausing time in L₂ was in the fluent writing state, 34% in the thinking, and 6% in the reflective state. On the other hand, in L₁, the percentages were 50%, 35%, and 15%, respectively. The comparison of her state values with, for example, those of Fi7 in Table 28.3 reveals that her states of pauses were lower in general, but even so, the percentages of states were similar in L₂ (60%, 32%, and 8% respectively), while they differed in L₁ (73%, 25%, and 2% respectively). The calculations indicate that even though Fi8 had high state values, the pause frequencies manifest a different kind of profile.

This means that her fluent, thinking and reflective states might be longer than those of the others, but they correspond to her own individual pausal behavior, which is a part of her overall writing profile and style. In van Waes' terms (1992), on the basis of all the fluency values studied, Fi8 is a fragmentary first-phase writer in L₂ and a second-phase writer in L₁, whereas Fi7 is a non-stop writer in both languages (see footnote 4).

The pauses made during the writing activity varied considerably in length, but the writers did not experience them in the same way according to their verbalizations. Some writers were quite stressed as the time passed (e.g. Firo: I am in a hurry as time is ending / and as always / I panic / which ends up so that my brain stops functioning and / my head is like a tabula rasa); others knew their own writing style and could organize their writing in a suitable way (e.g. Fr5: I often have to / write / something that hasn't got anything to do with / which doesn't mean much anyway / just to / I don't know really / I can't really explain that / it's just not to pay attention / not to pay attention it's / like to put my ideas in order), while yet others used strategies that they had found to be functional before (e.g. Fr3: and as I don't manage to write the word barrières in the right way I change the word / it's a technique that I adapt a lot / when I don't know / I'm not sure about a word's orthography). Some writers perceived themselves as slow writers afterwards during the verbalization when they saw their text appearing on the screen in real time, even if this was not manifest in their pausal behavior compared with other writers; e.g. Fig9: Here is a lot of reflection again / I'm quite a slow writer even in Finnish / too careful perhaps; Fr3: it's a question of having two or three ideas for all that / not necessarily in order . . . well I've reflected for a long time). As an example, these cases of Fig9 and Fr3 are presented in Table 28.4.

Table 28.4. Example of pausal behavior

Value	L2	L1	
	Fi9	Fi9	Fr3
Number of words ⁸	275	218	519
Total writing time	47.18	32.43	54.18
Number of pauses	130	105	277
Number of state 1	54 / 42%	58 / 55%	202 / 73%
Number of state 2	51 / 39%	39 / 37%	60 / 22%
Number of state 3	25 / 19%	8 / 8%	15 / 5%
Longest pause	1.45	3.21	0.38

Notes: Number of words in final product. Number of individual pauses. State 1 = state of fluent writing, state 2 = state of thinking writing, state 3 = state of reflective writing. Number of pauses per states and their percentages. The longest pause is indicated in minutes and seconds.

It can be seen from Table 28.4 that Fig is clearly a slower writer than Fr₃ according to the values presented: she produces fewer words relative to the time allocated to the writing activity, she pauses less frequently than Fr₃ but her pauses are longer, and she remains more in her thinking and reflective state than Fr₃ does, especially when writing in L₂, although her longest pause is during her L₁ writing process. Fig was considered an initial planner in both languages (van Waes, 1992); her longest pause in L₂ (1 minute 45 seconds) was situated at the junction of two sentences. In other words, it formed part of the formulation phase of the writing activity, which demonstrates the formulation difficulties in L₂ (cf. Roca de Larios et al., 2006). Her longest pause (3 minutes 21 seconds) in L₁ was situated between two clauses in the penultimate sentence. She reflected on how to end her text in a satisfactory way (i.e. planning the global structure of the text). For his part, Fr₃ paused a lot, but he was almost always in his fluent state (73%), which is also manifest in the length of his pauses: his longest pause was 38 seconds in the middle of the text at the junction of two sentences, where he reflected on the global structure of his text (i.e. planning). He was classified as a fragmentary first-phase writer despite the long initial phase (van Waes, 1992). According to their verbalizations, Fig seemed to accept her slowness in writing: "I'm quite a slow writer even in Finnish," whereas Fr₃ seemed to find the slowness noteworthy and commented several times during verbalization that "it took a long time to write."

5. Discussion and Conclusion

The aims of our empirical study were to increase knowledge of pausal behavior in online processes of writing, and to highlight the complexity of this phenomenon by means of defining individual pause lengths for each writer. The stipulated pause criterion is more commonly used in earlier studies because it allows for a comparison between the results of these studies; however, we supposed that by doing so, some valuable information on individual pausal behavior would be excluded from the analysis, and the results would overgeneralize the picture of the writing process. This study thus fills a gap in existing research by defining individual pause lengths for writers. The research method provides new information on the variability of individual pausal behavior. Some of the participants wrote a piece of text in both L₂ and L₁, which allowed for a comparison between these pausal behaviors and illustrated their relationship. As the article strived to reveal this complexity, it contributes especially to the field of L₂ writing fluency. In this study, the research design and the empirical finding are closely related, which impacts the results;

however, it shows the relevance of using individual pause lengths, at least in experimental studies.

By means of the Hidden Markov Model, individual pause lengths were also calculated for each writer (MacDonald & Zucchini, 1997; Uusipaikka, 2006). Compared with the stipulated pause lengths generally used in studies on temporal aspects of language production processes (Ransdell et al., 2001; Sasaki, 2000, 2004; Severinson Eklundh & Kollberg, 1996; Spelman Miller, 2000; Wengelin, 2002), the thinking and reflective state pauses were essentially longer than the fixed values of two, three, or five seconds. The median lengths of the fluent state pauses ranged from 2.65 to 4.24 seconds, the thinking state pauses from 6.41 to 12.59 seconds, and finally, the reflective state pauses from 13.07 to 46.83 seconds. This means that the stipulated pause lengths of two, three, or five seconds related to the used software program (e.g. ScriptLog, Keytrap, or FauxWord) cannot reveal an exact picture of a writer's pausal behavior and profile, even if they contribute in another way to the field by allowing comparisons between studies. Furthermore, the obtained values did not follow language boundaries (i.e. L₂ vs. L₁), but instead varied individually, thus supporting the idea of defining individual pause lengths for each writer. It would be interesting to examine this finding in a replicated study with a similar study design. In order to study pausal behavior and its relationship to fluency in writing processes, it might also be promising to define pauses using a criterion even shorter than two seconds and thus arrive at individual states of pauses, taking into account the fact that some writers practice profound reflection even during the so-called fluent state of writing. The experimental design could also compare think-aloud and retrospective protocols in order to shed light on hidden writing processes.

Cognitive fluency, that is the ease of allocating resources among different processes simultaneously, could help the writer to translate ideas into words during the writing activity, and thus improve verbal fluency as defined in this chapter. This capacity relies on the limits of working memory capacity (Kellogg, 1996; Olive, 2014; Olive & Piolat, 2005; McCutchen, 2011). Some writers paused many times, but their pauses were quite short, others had longer but fewer pauses, whereas other writers may have had longer pauses than others, but from the point of view of their total pausal behavior, they were not necessarily very long. Their pausal behavior is a part of their overall writing profile and their individual writer's profile (van Waes, 1992). In other words, some writers had longer pauses than others, but inside their pausal behavior those pauses might be of short or medium length. These differences were not always shown in their verbalizations: when they saw their text appearing on the screen in real time, writers with shorter pauses commented equally on the

length of their pauses as those pausing a longer time did. Writers seemed to compare their writing fluency during the writing activity to the experience of their verbal fluency afterwards. The experience of relative slowness in their writing processes seemed noteworthy to some writers during the verbalization session, especially the French writers. However, on the basis of this study, we cannot say anything conclusive about cultural differences; it should be further investigated in future studies. Despite the large amount of data collected, the number of participants in this study was quite small. The results should therefore be replicated with other populations with different L₂ and L₁, and/or with a larger number of participants. The writing profiles could also be defined according to a different categorization (see e.g. Tillema, van den Bergh, Rijlaarsdam, & Sanders, 2011).

In this study, the pausal behavior was related to the first language (i.e. the mother tongue) in question: the estimation of the transition matrix (Markov chain) of the different language groups showed that on average the Finns had longer pauses both in French (L₂) and Finnish (L₁) than the French had in L₁. The experimental design might, however, have had an impact on the results. First, the small number of writers may have affected the results, and second, the topic of the essays may have influenced the time allocated to the writing activity, especially the difference in topics in L₁ French and L₁ Finnish (see e.g. Schoonen, Snellings, Stevenson & van Gelderen, 2009, p. 78). Third, the test situation might have influenced the results, for instance, the lack of supporting material during the test.

We must end by acknowledging that we have not been able to take into account L₁ writing ability. Sasaki (2000, 2004) came to the conclusion, on the basis of several multiple-regression analyses, that three factors, L₂ proficiency, L₁ writing ability, and metaknowledge of the task expectations, were significant in explaining the differences among foreign language writers. She found that more proficient writers planned more on a global level in comparison to less proficient writers who used a more local online planning strategy (see also Roca de Larios et al., 2008). Sasaki emphasized the L₁ writing ability, which seems to be an important background indicator, because this might explain differences among foreign language writers in their translating phase, i.e. when putting ideas into words (Roca de Larios et al., 2006). On the other hand, Schoonen et al. (2009: 94) found that proficiency in L₂ writing "is more strongly associated with the linguistic resources than proficiency in L₁." They admit, nevertheless, that there is a link between proficient writing in L₁ and L₂, and that is probably the general metacognitive knowledge about the writing processes. Furthermore, another important aspect is to study L₁ competence in general in more detail and, moreover, the socio-cultural educational

background of writers (Kobayashi & Rinnert, 2008; Roca de Larios et al., 2006; Smagorinsky, 2001; Kobayashi & Rinnert, 2013) in order to understand the complex phenomenon of fluency and pausal behavior in the writing processes of foreign and native language writers.

Notes

1. The basic cognitive model of writing by Hayes and Flower (1980) contained these three main processes. Although their model was later criticized (see for instance Hayes, 1996), the subsequent models continue to contain three main categories with alternative labels (cf. Mutta, 2007: 41; Piolat, 2011).
2. In his study on effects of handwriting skills, Olive (2014, p. 175) presents the distinction between peripheral vs. central processes; the former refers to processes like transcription of the text by typing and the latter to processes involved for instance in problem solving reasoning.
3. Esa Uusipaikka, Emeritus Professor of Statistics in the Department of Statistics at the University of Turku, ran the calculations concerning the HMM model. We would like to thank him for making the experiment possible.
4. According to van Waes (1992), *initial planners* make a rather small number of revisions, most of them occurring in the second phase. They have the relatively longest initial planning phase, and their average pause length is relative, since the longest and total pause times are significantly higher than the average. *Fragmentary first-phase writers* have a revision attitude that heavily concentrates on the first phase. The total number of revisions is higher than that of other groups, but the second phase contains few revisions, the time for initial planning is restricted, and pauses are manifold and relatively short, thus making the process strongly fragmented. For their part, *second-phase writers*' revision is concentrated in the second writing phase, and this allows for ample attention to changes above word level. They have a long initial planning phase but once they start writing, they pause relatively little, even if the pauses are relatively long. *Non-stop writers*, on the other hand, revise least of all the groups, pause less than others, so the total pause time clearly lies below the average, their processing time is shorter, and they spend little time on initial planning. Van Waes also had a category of *average writers*, i.e. those closest to the average values of each of the variables of the total group; we excluded this category from the analysis.

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29

Genetic Criticism: Another Approach to Writing?

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Genetic critique was introduced in France as an extension to structuralism the paradigm of which it modified: instead of considering writing in its structures and communicative function, it encompassed its dynamics and production function. Both empirical and theoretical, this research analyses the material traces of intellectual production over literary, scientific and philosophical manuscripts. The universality of its material gives it an international scope; it is also interdisciplinary through the issues it addresses. Recent examples of exchanges with experimental, physical and cognitive researches as well as with studies from linguistics, human and historical sciences are presented in this chapter.

La critique génétique a fait passer l'étude de l'écrit de sa fonction communicative à sa fonction productive dans la création des œuvres de l'esprit. À la notion de structure elle a ainsi substitué celle de processus, susceptible d'une analyse empirique à partir de témoins matériels des opérations mentales. La critique génétique est ainsi entrée en rapports d'échanges avec des recherches de sciences expérimentales et de sciences de terrain. On en présente ici des exemples dans des domaines de la physique, des sciences cognitives, de la linguistique et de l'histoire. Cette dernière fournit des témoins exemplaires d'une recherche sur manuscrits dont l'étude s'achève ici par une réflexion sur les perspectives de la génétique face aux nouveaux supports informatiques de l'écriture.

1. A Research Area Crossing Multiple Borders

The definition of genetic criticism, or genetic editing, is simple: it examines the process of literary creation by studying writing in its function as an instrument for the creation of intellectual work. But this function itself is unusual,

as it is used in all cultures by the smallest number of writers for the greatest number of readers. The analysis of this paradoxical practice began developing in the nineteen-eighties, and therefore following structural criticism. However, the two practices are distinguished by an epistemological shift. Indeed, the genetic approach to textual research shifts attention from the communicative role of writing to its productive function, and therefore from a study of structures to a study of processes. This process is carried out through an empirical exploration of graphical signs on the written work. In these signs, genetic criticism analyzes the observable traces of intellectual production, whether scientific, philosophical, or, most frequently, literary manuscripts. The manuscript is chosen with several objectives in mind. Research is open to thousands of documents that encode and attest to centuries of our writing civilization. Exploring these documents has made genetic editing a thriving international research field. Researchers in this approach can thus be perfectly confident about the future of their discipline. Additionally, genetic criticism studies manuscripts documenting the creative process, where writing appears in its most complex functions. It raises theoretical questions that go beyond the scope of a classic critical interpretation, making genetic textual analysis an interdisciplinary endeavor which interacts with both experimental research and applied disciplines. By virtue of all these features, genetic criticism offers an example of a “border-crossing” research discipline.

Let us first consider the tools of the field. The interdisciplinary structure of the CNRS has allowed us to conduct experiments in collaboration with computer science labs.¹ Thus, in analyzing markings on manuscripts, we have used statistical evidence that escapes human perception.

This process can be carried out in two directions. Invariant traits, characteristic of each individual written work, were used to distinguish an author's notes from those of assistants. Conversely, variations that occur in the same handwriting were used to identify the different stages of a genetic production. As the full range of techniques used cannot be presented here due to space constraints, we will focus on the role of computational tools. These tools have effectively contributed to genetic criticism's position within contemporary research. Text geneticists also recognize the computer as the finest tool ever invented for the study of manuscripts.

But even beyond the tools available, genetic criticism owes a fundamental debt to computer and information scientists, as is increasingly the case for all forms of cognitive research. To mention just two recent examples, a Franco-Swiss team (Demonet, 1992; Lubrano, Demonet, & Roux, 2004; Roux, et al., 2014) was able to confirm the presence of a specialized nerve center for writing in the frontal cortex. This center controls the transition between ver-

bal representations and the hand's writing actions. The act of writing is thus confirmed as a distinct function, shedding light on the cognitive gap seen in manuscripts between the act of writing and act of drawing. Further, a research group at France's National Institute for Health and Medical Research (INSERM), observed activation of the auditory cortex during silent reading—and therefore also writing (Dehaene, et al., 2010). These results provide a better understanding of the role of the sounds of words during the writing process. Meanwhile, neurophysiology has shown that motor programs for writing are equipped with a graphical memory of the shapes of lines. This memory includes a pattern that determines the individuality of each writing input, which would correspond to basic data for genetic criticism. Of course, these are only a few examples, but which all point to the high expectations of genetic textual analysis in relation to cognitive research.

Now a word must be added on social science and humanities research, starting with linguistics. Linguistics has allowed genetic criticism to address, on brand new grounds, the relationship between language, speech, and writing. On this topic, I recently read the following written by a specialist: "writing is not part of language . . . Writing . . . is only a simple graphical representation" (Touratier, 2004). It seems to me that the genetic study of manuscripts does not support this classically negative view. In fact, on the contrary, in genesis manuscripts (those documenting a work's creation), writing appears *in statu nascendi* just like spoken language. From a synchronic study of the sentence, genetic textual research moves to the diachronic study of a process that takes place in reversible time. This has led to the birth of a new branch of the discipline, linguistics of the written utterance. This new theoretical perspective extends the work of the American researchers Flower and Hayes and the French linguist Émile Benveniste. We know that Benveniste's manuscripts were recently discovered by a colleague from our Institute, ITEM, Irène Fenoglio.² The work she has carried out is doubly genetic as she studies a theory of writing at the very moment that the writing emerges from the pen. She and her colleagues discuss this work in detail, and I gladly refer the reader to their articles (e.g., Fenoglio, 2009, 2012). For now, I would like to focus on another field-oriented discipline, historical research. This historical dimension is not always well represented in work on writing. However, it allows for a better understanding of the cultural techniques of writing, while also encouraging reflection on their development.

2. Following the Traces of Writing in Time and Space

Despite the contemporary image generally associated with genetic criticism,

it is in fact rooted in a long tradition. The first genetic documents go back to the end of the Middle Ages—and their appearance is itself the product of a long process. It begins in the Early Middle Ages with the popularization of the individual page which replaces the *volumen*, writing on scrolls—this format which reappears now in scrolling on the screen. I've had the opportunity to discuss the page elsewhere and here would only like to recall its function as a manipulable and physical medium. This apparently trivial function resulted in writing's movement into a three-dimensional environment. The German novelist Friederike Mayröcker's office provides one example among many others.



Figure 29.1. The study of the German poetess Friederike Mayröcker (Photo Herlinde Koelbl)

Imagine the same office, empty with only a computer on the table. Physical reminders and spatial representations disappear, leaving a single flat surface for the work of the imagination.

Following the page, another major innovation was the invention of the

individual written word. Indeed, in the middle of the monastic Middle Ages, the continuous line of writing is broken, allowing the words to escape and settle freely on the page. From this time on, the writer is able to manipulate, add, move, or delete words using the new technique of crossing out, which replaces the scraping knife of palimpsests. A final invention arising from technical progress is the appearance of paper, in 13th-century Italy. Easier to manipulate than parchment, it is the last link in this long history leading to our own times. We have just summarized the genesis cycle of the draft, this technique that, in modern times, allows works to be created with the pen.

Attesting to this journey, two famous documents allow us to witness the emergence of a new writing instrument, almost before our eyes. Here is the first page of the manuscript *De Gestis Caesaris*, the last work of Petrarch (Figure 29.2).



Figure 29.2. *De gestis Caesaris*, manuscrit ornemental de Pétrarque

(1374). *The coats of arms of the Viscontis (on the bottom) are a foreign addition (Bibliothèque Nationale de France, Dépt. des Mss.)*

It is a Latin prose text, arranged in two columns in the medieval custom, calligraphy in form letters and illuminated with a beautiful ornamental frame. And here ((Figure 29.3) is a manuscript of *Canzoniere* by the same author.

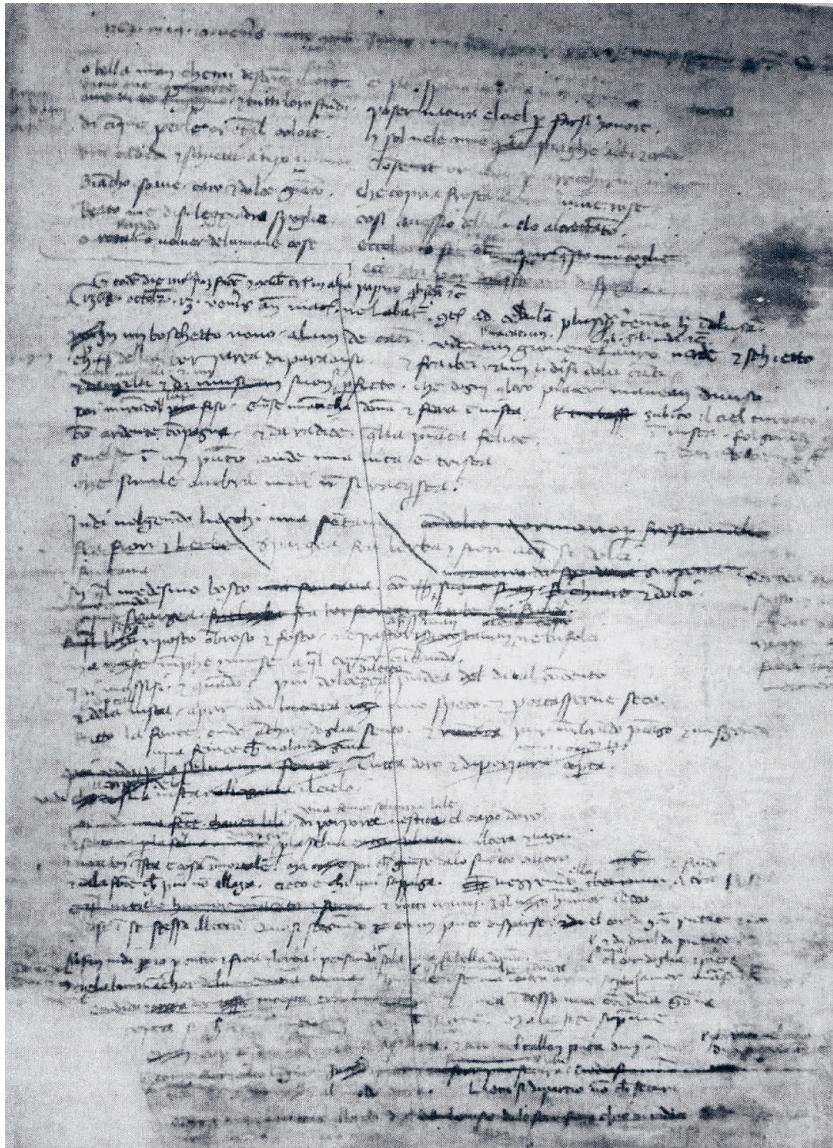


Figure 29.3. *Canzoniere*, page of draft of Petrarch (after

1335; *Biblioteca Vaticana, Ms.Lat., Città del Vaticano*)

It is one of the first known drafts and also includes sketches for several sonnets, written in Italian—an innovation for this period—appearing all throughout the sheet. The writing is a linked cursive, with crossed-out text, interlinear additions, and rearrangements. Following modern usage, the vertical line indicates the end of the text on the page. In the margin, and this time in Latin, a metadiscourse appears, what would now be called “working notes” or simply “margin notes.” These are instructions given by the poet to himself, such as “this sounds better,” “say it differently” and often a reservation: *vel* (“to see”—review”). At the same time, and for the first time, the writer records an autobiographical discourse on his manuscript: “May 19 1368, I get up during the night to resume an old poem from twenty-five years ago.” If not the first appearance of the author as such in writing, it is among the earliest examples of this already perfectly contemporary practice. In two documents, we have just traveled from one time in history to another.

We owe the transmission of these documents to a double fortune: the admiration for Petrarch by his contemporaries, and the safeguarding of his writings within the shelter of the Vatican. In Italy, the cult of the great authors supported a continuous transmission of writers’ manuscripts up to the present, in contrast to other European countries. In France, it wasn’t until the end of the 18th century and the beginning of the 19th that manuscripts collections were developed, first private, then public. These witnesses of scientific and literary creation gathered dust in shadowy library aisles until the moment came when innovative research transformed these relics into scientific objects.

3. Understanding the Interaction Between the Concrete and the Symbolic

Now let’s move into the field, where genetic criticism studies its objects directly. The analysis of a manuscript focuses on the interaction of a concrete object, the individual sheet, with a symbolic system, that of graphical inscriptions. The object, the manuscript sheet, divides the writing into a sequence of visual units which tend to become textual units. This trend is reinforced through writers’ efforts to extend the space of the sheet to the dimensions of the text. Marcel Proust provides a particularly striking example of this through his variously appended manuscript pages, known as his “paperolles” (Figure 29.4).

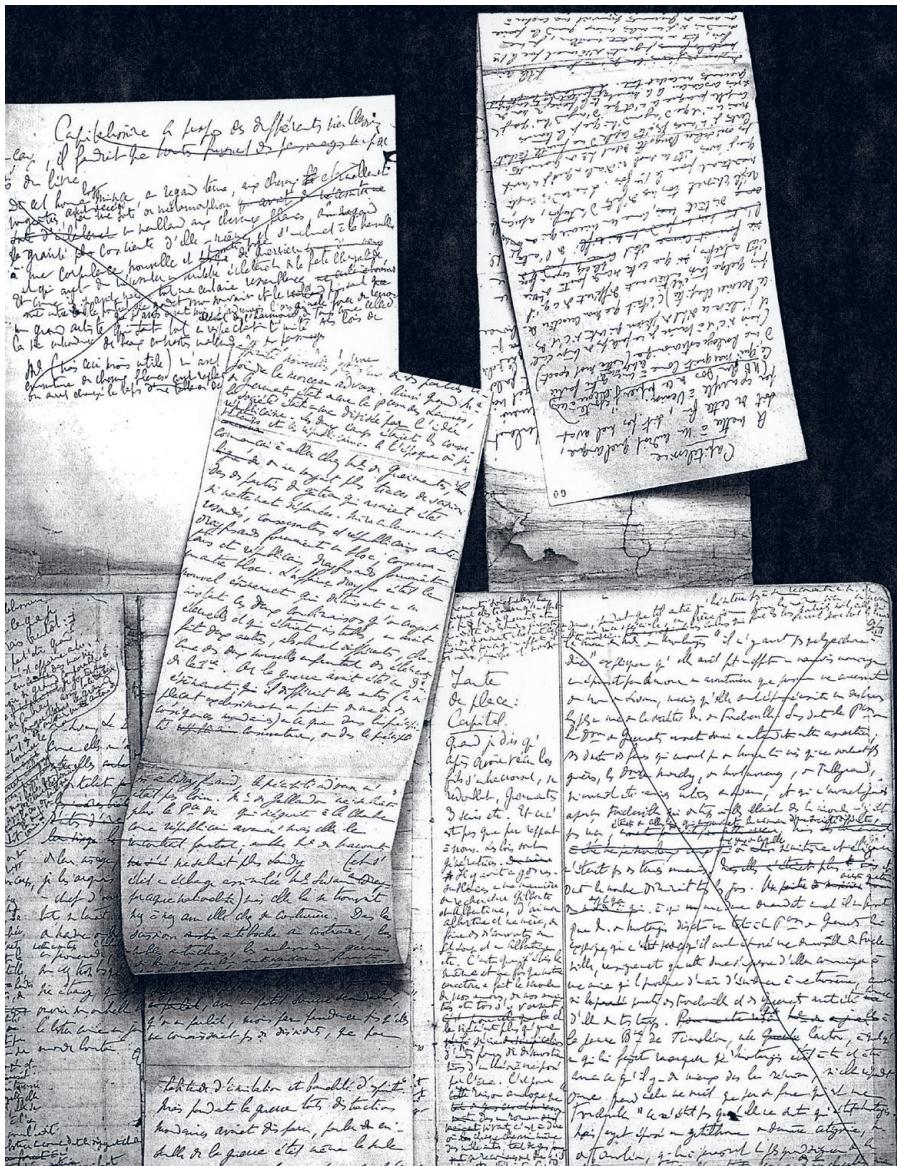


Figure 29.4. "Paperolles" (pieces of paper) glued by Proust on a page of *La Recherche* (Bibliothèque Nationale de France, Dépt. des Mss.)

These are additions that sometimes measure over a meter. Conversely, within the page, the symbolic system of the written work determines the text's spatial configuration, as we can observe on this sheet from Notebook 57 of *La Recherche* (Figure.29.5).

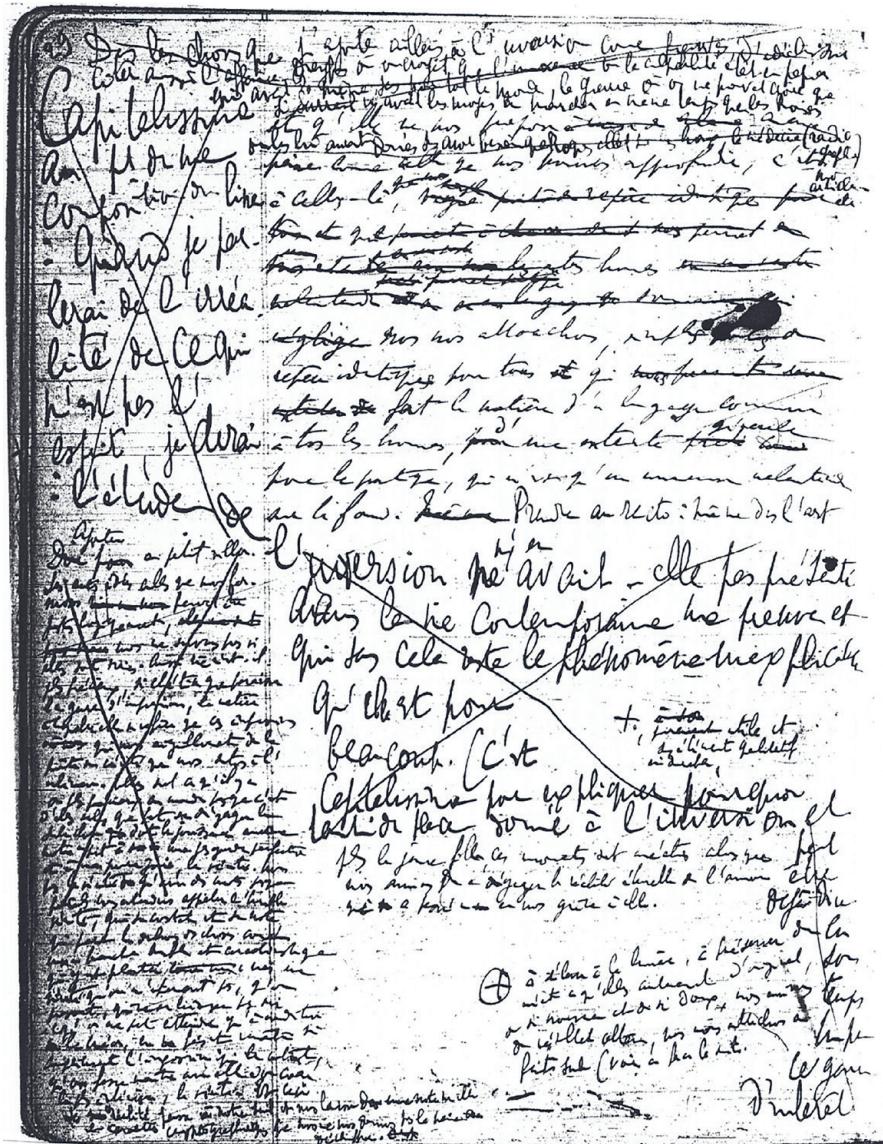


Figure 29.5. Marcel Proust, disposition of handwriting fragments on a page of *La Recherche* (Bibliothèque Nationale de France, Dépt des Mss.)

A plurality of fragments unfolds in several sequences, in disorder as sprung forth from the flow of the imagination. A central section continues the text from the previous page, and is interrupted by a reflection which is tightly fit in the margin and which, in turn, brings out an inspiration. It is the word "Capitalism," which forces its way onto the page in large feverish letters. In the

end, the writing refers back to previous pages through cross-references and new additions. The most extraordinary aspect of these notes is that they refer to all different parts of the novel. The central part belongs to *Chez Swann*, at the beginning of *La Recherche*, while the reflections in the margins and the fragment “Capitalism” refer to the end of the novel, to *Temps retrouvé*. Proust’s prodigious memory manipulates and composes fragments into an immense fictional framework. Here we witness, as if in real time, the genesis of a text without precedent in literary history.

At the same time, Proust teaches us that a manuscript is not made of words alone. On the page, the symbolic code of letters is surrounded by a network of unpronounced and unexpressed signs. The layout of the text on the page, changes in the shape of the lines and markings, the interplay of graphical configurations—all of this provides us with semiotic information which complements the explicit verbal information. Genetic criticism is informed by the two major symbolic systems of intellectual production: that of language and that of mental imagery. I would like to show these in action in a few examples.

The document reproduced in Figure 29.6 is a manuscript by Charles Sanders Peirce. Around a drawing, or “existential diagram” as Peirce called it, a verbal commentary explains the role of color in the representation of the relationship between three “fine objects.” To Peirce, drawing allows hypotheses to be tested before they become “scriptable” or expressible in language, and we know his statement: “I do not think, I never reflect in words: I employ visual diagrams” [Ms 619, 1909]. Here, we also see the function of non-verbal graphics in scientific manuscripts. They communicate meaning directly via visual perception, without going through the detour of language. This feature is common to scientific and literary manuscripts, but in the latter, figures are correlated with language, in an alternation which feeds the dynamics of a genetic process.

The manuscripts of Valéry provide classic examples, such this page of the poem *La Jeune Parque* [*The Young Fate*]. The first verse is carefully written out—we can see that it was already present in the poet’s mind and serves as a springboard to begin writing. Next, a groping search begins around several themes: “Pure Act,” “Astonishment,” “Silence.” This exploration results in a dead end, and Valéry breaks the thread of the text. He rotates the page to move into another space and from language to drawing. The geometry of a “fantasy architecture” revives the writing: “firm and flexible woman,” a formula that will orient the poem. The page rotates again, the writing is liberated and starts up again, to be quickly interrupted by new figures. In these scribblings,

the hand discharges tensions. It pursues its path on the page while the mind frees itself of the weight of the words. It enters the state of floating attention, in which at times the outside world appears—perhaps a memory from the beach—and at times a symbol, Valéry’s “poetic pendulum” as he measures the rhythm. From this reverie emerges a hesitant writing which finally crystallizes into two verses: “Firm and flexible form / in silences followed by pure acts.” The key of the verse is found, and from this point on, the drawing no longer puts the writing on hold, but accompanies it through Valéry’s major themes, the sea, a ship embarking.

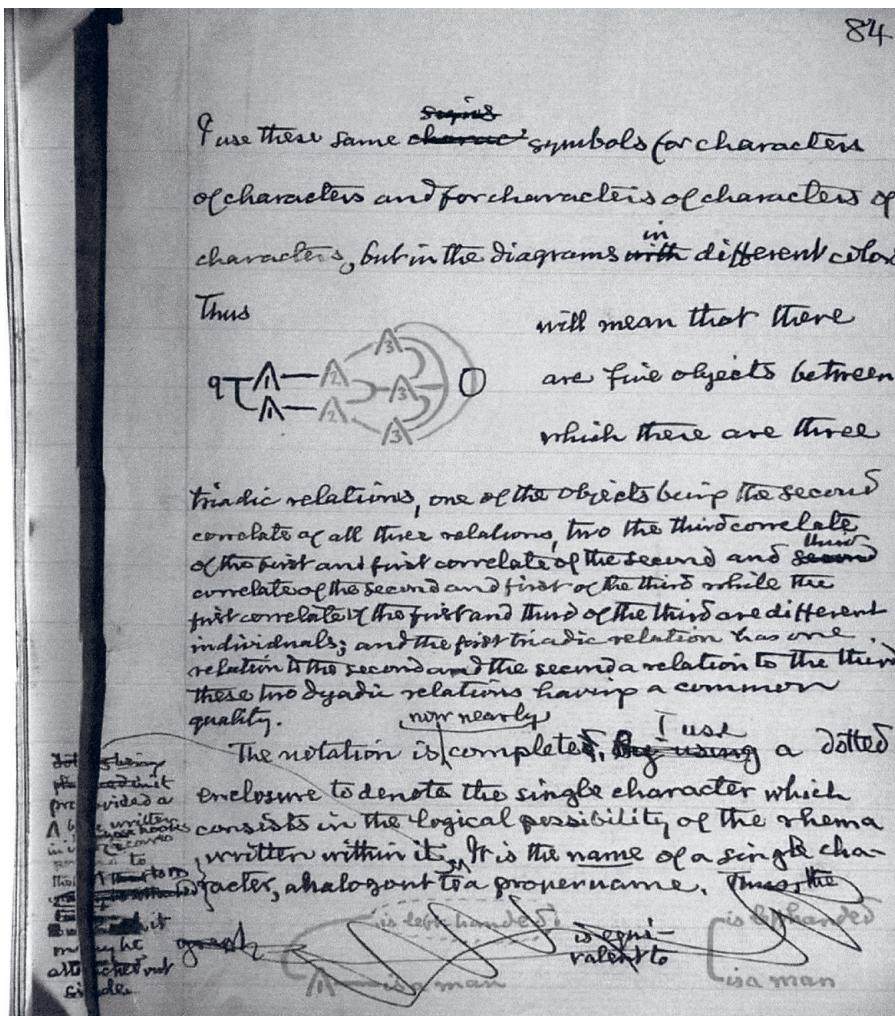


Figure 29.6.

Taken as a whole, the page lets us witness the traces of a sequence of mental operations. The first verse transmits a thought, already in words, from the mind to the hand. The draft fragments, in turn, emerge from a mental activity focusing on the search for verbal forms, while the sketches record the traces of a motor activity at the edges of consciousness. Several large nerve centers are thus activated, one after another, in an effort that involves both the body and the mind.

4. What Does the Future Hold for Writing and for Genetic Criticism?

All these data disappear during the shift from the pen to the keyboard. Lithographic and transfer techniques, which have appeared throughout history, are opposed in every detail to digital writing, whether by the material and spatial layout of the media, by the individuality and variability of writings produced, or by the relationship of the body and hand to the act of writing, just to name three among many others. These changes naturally have cognitive consequences: a different way of learning to write and a modification of motor programs, the potential consequences of which remain largely unexplored in terms of the higher functions of the brain. The effects of these changes have received little attention on the ground. In France, we only have fragmentary surveys carried out among writers. While they have no statistical consistency, they do allow for some basic observations. First, the use of the manuscript continues, either as a preliminary step or in alternation with the keyboard. Conservation of variant texts appears to be limited, however, with deletion being the most frequently used keyboard correction. Finally, the overall impact of the computer on the character of the works produced is not clear. All of this requires more comprehensive investigation. This small drawing shows how the old may persist in the new—at least in the imagination of the illustrator (Figure 29.7).

This is also an opportunity to point out a resurgence of manual writing, now on digital media like smartphones and tablets, but also in professional media tools. Here we see the coexistence of several techniques that has always marked the history of writing. In short, the end of writing, as proclaimed recently in a major American newspaper is not coming tomorrow.³ But is this the end of genetic criticism?

With the computer, genetic criticism is first confronted with the same problem it faces with history—the problem of archiving and transmission of manuscript evidence. This question has received different answers in different cultural contexts. In China, the Beijing Institute of Literary Archives continues to receive only traditional manuscripts, and still does not allow digital devices.

In the United States, on the other hand, the Library of Congress began to receive written works recorded on digital formats starting in the eighties. This has emerged as the obvious choice in the West, drawing its strength from a gamble on the future of the written word. But it also raises many problems.



Figure 29.7. "The writer of the future," humorous writing of the last century

Indeed, computers are much more fragile than manuscripts and their life expectancy does not span centuries, but decades at best, at least for now. In addition to this problem of hardware aging, there is also the issue of functional obsolescence. In order to query a computer, the technical environment of its time must be available. And of course, for proper archiving, the content must be transferred to contemporary and sustainable media. This is now a routine operation, although it remains complex. A diagram of the data pro-

cessing carried out in the German literature archives in Marbach (Figure 29.8) exemplifies the lengthy operation involved.

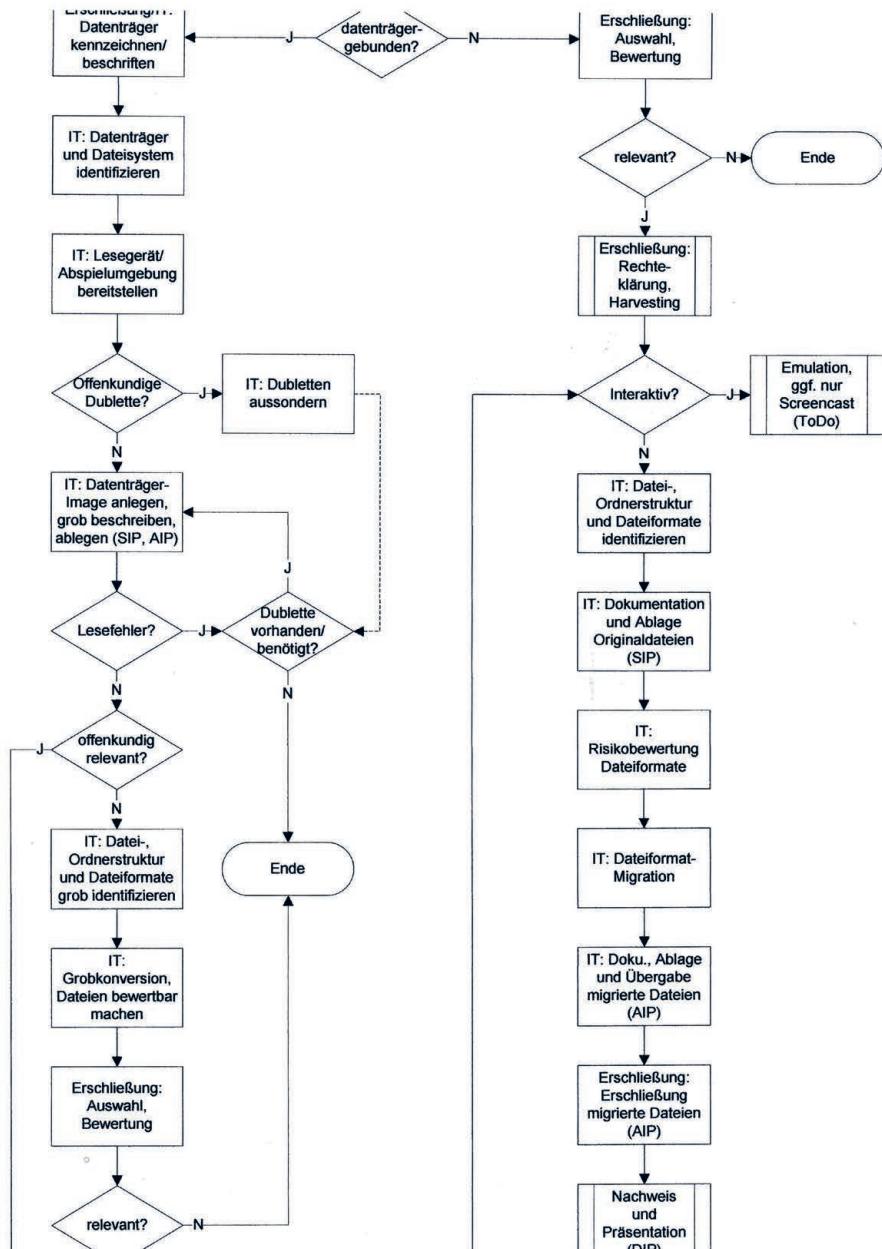


Figure 29.8

We cannot stop here, though, knowing that this data transfer conserves only the textual surfaces and neither revisions nor, a fortiori, marks of the text's geneeses. To access this information, the pioneers of computational genetic criticism had to make full copies of content—volume transfers—which can then be explored by specialized software. This software allows for the recovery of metadata, i.e. the marks left by the interventions of both authors and operating systems, as well as deleted textual elements which leave a trace on the magnetic layers of the hard disk. I cannot enter into the details of these experiments here, but they were given special attention in a symposium presented at the WRAB 2014.⁴ Here, I will simply mention that such lines of research are beginning to develop internationally, with very interesting results. This research outlines a new type of genetic criticism, now applied to digital sequences—or a series of snapshots—and not to manual processes. The objects themselves are evolving, sometimes to the benefit of genetic criticism, as is the case with SSDs—solid-state drives—which retain erased entries for longer. Sometimes new problems are raised, as is the case with the “cloud,” which complements or replaces local digital storage. But one can also consider new approaches, sometimes inspired by unexpected precursors. I am thinking here—as unlikely as it seems—of Sigmund Freud who, nearly a century ago, was already wondering about the dual nature of writing, which simultaneously embodies a past and a present. As a result, Freud dedicated one of his essays, entitled “Notiz über den Wunderblock” (*A Note upon the “Mystic Writing Pad”*), to a rustic system of his time, which recorded traces of writing on a plastic base while writing took place on an overlaid sheet of paper. In our times, we might allow ourselves to dream of a *magic computer*, adapted to both to the writer's work and the conservation of this work's genesis. Such an achievement would certainly be a technological challenge, but we must leave the younger generations of researchers with some challenges to take on. They have before them both the vast domain of manuscripts, to which genetic criticism has given speech, and the new world of machines, which must be taught to speak to us. I hope that they will make beautiful discoveries in these worlds and that they will enjoy themselves—and I wish them good travels and good luck!

Notes

1. CNRS (Centre National de la Recherche Scientifique) is a French public research body that is multidisciplinary by design, and operates under the supervision of the Ministry of National Education, Higher Education and Research.
2. ITEM is the Institute of Modern Texts and Manuscripts (Institute des Textes et Manuscrits Modernes).

3. *Los Angeles Times* (no author or title given), cited in *Courrier International*, issue 1194, September 19-25, 2013, p.33.
4. Symposium “Temps de l’écriture et représentations dynamiques,” directed by Christophe Leblay, University of Turku (Finland).

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Genesis, Revue Internationale de Critique Génétique, 1 (1992). Paris: Michel Place Éditions.

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Genesis, Revue Internationale de Critique Génétique, 30 (2008). Paris: Michel Place Éditions.

Multilingual Writers and Metalinguistic Awareness: Can We Use Manuscripts as a Basis for a Typology of Creative Scriptural Practices?

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In my paper, I shall try to understand the impact multilingualism of has on a writer's literary production. I will show that, to understand this phenomenon, the writers' manuscripts constitute a privileged way because they keep track of the underlying processes of the written production. I'll review several strategies of used by multilingual writers (functional separation, code switching, simultaneous writing in two languages and self translation) observable in their working documents. The observation of multilingual writers' manuscripts revealed the interest and the relevance of the notion of metalinguistic awareness. Metalinguistic awareness can be defined as skill in reflecting about the language which becomes the object of our thought. I shall show that metalinguistic awareness is a very useful notion for the theorization of multilingualism's impact on literary creativity. I shall also insist on the fact that this emergent field (studies of multilingual writers' manuscripts) enriches considerably research in textual genetics and should have a place in research on writing more generally.

Depuis une dizaine d'année, la communauté internationale a entrepris plusieurs initiatives pour la promotion du plurilinguisme et de la diversité culturelle. La prise de conscience des enjeux du plurilinguisme révélés par ces actions a amené les chercheurs à s'y intéresser de plus près, notamment dans le domaine de la neurolinguistique. Depuis les années 2000, a émergé tout un champ d'étude sur le cerveau des sujets plurilingues. Toutefois, ces recherches ne touchent pas au domaine

de l'écriture. Dans d'autres champs disciplinaires comme la psycholinguistique, la sociolinguistique ou les sciences de l'éducation, le plurilinguisme est également appréhendé uniquement dans le domaine de l'oral. Aujourd'hui, le seul domaine qui a pris comme objet d'étude la relation du plurilinguisme avec l'écrit et avec la créativité est le domaine littéraire. Cependant, jusqu'à présent, les études critiques littéraires qui se sont penchées sur la production des écrivains plurilingues portent presque exclusivement leur attention sur les œuvres imprimées. Loin de la spéculation des analyses littéraires classiques, l'approche génétique développée à l'ITEM (Institut des Textes et Manuscrits Modernes) permet d'accéder aux traces empiriquement observables, tout comme le font les études expérimentales. Il est en effet impossible de comprendre la relation entre les langues pratiquées par un écrivain et son acte créateur autrement que par une étude approfondie de ses documents de travail. Les observations des manuscrits des écrivains plurilingues ont fait apparaître l'intérêt et la pertinence de la notion de conscience métalinguistique. La conscience métalinguistique peut être définie comme habileté à réfléchir sur le langage qui devient l'objet de notre pensée. Nous allons montrer que cette notion est très utile pour la théorisation de l'impact du plurilinguisme sur la créativité littéraire. Nous insisterons également sur le fait que le champ émergeant d'étude sur le plurilinguisme des écrivains enrichit les recherches en génétique textuelle et doit trouver sa place dans les recherches sur l'écriture de manière générale.

1. Introduction

Editorial policies of almost all nations are not favorable to multilingual publications. To be able to ensure the publication of their work and its commercial success, multilingual writers are often forced to erase the marks of their multilingualism and multiculturalism in the final stage of their work intended for publication. However, their working documents offer the researcher privileged access to the true creative process, thanks to empirically visible scriptural traces. Under the term of *working document*, I mean all documents that can be handwritten or typed by the author and that have participated in the development of his work. Genetic criticism does not focus on one particular final state of the text, but rather in the process by which the text came to be published: "the chief concern [of genetic criticism] is not the "final" text but the reconstruction and analysis of the writing process. Geneticists

find endless richness in what they call the “avant-texte”: a critical gathering of a writer’s notes, sketches, drafts, manuscripts, typescripts, proofs, and correspondence” (Deppman, Ferrer, & Groden, 2004). The observation of scriptural traces enabled a breakthrough in understanding the creative writing process and contributed to the affirmation of the genetic approach in both theoretical and methodological terms. Through studies of a great number of manuscript corpora, Genetic criticism has elaborated the protocol for any manuscript study, establishing the sequences of the textual states of a work. It has established the writing strategies that are implemented and a typology of writers (*construction-driven* and *schema-driven*). This typology was confirmed by research in cognitive science (Alamargot, 2009) and implemented in didactic studies (Fabre-Cols, 2004; Lumbroso, 2008). Genetic criticism has finally identified four main scriptural operations inherent to any act of writing: adding, deleting, moving and replacing.

So due to its methodological rigor, the genetic study of writers’ drafts is similar to experimental studies. (For a description of the genetic approach, see Grésillon [1994], de Biasi [2003], Deppman, Ferrer, & Groden [2004], and Anokhina & Pétillon [2009].) The genetic study of manuscripts has, however, a considerable advantage over the latter. For example, in neurolinguistics, which is of interest for the study of the functioning of the multilingual brain (*Study on the Contribution of Multilingualism to Creativity*, 2009), the number of patients subjected to experiments is very limited.¹ In addition, such research is almost always on a combination of languages including English, which seems to limit the scope of these studies. Concerning the multilingual writers’ documentary resources, they are infinitely rich, as are the linguistic combinations because, as well as Western multilingual writers who master the “main” Indo-European languages, there are many writers from the Americas or Africa who, in addition to a lingua franca (French, English, Spanish or Portuguese), let traces of their mother tongue appear in their writings.

The researcher who will want to devote herself or himself to this exciting study of multilingual writers’ drafts in order to understand the impact of multilingualism on creative writing, will have to face two constraints. On the one hand, it is the access to manuscripts which may have different types and degrees of difficulty: e.g. permission from the author or his beneficiaries, the geographical remoteness of the documentary resources, or the state and condition of their conservation. Indeed, some developing countries have no preservation policy for manuscripts, which may be due to non-perception of the national heritage value of these documents, or simply by the lack of financial means. Another constraint that the researcher must face is the mastery of languages spoken by a writer. This condition, which seems obvious to

a linguist, is not always met, especially when it comes to rare languages such as, for example, the Malinke language, mother tongue of the Ivorian writer Ahmadou Kourouma who wrote in French, or the Kikongo language, mother tongue of the Congolese writer Sony Labou Tansi.²

Another clarification may be necessary. It is often said that the phenomenon of multilingualism among writers is linked to population migrations, wars and exiles that have marked the last century. This is absolutely correct.³ But it is also important to remember that the multilingualism of writers—and multilingualism in general—is a very old phenomenon. A case in point is the macaronic language developed in 15th-century Italy from vernacular words to which were given both Latin syntax and Latin endings. Another is the Andalusian Arabic poetry of the 9th and 10th centuries, or many texts of Petrarch (14th century) which will be further discussed below.⁴

2. An Outline of a Typology of the Scriptural Practices of Multilingual Writers

Research on the scriptural practices of multilingual writers has allowed us to identify the very different strategies in the use of the languages during the writing. Some bilingual writers completely separate the two languages they speak by associating them with distinct tasks in the creative process. Others, however, constantly mix languages when writing their work. Another scriptural model is to write in two parallel languages: in this case, writing in L₁ supports and nourishes work in L₂, but the two linguistic productions remain separate and give rise to two very separate works. Finally, another possible strategy is to write in different languages in a consecutive manner: first in L₁ and then L₂. This is particularly the case with self-translation. I will now present an outline of a typology of these scriptural strategies.⁵

2.1. Functional Separation of Languages

The first strategy consists of the functional separation of languages spoken by a writer. This means that each language performs a specific function in a creative process. One can observe this phenomenon in the manuscripts of multilingual writers in different eras.

Thus, Petrarch (14th c.) used Latin to give himself metadiscursive information while composing verses in the popular language: “Throughout the genesis of his poetic work in Italian, Petrarch uses the Latin language, to which he confers a para and meta-text role. . . . the autographs of *Song Book* [*Chansonnier*] are indeed dotted with marks of approval or dissatisfaction

compared to the Italian text, written in Latin, such as *vel* (and other variants) *hic placet hoc petition, hec uidetur proximior perfectioni*, or *non videtur satis sad principium dic aliter hic* when the verse is not satisfactory.”⁶ With Pushkin (19th c.), the functional distribution of languages is done in a different mode. Alexander Pushkin perfectly mastered French and Russian and used them in everyday life. By observing his manuscripts, one can notice that French is used especially in the planning stage, while the Russian language arises from the first attempts at textualization (Tomachevski, 1928).

In the case of other writers, their mastering of another language may not be strong enough for them to express their creativity in this language. But this foreign language, Italian in the case of Paul Valéry (20th c.), may nevertheless have a significant impact, for example, by the cultural contribution it carries. We can find in the drafts quotations from other authors in foreign languages that guide the writing process. This underlying influence can also manifest itself through the rhythm, especially in poetic composition. It may also be the emotive power of a foreign language. Valéry’s manuscripts kept in the Bibliothèque Nationale de France (National Library of France) let us see all these expressions which the author himself was well aware of (Sanna, 2012):

Ego scriptor. Archaïsmes. Me sont parfois reprochés. Ne sont pas volontaires. Mais non refusés de moi si favorables et surtout me viennent spontanément (chose assez mystérieuse ?) Peut-être **italianité syntaxique** dans les constructions et besoin de ligne de chant dans la phrase ? (Valéry, 1957–1961, p. 721)

[Ego scriptor. Archaisms. Are sometimes held against me. Are not intentional. But not denied by me, so supportive and above all come to me spontaneously (a rather mysterious thing?) Maybe **syntactic “italianity”** in the constructions and in need of vocal line in the sentence?] (Valéry, 1957–1961, p. 721)

Je suis un être greffé.

Je me suis fait à moi-même plusieurs greffes.

Greffer les mathématiques sur de la poésie, de la rigueur sur des images libres. Des “idées claires” sur un tronc superstitieux: **un langage français sur un bois italien.** (Valéry, 1957–1961, p. 170)

[I am a transplanted person.

I gave myself several transplants.

Transplanting mathematics on poetry, rigor on free images.
Clear ideas on a superstitious trunk: **French language on Italian wood**. (Valéry, 1957-1961, p. 170)

Valéry's example shows that the functional separation is not always clearly defined and identifiable. We can also observe this phenomenon in the manuscripts of the writer Dionysios Solomos (1798-1857), an important figure in Greek literature. A quick overview of his manuscripts lets us see at first the following multilingual writing pattern: the poet first prepares a prose matrix in Italian, and then builds the verses in Greek.

(i) The “visionary woman”

Draft in Italian

Nelle cui mani (del gionetto) è il destino della mia patria.

Io lo vidi! A me parve bello come l'astro del mattino

le mie viscere tremarono: gli occhi mi s'empierono di

lacrime: e per molta ora mi si nascose la dolce faccia. (AA25
ir)(AA25 ir)

[In His Hands (of the young man) is the destiny of my country.

I have seen it! To me seemed beautiful as the morning star

my insides tremble: the eyes are filled with

tears: and for a long time its sweet face is hidden from me]

Formulation / Greek translation from the Italian draft:

μ'τρεμανε τα σοθικα, τα ματια μ ορα

κ'εχασα εκινο τὸ γλικὸ προσοπο για πολιορα. (AA25 ir)
(AA25 ir)

[My insides trembled, my eyes ορα (rhymes are pending)

and I lost for a long time that sweet face]

We see in this operation the obvious parallel with Pushkin's writing who also distinguished languages according to the conceptualization and textualiza-

tion phases. However, rigorous linguistic analysis of Solomos' manuscripts allows us to see several other phenomena, highlighted by Kostas Pavlou.⁷ On the one hand, next to the Italian and Greek, many passages are observed in ancient Greek, Latin and French. On the other hand, we see a lot of interference between his two major writing languages.⁸ These interferences between Greek and Italian are found at all levels: phonetic, morphosyntactic and semantic. This leads us to consider a second writing strategy: code-switching.

2.2. Code Switching

The mixture of linguistic codes or code-switching was observed and theorized by sociolinguistics for spoken language.⁹ Based on the language practices of multilingual speakers, code-switching refers to the alternation of linguistic codes within the same statement of the spoken language. However, this phenomenon can also be observed in writing, especially in the drafts of multilingual writers, in their epistolary exchanges and sometimes even in their published works. Canadian researcher Rainier Grutman named this phenomenon *heterolingualism* which signifies for him, the use of foreign idioms in a literary work (Grutman, 1997). Anglo-Saxon researchers refer to this phenomenon as *translingualism*.¹⁰

Speakers with a good command of languages are supposed to use the linguistic codes separately and independently. In reality, several writers mix linguistic codes in their writing. Thus, throughout his work, the Russian writer Leo Tolstoy has consistently drawn from French, as several thousands of manuscripts' pages show. In Tolstoy, French is present everywhere: in the plans, in the notes, in notebooks, in scenarios, in drafts and even in the printed text. Thus, when an available Russian word does not satisfy the writer, he prefers to use a French term that appears to him as the only satisfactory solution:

. . . слово это неупотребительно; но да извинят меня
пуристы и защитники богатства русского языка, у нас
нет слова *laideur* . . . (Tolstoy, 2000, p. 291)

[. . . This word is not used. But purists and defenders of the richness of the Russian language please forgive me, we do not have the word *laideur* . . .]

These Franco-Russian notes of Tolstoy have not yet been the subject of study, and in the few published excerpts, they are annotated as unreadable.

With Vladimir Nabokov, who was recognized as a renowned Russian writer

and as one of the best American writers, linguistic interferences can be observed in different types of documents: in drafts, letters and published works. Let's see how the mixture of codes operates in the writer's correspondence:

(2) Внешностью она не красавица, но у нее отличная фигура ; на мой взгляд *elle a du chien*, как говорили у нас в старину. . . . Подошел бы ей, как я уже вам писал, человек серьезный, солидный лет за сорок, нашедший свое место в жизни, и—католик. *Pour le reste je me remets à vous . . .*

[Physically, she is not a beauty, but is very well proportioned and I think qu'*elle a du chien*, as we used to say. . . . What would suit her, as I have already written to you, is a serious man, sturdy, in his forties, having found his place in life, and—Catholic. *Pour le reste je me remets à vous . . .*]

(Letter from Nabokov to Countess Zinaida Chakhovskoy, 1932–1935, Congress Library, Manuscripts Division, Box 22, folder 1)

(3) Мальчик наш отнюдь не тихоня, а аховый хулиган ; *we look foward* показать его вашей матушке, если она приедет в Берлин.

[Our boy is far from being good, a real hooligan; *we look forward* to introducing him to your mother, if she comes to Berlin]

(Postcard from Nabokov to Countess Zinaida Chakhovskoy, 1932–1935, Congress Library, Manuscripts Division, Box 22, folder 1)

The same phenomenon is observed in Pushkin's (1956–1958) correspondence:

(4) потоп! ничто проклятому Петербургу! voilà une belle occasion à vos dames de faire bidet (p. 109).

[the flood! it is nothing for this cursed Petersburg! voilà une belle occasion à vos dames de faire bidet.]

(5) Я бы впридачу предложил ему мою дружбу, mais il l'a depuis longtemps, d'ailleurs ça ne fait que 1000 roubles (p. 95).

[I would also have offered him my friendship, mais il l'a

depuis longtemps, d'ailleurs ça ne fait que 1000 roubles]

The code-switching, omnipresent in the epistolary exchanges of multilingual writers, is also found in their literary production. As such, Vladimir Nabokov is particularly interesting to study. On the one hand, flamboyant multilingualism has always been a hallmark of this multilingual writer (including in his first works written in Russian). On the other hand, there is a quantitative increase in linguistic interferences in his work, as his fame grew. It seems that the reputation of a writer greatly facilitates the possibility of introducing foreign language references in his work.

Thus, Nabokov's English-language works are full of interferences in other languages:

(6) . . . and that if Degas could immortalize a *caleche*, why could not Victor Wind do the same to a motor car? (*Pnin*, p. 82)

(7) “However, I have been called an *enfant terrible* for expounding this theory, and perhaps you will not go on agreeing so easily when you hear me out” (*Pnin*, p. 141)

(8) Oh, she had become wonderfully pretty, and *elle le mangeait des yeux*—but Ada slammed the lantern shut, and with apologetic groans, the slut groped her way to the inner passage. (*Ada or ardor*, p. 151)

(9) “Nothing,” said Van. “I just want to put on record that I adore girls. I had my first one when I was fourteen. *Mais qui me rendra mon Hélène?* She had raven black hair and a skin like skimmed milk. I had lots of much creamier ones later. *I kazhetysya chto v etom?*” (*Ada or ardor*, p. 183)

It is interesting to note that in examples (6)-(9), Nabokov does not see fit to translate to his reader the incursions into foreign languages.

However, as a general rule, Nabokov tries to use various strategies to make available the linguistic interferences to his readers:

(10) . . . and after such feasts, upon meeting gruff Pnin, Serafima and Oleg (she raising her eyes to heaven, he covering his with one hand) would murmur in awed self-gratitude: “*Gospodi, skol'ko mî im dayom!*” (My god, what a lot we give them!)—“them” being the benighted American people. (*Pnin*, p.59)

(iii) . . . “*A vi, baten’ka, zdorovo postareli* (Well, well, old boy, you certainly don’t look any younger)!” (*Pnin*, p. 90)

(iv) Yes—she never doubted that Timofey was a darling (“*Nu kakoy zhe ti dushka*”). (*Pnin*, p. 47)

In these examples, the writer uses the immediate translation in brackets. Similar processes are widely used by other multilingual writers.¹¹

2.3. Parallel Writing in Two Languages

We have just observed two strategies that are composed of two opposites poles in the scriptural practices of multilingual writers: on the one hand, functional separation of languages and on the other, code-switching.

As in many human activities, it is easier to identify opposing strategies. However, in most cases, these activities are in fact a continuum, where we will find subjects who only use one or the other strategy, but there will also be those who will find themselves on different scales of this continuum.

Thus, between the two strategies I have described above—the functional separation of languages and the mixture of linguistic codes—there is a third strategy which is parallel writing in two languages. This strategy mainly characterizes poetic writing.

The Malagasy poet Jean Joseph Rabearivelo (1901–1937) represents this type of simultaneous multilingual writing well. Rabearivelo was constantly torn between his fascination with France and his love for Malagasy culture, between the French language and the language of his country. He wrote and published his poems in both languages; but only careful observation of his drafts identifies the authentic order of writing and the very complex mutual stimulation of the two languages spoken by the poet.

With pages of his drafts being systematically separated into two parts, one can observe the constant back and forth between the two languages: writing unfolds from Malagasy to French and vice versa (for a detailed analysis, see Riffard [2012]).

As I mentioned earlier, parallel writing in two languages seems to be more characteristic of poetic creativity. Thus, similar writing strategies are observed in other poets, especially in Patrice Desbiens, a Franco-Ontarian poet who writes in French and English. While critics insist on regarding him as a French writer obscuring his multilingualism and marginalizing the presence of English in his writings, his poetic production is nourished by these two languages (Simard, 2014). Thus, in his bilingual book *L’homme invisible / The Invisible Man*, published in 1981, on the left page the narration is in French

and on the right page in English:

(13) Le temps passe comme des motoneiges dans les yeux de l'homme invisible.

Jours jours jours.

Semaines semaines semaines.

Mois mois mois.

Times goes by like cars in the invisible man's eyes.

Days days days.

Weeks weeks weeks.

Months months months (Desbiens, 2008, pp. 60-61).

If the poetic bilingualism is exposed, accentuated, almost claimed in the Desbiens' publications, it is hidden, omitted, secret in Rabearivelo and can be discovered only thanks to his work papers. We shall also note in both poet's this necessity of putting in perspective both languages, both texts which are placed side by side in the Desbiens' publication and in the Rabearivelo's drafts. In *The invisible man*, English and French echo each other. In the drafts of Rabearivelo, the links which weave between two languages are complex: the Malagasy feeds the imagination and the lexical creativity in French and vice versa.

2.4. Self-Translation (Consecutive Writing in Two Languages)

Besides the study of fiction drafts, it is also essential to study the practices of translation and self-translation of multilingual writers. In fact, self-translation is another case of the use of two languages spoken by a multilingual writer. Actually, it is the *consecutive* writing in two languages. In fact, a large number of multilingual writers either carry out the translations of their works themselves (e.g. Samuel Beckett, Nancy Huston, Vassilis Alexakis, Anne Weber, etc . . .) or supervise translations made by their colleagues (Nabokov (Weissmann, 2012).

Nancy Huston had clearly expressed it on the translation of her novel *PlainSong*:

Je n'aurais fait confiance à personne pour le traduire. Quand la première version a été terminée, je l'ai réécrite en français (Laurin, 1993).

[I would not have trusted anyone to translate it. When the first version was completed, I rewrote it in French].

In order to truly understand the dynamics of the transformation of a work from one language to another, the use of writers' and translators' working documents (drafts) play an invaluable role. Thus, the draft translation of Beckett shows us the strategies of the re-creation of his works in another language. Beckett begins by translating literally. Gradually, each new textual level retreats more and more from the original work to give in the end a fundamentally different work that often cannot be understood without comparison to the original work, or even without reading the drafts (Montini, 2012):

Table 30.1. S. Beckett, Mercier et Camier

French Version	Translation manuscript	English version
Et le rendez-vous était pour quelle heure, selon toi ?	And for what hour was our appointment, according to you? said Mercier.	And for what hour was our appointment, according to you? said Mercier.
Pour le quart de neuf heures, dit Camier.	(<i>For the quarter of nine, said Camier.</i>)	Nine fifteen, said Camier.
Je ne comprends pas, dit Mercier.	<i>I don't understand, said Mercier.</i>	Then you are grievously mistaken, said Mercier.
Que ne comprends-tu pas ? dit Camier.	<i>What don't you understand? said Camier.</i>	
Ce que ça veut dire, le quart de neuf heures, dit Mercier.	<i>What you mean by the quarter of nine, said Mercier.</i>	
Ça veut dire, neuf heures quinze minutes, dit Camier.	<i>I mean nine hours fifteen minutes, said Camier.)</i>	
Alors tu te trompes lourdement, dit Mercier. (<i>Mercier et Camier</i> , p. 16)	Nine fifteen, said Camier. Then you are grievously mistaken, said Mercier.	

Vladimir Nabokov is also interesting to study from the perspective of a re-creation of his works in another language. After the publication of *Lolita* in 1955 which made Nabokov famous in the U.S. and created a strong demand for his works, one of the writer's main activities was overseeing the translation of his Russian works into English and into French. Nabokov's archives (New York Public Library and Library of Congress, USA) keep a large number of translators' manuscripts with corrections made by the author. These documents allow us to understand the translation strategies that Nabokov put in place for his works. The observation of these translators' drafts shows that, for each work translated into English, Nabokov was engaged in a major rewriting

work based on the text matrix of his translators. For some English translations, the rewriting by the author reaches 80 percent of the text (Shrayer, 1999, p. 557).

Why are multilingual writers so keen to self-translate? By engaging in self-translation, they actually delay the time when the umbilical cord is cut with their work. These writers therefore come to establish a multilingual “creative continuum” (Shrayer, 1999, p. 563) which cancels the “closing” of the text, always artificial and painful for a writer (Anokhina, 2014).

3. Metalinguistic Awareness

The observations of multilingual writers’ corpuses (Anokhina, 2012) have shown the interest and relevance of the concept of *metalinguistic awareness* that I shall develop further. This concept developed in didactics and psychology / psycholinguistics for students and language learners, seems to be very useful for theorizing the impact of multilingualism on literary creativity (see for example Cummins [1978] and Mertz & Yovel [2003]).

Emerging research on the impact of multilingualism on different spheres of creativity have emphasized that

- There is a relationship between multilingualism and creativity;
- Multilingualism improves access to information;
- Multilingualism offers alternative ways of organizing thought;
- Multilingualism can perceive the world around us differently;
- Learning a new language increases the creative potential of the individual (*Study on the Contribution of Multilingualism to Creativity*, 2009).

Thus, we now know that a multilingual subject has several cognitive advantages. One of these advantages is the enhanced metalinguistic awareness. Metalinguistic awareness can be defined as an ability to think about language which becomes the object of our thought (for definitions of linguistic awareness, see Trévise [1996]).

Research in cognitive psychology and psycholinguistics has shown that bilingualism in children promotes the development of their metalinguistic awareness (Dabène & Ingelmann, 1996; Davidson & Raschke, 2009; Davidson, et al., 2010). The perspective opened by the works on multiple intelligence notably Gardner’s (1996), enable us to see that a writer—considered as an expert writer in cognitive psychology—has a highly developed verbal intelligence. And yet this type of intelligence seems to be particularly related to *metalinguistic awareness*, which also has a very high level of development in a writer. Although metalinguistic awareness seems to be specific to any

writer (expert writer), studies on the positive impact of bilingualism on metalinguistic awareness in children lead us to believe that it is also particularly developed in multilingual writers. Preliminary studies of individual cases of writers who speak and write several languages lead us to already distinguish four types of metalinguistic awareness in multilingual writers.

3.1. Acute Metalinguistic Awareness of the Languages Spoken by the Writer

A multilingual writer, especially one who has learned several languages during childhood seems to have, early on, a keen awareness of the phonological, syntactic and semantic differences between languages. This was undoubtedly the case with V. Nabokov and Driss Chraïbi, a Moroccan writer who, since childhood, kept comparing the French and Arabic phonological systems (Grine Medjad, in press). The writer Julien Green (1991) has also expressed it in his own way:

I learned foreign languages with an ease that surprised my teachers. Above all, beautiful language delighted me. Poetry exercised a magical power over me comparable to a melody on a primitive.

These writers have explicitly expressed their unique perception and sensitivity to the specific characteristics of the languages they grasped.

3.2. Translation of Other Writers

Nabokov (1941) has described the qualifications needed for an ideal translator capable of translating a masterpiece:

First of all he must have as much talent, or at least the same kind of talent, as the author he chooses. . . . Second, he must know thoroughly the two nations and the two languages involved and be perfectly acquainted with all details relating to his author's manner and methods; also, with the social background of words, their fashions, history and period associations. This leads to the third point: while having genius and knowledge he must possess the gift of mimicry and be able to act, as it were, the real author's part by impersonating his tricks of demeanor and speech, his ways and his mind, with the utmost degree of verisimilitude.

Hence, the translator must be as talented as the author and it is no coincidence that among quality translators Nabokov quoted the renowned writers: Baudelaire, Poe, Joukovskij and Schiller. We believe that the passion for languages and language itself can motivate the activity of intense translation which some writers engage in. For example, this was the case with Mérimé, the tireless French translator of Gogol, Pushkin and Tolstoy ... Another notable example is Paul Celan, who translated into German: Russian, English, Italian, Romanian, Portuguese, Hebrew, French (Nouss, 1996, p. 18).

For such writers, the translation activity holds a place just as important as creating their own works.

3.3. Learning Other Languages

Some multilingual writers have a strong fascination for languages in general which leads them to learn new languages, sometimes exotic. Thus, Vassilis Alexakis, a writer of Greek origin and French-speaking, began learning *Sango*, the lingua franca of the Central African Republic (Amilitou, in press). The Brazilian writer João Guimarães Rosa takes this intellectual and linguistic curiosity even further:

I speak: Portuguese, German, French, English, Spanish, Italian, Esperanto, a little Russian; I read: Swedish, Dutch, Greek and Latin (with the help of a dictionary); I understand some German dialects; I studied grammar: Hungarian, Arabic, Sanskrit, Lithuanian, Polish, Tupi, Hebrew, Japanese, Czech, Finnish, Danish, and I did a little snooping of other languages. BUT ALL THAT, BADLY. I think that studying the mind and the mechanism of other languages help us greatly in understanding the language of the country in more depth. But I study them mainly for pleasure, by inclination and distraction.¹²

These type of writers need to draw inspiration from other linguistic systems, even if they only use one language for their writing. Thus, Guimarães Rosa, multilingual passionate, writes in his mother tongue, Brazilian Portuguese.

3.4. Invention of a New Language

There are also writers who have pushed their fascination for languages and language itself as far as creating their own language. This is to some extent the case of Joyce (Ferrer, 2012), and is particularly true of Frederic Werst who,

in his novel *Ward* (1st and 2nd centuries), created a *Ward* language with a very advanced grammar. Frederic Werst indulges in a very systematic thinking exercise to create a language that can be passed on (Rigeade, in press). The attempts to create languages, that counter the trend of loss of natural languages, are numerous. Initially reserved to scholars with utopian ideas, the creation of new languages tends to democratize itself today (Danna, 2012).¹³

The thorough study of the different work documents of multilingual writers will validate and enrich this first typology according to the peculiarities of their metalinguistic awareness.

4. Conclusion

I think, despite the editorial constraints that the supremacy of a national language imposes, multilingual and multicultural writers cannot conceive the existence of a unilingual world, even fictional. Their multilingualism and multiculturalism leave traces—conscious and unconscious—in their works and especially in their working documents. On the cognitive level, it seems impossible that a multilingual subject should not to draw, one way or the other, on the range of possibilities presented to him by the languages he speaks.

I hope to have shown that the notions of *metalinguistic awareness* developed in psychology and didactics could be useful for understanding the cognitive functioning of multilingual writers. Indeed, research on bilingual children seems to converge with the observation of the multilingual writers work papers that are central to my approach (Anokhina, 2015). This ability naturally stimulated in a bilingual child, exists at a very high level of development in multilingual writers and finds its manifestation in their various creative strategies, as I have shown.

If the capacity to pay attention to tongues and language is naturally stimulated in a bilingual child and arrives at a very high level of development in multilingual writers, it can be stimulated in every learner of foreign languages, thanks to an early awareness of languages and strengthened by being made aware of language (Dabène & Ingelman, 1996) as early as elementary school.

Notes

1. These last few years, statistical reliability in the hard sciences is mentioned more and more often by researchers in these disciplines. Indeed, the lower the number of subjects, the more questionable the statistical reliability and reproducibility of any given study. See for instance Christley (2010), Halpern, Karlawish & Berlin

- (2002), Lawrence (2007), Button et al. (2013).
2. As well as Kikongo, he spoke *Lingala*, a Bantu language spoken in the Democratic Republic of Congo.
 3. On this subject, see for example, Moser and Mertz-Baumgartner (2012). This book presents 300 writers born outside French territory, but living and publishing in France.
 4. Kudelin (2010) draws our attention to the fact that the knowledge of several languages was not at that time the privilege of a restricted circle of scholars and that a large part of the Andalusian population was bilingual and trilingual.
 5. I am more particularly going to lean on the research of my group *Multilingualism, translation, creation* of the ITEM (UMR 8132 CNRS / ENS, France) which gathers researchers working on different linguistic areas.
 6. His autographs are now kept in the Vatican Library. In them, we can observe the use of languages by Petrarch, whose writing in Italian is inseparable from self-reflexive thought in Latin. Regarding this, see Giaveri (2012: 43-44).
 7. For a detailed analysis, see Pavlou (2012). I would like to warmly thank K. Pavlou (Open university of Cyprus) who presented his research “Entre l’italien et le grec: la genèse du premier projet d’écriture des *Libres Assiégés* de Dionysios Solomos?” to the seminar of the *Multilingualism, translation, creation* team, on the 24th of May 2013 in Paris.
 8. Interference is a linguistic phenomenon resulting from the contact of languages. According to Mackey (1976) “*interference is the use of elements belonging to one language while we speak or write another*” (p. 397).
 9. It is worth distinguishing *code-switching* from the *code-mixing* phenomena which consist of combining morphemes from different languages.
 10. See, for example, Kellman (2003). For Kellman, a translingual writer is one who writes in more than one language or in a language other than their primary one.
 11. Romain Gary uses very similar strategies. For the use of languages in the literary creation of this writer, see Chepiga (2012).
 12. João Guimaraes Rosa, Letter from the 19 October 1966 to his niece Lenice Guimaraes de Paula Pitanguy, quoted in French in Dosse (2011: 193) and in Portuguese in http://www.germinaliteratura.com.br/pcruzadas_guimaraesrosa_agosto2006.htm.
 13. See Eco (1997), Albani & Buonaroti (2001), Yaguello (2006). The tradition of language inventors is very old. We must remember as such that the macaronic language which appeared in Italy in the 15th century, was trying to combine elements from Latin with regional languages. Cf. Garavini (1982).

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Research on Writing: Multiple Perspectives

In February 2014, 1200 researchers from 60 countries assembled in Paris for the third Writing Research Across Borders conference. Although this book cannot convey fully the rich diversity of the gathering, it attempts nonetheless to highlight key questions which are shaping the current state of research in the field of writing studies. The contributors to this collection engage in a wide-ranging conversation about writing, a conversation made possible through a shared focus on improving learning and language usage. The chapters fall at various points, as a result, along a line extending from straightforward expressions of pedagogical concerns to focused analysis of how writing and texts work.

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