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The WAC Journal

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Richard H. Haswell: A Conversation with an Empirical Romanticist

CAROL RUTZ
CARLETON COLLEGE

INTRODUCTION AND DISCLAIMER: The interviews I have done for *The WAC Journal* over the past few years are an outgrowth of relationships I have developed through professional venues. The same is true of my relationship with Rich Haswell, recently retired as Haas Professor of English at Texas A&M University, Corpus Christi. However, Rich and I quickly uncovered connections unlike those I have found with anyone else. How likely is it that two WAC types hailing from Texas and Minnesota would have been born not just in the same city, but in the same hospital, ten years apart? How likely would it be for my mother to have taken a college English course from Rich's father back in 1939? And if that were not enough, I learned through the course of this interview that we have a connection through entomology as well. Rich is an autodidact, and my father was a Ph.D., but the passion for Insecta rules either way, and I look forward to the day when Rich and I can chat about aphidophagous insects or Odonata or some other appetizing topic.

For now, I am thrilled to share with *The WAC Journal's* audience the products of an online dialogue plus a long conversation held in Denver at the 2008 WPA Convention. To those new to Rich Haswell, some biographical data. Rich earned his Ph.D. in English at the University of Missouri and thereafter took a literature position at Washington State University, becoming WPA there five years later. During his thirty years at WSU, he became known nationally for his attention to research on college writers as well as his strengths in administration, curriculum, and assessment. His was the guiding hand for the cross-campus junior portfolio at WSU, which has been in place since 1996 and has generated a body of research described in a collection Rich edited, *Beyond Outcomes: Assessment and Instruction Within a University Writing Program* (Ablex, 2001). In addition to dozens of articles and several other books, he is most often cited for *Gaining Ground in College Writing* (1991, SMU Press) and for his dedicated work as

a bibliographer for the entire field of composition and rhetoric. He and Glenn Blalock have produced CompPile, a free, open-access, unaffiliated, searchable bibliography of scholarship, described on its Web page [comppile.org] as “an inventory of publications in post-secondary composition, rhetoric, technical writing, ESL, and discourse studies” from 1939 to the present.

WAC professionals gratefully draw upon Rich’s scholarship and the fruits of his bibliographic projects. Now, about the man himself: Rich paints a self-portrait that is part iconoclast, part polymath, and all theorist-practitioner.

CAROL RUTZ: You grew up on a small Missouri farm, without electricity for the first eight or nine years of your life. Has that upbringing helped shape your professional career as teacher and scholar?

RICH HASWELL: The older I get, the more I think so—always keeping in mind the word “helped.” (I’m not a determinist.) Three shapings come to mind. The first is a compulsion to explore. Or maybe it’s a compulsive under-consideration of the risks. I had the run of a barn, forty acres of ponds, pastures, and post-oak woods, and about ten miles of river and bottom-land, all to stick my nose where it shouldn’t be. On your own in that kind of terrain, it’s natural to walk a hollow to see where it starts. I remember once jumping off the well house and landing with my knees locked to see what would happen. So perhaps it’s not surprising that the English profession has always struck me as acreage wide open to my curiosity. I avoid reading books twice. I disliked teaching from old notes, and my best courses turned out to be the ones I taught for the first time.

The second shaping—I find it a little embarrassing to say this—is a kind of rural patience. Perhaps it’s embarrassing because patience is not a trait of our trade. Teaching strategies fall out of favor before they can show their worth—think of sentence-combining and exercises in creativity. We imagine one research study is all it should take to answer the question or one course to instill the proficiency. Unless you have lived life on a farm, it’s difficult to see how antipodean impatience is to it. The abandoned kittens are fed with an eye-dropper. You don’t hurry a cow back to the barn to be milked. Meanwhile, university administrators want this program to be validated within the year. Can you imagine saying to a farmer, “You have a year to show us that your crop rotation works”? Until recently I didn’t think of myself as having that kind of patience, and when students used the word on my teaching evaluations I was bemused more than pleased. But then my colleagues are amazed when they calculate the hours it must have taken to track down, construct, and upload more than 75,000 bibliographic entries in CompPile. And if there is any one recommendation that emerges from the

developmental analysis in *Gaining Ground*, it is for teachers to be patient with students and their growth in learning. I am attracted to trilogies, novels that spread out like whole countries. I may be the last person alive to have read all of Drayton's *Poly-Olbion*. So maybe some of that farm patience stuck.

I forget what the third shaping was. Maybe keeping an eye out for copperheads.

CR: When your name comes up in WAC circles, our colleagues immediately associate you with first-rate research on college writers—as well as your work as a formidable bibliographer. How did you find your way to doing research on writing pedagogy and college writers?

RH: Professors Roy Chapman and Donna Gerstenberger first showed me the way. Names with low recognition in the composition field. Chapman was my boss the three summers I worked in Missouri archaeology. I was in my late teens and the discipline he enforced entered through my fingertips permanently—measuring the depth of an artifact with a farmer's level to the eighth of an inch, writing up sweaty field notes for every six-inch layer in your square. Five years later, Gerstenberger was teaching a seminar in literary research methods at the University of Washington. We had to read all the background material for a recently published article. One student had unwisely chosen a piece on Shakespeare and I remember Gerstenberger sizing up the three-inch stack of bibliography cards he handed to her and then handing them back, saying that they couldn't be enough. Of course these two weren't the only professionals from whom I contracted the lure for rigorous research. This was the late 1950s to mid 1960s, when literary scholarship—that became my doctoral work—was still driven to get it right, get it exact, make it exhaustive. I'm just saying that before I entered composition studies, I apprenticed in hard science and hard historiography—and later, on my own, in entomological systematics, which is as hard as you can get.

CR: So by scholarly instinct you applied that apprenticeship to composition studies?

RH: Well, when I tumbled into the WPA position at Washington State University in 1972, I was taken aback at all the decisions I had to make without a smidgeon of hard facts to back them up. It was like ordering everyone to read Dostoevsky and not to read Tolstoy without having read either yourself. My office was requiring defenseless students to take remedial writing determined by a cut-off score on the Washington Pre-Collegiate Examination that no one had validated. I was recommending that my TAs get their students to do free writes and my only evidence was Ken Macrorie's enthusiasm for free writing in his textbooks. But, as you can guess, a WPA with 40-plus TAs and no assistant and no writing center has little time to do research. Then, in 1977, I decided to revise our advanced writing course, at least so it would be different

from our first-year writing course. I went around to teachers in other departments that required our advanced course for their majors and asked them what they thought it should cover. A biology professor looked oddly at me, like, what are you doing in my office? (This was in pre-WAC days.) He said he was willing to take on faith what the English department said should be taught. I thought to myself, "But the English department itself takes that on faith." That's when I started gathering the data for my first study of writing pedagogy, a comparison of freshmen, sophomore, and junior essays written to the same prompts. I figured that if there was a difference in the beginning and advanced curricula, it ought to be based on demonstrated differences in freshmen and junior writing.

CR: Did you feel like you were introducing an alien methodology into the field?

RH: Not then. Remember that in 1977 a scholar with an empirical yen wouldn't need to look outside composition studies. There were impressive names doing data-driven research and they certainly helped me find my way in it: Richard Beach, Lynn Bloom, Warren Combs, Sarah Freedman, Ann Gebhard, Kellogg Hunt, Walter Loban, James Ney, Ellen Nold, Frank O'Hare, Bill Smith, Patty Stock, Steve Witte, and many others. It's hard to imagine today, but back then empirical research had *éclat*. Even *College English* was publishing it. The alienation of data-based research came later, actually not many years later. Of course, the winds will shift back. Let's hope in as short a time.

CR: Your 1991 book, *Gaining Ground in College Writing: Tales of Development and Interpretation* (SMU Press), argues for a developmental approach to the teaching of writing. I would characterize the book as both revered and unappreciated, depending on the reader. As a member of the reverent camp, I have to ask you: Is there some kind of essential resistance to developmental theory in the WAC world? Who is likely to either dismiss or endorse the book's message?

RH: There's plenty about the book that is resistible. Gary Tate and Peter Elbow have told me that it's written in a belletristic style to which many comp people are unaccustomed and often antipathetic. And with good reasons. There are times I've been forced to re-read chapters and I find passages I can hardly figure out. To steal Browning's witicism, when I wrote them only God and I knew what they meant and now only God knows. I wrote the first draft on leave in Quito, Ecuador, which sits at an elevation of 9,200 feet. My high hopes that the composition community would embrace it were considerably lowered when every likely publisher in composition I could think of rejected the proposal or the MS. I received the MS back from one publisher in a split mailing container holding only the first and last pages. So when Tate at SMU Press showed an

interest, I rewrote the entire book in a contrary frame of mind: I would pursue the data that the book reports wherever that led, regardless of disciplinary druthers, and that happened to be right into theories of post-adolescent human development.

CR: But the resistance is to more than just the style of *Gaining Ground*.

RH: Of course. To the approach itself, as you say. Resistance to developmental theory thrives in the comp world, less so in the WAC world. But I wouldn't call the resistance "essential." It's more unthinking or automatic, a kind of knee jerk. What is essential is human development itself. Who can deny that fact of life? Look at yourself in the mirror in the morning and you are looking at development. The resistance, I think, is to that essentiality of development, like it threatens to trump any card that writing teachers might want to play. If they want to teach cultural critique to first-year students, they don't want to hear about findings from college-span development research to the effect that many if not most first-year students have a lot of trouble even conceiving of the multiple frames that kind of critique has to assume. The other problem is that, in part because of this resistance, most college writing teachers have notions about college-age development that are about thirty years out of date. They seem to think theories of development stopped with Piaget (a structuralist who had little to say about post-adolescent development) or William Perry (who largely confined himself to cognitive changes). What they are missing is the rich trove of subsequent theory and findings—life-span, constructivist, affective, material, social, cultural—that could support and enhance their teaching rather than negate it. Often WAC faculty are more amenable to developmental theory because they know more about it, sometimes even teach it. Still, I can't imagine a physics department or engineering school altering their writing curriculum because of some notion about college-age development.

CR: So it's the old clash between disciplinary knowledge and teaching practices.

RH: Precisely. With teachers, especially with college teachers, human development is no different than other human givens, more respected in the scholarly journals than in the classroom. It's easy to defend cultural or gender differences theoretically and even factually, but how many teachers allow them to affect, say, the material they cover or the criteria on which they grade?

CR: In the last decade or so, psychologists such as John Bransford (University of Washington) have reframed adult learning as a journey from novice to expert. How do such insights help us understand college writers?

RH: It helps us understand them but it raises new problems in teaching them. Take the long-standing finding—fully observed with chess players—that experts work more by meaningful patterns than set, linear, procedures. Chess masters recognize board

positions and remember better and worse combinations that emerged from them in past games. Ah, with this endgame I'd better get my rook on the sixth not the seventh rank. They do less brute calculation of where pieces will be three or four moves ahead than do novice players. But how do you teach novices to recognize meaningful patterns? Experts everywhere improvise around novel situations and are willing to transfer to them experience from old situations. If builders don't have any Portland cement around they may sift the gravel out of concrete mix to make a slurry. But how do you teach transferability? Experienced technical writers are flexible. They know that multi-drafting is right in one situation, first-time-final is right in another. But how do you teach flexibility?

CR: Are you saying that expertise can't be taught?

RH: It's more a question of when an expert strategy should be taught. Bransford shows that students who are good at rote learning can get befuddled if they are asked to apply it to any other context than the one in which they learned it. That sounds like teachers should stop teaching rote learning. But maybe rote learning is a necessary first step to flexible learning. OK, but when should the first step be over? Haven't entering college students learned long ago to stick their thesis statement at the end of the first paragraph? Yet when they get out of a writing course and into a disciplinary course, they don't seem to know where to put it. Here is where the WAC or WID teacher may benefit more from novice-expert findings.

CR: How so?

RH: Take context switching. It's not so much that the student who walks into a junior writing-in-biology course is suddenly required to write like an expert, but that the context for the writing suddenly changes from a generalized "English comp" to a particular discipline. Context switching forces expertise as much as expertise manages switches in context. It's the upper-division WAC or WID teacher who can best see where students are applying pattern recognition, skill transfer, and flexibility and where they aren't. In short, novice-master understanding severely questions the timing of the generalized first-year writing course. Haven't entering college students been noviced enough already by their school writing? The understanding also renews the venerable insight of developmental studies, that what makes development is sequence, not age. Once in Quito rush-hour traffic my Ford Bronco gearbox locked up. A twelve-year-old boy, sent by his father from the closest garage, fixed it with a piece of wire he looked for and found in the gutter. That's expertise.

CR: Approaching research from a different angle, let's talk about the informal requests we see almost daily on listservs. Panicky WPAs request information (ideally, in

the form of current national statistics) pertaining to class size; equipment for classrooms or writing centers; the value of lecture/recitation teaching methods; the effectiveness of placement/assessment mechanisms (including machine scoring); and so on. You and your CompPile compadre, Glenn Blalock, often graciously direct desperate inquirers to substantial bodies of research. One might wonder why such research seems to be unfamiliar to those who need it most. What's going on?

RH: Something both disturbing and understandable. What kind of graduate curriculum didn't teach these WPAs how to find this kind of disciplinary information on their own? Don't they know the bibliographies? Can't they extract the relevant texts and then slog through them and gather the data they need? Are there whole rhet-comp degree programs that never dirty their hands with factual information critical for the defense of writing programs? Yet we both know that WPAs are daily harried by the deep-rooted impatience of higher education that I have referred to. The dean of the business school telephones you on Wednesday that he is meeting on Friday with representatives from the Student Business Organization who think their upper-division writing requirement is a waste of time because it has nothing to do with the jobs they will get. Could you come? You remember that there are studies of the considerable amount of time workers spend writing on the job, but you yourself don't have the time to find them. So you post to the WPA-L, hoping for someone who can give you figures to show the students and the dean.

CR: Still, it's hard to imagine these kinds of requests for data in other disciplines.

RH: I suppose so. What I find hard to understand is the reluctance of rhet-comp scholarship to provide the kind of information WPAs need, in the form of synopses or reviews of research. The data are there. CompPile locates around a hundred pieces describing the amount of writing required in the workplace, and about three-fourths of them contain empirical data, the sort that impress deans and students. As you say, a substantial body of research, but no one has reviewed it. If every two years NCTE published a book called *Current Facts WPAs Can Use*, it would be a biennial best seller. Of course few of those facts would come from NCTE-sponsored publications, but that is another story.

An aside on the collecting of facts. I'm not a data-only kind of scholar, as my publications show. But I've never done any hard analysis of discourse that didn't raise rather than lower my esteem for the authors. I find this especially with academic texts. I found that basic writers are logically more shrewd in impromptu essays than I thought, that 10-minute junior freewrites are organized in more sophisticated ways than I had perceived, that teacher stories about teaching are narratively more complex than I would

have predicted. So when the English comp field headed away from close textual analysis in the 1980s and 1990s they abandoned one way that student writing—and teacher writing—can be seen as better than it looks.

CR: So in your opinion, where are writing teachers and WAC/WID heading?

RH: Off and on I think about the teaching of college writing and its historical trajectory during my career. More and more I ponder the centering of the field around first-year composition—an historical accident. In the 1960s we saw an emergence of articles in *College English*, *College Composition and Communication*, and elsewhere that conveyed a sense of unused power, that as the single course required of almost every student, first-year composition had cachet. But there is a danger in making that curriculum the power source for the field. The profession needs to define itself in terms of a much more extensive and important power, maybe written communication or discourse praxis or human rhetoric. That's where the real energies lie, with lines not only connecting lower and upper division courses and all university departments but reaching out into the world beyond university walls.

CR: And WAC/WID could play a role in this de-centering of the field?

RH: It already has. WAC/WID is the one change that has most energized comp practice and comp studies in the last 20–30 years. Where it will head is a mystery. Only dark passages, as Keats's simile has it. I'd like to see it move in a couple of directions. One is to continue to lead from one of its strengths, which is proleptic learning. I mean proleptic in the sense that the student is doing work that she or he knows will help later on. General first-year comp has a problem with proleptic learning because most students have little idea where they are going. No one is convinced when the teacher says I will teach you strategies that will help in whatever course down the road. "Whatever" has about zero persuasion, as the colloquial dismissive use of the word shows. By contrast, the engineering WID course teaches students who plan to be engineers to write like engineers. So there is a major motivation boost in WAC/WID courses that comes with proleptic learning, as long ago developmentalists would have predicted. But WAC/WID courses still must wrestle with a problem inherent in proleptic learning, that they are still deferring the real work. The course-bound student still cannot fully grasp what a particular form will do rhetorically in a real-world context. In contrast, on the job even a novice engineer understands a supervisor's reason for asking for a particular kind of writing. It is not just a textbook exercise. So one WAC/WID direction will be to make proleptic pedagogy work better, maybe by further expanding the kind of service learning, internships, mentorships, and other active-learning sites

that give students a taste of what it is to write on the job for real audiences, not just to rehearse forms for a teacher.

CR: And the other direction?

RH: Knowledge building. I mean the ordinary task of an academic discipline in expanding knowledge in its bailiwick. Somewhere one of the clients of Sherlock Holmes, amazed at some fact Holmes had inferred from his appearance, asks, “How do you know?” Holmes’s reply somehow has stuck in my head. “It is my business to know things. That is my trade.” Well, in a deep sense academic scholars are detectives whose business it is to know things, solve puzzles, throw light on Keats’s dark passages. It is the business of WAC specialists to know things about WAC that other people don’t know. That is their trade. Understandably, the recent adventurous three decades of WAC have found specialists occupied mainly with creating courses, building curriculum, and administering programs. I think it’s time now for specialists to devote prime time to learning more of what’s not known about WAC, from skill transfer to job success to rhetorical praxis. Romance first, facts second—Whitehead’s venerable developmental sequence fits professions as well as persons.

CR: In addition to your phenomenal scholarship in composition/rhetoric/WAC, you are a lifelong Wordsworthian. Tell us how you combine those passions.

RH: Ah, Wordsworth. No doubt an odd addiction for someone who seems to have acquired an unsavory reputation for empirical research. Let’s not forget, though, that the first critical reaction to Wordsworth’s poetry claimed that it was too factual. Next thing he will be describing in meter, warned the critics, is the evisceration of chickens. Actually, I think I first felt an affinity with Wordsworth’s biography. He grew up on the margins of England engaging in activities familiar from my boyhood, calling out the owls, traipsing the fells at night, that sort of rustic larking about. Eventually I was drawn to the emotional power and subtlety of the language in his work, and then to its narrative complexity, on which I wrote my dissertation.

Later, as I got into composition and human development, Wordsworth kept coming back to mind. Or maybe he helped lead me there unawares. Historically, Wordsworth was a great precursor—no one before him described the human development of individuals so fully and perceptively. Literary scholars have written about his eerie ability to predict other twentieth-century trends in thought. Take social construction, for instance. Wordsworth was a deep thinker about human perception, and his position that “we half perceive and half create” maps perfectly onto current constructivist theory. Not if you listen to the typical compositionist, however. There is a great divide between literature folk and comp folk about historical Romanticism. The rhet/comp

side often turns Wordsworth and other Romantic poets into straw men in an argument defending the discipline's turn toward the social. Following Jim Berlin, compositionists identify "Romanticism" with expressivism, an antisocial rejection of culture, and the myth of the isolated author. Literary historians would find this position insane. If you reconvened the Romantic poets—British, German, French—and told them that they had worked in isolation from society and only from their own knowledge, they would laugh you out of the room. This difference in the interpretation of Romanticism is just one of the unfortunate fall-outs of the split between literary and composition faculty in English departments, which I lament.

CR: Speaking of that split, you and Janis Haswell are working on a book that attempts to reunify composition and literature, right? What would you like *The WAC Journal's* readers to know about that?

RH: Actually, it's done, and it doesn't really attempt to reunify composition and literature. Rather it just assumes that the two are part and parcel of the same endeavor, the study and teaching of written discourse, and it carries on as if the two were one. So probably it will alienate everybody. We call the book *Authoring: An Essay for the English Profession on Potentiality and Singularity*. We chose "authoring" as the axial term because it turns at the center of all the disciplinary sides—composition, literature, linguistics, creative writing. The WID assignment to write a technical report and the colonial literature assignment to read Phillis Wheatley revolve around the same human act: a writer writing, the act of authoring. The book is revisionary in that for several decades now from both the lit and the comp perspective the focus has been on input to the act and output from the act and not on the act itself. The profession has dwelt on social and cultural context (input) and on textual deconstruction, interpretation, and evaluation (output). This book just asks what might happen to our scholarship and our teaching when we redirect our eyes to the phenomenology, the felt sense, of authoring.

CR: And what did you find?

RH: We start with a survey of successful working authors and their testimony about what it feels like to write, physically, mentally, and emotionally, in fiction and non-fiction. Then we compare their set of traits with the assumptions and expectations that English faculty tend to have of student authoring. There is hardly any overlap. So we select two of the working-author traits—potentiality and singularity—and use them to critique the way literature and writing is taught in college. Hence the subtitle. The book asks the WAC enterprise, for instance, if it creates assignments for writing and response to writing that specifically aim to increase the chances that the student author will want to continue writing in the future (potentiality), or that assume that the

student is a unique person who will author a unique piece of discourse (singularity)—and if not, why is the WAC enterprise assuming a phenomenology of student authoring that lacks elements of the phenomenology reported by successful working authors.

CR: You're retired. Would you do it again?

RH: Why not? A job that gave me three months vacation each year. Departments that were friendly enough to release me to live for three and a half years in Spanish-speaking cultures that I relish. Work free of Research I institution obsessions so that I was able to teach both literature and composition to the end, and to teach courses that I did not have the research publications to qualify for—courses such as contemporary poetry, young-adult literature, and language in culture and society. Scholarly preoccupations with topics so big and boggy they will never cease calling for answers: authoring, narratology, evaluation, human development. What would I change? My good colleague Keith Rhodes once said publicly that I do the dirty work of the field. But from my point of view it's all been clean fun.

CR: Plans?

RH: Jan and I are working on a book about hospitality and the English profession. It was intended as a third part of *Authoring* but that book ran out of space. I'm also collecting my work, largely unpublished, on evaluation and assessment of discourse, for a book maybe to be called *Interpreting Student Writing*. There's always work on Comp-Pile, also big and boggy and without end. What else? Perfecting potato gnocchi, salt rising bread, and those cursed last sixteen bars of Beethoven's piano sonata in D major, Op. 28. . . .

Eliminating Lab Reports: A Rhetorical Approach for Teaching the Scientific Paper in Sophomore Organic Chemistry

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SINCE THE EARLY 2000S, many departments at Seattle University have adopted a “discourse approach” to outcomes assessment in which an instructor’s report on the results of a course-embedded assignment leads to productive faculty discussion of student performance (Bean, Carrithers, and Earenfight 2005). Using this approach, a department typically identifies a senior-level assignment requiring “expert insider prose” (a term we have adopted from MacDonald 1994). The instructor grades the assignment using a rubric and identifies patterns of strength and weakness in students’ work as preparation for a departmental discussion aimed at backward design of the curriculum. In that conversation faculty explore what might be done earlier in the curriculum, such as better instruction or improved assignment design or sequencing, to help novices improve their skills of disciplinary writing and thinking. This paper reports the results of this approach in the Department of Chemistry at Seattle University.

The Problems with Senior Theses in Chemistry

The Seattle University Chemistry Department embeds expert insider prose in a senior capstone project in which seniors report their own novel scientific research in three different genres: a scientific poster, an oral presentation, and a written senior thesis. Although the department assigns lab reports and other writing assignments in chemistry courses throughout the four-year curriculum, the senior theses are often disappointing. Over the last several years these capstone projects have exhibited the following kinds of problems: lack of a clearly stated scientific aim; inadequate background, theory, and context; illogical or unpersuasive presentation of data; uncertain target audience; poor organization; and non-professional style and/or format.

The chemistry department has been puzzled by these problems. Some faculty members hypothesize that students are simply poor writers, or they blame first-year

composition for not teaching students how to write. Others think the problem arises from inadequate instruction in technical writing or from students' inability to transfer learning from one context to another. But until recently the chemistry faculty has not had a robust intellectual framework to explain weaknesses exhibited in senior theses and to allow progress toward sensible solutions.

Discovery of a Theoretical Framework

A conceptual breakthrough occurred when chemists Alaimo and Langenhan began conversations with WAC/WID specialists Bean and Nichols, who introduced them to recent work in genre theory by Bawarshi (2003), Carter (2007), and Beaufort (2007). Explaining the socializing function of genres, these theorists persuasively link disciplinary writing to disciplinary thinking and doing. Alaimo and Langenhan realized that students who do not write like professional chemists do not think like professional chemists. In a memorable lunch discussion of genre among the four co-authors of this paper, Bean and Nichols identified the traditional "term paper" as a pseudo-academic or school genre. ("Real scholars don't write term papers," they said.) Alaimo and Langenhan applied the same concept to the "lab report"; it too was a pseudo-academic or school genre. Real scientists don't write lab reports, or at least not the type that students write. Alaimo and Langenhan were particularly influenced by the following quotation from Carter: "WID developed as a response to the recognition that different disciplines are characterized by distinct ways of writing and knowing. Thus, a specialized conception of disciplinary knowledge is integrated with a specialized conception of writing" (387). They hypothesized that learning to write a scientific paper in the style of a professional chemist might initiate students into "a specialized conception of disciplinary knowledge."

These insights were further crystallized by Anne Beaufort's discussion of discourse communities, particularly by her Venn diagram of the skills/knowledge that students need in order to write expert insider prose in a discipline. In Beaufort's diagram, a large circle labeled "discourse community knowledge" contains four smaller overlapping circles: "subject matter knowledge," "genre knowledge," "rhetorical knowledge," and "writing process knowledge" (19). Beaufort's diagram illuminates the weaknesses of the lab report. Although writing a lab report ostensibly teaches "genre knowledge"—in that it typically follows the format of the standard scientific report—it does so only superficially: It treats genre merely as format identified by headings and sections. It is not a robust genre that initiates students into discourse community knowledge by engaging the full range of skills/knowledge identified in Beaufort's diagram. It fails to draw on subject matter knowledge (the typical cookbook procedures of many chemistry

labs invite “plug and chug” thinking) or rhetorical knowledge (for example, the audience of a lab report is the teacher, not a professional community) or writing process knowledge (lab reports are generally written hurriedly with only superficial revision). Because a lab report typically does not address a genuine question, it does not teach students how scientists find questions, construct hypotheses, design experiments, or make arguments supported by data from the experiment. Overall, while the lab report provides a format for students to fill in as homework, it does not help students learn to think like a chemist.

So what might be an alternative to lab reports? Alaimo and Langenhan, as team teachers of the year-long sophomore organic chemistry lab, decided to eliminate the lab report, to redesign the labs, and to develop a sequence of assignments and instruction to teach the real genre of chemists: the scientific paper. Drawing on insights derived from Carter and Beaufort—that doing chemistry experiments, thinking like a chemist, and writing like a chemist are inseparable—they wanted to integrate writing into existing chemistry laboratory courses and not relegate it to a separate “writing in chemistry” course. In this way, students could write about experiments they perform in lab and thus have a stake in. They hoped that by writing real scientific papers as sophomores, students would be socialized more quickly into the scientific community; they hoped further that students’ learning would transfer to increased proficiency and professionalism when they wrote senior theses.

It is important to note that numerous articles and books have been published on writing in chemistry (including Kovac and Sherwood 1999; Wallner and Latosi-Sawin 1999; Stoller, et. al. 2005; Burke, Greenbowe, and Hand 2006; Schepmann and Hughes 2006; Margerum, et. al. 2007). Perhaps the most helpful to us was a book published by Robinson, Stoller, Costanza-Robinson, and Jones (2008). However, the approach described in this paper differs substantially from these approaches because of the way that Alaimo and Langenhan have embedded writing instruction in a year-long sophomore organic chemistry lab, altered the labs to support inquiry, and tried to engage the full range of knowledge/skills needed to generate expert insider prose in a discipline.

From Lab Reports to Scientific Papers

Alaimo and Langenhan reasoned that if students were to write a professional-quality thesis in their senior year, then the required sophomore-level lab course in organic chemistry provided the perfect site for focused, sustained writing instruction early in

the curriculum. Thus, Alaimo and Langenhan started their work by redesigning from scratch the existing year-long sophomore-level organic chemistry lab.

Historically, organic chemistry labs at Seattle University required students to complete a “cookbook” experiment to create a new substance and then to write a corresponding lab report. For example, students might work to convert an alcohol to an aldehyde via a chemical reaction. In lab, students performed the reaction, isolated the product, and then determined its characteristics using standard techniques and instrumentation. Such experiments helped students master technical skills, but they did not draw substantially upon subject matter knowledge and did little to promote critical thinking, let alone thinking like professional chemists.

After lab, students wrote lab reports containing many of the same sections as a scientific paper. However, these assignments bear little other resemblance to the written genres used by real chemists. The problem with conventional lab reports is that they encourage students to think and behave like students rather than like professionals. Because students know (or think they know) the expected outcome of the “cookbook” experiments, they chalk up any deviation from the expected outcome as “experimental error” with little thoughtful explanation. Also their assumption that the audience for their reports is the instructor contributes to a novice style. In many cases this assumption is highly visible: Students often refer to the instructor directly in their writing (e.g., “Professor Alaimo said we should use 1 M NaOH rather than the 1.2 M NaOH that the lab manual recommended”). But the deepest problem with lab reports—the most compelling reason why they represent a pseudo-genre—is that they focus on experiments that generate a single datum. No scientist would follow such a process. In fact, few things are considered *less* scientific than to attempt to write a compelling, well-argued paper based on singular runs of an experiment. In short, the lab report develops habits that students must *unlearn* if they are going to think and write like professional chemists.

In order to require scientific papers rather than lab reports, Alaimo and Langenhan made three substantial changes. They redesigned the sophomore organic experiments so that they promoted genuine inquiry resulting in enough data to be worth writing about; they designed sequences of writing assignments to teach the scientific paper over the course of a year; and they built in genuine writing instruction—employing well-designed assignments, examples, rubrics, and peer review—to help students develop “writing process knowledge.”

Redesigning the Organic Chemistry Labs

In introductory organic chemistry lab, students learn five to eight widely agreed upon techniques that comprise the basic toolbox chemists use to perform organic chemistry laboratory investigations. In a typical experiment, the class might investigate how a panel of eight different substrate molecules reacts differently under a given set of reaction conditions. Such experiments can be found in all the commonly used textbooks for introductory organic chemistry lab courses. However, in a conventional cookbook lab, students are usually asked to test each substrate once and to record their observations. Alaimo and Langenhan found that this arrangement undermined their efforts to construct students as professionals.

A professional organic chemist would perform the same reaction on each substrate numerous times. Perhaps six, eight, or more replicates would be required per substrate, depending on the reliability of the data obtained (as assessed using basic statistical methods). Although a typical lab period of three hours seems to allow insufficient time for such a detailed study, Alaimo and Langenhan realized this problem could be easily surmounted. Instead of having each student perform eight reactions using eight *different* substrates, each student could run the *same* reaction in eight replicates. At the end of a class, students could then share their results—thus pooling data for all eight substrates—and assume responsibility for thinking about the collective lab data.

The advantages of this simple change are dramatic. Students start to realize why doing an experiment only once is problematic. Because the redesigned experiments require multiple replications investigating several substrates, no single “right answer” emerges. Rather, laboratory work yields multiple trends in data that are often puzzling both to students and instructors and that may be contaminated by experimental error. To interpret their data—and to convince their audience that their interpretations are valid—students must learn how scientists identify experimental error statistically and how statistical analysis can be used to discard an erroneous datum. In a cookbook lab, a student might make a single (faulty) run of an experiment and report confidently, “*tert*-Butyl chloride reacts faster than *n*-butyl chloride.” The redesigned labs undermine this confidence, creating the need for evidence-based argument. Confronting true experimental error puts students in the center of a discourse community—as active scientists puzzling over data with other scientists—where they learn the important lesson that science is founded on reproducibility.

Designing and Sequencing Organic Chemistry Writing Assignments

As another means of helping students learn to think like a chemist, Alaimo and Langenhan designed writing assignments to match the progressive course structure just described. Scientific papers in organic chemistry are generally divided into six sections: Introduction, Experimental, Data & Results, Discussion, Conclusions, and References. Alaimo and Langenhan decided to address each section separately, teaching them in an order that both matched course structure and maximized student learning by progressing from lower to higher levels on Bloom's taxonomy (Bloom 1956). For reasons explained later in this paper, they taught the Experimental and References sections first, followed by the Data & Results section, since these components require skills relatively low on Bloom's taxonomy (knowledge and comprehension). Only in the second half of the year-long sequence did students begin tackling the Introduction, Discussion, and Conclusion sections, which demand the higher-level skills of analysis, synthesis, and evaluation as well as all the skills/knowledge identified by Beaufort as integral to expert insider prose.

Seattle University operates on the quarter system; thus, the year-long lab consists of three quarter-long courses. Each course includes three or four writing assignments, which provide students ample practice on the sections of current focus. Each quarter, the final writing assignment combines all the sections learned to date in a single paper. At the end of the third course, the final assignment is to write a complete scientific paper.

Assignment sheets for each section of the scientific paper contain learning objectives, specific instructions, recommended content, and examples, accompanied with a scaled rubric that indicates assessment criteria. (See Appendix A for excerpts from handouts and Appendix B for a rubric.) Students are encouraged to use the rubrics to guide their writing and to conduct peer-review. Besides ensuring that students focus on the appropriate content, rubrics help to build writing process knowledge as described later in this paper. Perhaps the most important feature of the instructional handouts is their consistent focus on a professional audience. When students write to their instructor as audience, they see lab reports as homework, not as professional documents. In contrast, imagining professional scientists as the audience orients students to adopt the persona of expert insiders who are communicating with other expert insiders. Our rubric (Appendix B) emphasizes audience by demanding that students provide scientific context, construct well-developed ideas, and build persuasive arguments for scientific readers who have an interest in, but no prior knowledge of, the specific experiment. Since Alaimo and Langenhan consistently emphasize

the importance of audience through instruction, assignment sheets, and rubrics, they have encountered few difficulties prompting students to write for a professional audience. While students recognize that their instructor is the actual reader, they seem able to understand the pedagogical value of writing toward an imagined audience of professionals.

How the Learning Process Unfolds throughout the Year-Long Lab

The process just described introduces students gradually to the demands of professional writing. The first quarter of the year-long lab focuses on experimental techniques and analysis using instruments. To match this course content, students learn how to write the Experimental section and References section of a scientific paper. Students are taught to describe their experimental procedures in ways that are sensitive to old and new information for professional chemists. (See Appendix A for an excerpt from the instructional handout for the Experimental section.) Students find writing the Experimental section relatively easy because they need only describe their actual procedures in the lab without doing higher order analysis. Similarly, writing a high quality References section is mostly about understanding and using the conventions of the genre.

During the second and third quarters, students apply their newly gained technical skills to more challenging experiments. They next learn to write the Data & Results section, which requires students to report and display their experimental data in a professional style (table, graph, figure, etc.). In a workshop, students learn to sort through the data recorded in their lab notebooks, applying statistical analysis to determine the quality of their data, calculate error, and assess significance. They then learn ways to organize their data to help identify trends related to the aim or hypothesis of an experiment. Identifying trends is quite challenging because this task draws primarily upon synthesis and evaluation, intellectual skills that are high on Bloom's taxonomy. However, once trends are identified the actual formatting of the Data & Results section is relatively easy. An instructional handout communicates the genre-specific conventions expert chemists use to present their data in tables, graphs, and figures.

At this point, students are ready to tackle the argumentative portion of a scientific report—the Discussion section. This section draws heavily upon high-level Bloom skills, while also requiring the overlapping kinds of knowledge identified in Beaufort's Venn diagram: subject matter knowledge, rhetorical knowledge, genre knowledge, and discourse community knowledge. Within the Discussion section, students must analyze data, apply theoretical models, substantiate their claims, and

qualify their arguments in light of contradictory data. (See Appendix A for an excerpt from the instructional handout for the Discussion section.) Students quickly learn that they cannot write a persuasive discussion section if they have not first spent time critically interpreting their data and analyzing it in light of their experimental aim. In this way, the demands of writing the discussion section of a scientific paper foster professional thinking.

Later, when the Introduction section is introduced, students see how the argument produced in the Discussion section connects rhetorically with the Introduction section, which provides scientific background, establishes the context and relevance of the study through a literature review, and identifies the experimental aim. Because introductions require the highest level of both critical thinking and discourse community knowledge, they are addressed late in the year when students have learned nearly a year's worth of organic chemistry. To teach a review of the scientific literature, Alaimo and Langenhan conduct a short workshop on *SciFinder Scholar*, a leading electronic tool for searching the chemical literature. For the first Introduction assignment, Alaimo and Langenhan provide appropriate articles. Later students are required to conduct their own literature review to find articles. While students are learning to write Introduction sections, the instructors also address Conclusion sections, which are relatively simple because they involve no new critical thinking. They require the student simply to restate the scientific aim and summarize the arguments made in the Discussion section.

How Students Develop “Writing Process Knowledge”

Alaimo and Langenhan employ three tools to build student writing process knowledge: analytical grading rubrics, written feedback on writing assignments, and required revisions on most assignments.

To communicate expectations and grading criteria to students, Alaimo and Langenhan worked with Nichols and Bean to design rubrics for each of the six sections of a scientific paper as well as a comprehensive rubric for a complete scientific paper (Appendix B). To promote writing process knowledge, Alaimo and Langenhan also require a revision on most assigned papers since much learning occurs as students work to improve their own writing. In the first round of feedback, students receive a graded rubric as well as instructor comments on the draft, mostly comprised of what Elbow and Belanoff (1999) call “readerly” comments, which note places where the reader gets confused, needs more details, or finds a particularly insightful passage. Alaimo and

Langenhan provide “writerly” feedback, such as circling errors or rewriting a sentence, on only a small portion of the draft. The purpose of this approach is to provide students with enough genre-specific guidance to enable them to assimilate a professional style but not so much that they can achieve success simply by inputting faculty suggestions. The graded rubric, readerly comments, and limited writerly comments on the draft encourage students to focus more on meaning and professional style rather than on simply correcting errors. The final grade on each assignment is a weighted average comprised of two-thirds of the original draft grade plus one-third of the revised draft grade. The strong weighting of the first draft ensures that students work to improve their writing before turning in the initial assignment; however, enough weight is placed on revision to ensure that students rewrite carefully. Writing assignments are spaced so that students can apply the learning gains made in one assignment to the next assignment. This arrangement ensures that students progressively build their writing skills throughout the year-long course.

How Writing the Scientific Paper Constructs Students as Scientists

Alaimo and Langenhan have observed marked changes in student behavior as a result of the redesigned organic lab course. Because each individual student generates data for the entire class and because the multiple replicates must be internally consistent before students can leave the lab, students work diligently to obtain quality data. Moreover, because the students collectively generate large quantities of data that may be contaminated by error, they need to learn research skills that few organic laboratory courses cover—namely how to use electronic spreadsheets to perform simple statistical analyses. This cooperative focus on puzzling data produces engaged discussion unlike anything in a traditional cookbook lab where students either produce the right answer or dismiss wrong answers as “experimental error.” Now students become genuinely excited when multiple replicates show internal consistency or when inconsistencies can be analyzed statistically. The redesigned labs show students why scientists avoid over-interpreting a single datum. Most importantly, they teach students how and why scientists construct a well-reasoned argument supported by richly analyzed evidence.

As the year progresses, students become increasingly proficient at writing in a professional style, adopting genre-specific conventions for figure design, table formatting, and naming, and understanding the persuasive purpose of a scientific paper. Alaimo and Langenhan assessed the success of the redesigned lab by scoring students’ final assignment (the full scientific paper) against the criteria shown on the complete rubric

(Appendix B). The average score on this 100-point rubric was 89 with a range of 99-65. These scores indicate that, on average, students produced work mostly in the highest categories on the grading rubric, suggesting the success of the lab in helping students join the discourse community of chemists.

Finally, students recognize that their growing skill in scientific writing helps them feel more connected to the community of scientists. Students' appreciation of the writing component of the lab is clearly reflected in their anonymous end-of-year comments, such as the following:

- "I'm very glad we focus on scientific writing."
- "I found the writing more helpful in understanding deeply the concepts in class because they forced me to be active in my chemistry thinking."
- "Scientific writing is awesome! I feel more motivated because this is something that is applicable to real-life research."

Importance and Future Directions

The lab course innovations described in this paper are important because they address the question of how chemistry educators can better prepare undergraduates for professional life by teaching them that writing like a chemist means thinking like a chemist. The kind of writing and thinking taught in these redesigned labs is different in kind from that elicited by cookbook labs and pseudo-academic lab reports. Beyond its direct value to students, the importance of this work to the chemistry community is highlighted by the excitement this project has generated among both undergraduate and graduate educators in chemistry. For example, a presentation at a recent National Meeting of the American Chemical Society (Alaimo, Langenhan, and Loertscher 2007) identified numerous potential collaborators including some from top chemistry graduate programs. Because the approach described here depends upon the integration of inquiry-based laboratory experiments, writing instruction embedded in the context of a disciplinary course, and numerous feedback-revision cycles, it is most appropriate for other year-long laboratory courses with a similar emphasis on writing. It is likely more difficult to implement our approach in a course that is either shorter (one semester) or separated from disciplinary inquiry (such as a stand-alone "writing in chemistry" course).

It is important to note that we are currently working on a long-term, longitudinal study of the effectiveness of this program. Alaimo and Langenhan plan to measure

whether the improvements in writing and thinking that have been observed in the organic lab course will transfer to later courses. Specifically, they would like to know how much student learning in the sophomore organic chemistry lab will affect later performance in physical chemistry, biochemistry, and the senior capstone course. The chemistry department has recently received grant funding to undertake this longitudinal study, which should contribute significantly to the national dialogue on transfer of learning. In the meantime, we are confident that the redesigned curriculum has produced significant changes in our students. Writing real scientific papers seems to have transformed their view of their laboratory work, led to more responsible treatment of data, and increased their understanding of the scientific paper as persuasion. Most importantly, writing real scientific papers has helped them become, we believe, better young scientists.

APPENDIX A: EXCERPTS FROM ASSIGNMENT HANDOUTS

WRITING AN EXPERIMENTAL SECTION

What is an experimental section?

The experimental procedure section contains an explicit account of the procedure(s) you performed. The purpose of this section is to provide other scientists the information they need to evaluate your methods or repeat your experiment. A complete experimental section contains a description of each procedure. If the procedure is new you must describe it in a stepwise, detailed fashion. If the procedure has been published previously in a standard journal or book, a reference to the procedure is all that is necessary. Within the context of a logical description of the experimental procedure, where relevant you should include a) equipment that was used, b) materials that were used, and c) the sources of chemicals that were used.

Who is reading your experimental procedure?

The audience for an experimental section is other scientists who have no prior knowledge of your experiment and who have the same or greater chemistry education level as you. Therefore you must carefully consider what knowledge you can assume and the level of detail that is necessary and sufficient for clear and concise communication.

Examples of Experimental Sections

Below are provided three examples of experimental procedures that describe a titration to determine the concentration of acetic acid in vinegar.

Example 1: A well-written procedure

A titration to determine the concentration of acetic acid in vinegar was performed in triplicate using standard titration procedures and equipment.¹ The solution used to titrate the vinegar was 1.0 M aqueous NaOH. The vinegar (Heinz® distilled white vinegar, 4.5 %) was diluted with 5 volumes of water before titration. A phenolphthalein indicator was used to determine the endpoint of the titration.

Example 2: Too much information

Using a 10 mL graduated cylinder, 5 mL of vinegar were transferred to a 250 mL Erlenmeyer flask. The brand of vinegar was recorded (Heinz® distilled white vinegar) as well as the percent acetic acid stated on the label (4.5 %). The volume of the vinegar sample was recorded. Water (25 mL) was added to the vinegar to increase the volume of the solution for titration. Three drops of phenolphthalein indicator were added to the flask. To a buret was added 50 mL of 1.0 M NaOH solution. The vinegar solution was placed under the buret on a piece of white paper. The NaOH solution was slowly added by carefully opening and closing the stopcock and swirling the flask until the pink color barely persisted. The buret reading of NaOH was recorded. The buret was then filled again and the titration was performed two more times with samples of the same type of vinegar.

- The author does not assume a reasonable audience; they are over-explaining everything (e.g., anyone who has done a titration knows that you add aq. NaOH to the buret and use white paper to better visualize the endpoint).
- This procedural account is very detailed and chronological, more like a lab notebook entry.

Example 3: Inappropriate colloquial language

I performed a titration to determine the concentration of acetic acid in vinegar. I used standard titration procedures and equipment as described in the textbook on page 22. Since there wasn't any 1.0 M NaOH as described in the textbook, PJ said that we should use 0.75 M NaOH instead. The vinegar was Heinz® distilled white vinegar and had 4.5 % acetic acid in it. This vinegar was diluted with 5 volumes of water before titration. I used a phenolphthalein indicator to determine the endpoint of the titration.

- In scientific writing, passive voice is generally preferred over first person.
- "...in the textbook on page 22" is not a properly formatted scientific reference.
- A quotation from a conversation (i.e., "PJ said...") or use of pronouns is inappropriate for the formal style required in scientific writing.

What is a discussion section?

A scientific paper is a specialized form of persuasive writing. In the discussion section, the author interprets the information contained in the data/results section to construct a persuasive argument that addresses the aims provided in the introduction section.

Imagine yourself as a lawyer trying to convince a jury of scientists about what your findings *mean*. To do this, you must **first** take time to interpret critically your data/results. Your data section will contain all data that support *or contradict* the arguments you will make in your discussion. As an ethical scientist, you must consider whether contradictory data undermine your ideas, or whether the contradictory data can be reasonably explained. If data undermine your argument, you must qualify your argument in a manner consistent with the contradictory data, or not make the argument at all. If you have a reasonable explanation for contradictory data you should provide it, but avoid resorting to unsubstantiated claims for why certain data are invalid. For example, students often discount certain results because of “human error,” without providing evidence of specific circumstances when error was a factor. If you wish to argue that error was the cause of certain data, you must provide evidence and describe the error specifically.

Once you have interpreted your data and developed your ideas, you are ready to communicate to the jury, the scientific community, by writing your discussion section. Your discussion must be well organized and logical, progressively making specific points using specific data, until you have built a convincing case.

Who is reading your discussion section?

The audience for a discussion section is other scientists who have no prior knowledge of your experiment and who have the same or greater chemistry education level as you. You must explain your interpretation of your data/results to this audience; *the burden of proof is on you to convince them your arguments are justified*.

APPENDIX B: SCIENTIFIC PAPER GRADING RUBRIC

Chemistry 335-337
Organic Chemistry Laboratory

Profs. Alaimo & Langenhan
Seattle University

Scientific Paper Rubric

Introduction

Name: _____

General background and theory.

8	7	6	5	4	3	2	1	0
Adequately sets the stage for the specific context and relevance of the experimental aim. Background information and theory are concise and correct.			Inadequately sets the stage for the specific context and relevance of the experimental aim. Background information and theory are somewhat broad/wordy or partly incorrect.			Does not set the stage for the specific context and relevance of the experimental aim. Background information and theory are too broad/wordy and incorrect.		

Specific context and relevance.

8	7	6	5	4	3	2	1	0
Describes why the study is important in the context of known literature, naturally leads the reader to the scientific aim. Context is concise and correctly described.			Context is only partly described, organization confuses link between context and scientific aim. Context is incorrectly described in some places or wordy.			Does not describe why the study is important in the context of known literature; does not lead the reader to the scientific aim. Context is incorrectly described and too wordy.		

Scientific Aim.

4	3	2	1	0
Clear statement of the scientific aim. Reader is sure of the scientific questions being asked. Aim is understood correctly by the author.		Refers generally to scientific goals without focusing on specific scientific questions. Aim is only partly understood by the author.		Unclear, very general, vague, includes educational objectives. Aim is misunderstood by the author.

Experimental Procedure

Is the description complete and concise?

10	8	6	4	2	0
Procedure contains enough information that it is reproducible (through the text or by appropriate referencing). Procedure conveys only necessary & relevant information.		Procedure is missing some critical information required for fully evaluating or reproducing the experiment. Procedure is wordy in some sections. Contains some unnecessary or irrelevant info.		Procedure is so vague that reader cannot begin to evaluate or reproduce the experiment. Procedure is verbose, and contains large quantities of unnecessary or irrelevant information.	

Data/Results

Text.

10	8	6	4	2	0
Text is complete and concise. Data interpretation not included.		Text is wordy or incomplete in some sections.		Text is missing or contains large amounts of incorrect or irrelevant information.	

Data choice, data processing, figures.

5	4	3	2	1	0
Contain all data that support or contradict the arguments made in the discussion. Contain no irrelevant or redundant data. Data are processed correctly.		Missing some critical data or contain some irrelevant or redundant data. Data are processed incorrectly in some places.		Missing most critical data or contain a large amount of irrelevant or redundant data. Data are processed incorrectly in most places.	

Data/figures presented in a logical, organized, professionally-formatted fashion.

5	4	3	2	1	0
Presentation choice (table, graph, or figure) enhances understanding. Appropriate legends & captions are included; data format is correct.		Presentation confuses understanding of information. Legends & captions are unspecific or difficult to follow. Data format mostly correct.		Presentation choice makes understanding the data impossible. Legends/captions are missing. Data improperly formatted.	

Discussion

Is discussion persuasive?

10	8	6	4	2	0
Effectively uses data to address scientific aim. Key data are interpreted correctly. Deeply thought out argument that logically leads to conclusions.		Relationship between data and scientific aim sometimes muddled. Key data are not always interpreted correctly. Uses some unimportant data. Argument is sometimes weak.		Does not effectively use data to address the scientific aim. Key data are interpreted incorrectly. Fails to use the KEY data. Argument is weak or non-existent.	

Is discussion complete?

10	8	6	4	2	0
All data & error that support or contradict your conclusions are discussed.		All data & error that support or contradict your conclusions are partially discussed.		Data & error that support or contradict your conclusions are poorly discussed.	

Conclusion

Restatement of aim.

2	1	0
Scientific aim is restated clearly without using the same language found in the introduction.	Scientific aim is restated clearly by copy/paste from the introduction.	Scientific aim is not restated clearly.

Summary of key experimental findings.

8	7	6	5	4	3	2	1	0
Summary is clear, concise, complete, and correct.				Summary is unclear, verbose, incomplete, and/or incorrect in a few places.				Summary is unclear, verbose, incomplete, and incorrect in most places.

References

Are references appropriate?

5	4	3	2	1	0
Reference sources are appropriate for a scientific paper. Number and variety of references indicate that author has a high level of understanding of the subject.		Some reference sources are not appropriate for a scientific paper. Number and variety of references indicate that author has a moderate understanding of the subject.		Reference sources are inappropriate for a scientific paper. Small number of references indicates that author has little understanding of the subject.	

Are references formatted properly?

5	4	3	2	1	0
References properly cited in text and formatted correctly.		References not properly cited in text or formatted correctly.		References are improperly cited in text and formatted incorrectly.	

Overall Writing Style

Is the writing style appropriate for your audience?

5	4	3	2	1	0
Sounds like a professional chemist—clear, concise, and persuasive.		Sounds like a good chemistry student—somewhat clear, concise, and persuasive.		Sounds like a chemistry student new to scientific writing—not clear, concise, or persuasive.	

Writing Mechanics

5	4	3	2	1	0
Grammar, punctuation, usage, and spelling enhance paper quality.		A few mechanical errors, but does not distract reader too greatly.		Many mechanical errors severely detract from meaning of paper.	

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WAC/WID in the Next America: Redefining Professional Identity in the Age of the Multilingual Majority

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AS PROFESSIONALS IN WAC/WID programs, we frequently see ourselves as agents of change on our campuses. We see ourselves as advocates for the advancement of pedagogy, where teaching methods are influenced by new research and instructors are engaged with the larger world beyond the campus, and where student needs are assessed and addressed in a progressive manner. As WAC professionals, we frequently challenge our colleagues to reconceptualize their classroom approach in order to include more writing, and to take responsibility for inviting students into their disciplines. When we make these requests, we are asking a lot. A rethinking of a faculty member's professional identity is at stake when WAC/WID is taken seriously.

What I'd like to suggest here is that we need to challenge ourselves to make a transformation in our own thinking, procedures, and pedagogy, as well as in our own professional identity, that is just as radical a shift *for us* as the one we have been asking of our colleagues in the disciplines. Just as WAC requires a transformation of traditional content-based pedagogy, meeting the challenge of teaching multilingual learners well requires as thorough and fundamental a transformation of WAC.

In recent years, the WAC/WID community, along with college writing faculty more broadly, has become more aware of the pedagogical implications of increasing cultural and linguistic diversity. The work of Paul Kei Matsuda, Vivian Zamel, Ann Johns, and others¹ has opened up a dialogue between WAC professionals and specialists in other fields, such as TESOL, L2 writing, applied linguistics, language acquisition and learning theories, contrastive rhetoric, English for Academic Purposes, and K-12 bilingual education, among others. But as Matsuda has suggested, we are still operating under a model of "division of labor," where we may consult with our colleagues in other

disciplines, and perhaps borrow some of their techniques and expertise, without fully entering into a mutually transformative relationship.

The future of WAC, I will argue, is indissolubly tied to the ways in which higher education will have to, willingly or unwillingly, evolve in the wake of globalization and in response to the increasing linguistic diversity of our student population. I will begin by briefly addressing three phenomena that already affect and increasingly will impact our teaching and our research in ways that we have not yet, in my view, even begun to come to terms with. I will call these, for concision's sake, "The New Linguistic Majority," "The New Latin," and "The New Student." All of them are different faces and aspects of the globalization of education and the internationalization of English. Put together, they form a new psychic and pedagogical landscape that I call "The Next America," which is where our teaching and our research is going to take place in the near future. Let me just briefly sketch them in, and then concentrate on what I think the effects and consequences and implications are for our pedagogy as U.S.-based teachers of college writing, and more specifically for our efforts at providing professional development opportunities for WAC/WID faculty.

I. THE NEXT AMERICA: THE NEW LINGUISTIC MAJORITY, THE NEW LATIN, AND THE NEW STUDENT

...within a decade or so, the number of people who speak English as a second language will exceed the number of native speakers.

—David Graddol, "The Future of English" (1997) (2)

As English has increasingly become the *lingua franca* of business, academia, and other global endeavors, it is probably now—or at least soon will be—the case that more people in the world speak English as a second language than as a first language. It was David Graddol's seminal report for the British Council, *The Future of English?*, that first pointed out this trend some twelve years ago,² but American higher education has not yet come to terms with the implications for our pedagogy. Who "owns" English? What does this de-centering of the authority of the native speaker—who now is only one among multiple users of a "global resource" (Graddol 3) to our notions of a universally correct standard English—or standard business English, standard academic English, etc.? How are the various "Englishes" related to each other?

The consequences for pedagogical practice in higher education may be captured in two seemingly contradictory—but both essential—principles:

- An undiminished—if anything increased—need for thorough mastery of advanced English language skills in writing, reading, and critical thinking for every undergraduate, because strong communication skills in English are more than ever a

prerequisite for success in fields which involve interaction with global partners and competitors—i.e., *every* field.

- The monolingual English speaker is at a disadvantage in today's global market place. While English is the language of many elite financial and intellectual transactions, most of the world's population—including an increasing number of multilingual Americans who maintain complex cultural ties both with countries of origin and with vibrant immigrant communities within the American mosaic—live a dual existence in multiple languages and cultures which remain invisible and not fully understood by those who do not share the advantages of multilingual learning.

The “Next America” is a place where living one's whole life in one language seems as odd as eating the same thing for dinner every day. In the Next America, conversations shift in mid-sentence from one language to another, and every strolling group of students constitutes a micro-culture of multiple intermixed language backgrounds. In the Next America, the Worldwide Web is truly worldwide; the filter is not set to English only, but embraces a global panoply of local knowledge and cultural specificity.

At campuses across the country, the Next America is already here:

- In some urban settings, students from non-English language backgrounds constitute a majority of entering students (Wurr 15).

- *The New York Times* recently reported that at the K-12 level, English language learners are the fastest-growing segment of the school population—and not only in large urban districts.³

- From 1979 to 1999, the percentage of 5 to 24-year-olds who spoke a language other than English at home increased by 118% (Wurr 14).

- As of 2000, 18% of Americans live in households where English is not the primary language. (Wurr 14)

But these numbers do not fully catch the complexity of the New Student. The term “multilingual learners” encompasses a wide variety of linguistic experiences and educational backgrounds. They include the traditional international students with an education in their original language and country, but they also include long-time immigrants and children of immigrants, sometimes called “Generation 1.5” (Roberge, Harklau) or “emergent English-dominant learners, ‘children of immigrants who have oral competency in English and the cultural references of native English speakers.’” (Johns 141).⁴ The exact mixture will be different on every campus, and so each WAC program needs to rigorously assess local needs and trends. We need to catch up with this new reality—our students are way ahead of us on this because they are already living, day by day, in a world in which functioning in more than one language is increasingly

becoming the rule rather than the exception. The pedagogical task before us, then, is to produce and test strategies for negotiating the gap between a system of higher education that was founded in the previous America, and the one that needs to work in the next America.

One of the many paradoxical effects of globalization is that it makes the local all the more important and all the more precious. We can see this in the movement to eat locally-grown food, which is partly a response to environmental concerns but is also an affirmation of regional identity. We could see this as a reaction against globalization, but it could just as well be construed as part of a considered response to globalization, and even as an essential part of the process. There has been a lot of discussion in scholarly and political channels of “pushing back” against globalization, but I prefer A. Suresh Canagarajah’s less confrontational phrase, “negotiating the local.” He applies it at the macro level, to the struggle of national cultures to establish a balance between the importance of international English to their economic future and the claims of local languages and customs. He also applies it at the micro level, to the ways in which individual speakers and writers employ various strategies to combine elements of local cultures and languages with the structures of English and the standardized rhetorics of Western academia and business.

One would think, on the surface, that the adoption of English around the world would be cause for satisfaction among native English speakers, who will, for example, find it easier to travel than in the days when English speakers abroad were scarcer. But the globalization of English has paradoxically resulted in anxiety *here* as well. There is a sense that as more and more people are using English, we are starting to lose control of it, and it is starting to seem less “ours.” As English becomes a new Latin or a new Esperanto, we begin envisioning an embarrassing conversation a monolingual English speaker may have in the future with someone from somewhere else. Asked what languages she speaks, the monolingual English speaker would answer, “English,” to which her interlocutor might reply, “Well, of course. But what’s your *real* language?”

We no longer own English. In fact, we never did. In fact, nobody does. And in that continuing process of reluctant abdication of our lingering claims of control, we have our own local identity crisis to work through here.

In past waves of immigration, under the “melting-pot” metaphor, the general expectation was that as immigrants learned English, they would cease to use their previous language as they attempted to assimilate fully into American society, and it was likely that their offspring, often by the third generation, would eventually not speak any language other than English at all. This model, which linguists call *subtractive*

bilingualism, in which the second language replaces and supplants the first one, is *not* the norm in most of the world, where the majority are multilingual. The opposite phenomenon, *additive bilingualism*, is more common among educated people who aspire to learn a second language, sometimes going to considerable expense, inconvenience, and effort to do so (through formal instruction, study abroad, etc.), either as a means of personal development (“I want to read the poems of Rimbaud in the original”) or for pragmatic purposes (as, for example, millions of people around the world are currently learning English). Additive bilinguals have no intention of ceasing to use their first language; rather, they perceive multilingualism as an advantage in a complex post-modern landscape.

The question for us, as higher education professionals, is whether we are still operating under the older subtractive expectation, whether in our administrative structures and our curricula we are still simply *assuming* that the other language is a problem to be solved, a disease to be cured, a difficult transition to be nourished, but that at some point all of our students will be “simply” speakers of English, and we can then teach them in the same way that we always have taught our classes that we still assume are primarily full of monolingual English speakers. The question we have not yet asked ourselves is this: Do our students who continue to function in more than one language learn differently—learn content differently, learn writing differently—than English monolinguals? Do we need to change the way that we teach them?

The assumption that the mainstream college student is monolingual is so pervasive and so seemingly obvious that we don’t even think of it as an assumption, most of the time. But the shifting demographics of U.S. college students are ready to take us to a reversal of the idea of who are the “outliers”⁵ in our thinking about our students and how we should teach them. The new reality to which we must adjust in U.S. higher education is that *multilingual learners are part of the mainstream*. It will take some adjustment in our attitudes and assumptions to realize, and to plan our curricula on the basis of, the fact that speaking another language in addition to English is not a deficit or a disadvantage but rather a normal phenomenon, and one that should be actively cultivated. We need to ask ourselves: how can WAC/WID programs more effectively encourage *Multilingual Learning Across the Curriculum*? How can we find opportunities, within our existing courses or in new ones that we create for the purpose, to allow students to *use* those multilingual skills in an academic context? Instructors should look for opportunities to challenge students to make use of their linguistic abilities: why not, for example, have students with Russian language literacy write a history paper based on sources that are only available in Russian? Our every classroom offers the possibility of bringing

multiple perspectives to bear by making use of our students' existing multilingual capabilities, or those which they are in the process of developing.

What I want to suggest is that the college writing classroom is one of those locations in which “the local” needs to be negotiated with the “global”: it is a crossing, an intersection, a place where collisions and near-collisions occur; it is a place where the multicultural, multilingual, multifaceted experiences and identities of our students meet the equally varied and complex academic discourses, which are themselves implicated in global dialogues, which are products of multinational conversation and cooperation and conflict. Who is the global, really, and who is the local in this interaction of faculty and student? Who is the immigrant and who, if anyone, is at home in this new world of new Latins and new Englishes, of new students and—dare we hope?—a new kind of faculty?

II. PROFESSIONAL DEVELOPMENT FOR WAC/WID FACULTY IN THE NEXT AMERICA

WAC administrators can help faculty recognize the variety of needs, language proficiencies, and cultural contributions among linguistically diverse students, and to understand that linguistically diverse students' notions about academic writing and writing in the disciplines may differ from those of the dominant university culture. —Ann Johns (148-149)

Both WAC and the pedagogy of teaching academic English to multilingual learners (hereafter MLLs) are unavoidable issues for anyone in any field in today's university environment, and for that matter in today's high school and community college environments, as well. And yet many faculty do try to avoid these issues because of their ability to make faculty feel uncomfortable. Due to resource limitations, WAC faculty are, unfortunately, sometimes asked to teach writing intensive courses without being provided with sufficient professional development support so that they feel comfortable teaching the writing process in their discipline. And faculty often find themselves faced with a student who is struggling with continuing MLL issues well into their careers—and here it is almost always the case that faculty have not received the training they need to help them handle these issues properly.

Where there is discomfort, there are myths, both about WAC and about MLLs. Where traditionally the teaching of writing is thought to be the exclusive province of the Writing Program or the English Department, the teaching of MLLs is still generally conceived as the job of the ESL program. In both cases, of course, it's *everybody's* job. Where WAC has had to contend with the argument that teaching writing in upper-level courses would water down the content, MLL pedagogy faces the parallel notion that

attention to MLL issues is “dumbing down” the course. Once again, these new pedagogies offer new methods of addressing the most complex or recalcitrant content. And both WAC and MLL have to contend with some faculty’s presupposition that “writing” is equivalent to “grammar”: while sentence-level issues may be a way that second language issues first present themselves, MLL pedagogy includes much more than this.⁶

There is already a considerable tradition within the WAC community of describing the student’s journey into various disciplinary communities using “the L2 Metaphor”—learning an academic discipline is compared to learning a language. Matsuda and Jablonski, however, worry that “when the L2 metaphor is used as a way of explaining the difficulty of learning to write in the disciplines for native English speakers, there is no language left to explain the experience of second-language writers, who are literally learning a second language in addition to learning various disciplinary ‘languages.’”⁷ We must be careful not to lose sight of the particular experience of MLLs as they move through our writing courses—but we must also be careful not to essentialize or stereotype their supposed cultural presuppositions.

There are many parallels between WAC and MLL that give reason for WAC to support MLL—both are pedagogical movements, both are change agents, and both are misunderstood by many faculty. Here are some things that WAC programs and faculty can advocate for to support MLL:

- As we develop WAC support services, in concert with the Writing Center or other entities, make sure that the needs of MLLs are addressed centrally, not just as an add-on.
- Train *all* writing faculty, including WAC faculty in the disciplines, in appropriate pedagogical techniques for reaching MLLs.

But what, exactly, do our faculty need to know about MLLs in order to teach WAC/WID courses more effectively? Here are four preliminary principles that we can stress to our instructors:

1. MLLs in advanced courses, including writing intensive courses, will continue to be multilingual, and they will continue to be language learners.

In their 2001 statement on second-language writing, the executive committee of the Conference on College Composition and Communication (CCCC)⁸ observes that:

Although providing additional linguistic support in the forms of intensive language programs and special second-language sections of writing courses may be helpful, they will not remove the responsibility of writing teachers, researchers,

and administrators to address second-language issues because the acquisition of a second language and second-language literacy is a time-consuming process that will continue through students' academic careers and beyond. (229)

The CCCC here emphasizes what is perhaps the single most salient fact about MLLs in WAC/WID courses: although we are mostly concerned with more advanced courses, usually taken after a student has already completed a freshman composition course (and perhaps basic writing and/or ESL courses before that), this does not mean that we can expect MLLs to have completed their language acquisition process. Students in upper-level courses may still be in the process of acquiring academic language proficiency, even if their spoken English has become fluent and colloquial. This continuing reality of language acquisition is often expressed using Jim Cummins' central distinction between BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency). While BICS may be acquired relatively quickly, CALP often takes seven years or more—which means that many of our students will be undergoing that process throughout the entire period that we see them—and it won't even be over then.

2. MLLs in writing intensive courses are *successful* college students, not struggling language learners. Since in most institutions completion of freshman composition is a prerequisite for writing intensive courses, the students who are enrolled in WAC have proven that they are capable of college-level writing. Whatever their linguistic and educational history, they have successfully completed freshman composition and are now launched on their careers in a major. Not only have they enrolled in college, but they have also survived freshman year, which of course is the best indicator that they will eventually graduate.

It is in the balance between these first two principles that our professional development presentation needs to be most nuanced: students are still learning the language, and instructors need to be cognizant of that fact as they design their courses and choose their pedagogical approach, but at the same time it is important to treat the ideas and writings of these students with as much seriousness as those of native English speakers. This can be a very difficult line to walk. Remember that your multilingual students' experience and education may have been different from yours, but avoid reducing them to that experience and ignoring what they do in the present classroom.

3. All students, not just MLLs, may experience a falling-off, usually temporary, in their writing skills when they are asked to produce documents in a new genre or a new discipline, especially when more advanced cognitive demands are being

made of them at the same time. This increased stress on a student's battery of reading and writing strategies pretty much defines the rhetorical situation for all students in a writing intensive course. In the case of multilingual learners, this may manifest itself in increased grammar or sentence-level issues, which are the types of errors that instructors, especially those who are not writing teachers by training, tend to notice first. Johanne Myles notes that "depending on proficiency level, the more content-rich and creative the text, the greater the possibility there is for errors at the morphosyntactic level." Furthermore, the course of MLL language acquisition and writing proficiency development seldom progresses smoothly or linearly: "repeating a previous error, or backsliding, is a common occurrence in L2 writing" notes Myles, and Johns similarly notes that "complex assignments sometimes result in error-ridden papers" (146). Of course, this does not mean that faculty should withhold cognitively demanding or creative assignments from MLLs, only that the level of error in a particular paper does not necessarily represent a permanent deficiency in a student's writing competency—nor does an error-free assignment necessarily mean that a new native-like plateau has been achieved. For that matter, even among native English speakers, writing proficiency is not a permanent achieved state, and students' proficiency can wax or wane depending on the cognitive demands of an individual assignment and how well-prepared they are to handle it. Being explicit about disciplinary conventions and consciously calling attention to elements of previous writing education that may transfer, and elements that will *not* transfer, can help both multilingual and monolingual writers to make adjustments more quickly.

4. MLLs may have certain advantages over monolingual English speakers in learning new forms and adapting to novel rhetorical situations. After all, they've had the experience of learning a new language at least once, and if they first learned to read and write in an alternate educational system, then they have already made a successful adaptation to the U.S. system. Compared to the adjustments that they have already managed, the movement from one sub-dialect to another within academic discourse—say from the humanities to the natural sciences—may appear much less daunting to many MLLs than it does to a monolingual English speaker who has never been asked to write outside a fairly narrow range of assignments.

It is well-established that people who have successfully learned a second language find it easier to learn a third.⁹ A certain level of linguistic adaptability is established, and the language-learning process can transfer from one language to another. Similarly, what college students in the U.S. system must do is learn to adapt to multiple disciplinary

conventions and perspectives as they progress through their college writing career. We can learn from MLLs, and the research on them, about how to structure, assess, and support that process of adaptation.

We need to be very careful about how we present a new MLL-active WAC/WID model to faculty who may be teaching discipline-based writing courses. As Sarah Rich has argued, many well-intentioned attempts to train faculty to be sensitive to cross-cultural currents in the classroom have the paradoxical effect that students end up being reduced to their language differences; faculty make so many allowances for cultural differences that they do not see the rapid adjustments that actual individual students are making in the local classroom. Rich's solution is deceptively simple: ask the MLLs what their experience has been. And then ask them again, later on in their college careers, because that experience changes as they move from course to course and progress in their education.

III. RE-EDUCATING OURSELVES: TOWARD A NEW MLL-ACTIVE WAC/WID PROFESSIONAL IDENTITY

As we redesign and retool WAC/WID for the multilingual future of the next America, our first task is to re-educate ourselves. Many of us, including myself, emerged from a rhetoric, composition or literature base and came to WAC in mid-career, and from that disciplinary perspective the issues raised by ongoing research in many different linguistics-based fields surrounding multilingualism can often seem not only daunting in their volume and complexity but also foreign to the academic traditions in which we feel most comfortable. Fortunately, we don't have to start from scratch in this endeavor. Various fields of study provide curricular and pedagogical models, both theoretical and practical, that are potentially relevant to the new role of WAC/WID in the age of the new multilingual student.

The literature in the various fields that might be pertinent to WAC/WID is vast, multifarious, and exciting, and the following suggestions are necessarily far—extremely far—from an exhaustive list of resources and possible models for the MLL-active WAC/WID programs of the future. They may only scrape the surface, but they do provide examples of the kinds of ideas that WAC professionals should be considering as we begin to re-think everything that we do to meet the new realities that we face on our campuses and in our classrooms. Like everything in WAC, none of these models can be adopted off the shelf, but need to be adapted to local conditions at each institution.

A) *Second Language Studies and L2 Writing Theory and Practice*

The most obvious place to start looking for a more sophisticated model of writing pedagogy for MLLs is in the voluminous literature in the field of second language

studies. In recent years, as freshman composition programs have begun to engage with MLL issues, a dialogue has begun between L1 and L2 writing pedagogies. Some key areas that have already been identified as of particular interest to college writing instructors are second language acquisition, contrastive rhetoric, error analysis, cognitive factors, and sociocultural factors.¹⁰

B) K-12 Bilingual Education Pedagogy and Classroom Techniques for Mixed Classes of Monolingual and Multilingual Students

Research on MLL issues, at least in a U.S. context, was founded on early studies involving young children, progressed (somewhat fitfully) through studies involving high school students, and has only recently been identified as a key issue for college pedagogy. Thus K-12 pedagogy is more advanced on these issues than college pedagogy, and studies of first-year college writing, in developmental or freshman composition courses, have proceeded at a more urgent pace than more advanced studies directly relevant to WAC/WID. Among many other areas where we might benefit from K-12 research, WAC/WID programs might consider the two-way bilingual model,¹¹ and K-12 techniques for teaching mixed populations of multilingual students and native speakers (Zehler).

C) Language Across the Curriculum and Content-based Language Instruction

The Language Across the Curriculum movement (LAC or sometimes LxC) has modeled itself on the success of WAC,¹² but has so far not made as much progress. The reasons for this are fairly obvious: the centrality of college writing proficiency is by now pretty much universally acknowledged by higher education institutions, but there is no corresponding consensus on the urgency or benefits of multilinguality. The problem that LAC is designed to address is one that will be extremely familiar to WAC professionals: most of the effort in terms of language education has been concentrated at the introductory level, with few subsequent opportunities for practice of language skills, especially at the intermediate level. LAC suggests that the middle ground should not be limited to language departments, but made available in many different academic contexts across the campus.

The models developed by LAC practitioners are potentially of great interest to WAC programs (see Wake Forest). In addition to expanding the multidisciplinary approach of WAC to language instruction, LAC also draws upon the “content-based language instruction movement” (Straight).¹³ While LAC’s primary focus is on improving foreign language instruction for native English speakers, content-based language instruction has also taken root in ESL contexts, especially—and most relevantly for

WAC/WID—in preparing MLLs for the demands of academic writing. May Shih envisions an ESL composition model “in which writing is linked to concurrent study of specific subject matter in one or more academic disciplines” (617).

D) English for Academic Purposes” (EAP)

The most direct counterpart to WAC/WID in the world of second language studies is a well-developed discipline and pedagogical movement, better known in British Commonwealth countries than in the United States, known as English for Academic Purposes (EAP). Gavin Melles summarizes the relationship between EAP and WAC: “One difference between the two is the foregrounding of ESL/EFL issues and the linguistic consequences of cross-cultural learning in EAP. A key similarity is the enthusiasm among some in both fields for genre-based teaching as a pedagogical tool.” In this formulation, it sounds like EAP has exactly what the doctor ordered for our present purposes: a roadmap toward a more multilingual-conscious WAC program and an MLL-active writing pedagogy.

The hallmark of the EAP approach is a rigorous and detailed breakdown of common academic tasks into their components, which are examined independently and taught sequentially. Joy Reid focuses on the absolute necessity of “multiple-needs analyses in curriculum design—before, during, and after,” and emphasizes that this needs to be done locally, by each WAC program, because “the results of analyses in one institution cannot easily or accurately be transferred to others” (154). Rather than focusing primarily on writing, as WAC/WID does, EAP takes a four-skills approach, including speaking, listening, and reading as central aspects of the student’s academic experience.¹⁴

We in WAC/WID are at the very beginning of the essential process of educating ourselves about the intersection between writing pedagogy and language pedagogy, and working toward a new synthesis of what we know, from our particular background, with what has been done in the disciplines of TESOL and applied linguistics and language acquisition and language teaching. This process will not be a passive, one-way exchange in which we take notes and defer to the experts in other disciplines; rather, it will need to be a true two-way interdisciplinary dialogue, for our colleagues in these other fields have something to learn from us, as well, about college writing pedagogy in theory and practice. We need to find a way to finally approach that mutually transformative model of interaction between the fields that Matsuda and Jablonski have pointed us toward. As Vivian Zamel insists, “What faculty ought to be doing to enhance the learning of ESOL students is not a concession, a capitulation, a giving up of standards....What ESOL students need....is good pedagogy for everyone” (14). Zamel

suggests that basic WAC pedagogy is central to MLL pedagogy as well.¹⁵ Using the tools of WAC and of TESOL and of various other active learning, student-centered approaches, we must find new approaches to create a classroom that is inclusive. That will help us teach the students we now have more effectively, and take them from where they are to where they need to go.

Establishing a working and fruitful pedagogical collaboration between the campus WAC program and its ESL or linguistics or language instruction faculty is one aspect of negotiating the local in the context of global linguistic trends. You cannot get more local than the students in our particular classrooms on our particular campus, but interpreting the results depends on a critical perception of the global trends I mentioned in the opening of this article, as well as an understanding of the academic context within which these students must function: the goals, procedures, tasks, and cultural environment within which college writing instruction and learning take place.

Our MLL pedagogy will always need to build upon what has been shown to apply to various other populations, while focusing in on the unique characteristics of our own students on a particular campus and in a particular classroom. Our research will need to begin with an analysis of a particular local student population: what can we find out about their linguistic backgrounds,¹⁶ their educational histories, and the interaction between the two? The next step would be to connect this demographic data with an analysis of their actual writing achievement, in the context of the particular assignments that are given in our WAC/WID courses, and the underlying competencies—in reading, writing, speaking, listening, critical thinking, and research—that are called for by these assignments. Which of these are going to be most challenging to the particular population of students we have identified? How can we find ways to help them succeed?

More broadly, our research must address a key pedagogical problem which has not yet been fully cracked by researchers in WAC/WID or in TESOL or in rhetoric and composition or in K-12 studies or in any other discipline: How can we develop differentiated instruction methods so that *both* monolingual English speakers and MLLs simultaneously have a rich and satisfying classroom experience *in the same writing classroom*? In the Next America, multilingual issues will not be confined to the ESL program or the ESL sections of freshman composition or to the Writing Center; rather, they will be in every classroom in every subject on every campus, and every faculty member will be responsible for teaching MLLs. WAC/WID programs will need to be in the forefront of researching and developing the MLL-active writing pedagogy of the

Next America. I don't think anyone is yet able to say with certainty exactly what that pedagogy will look like, but the first—and perhaps most difficult—step is to give up forever the lingering idea that it is not our job.

NOTES

1. A good sampling of this dialogue may be found in Matsuda et al., *Second-Language Writing in the Composition Classroom: A Critical Sourcebook*. See also Harklau et. al.

2. Graddol followed-up on, updated, and further developed these ideas in his second report, *English Next*.

3. The *New York Times* has an interactive map showing this trend nationwide: see <http://www.nytimes.com/interactive/2009/03/13/us/ELL-students.html>.

4. For the quoted passage, Johns cites *California Pathways: The Second Language Student in Public High Schools, Colleges, and Universities*. Glendale, CA: CALTESOL 1997,19.

5. Paul Kei Matsuda argues that “In conducting empirical studies, composition researchers should acknowledge the presence of ESL writers in writing classrooms and try to include second-language writers in their research design, analysis, and discussion of implications—rather than excluding them as “outliers” or “exceptions,” as many researchers have done” (716).

6. The WAC/WID myths are partly adapted from Maharaj's “Misconceptions about WAC.”

7. See Palmquist for a spirited exchange between WAC and second-language specialists further developing some of the ideas surrounding Matsuda and Jablonski's article.

8. This statement, which was also endorsed by the TESOL (Teaching of English to Speakers of Other Languages) board of directors, notes that “second-language writers are found in writing programs at all levels—from basic writing and first-year composition to professional writing and writing across the curriculum.”

9. See Keshavarz and Astaneh (295-297) for a summary of this research.

10. Among many other possible starting points, see the articles by Silva, Leki, and Carson; and by Johns, as well as the anthology edited by Matsuda et al. Hinkel provides a succinct summary and introduction to several linguistic approaches to second language text.

11. For models of two-way bilingual programs, see Howard et al's “Guiding Principles” report from the Center for Applied Linguistics and especially Lindholm-Leary's *Biliteracy for Global Society*.

12. See Straight for a discussion of LAC theory, history, and challenges, including a discussion of its relationship to WAC. For a comparison of LAC with Communication Across the Curriculum programs, see Morris.

13. Snow and Brinton connect the roots of content-based language instruction not only to LAC but also to “English for specific purposes,” and to experiments at the elementary school level in which “monolingual English-speaking children in immersion programs receive the majority of their elementary education through the medium of content presented in the foreign language” (556).

14. For an overview of EAP, see Jordan. For more connections between WAC and EAP, see Channock. Andy Gillett's excellent EAP website includes an "EAP Needs Analysis" survey to be filled out by prospective students, which asks them to rate which academic activities are most important to their particular course of study, and also to rate their capabilities in each of them.

15. Zamel emphasizes several basics of WAC pedagogy in her description of MLL pedagogy. She begins by calling for "multiple opportunities to use language and write-to-learn" (14). She emphasizes as well the importance of building on background knowledge, "course work that draws on and values what students already know" (14)—from previous courses such as freshman composition, from their life experience, from their years of study, perhaps in other educational systems. She advocates explicit introduction of the disciplinary culture: "classroom exchanges and assignments that promote the acquisition of unfamiliar language, concepts and approaches to inquiry" (14). And finally, Zamel suggests that we need to see student assessment as a learning opportunity: "evaluation that allows students to demonstrate genuine understanding" (14). Give all students, including MLLs, the opportunity to explain what they know—in writing. It's important for multilingual learners to have multiple opportunities to use language actively.

16. For one instrument on language background, see Marian et al.

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Electronic Plagiarism Checkers: Barriers to Developing an Academic Voice

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RECENTLY, WE EMBARKED UPON A LARGE SCALE EXAMINATION of two popular electronic plagiarism checkers—Turnitin.com (Tii) and SafeAssignment (SA). Two specific events encouraged this effort. The first was an invitation from our assistant vice provost to participate in an upcoming university roundtable discussion that sought to answer the question “Should our campus purchase a site license for plagiarism detection service and, if so, which product would best meet our needs?” Second, our university was revising its writing intensive criteria, and faculty who taught these courses were interested in finding ways to enhance students’ use of writing as a tool for learning while not increasing the amount of time they had to spend assessing that writing. Admittedly, none of us were fans of plagiarism detection applications; as is the case with many faculty members, our attitudes toward these applications had been formed after only limited contact with them. To combat this bias, we chose to examine the reports generated by each application after submitting a total of 400 freshmen essays to the two applications under consideration.

Why freshmen essays? First, decisions about writing programs, whether they be first-year or full WAC/WID programs, must reflect local conditions. In this case, the First-Year Writing Program at Texas Tech University was in the process of moving toward a WAC/WID emphasis with hopes that this would constitute the first step of instituting a four-year writing program in the College of Arts and Sciences. It was important to learn how each of these plagiarism-detection systems interprets writing from students who are currently engaged in a WAC/WID-like First-Year Writing Program. Second, we felt we had to move beyond anecdotes and conduct a more robust study, one that actually involved the submission of a large number of documents. While many studies have tested the accuracy of the programs and their ability to deter or prevent plagiarism, the samples were small in number, ranging anywhere from two to 150 drafts

(Braummoeller and Gaines 2001, Purdy 2005, Marsh 2004). Thus, the results could not assist us in our effort. We believed that the results obtained from testing on a larger scale would provide us with important insight as to how these applications may or may not impact WAC/WID-based pedagogy. The results suggest that plagiarism detection applications are not productive tools for WAC instructors as the applications' approach to writing is inconsistent with WAC pedagogy. That is, in lieu of good pedagogy, the applications often penalize students for doing exactly what we want them to do: learn the basic language structures used by people who are writing about a common topic in a given discipline.

We think it imperative, then, that both WAC administrators and faculty teaching in WAC programs know what these applications do with actual texts and in what contexts the use of such applications may or may not be beneficial to student learning. To that end, we'll start by providing a brief description of what each program does and how each represents its findings to instructors and students. We will then discuss our methods for testing both applications and analyzing the data before moving into a discussion of our qualitative and quantitative analyses. We will conclude by examining how basic tenets of WAC pedagogy and these applications conflict, and by considering in what scenarios, if any, these applications should be used.

A Quick Description of the Applications and the Process

As of fall 2007, both the Tii and SA systems allow assignments to be submitted in multiple electronic formats. Within approximately 10 minutes, the programs return a score—as a percentage—that reflects the amount of material in a text that each system has determined matches a source on the Internet or in its databases. Tii and SA have a default mode for evaluating the originality of texts; the default mode produces the originality score seen on the main course screen of the program. As an example, a text with a score of 12% means that 88% is original content, while 12% of the text could be derived from other sources.

This numerical score, called an “Overall Similarity Index” by Tii and an “Overall Matching Index” by SA, is also color-coded to provide instructors with additional meaning about the results; papers may score in the green, yellow, orange and red range and this color will appear next to the numerical score. But the percentages and the scores don't always seem to be telling the same tale. Green, for example, which generally has a positive connotation in the U.S, indicates a low threat; therefore, papers scoring in the green range may be seen as innocuous. However, green-coded reports could indicate a score that is anywhere from 0% to 24% for potentially unoriginal work in both Tii and

SA. Having nearly 500 words of a 2,000-word student assignment matched to at least one other source in the application's database seems far more problematic than a 5% score, or 100 words, of potentially unoriginal material.

The fact remains that both the percentage and color-coded results must be read and interpreted by an instructor or administrator to determine whether the score is actually cause for concern or further action.

Methods and Results

To prepare for the roundtable, we completed an expert review of the functionality of these two systems by inputting 200 texts from Texas Tech University's First-Year Composition database into Tii and SA. The results from that initial round of testing were used in our roundtable in November. Shortly thereafter, we replicated our study with another 200 texts from the same database. The following section describes the data and our sampling methodology as well as our quantitative and qualitative results.

Sample Texts

The texts for both phases of the study were extracted from Texas Tech University's First-Year Composition database, which contains all assignments submitted by every first-year writing student since 2002. For the initial sample, texts were selected randomly across all sections of ENGL 1302, Advanced College Rhetoric, Fall 2006. The assignment description—a 2,000-word research paper with 8-10 sources—was standardized for all sections as part of the curriculum.

Because all texts in the First-Year Composition database are tagged with a serial number, we were able to generate a list of random serial numbers via a SQL query. In total, 200 texts were extracted and then two of us took one-half of the texts and entered them into both Tii and SA to compare how each system evaluated the same content. During this first phase, we experienced some difficulties learning each of the applications being tested; consequently, 44 texts of the original 200 were eliminated from the study because of technical difficulties, leaving us with 156 texts.

Our second sampling of texts was extracted from the Spring 2007 sections of ENGL 1302. Although some details of the assignment description were different, the core requirements to produce a 2,000-word submission with 8-10 sources were the same. Again, the database was queried, 200 papers were randomly sampled, and 100 each were provided to two of us, who submitted them to both Tii and SA for evaluation. In this phase, all 200 texts were included in the results. We'll first discuss results for the initial sample of 156 texts (Phase One) and then of the entire set of 356 texts (Phase Two).

Phase One

Using the initial sample of 156 texts, we compared the numerical and color-coded scores produced by Tii and SA on those texts. Initially, our working hypothesis was that each program, when given the same text, would produce a similar score. Our hypothesis was based on the corporate literature from Tii and SA that indicated web pages, student papers, scholarly sources, proprietary databases, as well as commercially-available newspapers and books would be used as the sources for comparison. While we knew the sources used by each program would not be identical, it made sense that there would be overlap in areas such as websites and news media. We expected to see some small variations in the scores—around 2% to 3% in most cases.

Our results on the first data set of 156 texts immediately refuted our initial hypothesis that Tii and SA would produce relatively similar originality scores. A preliminary glance at the originality scores indicated that Tii and SA were not, in most cases, producing a similar score for the same paper. Variations in the originality scores between the two applications commonly ranged from lows of 4% up to differences of 15%; some scores varied more than 20%. Of the 156 texts, the average difference in originality scores between the two programs was 9%; this turned out to be statistically significant where $p < 0.001$.¹

We found that the originality scores clustered most heavily in the 0%-25% range but that, as per above, the scoring variations were perplexing. SA indicated that 61 texts of the 156 received a zero; this meant all of the content in these texts was original. However, the results from Tii were quite different—only 2 texts received a score of zero. An originality score of 0% in SA could result in a score of 7% in Tii. It quickly became obvious that we would need to know why the variation occurred and whether or not one of these applications was actually more accurate than the other in its detection of potentially unoriginal material.

Each program's overlay of a color-coded scale for the originality scores also proved to be enigmatic for us. Most of the originality scores in both programs were color-coded as green; however, in SA, scores under 10% were coded as white. Should instructors view papers scoring in the green or white range, which implies that the texts had little or no unoriginal material, as automatically acceptable? Perhaps. Yet, even 5% of a 2,000-word paper is 100 words. We wondered how many administrators or instructors would see this as appropriate, and how much time faculty would spend confirming or rejecting the results produced by Tii or SA. Additionally, we wondered if there was any

¹ A non-parametric test, the Wilcoxon test, was used as the data was not representative of the normal curve.

educational value to these colors and numbers for either students or faculty, or if they served as a ploy to divert attention away from the text itself and back to the application results—in short, it seems plausible that the applications become more important than the writing.

Phase One: Qualitative Results

To determine why the variation occurred in the results, we randomly selected twenty of the first 156 sample texts for further examination. In these texts, we looked for patterns in what was marked as “unoriginal material.” In Tii, we used the function to exclude both quoted and bibliographic material (recall that the 2007 version of SA did not have a comparable function for excluding the bibliography). To compensate, we manually excluded all properly quoted material and bibliographic information when examining texts in SA. Both systems highlight portions of the text that are deemed “unoriginal.” The marked text can be anywhere from a short phrase (e.g. 3 – 4 words that may be separated by an article or preposition) to a paragraph or more in length. (SA is more likely to mark complete sentences than Tii.) We also noted if the material was identified as matching a

Student source—another student’s paper submitted at either the host institution or another institution.

Publication source—Internet only; these publication sources are varied and can include news websites, organizations and others.

We should note an important point here: The two categories, above, only identify (sometimes incorrectly) where any “unoriginal material” may have come from. At most, the underlying message that the student receives from the originality report generated is “don’t take material from other sources.” If the material wasn’t deliberately taken from other sources, the report provides no actual instruction or guidance to either student or instructor about whether or not to revise the draft.

This would seem to leave us at a dead-end, unless we ask the question, can the report serve an instructional purpose if we examine *what* the marked text rhetorically represents? That is, what is the context of the marked material? After all, as has been well-documented, even the most sophisticated text-mining software cannot read for context. Our examination of the 20 selected texts revealed that much of the material marked by one or both applications could be described by one of the following categories: topic term, topic phrase, commonly used phrase, jargon, and citation error. In fact, our analysis of these 20 texts revealed that approximately 70% of the text marked

by TII and 83% of the text marked by SA fell into one of the first four categories listed below—none of which indicates plagiarized texts.

- **Topic term:** Short phrases which reflect the subject of the essay. Examples: “the top ten percent rule,” “global warming,” or “date rape.”
- **Topic phrase:** Topic term plus a word phrase. These are usually not quite a complete sentence. Examples include “the dangers of date rape,” “students in the top ten percent,” and “global warming is a serious problem.”
- **Commonly used phrase:** Phrase that could be used in multiple contexts. The phrase is not tied specifically to the topic of one paper. Examples: “Children spend the majority of their day;” “music can be used as.” In fact, frequently the topic of the source identified by the system does not match the topic of the essay. For instance, a list of symptoms used in a paper on obesity was flagged as matching a Web site for Viagra.
- **Jargon:** Words or phrases that are tied to a specific topic. Examples: the names of organizations such as PETA in discussions of animal testing; specific terminology such as rohypnol when discussing date rape.
- **Citation errors:** Instances of poor paraphrasing, failure to properly punctuate titles, or other errors in citing material. Of the categories identified, this is the only one that could potentially be labeled as plagiarism. However, we specifically did not try to identify intent in this category.

Thus, in reviewing our results from the data set of 156 papers, we identified some key trends in how Tii and SA produce their originality results. We knew that in each program’s default mode, the results for the same paper could be quite different, and that often what was marked as unoriginal material did not fit our university’s definition of plagiarism. More often than not, the marked material represented an attempt by the student to use the conventions of academic writing in his or her essay—exactly what we want to see our first-year students doing. Armed with these results, we participated in the roundtable, where our results were discussed with great interest by the approximately 75 administrators, faculty, and student participants. The attention generated by our initial results led to Phase Two of the study, described in the following section.

Phase Two

Following the roundtable, we decided to sample another 200 texts from the Texas Tech First-Year Composition database to see if we could replicate our results and extend our understanding of these applications. This section discusses the results of the full data set of 356 papers the 156 original and 200 additional papers.

As with the first sample, a sizeable majority of the texts in our combined data set contain 25% or less of material derived from other sources. If we consider scores of 25% and under as falling in the green range, 85% of the papers assessed by Tii and 93% of the papers assessed by SA appear to be low threats for unoriginal content.

Table 1: Tii and SA Index Scores Distribution

	Percentage of Unoriginal Material				
	≤ 10%	11-25%	26-50%	51-75%	76-100%
Tii	150 papers	152 papers	46 papers	6 papers	2 papers
SA	277 papers	55 papers	18 papers	4 papers	2 papers

Next we examined the average scores produced by each program. The average originality score across all 356 texts in Tii was 16%; this means that across 356 texts, the entire sample fell into the low or green category. In SA, the average originality score across all texts was 8%. The fact that the average of all scores in both applications fell into the seemingly innocuous ‘green zone’ was one area of interest for us because it suggests that students were using unoriginal material correctly. This could also indicate that students were in the process of becoming more familiar with the ways in which academics represent knowledge.

The final phase of our analysis focused on a subset of the second sample to determine if the qualitative results we found in the first sample were replicated in the second.

Phase Two: Qualitative Results

In order to ensure that our qualitative results from the first data set were reliable, we decided to expand our analysis. We repeated our qualitative examination on an additional 20 texts from the second data set. When looking at the results from all 40 texts, we found that:

- Tii flags, on average, material belonging to 6 other sources per every 2,000 word draft.
- Of those 6 sources, approximately 4 are student sources (same or other institution) and 2 are publication sources.
- SA flags, on average, material from 2 sources in each draft. These are almost always publication sources.
- Tii flagged 245 instances of unoriginal material.
- SA flagged 22 instances of unoriginal material.

We also found that in the 245 instances of allegedly unoriginal material flagged in Tii, only 24% of these could be classified as citation errors. The remaining 76% of the material flagged was not the result of intentional or unintentional plagiarism. In fact, 40% of the material flagged in Tii can represent commonly used phrases such as “much more still needs to be done,” “the average amount of money spent,” “in the state of Texas,” and “an epidemic that needs to be taken seriously.” Topic phrases accounted for 20% of the material flagged.

In the 22 instances flagged by SA, only 40% of the material could be considered citation errors. As with Tii, commonly used phrases accounted for a significant portion of the flagged material. However, unlike Tii, the commonly used phrases were fewer than the citation errors. Thirty-six percent of the material in SA was commonly used phrases.

Concerns

Our qualitative examination of the 40 drafts raised other issues for discussion. For example, in Tii, the 40 drafts that we examined indicate that 155 of the instances were linked to student sources (63%). In comparing the flagged material, we discovered that the two programs do not flag the same material in the student text, nor do they identify the same potential sources. While Tii does flag material that is improperly cited or poorly paraphrased, it flags so much additional material that finding the possible plagiarism can be difficult. Judging from the patterns observed in flagging material, it appears Tii looks at institutional papers first and then proceeds to examine the Internet. Because of the commonalities in student writing, as noted in our qualitative outcomes, Tii finds more matching content. Tii also tends to flag the most recent source to use a marked phrase. In contrast SA, as discussed earlier, flags an average of only 2 sources per paper and most of this is properly cited material and derived from publication sources. SA also tends to flag entire sentences unlike Tii, which usually flags phrases.

A serious concern for instructors is that neither application has the ability to filter potential sources for context. For example, one paper about obesity contained a flagged phrase, the source of which was identified by Tii as a Web site selling Viagra (<http://www.viagra-purchase.com>). A report on a paper concerning the department of professional football players in Las Vegas contained a tagged phrase which referred us to a site relating to feminist theory. The phrase, “the current policy is not working properly and needs to be changed or amended” was found in a student’s summary explaining that NFL players needed strict rules governing their behavior. At the time of our analysis, the most recent occurrence of that phrase was located in the now-defunct

site, <http://www.tufffemme.com>. However, the site's contextual use of that phrase had no relation to professional sports of any kind.

Another concern is that SA will flag a paper based on students citing the same source. For example, in three different papers about birth control, each student had cited information from Planned Parenthood. The three papers all had a different thesis statement. One paper discussed birth control, in the form of oral contraceptives, in relation to acne and acne treatments. A second paper cited birth control but referenced abstinence as the only viable choice. The third paper discussed birth control as a means to reduce poverty. SA noted that the reference to Planned Parenthood in the Works Cited was also found in another student's paper. The link from <http://www.plannedparenthood.org> to the material on birth control was included by all three students; thus, SA flagged the entry.

These findings made us want to test these applications in a more thorough manner. First, two of us deliberately "wrote" a draft by compiling text from several different websites and immediately submitted it to Tii. While most of the material was flagged, it was not attributed to the website(s) that it was taken from; instead, the most recent websites posted with the material were flagged. Additionally, a document that contained a substantial amount of material transcribed from several recently published books was submitted to Tii. None of the transcribed material was flagged, and the document received a green rating.

Conflicting Ideologies between WAC Pedagogy and These Software Applications

While these results are troubling enough, perhaps the most direct conflict that emerges between WAC pedagogy and these plagiarism-detection systems occurs when we consider a guiding principle of WAC: "that only by practicing the conventions of an academic discipline will students begin to communicate effectively within that discipline." In our study of Tii and SA, we found that commonly used phrases, such as "In a study from Brown University," or "Researchers have found that X contributes to...," are among the most often flagged as potentially plagiarized material.

These commonly used phrases, topic phrases, and jargon are indicative of basic language structures used by most people in writing about a common topic (global warming, date rape, birth control, etc.). Handling citations and executing proper paraphrasing is again a measure of the inexperience of the writers and not necessarily a lack of originality or deliberate attempts to deceive on the part of the students. For example, in our sample drafts, one sentence from one student's draft on global

warming was linked to another student paper as the source. We put the sentence through Google only to discover that ten other sites, many of them maintained by professional or non-profit organizations, had used the exact same sentence in their documents. If our goal, as Susan Peck MacDonald writes, is to move undergraduates from pseudo-academic writing to “expert, insider prose,” it seems likely that students will model their writing on examples they are given by instructors or read during coursework or research for projects, especially as they progress through MacDonald’s Stages 2 and 3. Students who receive feedback indicating that their attempts might be plagiarized may revert back to such pseudo-academic structures to avoid any possibility of accusation. They might also revert to simple, quick fixes such as “using the thesaurus function in Word” rather than honing their paraphrasing skills, a valid concern voiced by writing center tutors (Brown et al. 24). A more likely consequence, though, is that students will progressively disengage from both formal and informal writing tasks—exactly what WAC/WID programs are designed to combat.

So, What’s to Be Done?

We began this study in order to determine whether or not there were any viable reasons to use such applications as Turnitin and SafeAssignment. What we found is that in the context of undergraduate writing, the potential liabilities far outweigh the possible benefits of doing so. In short, the primary benefit of using either application is that instructors may be able to quickly identify material that has been copied from an Internet source or shared by students in multiple sections of a course who submit similar assignments. Additionally, if students use the applications in draft mode, they may be able to identify places in their drafts where they have incorrectly cited or punctuated citations.

However, these benefits pale when we look at the potential problems caused by using these applications. Despite the verbiage on the applications’ Web sites to the contrary, nothing about the interfaces suggests an emphasis on teaching or learning about proper citation methods. Consequently, instructors will need to invest a significant amount of time in learning the applications and in preparing students to analyze the results, discard all of the erroneously identified instances of “potentially unoriginal material,” and use the remaining data to assist with revision. However, students at MacDonald’s Stages 1, 2, or 3 may quickly become discouraged. More significantly, many students may shift from writing to an appropriate human audience to “writing to the software.” Susan Schorn notes that students need to move beyond merely knowing who

their readers are to gaining an understanding of them (337). However, the very topic phrases, jargon, or commonly used phrases expected as signals of understanding by human readers may be those very items flagged as unoriginal by the applications. This conflict will not help students become more effective writers in any discipline and may actually promote the type of writing that instructors in many disciplines are trying not to teach—writing that, in its attempt to pass muster with the originality checkers, loses all semblance of a realistic, academic voice.

To ensure that instructors understand the limitations of each application and communicate those limitations clearly to students, WAC/WID coordinators will need to work even more diligently if they are on campuses where site licenses to these applications have already been purchased. Additionally, given today's shrinking budgets and increasing requirement for accountability, campus administrators need to understand that the return on their investments in these systems may not be what they had hoped for. While purchase of these applications might achieve a short term goal of illustrating that the institution is discouraging/cracking down on plagiarism, in the long term such purchases may well co-opt any attempts made to institute the kind of careful pedagogy that enables "students to conduct research, comprehend extended written arguments, evaluate sources, and produce their own persuasive written texts" (Howard 789). It's not a stretch to say that those students using these applications may become disengaged from writing, their coursework may suffer, and, eventually, their performance on such accountability measures as the CLA or other exit exams may be impaired. In the end, monies would be better spent on developing other campus resources for writing instruction than relying on these "quick fixes" that ultimately do not contribute to the educational mission of our institutions.

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Finding a Voice: Reconciling Discourses in Student Work

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FIRST-YEAR UNIVERSITY STUDENTS do not always know what they are trying to write. The problem certainly is not confined to each student's freshman year—sophomores, seniors, professional writers, and academics all face it. But the struggle to reconcile competing and often contradictory ways of thinking, speaking, and writing are made particularly acute for many first-year students because they are asked to adopt new, sometimes discipline-specific language and methods and use them in internally persuasive ways. They are not just supposed to sound like academics—they are supposed to think like them.

In his seminal article “Inventing the University,” David Bartholomae describes the problem when he writes that students “will need to learn to crudely mimic the ‘distinctive register’ of academic discourse before they are prepared to actually and legitimately do the work of the discourse” (83). Bartholomae treats this necessity with some ambivalence, but his argument goes to the heart of the debate between writing across the disciplines and writing within them, or what Jonathan Hall describes as “bottom up” and “top down” approaches (17). The debate forces us to ask whether students should begin to mimic discipline-specific ways of writing and thinking in an effort to one day fully embody those methods, or if instead they should appropriate a set of practices universal to good writing, regardless of discipline. The trouble with this dichotomy is that it glosses the ways of thinking, speaking, and writing that students already bring to the first day of a first-year writing seminar. It ignores, also, that even successful academic writers do not occupy a space fully divorced from the non-academic discourses acting on them. Successful writers do not just don a particular discourse like a mask, but instead reconcile that discourse with other shaping influences.

Judith Goleman wrote that the internally persuasive voice “lies not in some effort to carve out for oneself an autonomous realm of language ... but rather to become a more knowing participant in the social dialogue that constitutes all discourse” (44). Students entering college are challenged to become “knowing participants” in just this way. They are faced with the challenge of finding their place within the university—not inventing it so much as inscribing themselves upon it. If this is the goal of academic writing—to bring the individual’s discourse into contact with a larger discourse, or to enter the conversation, as Kenneth Burke writes—then our goal should be to understand as fully as possible how this process takes place.

What I offer here is an examination of how one student, Jennie Miller¹, sought to reconcile those discourses in her first-year writing seminar at the University of Connecticut. Like many programs, UConn offers a hybrid between interdisciplinary and disciplinary approaches to writing. Students choose between two kinds of first-year seminars: a discipline-specific literature seminar and an interdisciplinary, rhetorically-based seminar. Both courses, however, involve elements of interdisciplinary work, and although Miller chose the literature seminar, she gravitated toward an interdisciplinary approach. When she tried to appropriate what she thought were specifically academic methods of inquiry, her writing seemed like the mimicry Bartholomae discusses. For Miller, the best approach was also the messiest—by allowing many discourses to enter her work, she produced the most interesting, complex, and ultimately, I would argue, effective papers. When she tried to appropriate what she perceived to be an academic, discipline-specific way of approaching her subject, her efforts came off sounding hollow.

My goal here is not to imply Miller’s experience is universal. Each student brings her or his own sets of competing discourses which must be reconciled with academic methods in unique ways. But by closely examining the ways one student reconciled or failed to reconcile competing voices, we can more deeply understand the process of appropriating and organizing these voices. By understanding how Miller struggled when she attempted to write in a discipline-specific way, we can better understand how flexible writing instructors must be in opening up new areas of inquiry, offering new approaches, and allowing students to discover an academic voice on their own terms.

¹ I have changed the student’s name at her request.

“The Modern Hunger Artist” and Double-Voiced Narration

In the first assignment of the semester, Miller and other students were asked to use Susan Bordo’s essay “Beauty (Re)discovers the Male Body” as a lens through which they might view Franz Kafka’s short story “A Hunger Artist.”² The goal of the assignment was to get students thinking about the ways that different, disconnected texts might interact, and the ways in which ideas from one text might inform or implicate ideas in another. Bordo’s essay is about the use of the male body in contemporary advertising, particularly Calvin Klein ads. Kafka’s short story, on the other hand, is about a man starving himself as a kind of performance art—struggling as an uninterested public ignores him, and by extension his body, by greater and greater degrees. When Miller tackled this paper topic, she struggled to reconcile competing discourses—the language of the literary critic, the language of the pop-psychologist, the language of personal frustration. But the struggle was ultimately a fruitful one. While the paper does little to reconcile these competing ways of speaking, it opens the door to real complexity.

Before examining how various discourses interact in Miller’s paper, “The Modern Hunger Artist,” it will be important to define a “competing discourse.” M.M. Bakhtin’s definition of “double-voiced narration,” which appears in “Discourse in the Novel,” is critical to this. Bakhtin conceives of multiple voices working behind a single utterance. He writes: “Retelling a text in one’s own words is to a certain extent a double-voiced narration of another’s words, for indeed ‘one’s own words’ must not completely dilute the quality that makes another’s words unique” (341). In Bakhtin’s vision, each word is imbued not only with the speaker’s intended meaning, but with a whole history of meanings acting on that word. This concept—of the social, political, and historical implications of words passing through a speaker or writer on their way to a reader or listener—is critical to understanding how different discourses compete within a single utterance. As a writer retells the words of another writer, the words she uses in retelling necessarily contain competing meanings. But discrete utterances compete, as well. Thomas E. Recchio addresses this in his essay “A Bakhtinian Reading of Student Writing.” Recchio argues that the boundaries between different disciplines, from psychology to literary criticism, are not absolute. Despite this, students who are unaware that the boundaries exist at all might struggle to sort out the ways

² The Bordo essay was taken from *Ways of Reading* and the Kafka story came from an anthology compiled specifically for the University of Connecticut Freshman English Program. The assignment came from this instructor.

in which these disciplines compete. Recchio writes: “Our students have a great deal of difficulty recognizing the conflicting, though potentially enriching, claims made on them by the modes of discourse they bring with them into the classroom and by new modes of discourse they encounter there” (446-7). In this, one might hear echoes of Bartholomae’s proposal that each student invent herself as “an historian or an anthropologist or an economist” (61). But Recchio’s argument forces us to move beyond this: realizing historians and anthropologists and economists interanimate one another, not only because their disciplines intersect, but because their personal histories as thinking people, as speakers and listeners caught in various discourses, intersect.³

Miller’s first paper is interesting for this very reason—it demonstrates this interanimation, although it never fully reconciles it. Her paper contains double-voiced narration in the strictly Bakhtinian sense, but it also contains the conflicted, discrete utterances Recchio explores. In arguing a comparison between the women objectified in the advertisements that Bordo describes and the hunger artist in Kafka’s story, Miller writes:

Women love being looked at because it leaves them feeling attractive; it boosts their self-esteem and without the approval of others, especially those of the opposite sex, women feel unwanted and deprived. Men, however, are, or at least have been known to be the opposite. Men are known to avoid ‘the Look’. [Simone de] Beauvoir’s lover and soul mate, Jean-Paul Sartre refers to other people’s stares as “the ‘hell’ that other people represent” (Bordo 134). This idea of women, as opposed to men, wanting to be pursued, further compliments the argument that the hunger artist exhibits feminine qualities.

In many ways, this performance is strikingly good. She has managed to connect the experiences of contemporary women and men with the relationship between Simone de Beauvoir and Jean-Paul Sartre with the events Kafka depicts in “A Hunger Artist.” But, of course, the performance has limitations. An instructor might write in

³ Recchio writes: “Experienced writers work quite self-consciously with their assumptions as they read and write, working out the relation between those assumptions and what a text may say or imply about them. Often for our students, however, assumptions emerge unconsciously as they write about what they take to be the ‘subject’ of the reading” (447). This gets to the heart of the challenge with Miller’s writing. Even in the work I would identify as most successful—the papers “The Modern Hunger Artist” and “The Effects of the Mass Media on Women”—Miller did little to question basic assumptions. But she did make attempts to synthesize different, competing ideas in interesting and compelling ways. In what I would identify as her least successful writing, “Commentators on the 2008 Presidential Election,” Miller tried to model strictly academic language and closed off uncomfortable assumptions and ideas that might have complicated her argument.

the margins “Which women love being looked at?” or “How do we know men avoid ‘the Look?’” He might ask whether the hunger artist truly wants to be pursued in the way she’s describing or if, for the artist, the gaze is also a kind of hell. The passage is revelatory, though, because it demonstrates Miller’s competing discourses so clearly. There are three discrete discourses I would like to highlight in this passage, but each of these discourses has a sub-text, or perhaps a meta-text, which changes the way we must interpret it.

Miller begins the passage with a pop-psychological approach: “Women love being looked at because it leaves them feeling attractive; it boosts their self-esteem.” The passage calls upon the vocabulary of the self-help book or the magazine article, with the broad generalities about what “women love” and the use of pseudo-psychological vocabulary like “self-esteem.” But the passage also contains double-voiced narration which we, as readers, do not have complete access to. In one way or another, the phrase “women love being looked at” carries with it Miller’s personal history as a woman—it either rings true to her experience or does not; we have no way of knowing. There is also a certain amount of common knowledge or common wisdom in this early part of the passage. That “feeling attractive” will “boost their self-esteem” seems so obvious it almost goes without saying—except, of course, it is not precisely true. Feeling attractive might produce anxiety for those who associate sex with religious prohibitions, have memories of uncomfortable sexual experiences, or feel shame about their own sexual proclivities. But the truism that “feeling attractive” will “boost their self-esteem” functions as received wisdom, and Miller does little to question it.

Next, Miller makes a transition from the pop-psychological to the philosophical-historical. She takes an idea presented by Sartre—that hell is other people—and transforms it for her purposes: “Jean-Paul Sartre refers to other people’s stares as ‘the hell’ that other people represent.” This is useful for her because Sartre, by extension, can be taken to represent men. “Men are known to avoid ‘the Look,’” she writes. Again, an instructor might raise a number of questions: “Who says men avoid ‘the Look?’” or “What was the context of Sartre’s explanation of hell?” Despite that, Miller is drawing the kinds of connections central to academic writing. She has taken an idea, produced in a particular, historical time and place, and transferred it to explain her own work. And, again, one can find double-voiced narration, from the awkwardly romantic description of Simone de Beauvoir as Sartre’s “lover and soul mate” to the commonplace description of men as “known to avoid” the gaze of other people. It’s interesting that Miller is essentially repeating Bordo’s claim about men and the gaze,

albeit with fewer qualifications. When Miller tries to reproduce Bordo's ideas and move them forward, her description comes off as reductive: "men are known to avoid" that gaze she writes. But the failure here is not entirely conceptual. It is not that Miller has failed to understand essentially what Bordo was saying; it is that she has failed to fully appropriate the academic methods required to deal with Bordo's ideas: to question them, complicate them, and qualify them.

The final transition in the passage brings the reader into contact with an academic-critical voice. Miller writes: "The idea of women, as opposed to men, wanting to be pursued, further compliments the argument that the hunger artist exhibits feminine qualities." One can see her forwarding the earlier ideas, bending them toward her own purpose. Sartre, de Beauvoir, contemporary women and men, and the hunger artist have all been used here with the aim of furthering Miller's argument, of saying that the hunger artist is essentially a feminine figure. She is on the right track, trying to use the ideas of others to create new ideas. But, because the voices Miller uses to convey these ideas are un-reconciled, she cannot carry off her goal. The connections between Sartre and contemporary men, between the gaze and the hunger artist, have not been fully explored. As a result, her conclusion comes off sounding simplistic and unconvincing: women like the gaze and the hunger artist likes the gaze, ergo the hunger artist is a woman. It is important to note, however, that Miller has gathered all the tools she might need for a much more convincing argument. She has drawn disparate voices together, begun exploring how those voices might interanimate one another, and related all of those voices to her argument. The paper has perhaps not gone far enough, but it is going in the right direction.

"Commentators on the 2008 Presidential Election" and the Easily Proven Thesis

Miller's final paper of the semester, entitled "Commentators on the 2008 Presidential Election," put forward the argument that most political writers and pundits rely on logical fallacies, like the ad hominem attack, to make their cases to the public.⁴ Miller wrote that the arguments of those pundits are problematic, at best. Compared

⁴ The assignment in this case began when each student was asked to develop a research question based on any of the readings done in class. The research questions guided inquiry and led to several class discussions. When students wrote their first drafts, they had the option of writing about virtually anything. The only restriction was that students were not allowed to write about a topic they had written about before. At this point, Miller had written two papers about Bordo's work, and had to choose another topic. It's possible she was less interested in writing the "Commentators" paper than she had been in writing earlier papers.

to “The Modern Hunger Artist,” “Commentators” is extremely well-organized and cogent. In the latter paper, Miller makes her argument clearly in the first paragraph, maintains a single voice nearly throughout, and does yeoman’s work adopting a kind of academic language. But her final paper is limiting in ways her first paper is not. Firstly, the thesis in “Commentators” is virtually self-evident. Secondly, and more importantly, much of the paper suppresses interanimating voices in favor of the kind of rote identification and categorization of logical fallacies one might have seen when Max Shulman was an undergraduate.⁵ Miller has adopted a kind of academic discourse, albeit a slightly outdated one, but in doing so has limited the array of voices available to her. If the goal of composition instruction is to get students to adopt an internally consistent, internally persuasive voice that reconciles the competing discourses they bring to their work, then Miller’s final paper is extremely problematic.⁶

“Commentators” begins with what might be identified as a classic composition essay introduction. Miller sets up her discussion in broad terms by explaining that “with the presidential election, commentators have more than enough material to speculate on and opinions to convey to their audiences.” The first sentence gives the reader a sense of what she will discuss: the 2008 election and, more specifically, the commentators analyzing that election. Miller goes on to state her thesis, writing that commentators mislead their audiences “through the use of comparisons and common fallacies, such as ad hominem, confirmation bias and begging the question among others.” Here, she has given herself a task to complete: quote a series of political commentators and demonstrate that their arguments are fallacious. The paper lives up to that expectation. Miller introduces writings by George Packer, William Kristol, *Slate’s* John Dickerson, and *The National Review’s* Byron York. With a balance of pundits from the left and right, she demonstrates with greater or lesser success that each has committed logical fallacies. Her conclusion sums up her argument.

⁵ Shulman, whose short story “Love is a Fallacy” hilariously parodies the tweedy, midcentury academic’s obsession with logical fallacies, graduated from the University of Minnesota in 1942 (Barron A16).

⁶ There might be several, practical reasons for this. Firstly, students often have less time to write at the end of the semester, when they’re writing final papers and studying for final exams in other classes. Miller also showed less interest in this paper. Although students were allowed to pick paper topics from any of the readings they’d done in class, Miller said she wasn’t particularly enthusiastic about the topic she finally settled on. And, finally, the instructor spent much of the semester talking—perhaps reductively—about ways to craft a coherent argument and organize an academic essay.

As she goes about proving her thesis, the shortcomings of her paper become clear. On the third page of “Commentators,” Miller takes apart a William Kristol column. She writes:

[Kristol] goes on to say that Obama’s only great accomplishment was his well-run campaign. Accompanying this backhanded compliment, he compares Obama to presidents Bush and Carter, suggesting they too had well-run campaigns that did not translate into good presidencies, and his most likely will not as well. The journalist here utilizes another common fallacy, begging the question (or assuming the answer).

Miller identifies the fallacy in Kristol’s argument (although there might be several other fallacies at work there, as well), but does little else. There is no sense of why we should care that Kristol is making a problematic argument, nor is there any sense of what motivates Kristol’s fallacious reasoning. More importantly, though, there is no sense that Miller has found a motivating, internally consistent voice. After explaining the fallacies in Kristol’s thinking, she goes on to examine fallacies in George Packer’s *New Yorker* writing. The paper becomes a sort of catalogue of fallacious reasoning, and is largely disconnected from any sense of Miller’s goal as a writer. She does not seem to have a goal.⁷

This is not to say the paper is completely without competing discourses, only that these competing discourses are often subsumed into a larger, authoritative discourse. Miller’s writing is, in some ways, double-voiced. Immediately after the above passage, she writes: “Maybe [Kristol’s] argument that the people of the United States should vote for the Republican Party would have had a bigger impact on his readers if he highlighted McCain’s strengths instead of attempting to deteriorate Obama’s image while making his supporters look incompetent.” One might sense in this passage some anger at Kristol, but I suspect the voice at work here has actually been borrowed from the TV pundits who call for campaigns to be more positive. Instead of “attempting to deteriorate” Obama, Miller seems to be saying that Kristol should extol the virtues of his own favorite candidate and leave the rest to the voters. Regardless of where this voice comes from, though, Miller’s paper has limited itself. Unlike her first paper,

⁷ The instructor may bear some responsibility for this. In a class discussion dealing with two pieces of political commentary, he discussed how both writers were using faulty reasoning—in that particular case, an *ad hominem* attack and an *ad populum* appeal. This likely had something to do with Miller’s decision to write about logical fallacies in this context.

in which many voices clamored for attention, here we have, at most, a reasoned list of logical fallacies and a disconnected, common sense scold.

As a result, Miller is left at the end of her paper with little to say. She has demonstrated that four different writers employ logical fallacies, and she concludes by writing, “Through articles with clear undertones, specific perspectives and heavy ridicule, political journalists demonstrate to their audience which party they are in favor of.” It is not entirely clear what she is trying to say. Is she arguing simply that political commentators try to convince their audiences? Or is she saying that they unfairly characterize their opponents, using “heavy ridicule” and “common fallacies”? Is she trying to say journalists persuade by using historical examples? And, if so, what is so wrong about that? Here, I think, Miller is lost. By tying her paper to what she perceived was an academic mode of writing, she has kept herself from exploring any of her examples in depth. Her conclusions seem convoluted precisely because they do not come from her own analysis—they are borrowed from a kind of university discourse, albeit a somewhat outdated one. Miller has bluffed her way in: look at that dense prose, with phrases like “clear undertones” and “specific perspectives.” But the bluff is precisely that, a bluff. Unlike in her first paper, where she struggled with too much to say, now she struggles with too little.

“The Effects of the Mass Media on Women” and Reconciling Discourses

While Miller never fully reconciled the competing voices in her work during the first-year writing seminar, she perhaps came closest in her second paper of the semester: “The Effects of Mass Media on Women.” Here, Miller took her interest in Bordo’s writing—she read *Unbearable Weight*, about images of women in the media—and extended it into an essay about the pressures young women experience as they confront the world of beauty in magazines, on television, and on the Internet. In a response paper about her own writing, Miller said she enjoyed her work on this project. She explained, “I liked that we got to pick our own topics, so I was actually interested in what I was writing about.” The paper was cogent, straightforward, and made an argument that, while not particularly unique, was certainly persuasive.⁸ The paper is

⁸ The assignment here was to take any of the texts she had read in class, find five other, related texts, and make an argument. Students didn’t have to use all five other texts in their papers, although they did have to create an annotated bibliography showing how they might use the other texts. Miller, who said she didn’t like writing about Kafka’s short story but loved writing about Bordo’s essay, chose to write primarily about *Unbearable Weight* and “Beauty (Re)discovers the Male Body.”

also remarkable for its ability to reconcile the voices of the gender theorist, the social scientist, the feminist critic, and the young woman personally concerned with body image issues. On the fifth page of her paper, Miller slips into the realm of the social scientist, but manages her voice much more confidently than she did in her first paper. She writes:

One of the two more common eating disorders that are developed in females is anorexia nervosa, an emotional disorder characterized by an obsessive desire to lose weight by refusing to eat. The other is bulimia nervosa, which is also an emotional disorder, but one that involves the distortion of body image and an obsessive desire to lose weight, in which bouts of extreme overeating are followed by depression and self-induced vomiting, purging or fasting. Images in the media depicting women as beautiful almost always when they are underweight is very likely a factor that helps the distortion of body image in females. According to some, “the anorexic does not ‘misperceive’ her body; rather, she has learned all too well the dominant cultural standards of how to perceive” (Bordo 57) (citation original)

In some ways, this passage is very similar to passages in her first paper. There are discrete, identifiable voices at work here: the psychologist explaining eating disorders as medical conditions, the cultural theorist explaining them as social phenomena, and the student in the middle trying to reconcile the two approaches. The beginning of the passage, with its formal labeling of “anorexia nervosa” and “bulimia nervosa,” and an explanation of how anorexia is “characterized,” indicates the adoption of a medical voice—a voice that, by implication, considers the disease in light of risk factors, genetics, and upbringing. When Miller invokes Bordo, however, she is employing the voice of a cultural theorist, one who considers anorexia as a question of degree, not of type. In Bordo’s estimation, all women face the anorexic’s dilemma; the anorexic simply acts on it in an extreme way. These two voices are fundamentally at odds, and Miller’s sentence joining them—which begins “Images in the media . . .”—does little to connect the central ideas. But Miller does not stop there. Only a few lines after this passage, she writes: “It would be illogical to conclude that women could be relentlessly subjected to the media, whose focus is largely on attractiveness, without any ramifications.” Here, she has demonstrated an awareness of the contradictions in the earlier passage and reconciled them. She has chosen a side. She has taken, perhaps not surprisingly, a position close to Bordo’s. Rather than claiming anorexia is a kind of mental illness—a label that carries with it an implication that the majority of people maintain some form of

mental health—Miller has come to the conclusion that anorexia and bulimia are not really medical problems so much as cultural problems. One might argue she could have navigated this conflict better by making her argument more explicit and presenting her position in relation to particular medical thinkers. But regardless of whether she should have taken that approach, she has certainly produced a coherent argument in a relatively consistent voice.

I find the unaffectedness of this voice compelling. Unlike in “Commentators,” Miller does not rely on the jargon of academic disciplines here. In fact, she works against that jargon. Sure, she seems to be saying, this disorder is called “anorexia nervosa,” but really it’s more than just a disorder; its roots are buried in our collective psyche. I have the sense Miller has been convinced by her own thinking. And while she might be able to push her thinking further—see that the media isn’t solely responsible for anorexia—the paper seems to belong to Miller as a writer in ways the other papers simply do not.

In “Inventing the University,” Bartholomae writes that “Problems of convention are both problems of finish and problems of substance” (79). In other words, students can be unfamiliar with both the style of academic writing and the substantive ways academic writers approach problems. Miller faced both challenges when trying to write in a college setting, but dealt with them in different ways. In “Commentators,” she adopted a vaguely academic “finish” and allowed it to stand in for substance. The result was unconvincing. But in “Mass Media,” she adopted the rigorous methods of the academic and, although the finish might not have had all the trappings of an elaborate academic argument, the methods of interrogation were distinctly scholarly. Her success, though, was no bluff. She did not write cogent prose by faking the position of a cultural critic. In fact, when she tried to take up that position in “Commentators,” she produced a fairly meaningless argument. Rather, her success came from legitimately doing the work of a scholar: examining texts, checking them against her own sense of the world, and crafting an argument. The academic quality of “Mass Media” is a side effect of Miller’s argument, not the reverse.

This is critical for understanding how best to help students cope with the demands of writing in a university setting. In a short cover letter she turned in with her “Mass Media” paper, Miller wrote: “I liked that we got to pick our own topics, so I was actually interested in what I was writing about.” This is probably the most obvious reason her paper turned out well. But there is a risk in reading this too simplistically. Miller showed that she could turn in serviceable prose and coherent, if simplistic,

arguments even when she was not “interested,” as in the “Commentators” paper. But her interest in Susan Bordo’s writing did translate into a willingness to wrestle complex ideas on her own terms, a willingness to let her paper seem a little messy. And this, I would argue, should be the goal of a writing instructor—to help students reconcile ideas in internally consistent ways and differentiate between problems of finish and problems of substance.

Each student arrives at her introductory writing class with a complex history of interactions with language. It is only by bringing these ideas into conversation with the material at hand that students will be able to embody and take control of an “academic” voice. This might mean allowing students to write about what they are “interested” in, or it might mean spending more time exploring the conflicts between different perspectives and less time worrying about thesis statements and topic sentences. It might mean spending less time trying to help students write in ways that look academic, and more time trying to help them write in ways that are academic.

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Math and Metaphor: Using Poetry to Teach College Mathematics

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Math is everywhere, and most people don't even realize it. For the longest time I found math boring and confusing—just a bunch of numbers and symbols jumbled together, or word problems with juvenile purposes. (For example, would I really care about the rate water leaks from a bucket?) When I realized the concepts were actually relevant, and could be used to solve relevant problems, my feelings changed. Many of [my] poems definitely reflect my shift in attitude, and my realization that mathematics can be incredibly interesting.
—*Katherine, Fall 2007 Calculus I student*

IN THE FALL 2007 SEMESTER at the University of North Carolina, Asheville, I asked the students in my two sections of Calculus I to complete an atypical mathematics assignment. Each student was prompted to write a poem (a few students would end up writing several) offering the reader insight into her or his experience with mathematics. I have since assigned the same exercise to students enrolled in my Fall 2008 Precalculus course, with more or less the same success.

The goal of this assignment was not to craft lasting works of art, but rather to give my students an alternative discourse in which they could explore mathematical ideas. It is my belief that poetry may offer math students new means to explore the recondite realm of abstract mathematical concepts. The purpose of the present article is to demonstrate the role poetry can play in improving cognitive understanding and confidence in mathematics students, and to offer my own students' responses to and reflections on the aforementioned assignment as evidence for poetry's successful portrayal of that role. (More information on the assignment and the questionnaire used to obtain students' thoughts on the assignment can be found in the appendices.)

I would like to acknowledge the fruitful conversations with my colleagues that have informed my writing of this paper. Special thanks go to Professors Art Young, Dr. Mary Alm, and Dr. Karin Peterson. Furthermore, this paper would not have been possible without the hard work of students like Aurora, Katherine, Lisette, and many others who were willing to try something profoundly new and honestly and openly reflect upon their experience.

Why Ask Math Students to Write Poetry?

The assumption that the languages of social science—propositional language and number—are the exclusive agents of meaning is becoming increasingly problematic, and as a result, we are exploring the potential of other forms of representation for illuminating the educational worlds we wish to understand. (Eisner, 1997, p. 4)

In the quote above, Eisner speaks of the construction of meaning in the social sciences, yet his comments may be applied just as aptly to the natural and mathematical sciences. While math is ultimately grounded in *number*, modern mathematics is such a complicated creature that understanding its organic workings requires much more than the ability to count. There is a great and growing body of linguistic and visual metaphors that constitute a healthy understanding of modern math, in which things called *fields*, *rings*, *bundles*, and *flows* play dominant roles; mastery of these concepts often involves creativity more readily expected of a poet than of a scientist.

In the first section of this paper I explore two variables that affect students' mastery of mathematical ideas: students' *cognitive understanding* of mathematical terminology and symbolism, and students' *confidence* in carrying out computation and other mathematical tasks. Students' success in learning mathematics can be measured by means of these coordinates, and at this section's end I will survey the way in which math students typically develop as writers. In the following section I will examine how poetry can assist math students' development along both of the coordinate axes.

Key Variables Affecting Math Performance: Cognition and Confidence

Historically, mathematicians have been poor ambassadors for their nation. As a rule students have gained passage across math's borders only by adopting and mastering the use of math's rarefied linguistic conventions. While the ideas lying at the core of mathematical concepts are often simple and intuitive, students are daunted by dense notation and technical terminology, much of which is highly unintuitive. Indeed, a

good deal of modern mathematical terminology stems from hard-to-trace historical roots, and notation is largely non-indexical: most terms and symbols in no way resemble their referents.

In order for students to become proficient at computation and other forms of mathematical reasoning, they must establish direct connections between the deeper cognitive ground of mathematics in which math's concepts live and the symbolic realm in which computation takes place.

In the math classroom these cognitive connections are constructed in a number of different ways. The connections often, perhaps too often, take the form of expository prose either drawn from a textbook or composed by the instructor. This prose is itself usually laden with predefined terminology that must be elaborated in an ever-expanding wave of explanations that can easily swamp unmotivated students. In place of such prose students may be given exemplary problems or computations that demonstrate the finer details of a new concept and its relation to concepts already learned. For students attenuated to visual cues, pictures, charts, and diagrams illustrate fresh concepts graphically; often these pictorial explanations are more effective for their concreteness: students can literally see the connections made between the underlying body of mathematical concepts and the symbolic surface where most of their work is done.

Clearly, students will respond with varying aptitude to these means of understanding according to their particular learning styles. For more on the role of learning styles in effective mathematics education see Midkiff and Thomasson (1993); Jones, Reichard, and Mokhtari (2003) suggest how students' learning styles in mathematics may differ from their learning styles in other disciplines.

Yet there is more to math than computation. Regardless of their understanding of mathematical concepts, many students are discouraged from pursuing advanced math courses simply because they lack faith in their abilities. Yet in mathematics, confidence is crucial: Hackett and Betz (1989) conducted a study of American college students showing that "mathematics performance was correlated moderately with mathematics self-efficacy" and "regression analyses supported the superiority of mathematics self-efficacy over mathematics performance and achievement variables in predicting the choice of a mathematics-related major" (p. 261). Put simply, confidence mattered more than computational skill in determining whether or not a student opted to pursue a math-based degree. More comprehensively, Hembree (1990) performed a meta-analysis of 151 studies on math anxiety and came to similar conclusions. Hannula, Maijala, and Pehkonen (2004) studied a similar phenomenon in primary grades students.

I will now trace the path math students often take as they grow as writers of mathematics and as they develop both a richer cognitive understanding of mathematics and greater confidence in performing computations. Having followed this path we may more readily understand the role poetry might play in assisting students' ongoing growth as mathematicians, especially at the early stages of their careers, when their competence and confidence are weakest.

More than Numbers: Math Students' Development as Writers

At the college level, most students first encounter mathematical writing in a precalculus or calculus course. There students read the logic-laden expository prose of their first-year calculus texts, page after page of definitions and propositions and pictures and graphs punctuated by relatively basic mathematical proofs. While some attention is devoted to the integumentary intuition that ties each theorem to the next, much emphasis is placed on the proofs. Many instructors will challenge their students to reiterate the proofs on exams, to mimic them, and sometimes to paraphrase them in their own words. Students' first tries at this sort of mimicry are clumsy and awkward. Generally students show little control of the complicated idiom while they make tentative attempts at creating mathematical reportage. Even when asked to use their own words, students' papers are overburdened with jargon, passive phrasing, and misused terminology that has a "mathy" ring to the students' ear. Their writing is stilted and lacks confidence.

Typically it is in their sophomore years that novice mathematicians are first asked to create their *own* proofs of mathematical propositions. Although they may have as models proofs of similar propositions and though they will have been given a small store of generic proof techniques, constructing their first few proofs *ex nihilo* is a difficult and often terrifying exercise that pushes the students to the limits of their cognitive understanding and often shakes their confidence in their abilities. It is not surprising that the "gateway" course comprising dozens upon dozens of such exercises is often the most difficult course mathematics undergraduates will take. Having passed this hurdle, students proceed with improved competence and confidence, but that confidence may be shaken again as the proofs they are asked to construct grow in length and complexity.

In their upper-division coursework math students may be called upon to write brief survey papers sketching out the rudiments of a particular topic. In these papers students must do more than validate the proof of mathematical propositions; they

must also provide their readers with a map of the cognitive ground underlying those propositions and a means for connecting that ground with the visible surface in which the propositions live.

In their last few semesters of study math students may engage in original mathematical research that culminates in writing authentic research articles. Writing these articles will present the (by now much more competent and confident) students with genuinely new challenges: instead of working with predefined concepts and propositions, the students are forced to invent and elaborate their own metaphors and provide their readers with a working knowledge of these new ideas. The students are, perhaps for the first time in their careers, true *authors* of math, making their own contributions to the growing body of mathematical knowledge.

Given the importance of both cognitive understanding and confidence in guaranteeing students' success in math, and given our understanding of students' growth as writers of mathematics, we may now ask what role poetry might play in bolstering students' development as writers. It is to this issue that we now turn.

Why Poetry?

I claim that poetry can be made to serve two important purposes in an introductory mathematics course: (1) poetry offers a new sort of cognition, a new lens, one based in linguistic metaphor, through which students can examine and re-examine mathematical ideas; and (2) writing poetry emboldens students and gives them confidence by allowing them a more familiar idiom in which they can express themselves mathematically. I will continue now with a brief description of the assignment as it was given to students in my Fall 2008 Precalculus course. (The full text of this assignment's prompt is contained in the second appendix; the Fall 2007 assignment in my Calculus I course was very similar.) I will then share several students' poems and reflections on their poems, indicating how their work shows evidence of improved mathematical cognition and bolstered confidence in performing math.

The Assignment

The assignment was a straightforward one: students were asked to write a single poem each, and each poem was to involve mathematics in some fashion, whether as an element in the poem's structural design or as the basis for the poem's content. For students who had difficulty conceiving of a meaningful matching of math and poetry, I offered several resources on math poetry as models. Given the diversity of poetry's

forms and functions and my students' varying degrees of exposure to poetry, I expected that my students were liable to craft a broad assortment of poems differing from one another in length, structure, content, and form as much as night differs from day. (I was not disappointed.)

Students were asked to submit rough drafts of their poetry, which I would then review myself before offering feedback. As I am not a trained poet, my responses to students' work generally de-emphasized technical elements such as scansion and meter and focused on encouraging students to choose language and structure that most clearly expressed the meaning they were attempting to convey in their poems. This meant that many of my comments to the students comprised statements like "I sense that you're aiming for an angry tone in this poem; are the words you've chosen those that will best convey anger?"

Having received their commented drafts from me, students then had a day or two to revise their work before taking part in a poetry reading/workshop with their peers. This event, held outside of class, was not compulsory, and only four or five students chose to attend. Those who did attend shared their poetry with one another and offered each other feedback on their work.

Students submitted their final drafts two weeks after the assignment was first handed out. The assignment was a graded one, but in order to keep the stakes low and to nurture a safe environment in which students could feel free to explore, students were graded only on whether or not they completed each stage of the assignment.

Writing to Re-vision: Assisting Students' Understanding of Math

Cahnmann (2003) is very explicit about the ways in which writing informs understanding of a particular discipline: "Writing is a vital element of any research inquiry. Thus, the more varied and practiced the art of writing, the more possibilities there are to 'discover new aspects of our topic and our relationship to it,' and the more vital our writing will be" (p. 29, quoting Richardson, 2000). Cahnmann continues: "Poetry and prose are *different* mediums that give rise to ways of saying what might not otherwise be expressed" (p. 31, emphasis mine). Thus the language of poetry offers students access to ways of understanding they have likely never considered.

Indeed, in writing poetry many of my students seemed able to re-vision their own mathematical ideas and discover ideas as yet hidden to them. Students' own reporting of the themes of their poems indicates sense-making in various forms. Some students

wrote to sort out the roles played by mathematics in nature and elsewhere, others to make sense of the patterns underlying mathematics itself, and still others simply to clarify their own emotions surrounding mathematics.

When prompted to discuss the theme of her poems, Katherine offers new general realizations about mathematics: “I wrote multiple poems, but the common thread between them is that [in] mathematics [there] are other places besides word problems and textbooks. Math is in nature, math is in everyday patterns, math is in history...Math is everywhere, and most people don't even realize it.” Katherine's awareness of math's universality is evident in her haiku “Math in Daily Life”:

Patterns on my bunks,
they resemble the graphs of
cosine and sine curves.

A second example of her brief poems highlights her awareness of the contrivance of the cliché problems she found in her calculus textbook:

A tall ladder falls
At twenty feet per second
Why would it do this?

Another student made more specific discoveries as he attempted to draw relationships between math and humanity:

I thought about it a bit, and started to think about poetic themes that I could compare to infinitely expanding patterns. Time immediately came to mind. And then, the theme of infinite amounts of time vs. a finite amount of lifetime – an eternal theme of the human struggle – started running around in my brain. Then it really just sort of occurred to me that maybe I could use a divergent series syllable pattern for the first half, in tension with a convergent series syllable pattern for the second half, to show the emotional tension that humans deal with when they try to beat their own mortality, and exist indefinitely.

A third student's poem displays her increasing sensitivity to mathematical structure. The number π (approximately 3.14159265358...), which is the ratio of the circumference of a circle to its diameter, served as a template for the following poem. Each line

has the number of words indicated by the appropriate decimal place of the number π , and the number's name offers the chance for a clever pun in the poem's final line:

Broccoli Carrots Kale
.
Chopped
Garlic onion ginger tamari
Tofu
Cooked in a hot wok
Delicious food fast from my two burner hot plate
Aroma fills
My tiny apartment for many days
One room living makes for
A constant smell
Garlic permeating the whole place
Maybe I should have made some delicious Pi

Some students' revelations about mathematical meaning were more personal. As one indicated, "The theme of my poem shows the different emotions you go through in trying to understand [mathematics] from the viewpoint of a student. Doing the homework is just that kind of cycle of emotions. It explains literally what I go through every time I do the homework."

It should not be surprising that students find poetry a useful tool for accessing these mathematical ideas: the language of poetry is precise and exact, as is the language of math. In both idioms words are heavy with meaning, and word choice is crucial. A well-constructed poem will in this manner be like a well-constructed proof.

Furthermore, as Eisner (1997) says, "Poetry was invented to say what words can never say. Poetry transcends the limits of language and evokes what cannot be articulated" (p. 5). The language of mathematics serves the same transcendent purpose, and in both poetry and mathematics this transcendence is achieved in similar fashion. Both poetry and mathematics deal in images, ideas, and *ahahs*: metaphor is the currency with which poetic trade takes place, and math's economy has the same basis. Spheres, balls, neighborhoods, lattices, chains, nets, sheaves, bundles, sources, sinks, orbits, itineraries, distances, colorings ... these math metaphors are alive and well, for the active images they evoke aid in mathematical understanding. Meanwhile dead metaphors litter the mathematical landscape: to *calculate* is to reckon with counting

stones (Latin, *calculae*); to do algebra is to apply “the reductions” (Arabic, *al-jabr*) indicated by *algorithms* (Arabic, *al-Khwarizmi*, the famed medieval mathematician), and to do *geometry* (Greek, γεωμετρία) is to measure the Earth.

By using poetical metaphors students become more aware of these and other mathematical metaphors, and thereby gain deeper understanding of the mathematical concepts those metaphors describe. This new form of mathematical cognition is made possible through poetry.

Writing to Reassure: Building Students' Confidence

In asking the students to craft poems with mathematical themes, I intended to bolster their confidence by providing them with an alternative means of expressing their personal experience with mathematics. This opportunity was particularly appealing to students who were not math or science majors. I echo Samuels (1987, p. 58), who noted that performing poetry in a sociology classroom emboldened “weaker” students: I found that some of the students who performed more poorly or at least more reluctantly than their peers on traditional mathematical exercises (such as computation-heavy homework problems and in-class exams) relished the chance to work with a new medium. For instance, as we saw above, Katherine, an Art major, was able to call upon her creative resources in order to make mathematical sense of the world around her.

For many students the assignment created a safe place where they felt more at ease in exploring mathematical ideas. In a sense the assignment offered an open arena in which the formal rules of technical composition no longer applied and in which students were set free to explore their feelings towards math unselfconsciously. For Aurora, poetry offered an opportunity to express otherwise indescribable frustration with math. In her poem “Frustration,” she felt free to use obscenity, unthinkable in formal mathematical writing, to describe her feelings:

It used to come so easy.
Never being challenged or troubled
Always loving the beauty and complexity of it,
Now getting bogged down in the cumbersome intricacies,
Confused not knowing how to help myself,
Frustrated with the fucking functions,
Wanting to get back to the beauty,
Seeking guidance.

Writing this poem proved highly therapeutic; in her reflection on the exercise Aurora said:

I wanted to express my frustrations with calculus and my inability to learn the concepts as quickly as I usually do. Around the time this assignment was given I was struggling with my courses and becoming very frustrated with my inability to learn the concepts. I am a person who usually hides my frustrations and my negative feelings unless I am very comfortable, therefore, writing this poem really helped me 'vent' my feelings in a positive way. I can honestly say I felt better, more composed, and refreshed to get back in there and give math another go.

Aurora was not the only student for whom poetry played a therapeutic role. The author of the following excerpt used her poem to talk herself through her self-described "attacks of math phobia":

Is this the end of the beginning?
Is this the hurdle that's just too high?
Breathe. Slow down. You can do this.

Other students' poems signaled similar shifts in their attitudes towards mathematics, although I cannot pinpoint whether these poems were merely symptomatic of those shifts or whether they helped bring those shifts about.

For instance, when asked about her parodical poem "Mathbeth" (excerpted below), Lisette indicated that "the theme is the dread that math can inflict upon pressured students over the course of the semester, and the resulting all-nighters that are soaked in coffee and laced with sleepless visions of talking pens and pencils...I chose this theme because it represented my relationship with math perfectly at the time." However, when asked "How do you feel about mathematics?" Lisette responded:

Until a few months ago, I would have taken this opportunity to lambaste mathematics and all those associated with the loathsome subject. However, during the last school year at UNCA, I realized that what I assumed to be a hatred for math itself was actually a product of my *confusion* in math. At some point, after math began to click in my mind and the confusion lessened, I saw the difference. Math and I then became good friends.

In "Pencil's Soliloquy" from Lisette's poem, we get the sense that the character Pencil is giving voice to Lisette's thoughts, casting out her antiquated hatred:

However the task was first derived,

To a veteran of your caravans,
Make good this oath with eye and voice:
Look to the ink of stalwart pens
In your aimless waste of parchment.
For never will your proofs amend
Those errors in your quotient.
Day upon day you dulled my lead
As ere you chased the numbers 'round.
So many times I thought, perhaps
You'd finally reached your limit,
Then watched my world shake upside-down
To briskly hide your mishaps.
I grew quite bald from misadventures
With wild domains and vicious powers
No more! I say again, No more!
My lead is soft, my wood is fragile.
Find some youth with a liquid core
And a shiny plastic shell.
We of wooden constitution
Have failed our last equation.

Lisette's literary banishment parallels her own very real banishment of mathematical trepidation. Again, it is difficult to say whether poetry helped her to grow bolder mathematically, or whether it merely offered her a means to express her greater confidence gained by other means. In either case, poetry has served a useful purpose.

The Road Ahead: Math Poetry In and Outside of the Classroom

I am heartened by the successes my math students have had in creating math-themed poetry. While freedom from the formal conventions of mathematical writing allowed my students a broad array of expressive possibilities, it also brought some of them face to face with a unique challenge, namely to tell tales about a highly technical science without the use of technical language. For many students that challenge led to profound new observations about the nature of mathematics and their engagement with it.

Now convinced that poetry can play a useful role in the mathematics classroom, I am eager to explore new ways in which poetry can help students at all levels to gain

a better understanding of mathematics. As students develop greater mathematical sophistication, so they may also discover new uses for poetry in the math classroom. For example, I am currently developing an assignment that will ask students in Abstract Algebra (an advanced undergraduate mathematics course) to use poetry to analyze various algebraic structures. By writing poems whose structure depends strongly on algebraic objects known as a *homomorphism*, students will be able to demonstrate whether or not they have achieved an understanding of such objects.

How might poetry and other nontraditional forms of technical exposition prove relevant outside of the classroom? My students' literary work deals almost exclusively with "already known" mathematics, but it is natural to ask if we may make use of poetry to engage in formal mathematical inquiry. That is, can we perform mathematical research and disseminate its results through poetry or other highly nontraditional literary genres? I will consider this question in a future article as I attempt to uncover the mathematical equivalents of what Richardson (2000) refers to as "creative analytic practices" in qualitative sciences.

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APPENDIX 1: SURVEY OF STUDENTS' REFLECTIONS ON THE POETRY-WRITING PROCESS

(Below are the questions posed to the students as they reflected on their experience in writing mathematical poetry.)

1. Do you typically enjoy poetry? Have you been asked to write poetry for other courses? Do you write poetry for your own pleasure, or as a means of expressing your ideas to yourself or to others?
2. How do you feel about mathematics?, or, how does it make you feel?
3. What do you feel is the theme of your poem, and how did you choose this theme? Why do you find this theme meaningful, on a personal level? How does it relate to your feelings about mathematics?
4. Do you feel that your poem offers any special insight into a particular mathematical topic? Please explain.
5. Can you indicate any conscious word choices you made in writing your poem? Why did you choose the words you did?
6. How do you think the words you chose help to convey the poem's theme?
7. Is there anything about the structure of your poem (stress patterns, verse forms, rhyme schemes, etc.) that reflects a conscious decision on your part? How do feel the structural elements you've chosen help to express yourself through the poem?

8. What part of your poem are you most satisfied with, and why?
9. Looking back on it now, how does your poem make you feel? Do you think that it succeeds in conveying the feeling that you intended it to convey?
10. What do you feel that you gained from the experience of writing your mathematical poem? Please explain as well as you can.
11. Would you mind if I quoted your responses to this interview in the article I am writing? If you don't mind me quoting you, would you prefer that it be done anonymously?
12. Would you mind if I included your poem in the article I am writing? If you don't mind me including your poem, would you prefer that it be done anonymously?

APPENDIX 2: THE ASSIGNMENT PROMPT

(Below is the prompt of the math poetry assignment as given to my Fall 2008 Precalculus class.)

Doing math, to most people, is a scientific enterprise. Made up of ice-cold lemmas, theorems, and propositions, mathematics is a means to an end, a collection of procedures that can be applied to analyze the phenomena that arise in the natural world. Thus most see math as a pragmatic discipline, interesting only insofar as it is useful.

Many mathematicians, on the other hand, see math in a different light. To them, math can be beautiful: in its forms and structures one finds patterns, symmetry, and harmony of all kinds. From the obvious aesthetic beauty in lattices and fractals to the deep and subtle patterns in the distribution of the prime numbers, there is beauty in mathematics.

As such, math has served as an inspiration to artists of all stripes. For instance, many of the Renaissance's finest artists were among the period's best mathematicians, and many of Bach's finest works are built upon simple mathematical formulas. Less obviously, mathematics has informed writers as well. One need only look briefly at the work of Katherine Stange, or the Franco-Italian collective Oulipo, or even more "mainstream" work of Hermann Hesse to see that math can play a meaningful role in the literary process.

Your next writing assignment will ask you to take a departure from the run-of-the-mill written math project.

Your goal for the next couple of weeks is to create a mathematical poem. Because

both “poetry” and “math” mean such different things to different people, I will leave it to you to explore exactly what exactly this means to you.

For instance, you might choose to construct a poem whose *form* is mathematical: perhaps your work could be based upon the digits in the number π or a pattern in the prime numbers or the Fibonacci sequence or Golden Ratio. Instead, perhaps in your poem the *content* is mathematical: might you write about a specific function or mathematical idea? Or maybe your poem could be more personal still; you could use it to explore an experience you had while studying, learning, or discovering mathematics. In a past class in which I assigned this project, I received all of these kinds of poems.

I am not asking you to construct a poem that rhymes, nor do I demand that it have any set metrical structure. Your poem may be serious, humorous, long, or short. It could be epic, idyllic, heroic, futurist, rap, beat, odic, you name it! You may use any words you feel are appropriate. You may choose to make use of (or not make use of) any poetical device with which you’re familiar, as long as the resulting work means something to you. Please keep in mind that although it is important that your poem means something to you, it is just as important that you make an honest attempt to convey the poem’s meaning to others as well. Metaphor and imagery are often useful tools to do this effectively.

Although this exercise is a highly nontraditional one, I ask that you take it seriously. Choose your words carefully, but don’t be afraid to experiment with different ideas, different images. I hope that you’ll see it as a unique opportunity to meld your creative side with your computational one, in whatever way makes sense to you. This project is to be completed in two stages. First, I will be asking you to submit a rough draft of your poem on **Friday, October 3rd**, after a bit more than a week’s work. At this time I will schedule an out-of-class peer review session that you may choose to attend in order to get ideas from your colleagues as we share our poetry with one another. Such a meeting, like that meetings of a writers’ group, will allow you to reflect on your word choices, and to fine-tune your metaphor. This meeting will be held on **Monday, October 6th**, at a time to be announced.

I will then ask that you submit your poem to me by 5:00 p.m. on **Friday, October 10th**. Along with the poem you will write a brief (1 page or so) description of the poem’s meaning. In this description you might indicate how you chose your poem’s subject matter or wording, what consideration went into the poem’s form and structure, or any other aspects of the poem and its construction you find important. While the description will be useful in helping someone else to understand the poem, the poem should stand well by itself.

As a class we will also schedule an out-of-class poetry reading for the finished poems. I hope that many of you will choose to come to such a meeting (we'll get some pizza or some other more poetical food!) and feel free to read your work to others.

As I am not a professional poet, I do not feel qualified to assess your poem on the basis of its technical literary merits. Instead, your performance on this assignment will be judged based upon your completion of the assignment and on the clarity of your creative process as evidenced by the poem itself and the accompanying description. Please note that although I am not a teacher of poetry, it will be very easy for me (and others!) to tell whether you have taken this assignment seriously or not. I am sure that if you do take make a serious effort, you will do well on it.

I look forward to working with you on this project, and am eager to see the sort of art you're capable of producing. Please take this opportunity to set your creativity free!

Writing in the Disciplines: America's Assimilation of the Work of Scottish “Pedagogic” George Jardine

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SCHOLARS DAVID RUSSELL, ROBERT CONNORS, AND CHARLES BAZERMAN, among others, trace the history of the American WAC movement and programs to two initiatives of the 1960s: the renewed interest of American scholars in the study of rhetorical history and composition pedagogy, and British educational reform, spearheaded by James Britton (and other educators), at the London College of Education—disseminated in the United States at the 1966 Dartmouth Conference (see Bazerman et al.). In “History of the WAC Movement,” Bazerman et al. outline the trajectory of this movement, beginning with early twentieth-century American educators’ displeasure with stand-alone composition courses. This history is recognized as the birth of WAC in the United States; however, in this essay, I wish to offer another—much earlier—chapter in the developing story of WAC’s history in the United States, one that dates back to eighteenth-century Glasgow, Scotland.

An examination of manuscript holdings in America reveals that Scottish-based educational philosophy, often labeled the “Princeton School,” an alternative to Harvard’s vastly influential curriculum, embodies salient components of the educational theories and practices of Scottish rhetorician George Jardine, Professor of Logic and Philosophy at Glasgow University for fifty years, from 1774-1824.¹ Jardine, one of Adam Smith’s favorite students at the University of Glasgow and friend of Thomas Reid and John Millar, instructed many influential Scots (i.e. Francis Jeffrey, Sir William Hamilton, Christopher North, and J. G. Lockhart), some of whom (see below) later emigrated to North America and held prestigious positions within higher education and religious circles. These educators brought to American education Reid’s common sense philosophy based on an epistemology of sensation and free will (and in part developed in opposition to Hume’s skepticism and Locke’s views of personal identity), exemplified in

Jardine's insistence that students must develop habits of thinking and study that lead to communicative competence and "usefulness" in their local communities (Jardine 108)—educational philosophies and practices ideally suited to a democracy valuing individual judgment and personal freedom. But perhaps the most notable and novel "habit" Jardine instilled in his students was the practice of writing in all disciplines in order to improve written communication skills and make meaning of new knowledge. Epistemic writing (including free writing, sequenced writing assignments, and peer evaluation) became the cornerstone of Jardine's teaching plan, and this pedagogy was widely adopted in the major Scottish universities. Jardine is routinely recognized as the primary codifier of the early nineteenth-century Scottish university educational approach based on written compositions (Chitnis, Davies, McCosh, Horner), and Linda Ferreira-Buckley has proven that Jardine's teaching methods were adopted at English universities in the early nineteenth century as well (174); however, the range of Jardine's interdisciplinary theories of education and his sphere of influence upon American education demands closer investigation. This essay describes the importance of writing within Jardine's curriculum and explores his influence, not only in Great Britain, but also in America.

Jardine's Reliance on Epistemic Writing as a Means of Learning and Assessment

A close reading of Jardine's *Outlines of Philosophical Education* (1818, 1825)—a culmination of pedagogy he began developing as early as 1774—reveals (1) the educator's rationale for revising educational practices based on scholasticism, (2) his innovative plan for peer review and collaborative learning, (3) his reliance on epistemic writing and sequenced compositions as a means for students to assimilate knowledge and develop life-long habits of study (4) his anticipation of modern composition pedagogy, and (5) his unique stance on the role teachers and administrators must play within the educational system.ⁱⁱ Jardine's plan for "active discipline" was instrumental in the establishment of composition as an integral component of Scottish instruction and assessment across the disciplines. Following Jardine's example, many teachers adopted the essay as a primary assessment tool for evaluating students' mastery of course material in many subjects, including math and physics, and for encouraging students to write on a variety of cultural subjects in logic courses (Davie 17). An examination of Jardine's teaching treatise *Outlines*, his letters (MS Gen 507), two sets of student lecture notes (MS Gen 166, 737) housed in the University of Glasgow manuscript library, and testimony about his teaching plan found in the national report on Scottish universities (*Evidence, Oral and Documentary*) reveals a philosophical rationale and practical

teaching plan for expanding introductory college classes to include not only the inheritance of enlightenment rhetoric (the study of *belle lettres*, the means of improving communication, elements of the science of the mind, and theories of language), but also the seedbed of modern composition practices and administration theories explicitly tied to students' needs. Jardine provides a theory for how composition should be taught, detailed commentary on the role of the teacher, curriculum development guidelines, and specific pedagogical advice for implementing composition instruction into existing courses. There was no such thing as a "writing across the curriculum" program at any of the Scottish universities; however, Jardine did offer both encouragement to and models for other teachers and administrators (from many disciplines) who wished to adapt their courses to include writing instruction and assessment.¹

In *Outlines*, Jardine explains the transferability of thinking and investigative skills across the disciplines that a student can gain from intensive writing instruction: "The efforts which the student is obliged to make in executing such exercises have a direct tendency to improve the powers of attention, discrimination, and investigation — to conduct the mind from phenomena to causes, from particular to general truths, and thus to produce habits of reasoning which may easily be applied to other subjects" (328). Comparing the acquisition of communicative skills to the process by which one learns to dance or play a musical instrument (*Outlines* 291), Jardine explains that teaching students to write and think (through progressive exercises) is far more difficult for teachers than composing lectures—but necessary (293); practice must follow instruction (292). He prescribes a series of frequent/repetitive/sequenced assignments on varied topics (294-95) designed to move the student from one level of writing skill and thinking/acquisition of knowledge to the next.

These assignments depend upon peer review and an embedded process approach to writing focused on revision: "Of one thing the youngest student must be made sensible from the evidence of his own consciousness, that he cannot expect to compose even the simplest theme, without directing and continuing his power of thinking upon it... that whatever talents or quickness of parts he may possess, he must employ both time and labour in proportion to the extent of the subject" (315). Jardine's students wrote frequently and revised in conjunction with peer editing. His method of conducting student-assisted learning began with the appointment of ten or twelve of the best

¹ For an analysis of Jardine's discussion of what we label Writing Program Administrator (WPA) issues, see Gaillet's "A Genesis of Modern Writing Instruction"

writers in the class as “examinators,” a term he chose over “critic” or “censor” because it was “less assuming” (367). The examiners were responsible for closely analyzing a certain number of themes (according to Jardine’s specific instructions) and giving a detailed written report attached to the theme back to the author (367). Because this plan was successful not only in decreasing his own grading load but also in improving the work of the examiners, Jardine extended the privilege of being an examiner to everyone in the class so that each student could be given “an opportunity for exercising his powers of criticism” (371). He found that “thus, opposed to each other, with as much equality as can be expected, each student is furnished with the strongest motives to exert his attention and his ingenuity. It becomes a sort of single combat, in the presence of many spectators, and it has been found to produce attention and diligence in many when other motives had failed” (372).²

In rejecting scholasticism and encouraging students to take ownership of their education, Jardine’s pedagogy is part of a rich epistemological tradition, not simply a “didactic” tradition associated with a reductive program of instruction. His modern theories of learning foreshadow the work of current scholar/teachers who reject traditional pedagogy that “invalidates teachers’ and students’ critical reflexivity on the act of knowing, and promotes the reduction of somebody else’s method of knowing into a sequential schematization of that method” (Salvatori 8). As Jardine explains, “The ornament of learning, and the dignity of science, cannot be transferred from one man to another: they cannot be inherited; they cannot be bought with a price; nor can they be bribed by favour. The tax of labour which is imposed upon every great and noble acquisition must be paid by the individual who aims at it” (107). Jardine insists that teachers reform classroom curricula and instruction so that it is student-centered and encourages students to develop habits that lead to life-long learning. He strived to prepare his pupils for careers in business and industry by training them in communicative competencies and investigative rhetorical practices; training in writing instruction relied, in part, upon mastering course content through the composition of written essays, but Jardine also specifically designed writing assignments meant to improve student writing skills through pedagogies we recognize as free writing, assignment scaffolding, peer review, and writing in/for communities.

² I fully explain Jardine’s rationale and plan for classroom peer review (including the rules, format for sharing criticism, conflict resolution guidelines, and the teacher’s role) in “An Historical Perspective on Collaborative Learning.”

Jardine's Reputation and Influence upon American Education

Acclaimed as the “contemporary spokesman for the Scottish [educational] system” (Chitnis 52), Jardine’s pedagogical reforms exemplify the best teaching practices of nineteenth-century Scotland, and while Jardine’s work foreshadows modern rhetorical theories and practices in North American college instruction, very few American educators are aware of his work. Why? Perhaps in part because we aren’t accustomed to looking at the work of innovative pedagogues outside our own discipline. Also, Jardine was first and foremost a teacher; he was influential in his own realm and in the United States through his students’ exportation of his teaching theories and practices. He was not prolific, publishing only the two editions of *Outlines* and an abbreviated text on logic, *Quaedum ex Logicae Compendiis Selectaie*. And finally, during his time (as is often the case today) the work of logicians/philosophers was privileged over the scholarly inquiry of teaching. McCosh offers Jardine backward praise as a pedagogue, tempering the teacher’s accomplishment and influence with criticism, illustrated in these passages: “He [Jardine] enlarged with much deeper interest on the human mind generally, and the various faculties: . . . showing no originality or grasp of intellect, but furnishing a course of great utility to young students” (316); and “His pupils acknowledged their deep obligations to him in interesting them in study and imparting to them a power of writing the English language. But certainly he did not advance the science of logic . . .” (317). It is ironic, then, as we will see below, how much McCosh was influenced by Jardine’s teaching theories.

Although Jardine’s comprehensive plan for integrating writing within the university curriculum, mingled with his fierce advocacy of both students’ rights and teacher responsibilities, offered a practical plan for implementing what we now label “writing across the university” curriculum—a plan developed at the end of the eighteenth century, codified by Jardine’s nineteenth-century published work *Outlines*, and brought to America soon thereafter by his students (discussed below)—his reputation and accomplishments did not have a lasting effect. In 1993, Winifred Bryan Horner laments that Jardine’s work “failed to influence the American universities of the nineteenth century either directly or indirectly” (*Nineteenth-Century Scottish Rhetoric* 179). For twenty years, I too have argued that Jardine’s teaching theories and plans prefigured, not directly influenced, twentieth-century educational theories in North America because I didn’t have evidence to support claims of influence, although I had found circumstantial evidence and brief, unsubstantiated published remarks suggesting that the Scottish professor did indeed play a role in the development of American curricula—Herman claims that Jardine’s *Outlines*, a teaching treatise, “became one of the most popular textbooks

in American higher education” (391). In my early investigations of Jardine, I thoroughly examined Scottish manuscript library holdings (at the Universities of Edinburgh and Glasgow, in the Scottish National Library, and in newspaper and government archives) addressing his work and career. Now, thanks to an e-mail from Thomas Olbricht, divinity scholar and minister in the Church of Christ, I have been introduced to American archival evidence that proves Jardine not only prefigured but also influenced North American educational practices and course design through the emigration of his influential students to America. Once professor Olbricht alerted me to Jardine’s influence upon religious educators Thomas and Alexander Campbell (documented in manuscript collections housed at Bethany College and the Disciples of Christ Historical Society), I then began to look outside my discipline for records and accounts supporting the claim that other American teachers and administrators, many of whom were Jardine’s students, adopted and lauded Jardine’s conception of education as published in his foundational treatise *The Outlines of Philosophical Education* (1818, 1825).

Both public records and manuscript archives indicate that nineteenth-century American readers and educators had access to Jardine’s 1825 edition of *Outlines of Philosophical Education* work in both public and university libraries.ⁱⁱⁱ Immigrant William Russell, student of Jardine at the University of Glasgow and founder of the *American Journal of Education* (*AJE*) in 1826, shared his admiration of Jardine’s teaching philosophies with American audiences; he wrote an extensive twenty-five page review (spanning two journal issues) of *Outlines* published in the first volume of the *AJE*. Paying homage to his esteemed professor, Russell writes: “The author of the *Outlines* — an eminent practical philosopher and a veteran in the service of education — takes the young instructor by the hand, and places him at the feet of a sound and enlightened philosophy, there to watch the development [sic] of the mind, and to ascertain that course of discipline, which is best adapted to the constitution and the condition of man” (547). Henry Barnard, Russell biographer, explains that Jardine’s instruction at the University of Glasgow provided Russell the encouragement and incentive leading to the establishing of the *AJE*—a groundbreaking publication unique to both the US and England (140), which led to the elevation of the teaching profession across the country. Jardine had many other admirers as well. In particular, the educational practices of influential educators Alexander Campbell at Bethany College and James McCosh at Princeton College clearly bear the mark of Scottish philosophy and pedagogy as codified in Jardine’s *Outlines*. In these educators’ adoption of Jardine’s practical teaching plan, we see early illustrations of thinking and writing across the curriculum in American schools.

Thomas and Alexander Campbell

“The Campbell Collection” (Manuscript L) housed in the TW Phillips Memorial Library at Bethany College, West Virginia—along with holdings at the Disciples of Christ Historical Society in Nashville, Tennessee—provides another example of Jardine’s early influence upon American college curriculum and pedagogy. Before immigrating to America, Alexander Campbell (1788-1866), religious reformer and Bethany College’s founder and first president, was Jardine’s student at the University of Glasgow, as was Campbell’s father, Thomas (1763-1854). Twenty-year-old Alexander attended Glasgow University—rather providentially—as the result of a storm and shipwreck on his voyage to meet his father in Philadelphia. Campbell could not book passage on another ship until the next summer, and while his family lodged in Glasgow, Campbell attended Glasgow University. “The Campbell Collection” (Manuscript L) at Bethany includes Campbell’s notes from Jardine’s lectures, and Carisse Berryhill’s dissertation, “Sense, Expression, and Purpose: Alexander Campbell’s Natural Philosophy of Rhetoric” details Jardine’s influence upon Alexander Campbell’s learning theories and practices (64-72)^{iv}. Although not widely recognized outside religious circles, Campbell’s educational influence is enormous, particularly within the Disciples of Christ denomination (see *The Encyclopedia of the Stone-Campbell Movement* for a thorough study of Campbell’s contributions). Father-son educators Thomas and Alexander Campbell helped lead this organization’s westward migration between 1809 and 1823, and many universities and colleges were formed in the wake of this westward expansion of the church under the guidance of the Campbells. Both Thomas and Alexander Campbell studied Baconian scientific induction and commonsense philosophy under George Jardine at Glasgow University, whose student-focused teaching plan uniquely suited the Campbells’ democratic philosophies of education and belief that individuals were capable of reading and comprehending scriptures. As Berryhill explains, “Common sense hermeneutics offered the Movement an evangelistic methodology very appealing to a population that appreciated individual judgment and personal freedom” (“Common Sense” 231). Berryhill’s recent discovery and transcription of Campbell’s notes on the logic course he took under Jardine at Glasgow provide a means for critically assessing and documenting Jardine’s influence in United States curriculum design.

Jardine required his students to transcribe/summarize the course lectures after class; Campbell’s notes on Jardine’s lectures are located in the Campbell Collection at Bethany in Manuscript L, titled “Lectures in Logick Delivered by Professor Jordan [sic] in the University of Glasgow, 1808.” Students were also asked to write essays and

assignments based on class discussions and lectures; copies of Campbell's responses to these assignments are preserved partly in this manuscript and partly in Manuscript B, published as *Alexander Campbell at Glasgow University* (Berryhill, "A Descriptive Guide"). Although we have no extant documents from Thomas Campbell's enrollment at Glasgow, Jardine's major treatise *Outlines of Philosophical Education* indicates that the curricula and pedagogy for the course Thomas would have taken in 1783 was very similar to the one taken by Alexander in 1808. According to Thomas Campbell scholar Frederick Norris, "The Scottish Common Sense Philosophy, particularly in the rhetoric of George Campbell and the logic of George Jardine, greatly influenced the elder Campbell" (see Campbell, *Memoirs of Elder Thomas Campbell* 267), and we have direct testimony from Alexander Campbell concerning his opinion of Jardine's teachings; he explains that Jardine, along with Greek Professor Young, were his friends and favorite professors in the university (Richardson 131). Five years before his death, Campbell specifically recalled Jardine's lectures of 1808 on "attention" as "[t]he most useful series of college lectures of which I have any recollection" (*Memoirs of Elder Thomas Campbell* 267).

In the "Introduction" to the transcribed essays Alexander Campbell wrote for Jardine's class (1808-09) in moral philosophy, Lester McAllister tells us that the "juvenile essays" reveal "that Campbell arrived on the American frontier in 1809 with superior equipment for the work that lay ahead of him" (5)—to train students to read and analyze scriptures. Campbell adopted the attitude that individuals were responsible for studying the Bible directly and living by its principles. The Scottish common sense philosophy Campbell learned from Jardine—visible in Jardine's learning theories and his innovative pedagogical reforms—ideally suited Campbell's American conception of individual freedom and responsibility based on competence in critical thinking, speaking, and writing.

Throughout his life as an educator and minister, Campbell was an ardent, dedicated follower of Jardine's teachings based on Thomas Reid's common sense philosophy.^v Thirty-two years after taking Jardine's course, in his opening speech at the founding of Bethany College, Campbell followed Jardine's analysis of the assumptions and history of logic and philosophy. Campbell condemned Scholastic and Aristotelian philosophy for its lack of scientific discovery and useless speculation. It was, Campbell said, echoing Jardine, "reserved to Francis Bacon . . . to strike out a new path to science." This new path was the Inductive Philosophy, which ushered in new discoveries 'of the greatest importance'"(Casey 205; see also *Introductory Lecture* 64). Echoing Jardine's concern with rhetorical engagement and civic involvement, Campbell states in this

address, “It is the offspring of a deep and long established conviction that the theory and practice of education are yet greatly behind the onward progress of the age, and that to improve education and to adapt it to the philosophy of human nature is, of all human means, the most likely to improve and reform the world” (*Introductory Lecture*). The Campbells’ work in establishing colleges and universities throughout the United States clearly bears the mark of Scottish philosophy and pedagogy—codified in Jardine’s lectures and *Outlines*.

Scholars interested in the history of educational practices will find religious references like *The Encyclopedia of the Stone-Campbell Movement* to be a treasure house of information and resources. In part, we have lost the trajectory of many important American educational practices because we have neglected to study the denominational records of early educators, most of whom had strong religious affiliations.

James McCosh

In his 1875 work *The Scottish Philosophy: Biographical, Expository and Critical from Hutcheson to Hamilton*, which describes the contributions of important Scottish philosophers, McCosh, the eleventh president of The College of New Jersey (Princeton) from 1868 until 1888, includes a brief section on the contributions of Jardine. McCosh attests to Jardine’s influence upon a number of other important philosophers of the period: “His pupils acknowledged their deep obligations to him in interesting them in study imparting to them a power of writing the English language” (317). McCosh did not view Jardine as a particularly innovative logician, but he did admire his reputation as an exemplary teacher, describing Jardine as a “Pedagogic” in the German Tradition (316). McCosh highlights Jardine’s classroom practices that lead students to think for themselves, deeply pursue topics of study, and think critically. While remarking upon Jardine’s novel introduction of question and answer sessions interspersed throughout traditional lectures, McCosh makes clear that it is Jardine’s systematic plan of writing instruction that is the most notable feature of the pedagogue’s contributions to learning theories: “But the most important part of his work is that in which he explains his views as the themes for composition, recommending that some be presented as fitted to enable the student to form clear and accurate notions and to express his thoughts, others to give a power of analysis and classification, a third to exercise and strengthen the reasoning faculties, and a fourth to encourage processes of investigation” (317).

Recognized as the “last major voice of Scottish Enlightenment” (Hoeveler ix), President McCosh breathed new life into the College of New Jersey following the dormant years of the Civil War and Reconstruction. Like his fellow Scot and predecessor John

Witherspoon, McCosh regularly taught classes in the history of philosophy and psychology and (like Jardine) held meetings in his home library, where guest lecturers presented papers and led discussions over a wide range of philosophical and ethical topics. His successful career as administrator, teacher, and prolific writer laid an enduring foundation for the liberal development of the college and brought to American colleges Jardine's insistence on developing communicative practices throughout the disciplines—although perhaps McCosh wasn't fully aware of his indebtedness to Jardine.

McCosh was educated at both Glasgow University (1825-1829) and the University of Edinburgh (1829-1834). Although McCosh came to Glasgow in 1825, the year after Jardine's retirement, McCosh probably met Jardine; McCosh biographer Hoeveler claims that he "certainly knew Jardine's work," and "endorsed it strongly" (41). In *The Life of James McCosh: A Record Chiefly Autobiographical* (1897), William Sloane tells us that the highlight of McCosh's education at Glasgow was "a system of regular examinations and written exercises, rigidly enforced and honestly carried out" (28). Sloane explains that "Dr. McCosh felt in particular that he owed more to the essays he was required to write than to any other, if not all other, elements in his education" (28). Although not acknowledged, the system of essay writing described by McCosh echoes the pedagogical plan for epistemic writing instruction prescribed by Jardine in *Outlines*. Reflecting Jardine's aim for educating Scottish students so that they might compete with British students for jobs and also enter the public/civic sphere prepared for rhetorical engagement, McCosh says of writing instruction at Glasgow, "So powerful was the influence of this single line of work that it enabled those trained by it to enter the professions and public life side by side with their more favored competitors from the English universities, at a very slight disadvantage" (in Sloane 28). McCosh suggested that all academic institutions might profit by adopting Scotland's pedagogical methods based on writing instruction, and Sloane claims that "McCosh was so deeply impressed at the time by the importance of written work for the student that many years later, in both the institutions where he was powerful in his mature life, the system was expanded and emphasized to a high degree" (28-29).

Even though McCosh did not enroll in a class taught by Jardine, it is highly probable that he benefited from Jardine's design of the course nonetheless; Jardine's conduct of the moral philosophy course, particularly his pedagogical practices, was enormously successful and continued by his successor in the logic class at the University of Glasgow, Reverend Robert Buchanan (*Evidence* 38). George Davie credits Jardine, the champion of a Scottish philosophical education based on written exercises and frequent oral and written examinations, for perfecting "its tuitional techniques" and extending the

components of philosophical education “to subjects outside the philosophical group” (25). Jardine’s reliance on written exams and instruction in composition was adopted by professors at other Scottish and English universities from a wide range of disciplines: i.e. Spalding at St. Andrews, North at Edinburgh, Hamilton at Glasgow, Bain at Aberdeen, Hoppus at University College, etc. According to Hoeveler, “McCosh had internalized much of the Scottish style of higher education, and he rejuvenated Princeton with its spirit” (40). In particular, McCosh rejected the social-class elitism inherent in the heavy training in the classics—characterized by Oxford and Cambridge, and Harvard in the United States. The order McCosh imposed at Princeton proceeds logically from his training at Glasgow and Edinburgh—universities based on a democratic system, emphasizing the study of philosophy, professional training, the preparation for civic engagement and a reliance on written compositions as a primary mode of learning in classes in various and diverse disciplines.

By the end of the nineteenth-century, McCosh’s curriculum, based on Scottish common sense philosophy, was losing ground in the face of an elective curriculum based on the Germanic concepts of specialized/scientific study and the rise in secular education. Even as Harvard became the model for American university education, the independent Scottish universities were likewise losing ground following the Universities (Scotland) Act of 1858, which in a sense “nationalised” university education, changed governance of the institutions, and served to “regulate the teaching and discipline of the University, and administer its property and revenues, subject to the control and review of the University court, as herein-after provided” (“Revised Statute”). These educational shifts account in part for why we lost the thread of pedagogical practices initiated by Jardine and other Scottish teachers.

Conclusions

Jardine’s work offers rich insights into eighteenth- and nineteenth-century rhetorical theory and practice, while providing opportunities for present-day research in writing instruction and administration, and political and social rhetoric. Public library records, the manuscripts held in the Campbell Collection and testimony from the career of Princeton President James McCosh indicate that Jardine’s sphere of influence reached across the Atlantic, but we are just beginning to understand the far-reaching influence of Jardine’s educational philosophies and practices. As yet, we have neither an intellectual biography of Jardine nor a full-length analysis of his teaching theories. I suspect further investigations into Jardine’s body of work will reveal that he not only codified Scotland’s educational plan but also contributed to the nation’s rhetorical theory, seen

particularly in his conception of epistemic writing instruction and assessment, and in his philosophies concerning student learning. Certainly, these aspects of Jardine's rhetorical theory were appealing to college founders and curriculum reformers Alexander Campbell and James McCosh, visible in these American educators' emphasis on student responsibility, focus on individual student judgment, and reliance on written compositions as a means of self-improvement and knowledge acquisition. One can't help but wonder what undocumented influence Jardine's theories perhaps had upon nineteenth-century American textbooks and teaching treatises as well. In justifying his adoption of essay writing in his classroom, Jardine explains, "[t]hat plan of instruction is unquestionably the best, which has the most direct tendency to make the student instruct himself, to put him in the proper track for acquiring knowledge, to inspire confidence in his own exertions, and to lead him to take pleasure in the activity of his own mind" (397). Twenty-first century WAC administrators, WPAs, and "critical thinking through writing" proponents will find these words very familiar.

ENDNOTES

ⁱ I wish to thank the National Endowment for the Humanities for a summer research grant to investigate Jardine's influence upon American education.

ⁱⁱ I have published several articles (based on archival research conducted in the Scottish University libraries) that examine Jardine's pedagogical practices. See Gaillet's:

"A Genesis of Writing Program Administration: George Jardine at the University of Glasgow." *Historical Studies of Writing Program Administration: Individuals, Communities, and the Formation of a Discipline*. Eds. Barb L'Eplattenier and Lisa Mastrangelo. Lauer Series on Rhetoric. Series Eds. Catherine Hobbs and Patricia Sullivan. Parlor Press, 2004: 169-190.

"George Jardine: The Champion of the Scottish Commonsense School of Philosophy." *Rhetoric Society Quarterly* 28.2 (1998): 37-53.

"George Jardine's Outlines of Philosophical Education: Prefiguring Twentieth-Century Composition Theory and Practice." *Scottish Rhetoric and Its Influences*. Ed. Lynne Lewis Gaillet. Mahwah, NJ: Lawrence Erlbaum, 1998: 193-208.

"An Historical Perspective on Collaborative Learning." *The Journal of Advanced Composition*. 14.1 (1994): 93-110.

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ⁱⁱⁱ The following select library catalogues represent of the availability of Jardine's *Outlines* (1825): Books on Education in the Libraries of Columbia University. 1901. Catalogue of the New York State Library. 1850.

Catalogue of the Public Library of Cincinnati. 1871.

Catalogue of the Books Belonging to the Library Company of Philadelphia. 1835.

^{iv} I wish to thank Professor Berryhill for sharing her research with me and for her collegial collaboration in helping me bring Jardine to a new audience.

^v “Common sense, for Reid, are those tenets that we cannot help but believe, given that we are constructed the way we are constructed. This is not to say that nobody fails to believe the dictates of common sense. People often have beliefs that are in manifest conflict with common sense, but to have such beliefs, Reid thinks, is to be in deep conflict with one’s nature as a human being.” From the *Stanford Encyclopedia of Philosophy*. <http://plato.stanford.edu/entries/reid/>

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Making it Messy: A Review of *Rethinking Rubrics in Writing Assessment* by Maja Wilson

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Maja Wilson. *Rethinking Rubrics in Writing Assessment*. Portsmouth, NH: Heinemann Educational Books, 2006.

ALTHOUGH WILSON IS A HIGH SCHOOL ENGLISH TEACHER, there is much in this book that speaks directly to teachers of all subjects at all levels. Particularly relevant for readers of *The WAC Journal* is the idea that we not settle for quick check-offs on a rubric, no matter how seductively easy that might be. If we do so, we squander both the potential for digging into disagreements in response that will help our students clarify their understandings of content and the potential for engaging with our students as fellow thinkers and writers.

The familiar and personal tone of the book suggests a teacher pulling up a chair to a classroom table as the light outside begins to wane at the end of a school day, and talking openly with a trusted colleague about her students, their work, and her teaching dilemmas. But the conversational tone belies the strong scholarly and intellectual foundation of this book in which Wilson questions not only rubrics themselves, but the whole philosophical underpinning of how we think about assessment.

In her introduction, before she begins to tell the reader about her difficulties with rubrics, she takes us with her on a writing retreat with other teachers and then pauses to wonder at the “huge no man’s land between my deeply held beliefs about the power of writing and some of my classroom practices” (xx). She then rhetorically takes on the whole concept of “best practices.” With an approach that portends how she will handle the entire book, she meticulously traces the origins of the term with its medical overtones and goes on to question the idea of developing prescriptions for good teaching. She argues that following established methods may lead us astray, away from “our deepest convictions about the complexities of the writing process” (xxiii). Only in the

last few sentences of her introduction does she come round to rubrics, surmising that her readers have picked up her book because of their concern that rubrics violate such deep convictions.

In the first chapter, Wilson discusses her concerns about rubrics in great depth, beginning from student writing samples gathered from her classroom. She discusses a paper which was “relatively straightforward” to score using the rubric provided by the state of Michigan. Then Wilson introduces Krystal’s poem. She found this to be a moving piece of writing, and the reader cannot help but agree. Its qualities cannot, however, be captured by the rubric. She calls to mind all of the papers we ourselves have graded that do not fit the rubric’s neat categories, where the whole is so much more than the sum of the parts. She investigates various rubrics in her quest to find one that detects the elusive quality of Krystal’s paper, until she finally concludes that “The MEAP and the 6+1 Trait® rubrics failed to recognize my values as a reader and Krystal’s strengths as a writer” (9).

Wilson then moves into a meaty chapter on the history of writing assessment and a brief readable introduction to psychometrics. She traces the history of college entrance exams and how the rise of standardization in the testing movement coincided with the development of the rubric. She describes how, in the scoring of writing samples, it was necessary to erase individual readings in order to cut the elements that resisted categorization and then challenges us to consider what is lost in the process. As she puts it, “The authors’ [of the ETS-sponsored study] search for clean categories of scientific thinking effectively stripped writing assessment of the complexity that breathes life into good writing” (23).

At this point, Wilson devotes a chapter to examining the arguments in favor of rubrics. She dismisses the most prevalent argument by saying, “An assessment method must convince us that it reflects our values about teaching writing before it seduces us with its claim to save time” (28). She notes that rubrics often substitute for meaningful response to writing. “When our purpose in reading student work is to defend a grade, we do not apply any of our natural responses to a text” (30) Instead, we search for ways in which it does not “measure up.” Wilson goes on to attack the idea of the determinism of factors and, in a point particularly relevant for readers of the *WAC Journal*, urges us instead to provide student writers with meaningful response that challenges their ideas. In other words, rather than looking at papers in terms of error correction, we should engage students as fellow thinkers in our respective fields. She cites Bob Broad’s comparison rubrics to the Vinland map of the “new world” providing only vague outlines of what is out there rooted in earlier understandings, and notes that

many contemporary and professional writers would score poorly on them. She wonders whether the reductive standardized categories of rubrics will produce standardized writers.

In the following chapter, she takes on the conflict between our more progressive constructivist pedagogies and the positivist assessment provided by rubrics. Positivism, she notes, puts the rich context of writing in conflict with “objectivity” and the push towards reliability will always pull us in this direction. We should seek, Wilson notes, congruence between our assessment and our pedagogy—our evaluation should indeed reflect what we value. This would seem to go to the heart of the difficulty with rubrics—they presume a separation between our pedagogy and our assessment, as if we could base our teaching on constructivist principles and our assessment on a positivist framework. Wilson challenges us with the notion that everything we do in the classroom is teaching our students something, although not always what we intend.

The fifth chapter is, for me, one of the most brilliant. Wilson recognizes that her readers are ready for some kind of alternative to rubrics, but rather than providing one, she lays out a philosophical foundation. She suggests that disagreement itself is valuable and should be a starting place for inquiry. The problem with developing our own rubrics is that they will not change the reductive nature of the rubric itself. Only by valuing disagreement over “groupthink” can we solve the problem of “subjectivity” by “helping students to wade through conflicting views of their work, honoring disagreement without getting lost in it” (60). She suggests that we trust our students to sort out conflicting responses to their work, as this will deepen their thinking. “By placing the onus on the writer to sift through conflicting judgments, we are asking readers to peel back the layers that create our assessments”(63). She concludes the chapter with a list of “Writing Assessment Principles Grounded in Contextual and Constructivist Paradigms.” These are strongly WAC-oriented. They included not only the value of extracting clarity from disagreement but consideration of the rhetorical positions of both readers and writers in sorting out response. These principles honor context and consider the writer’s and reader’s stances towards the material itself.

At this point the reader is primed for some sort of alternative to rubrics. Readers who are looking for answers will be disappointed in the final chapters, and on a first quick read I thought of this as a major flaw in the book. Yet, as Wilson has pointed out, it is the quest for easy answers that got us into trouble in the first place. In the following chapter, Wilson takes us into her classroom to illustrate response to writing in action and shows how students revise in response to formative assessments. The descriptions are detailed with examples of early drafts and revisions, which do not always result

in immediate improvement. Wilson reminds us that revision can be a messy, uneven process and pieces often get worse before they get better. In language familiar to *WAC Journal* readers, she urges us to attend to and honor that process, rather than taking shortcuts that focus only on the product.

In the following chapter on grading, she again fails to offer simple solutions. She suggests delaying grading as long as possible to allow the process to unfold and cites Linda Christensen's grading policy as an example of how to move beyond rubrics to a more criterion-referenced approach to grading. She encourages us to have students do process reflections and challenges us to devise assessments that are true to our values. Wilson concludes her book with a conversation with a colleague that raises questions about what assessment without rubrics can look like and where it will take us. We end the book still metaphorically sitting in Wilson's classroom after school, talking through ideas. This is not the sort of problem that lends itself to quick resolution, and Wilson honors that by acknowledging that "failing to meet the ideal is par for the course," but "we should trust our own teaching process—giving ourselves permission to fail, but viewing and reflecting on those failures in the light of our values and ideals"(98). Indeed, if we value our students as writers, we can do no less.

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