

Reading and Engaging Sources: What Students' Use of Sources Reveals About Advanced Reading Skills

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Abstract: A comparison of published statements about the source-use skills of sophomores in the 1990s and those revealed by the more recent Citation Project study of researched writing suggests that many of the assumptions driving pedagogy, policy, and curricula need to be revised and that faculty working across the disciplines should work with students on reading and source-use skills when they assign researched writing. The Citation Project studied research papers by 174 first-year students at 16 US colleges and universities, producing a data-based portrait of student reading and source-use skills. Those students work from one or two sentences in 94% of their citations, cite the first or second page of their sources 70% of the time, and cite only 24% of their sources more than twice. While 78% of the papers include at least one incidence of paraphrase, 52% include at least one incidence of patchwriting, with students moving back and forth between the two within the same paragraph. Like earlier small-scale and single-institution studies, this research presents an image of students moving into their sophomore year only sometimes demonstrating expert reading and still mostly shaping what they read and write "at the point of utterance." They need help to manipulate sources into academic conversations and arguments.

"Much more than decoding and literal comprehension, reading involves understanding and reflection, and the ability to use reading to fulfill one's goal" (OECD, 2004, p. 26).

I imagine that most readers of this article would agree with a definition of reading that links decoding and comprehension skills with reflection and real understanding. The frequent exposés of how little or how shallowly Americans read are not asserting an inability to decode or a basic illiteracy; rather, their concern is a perceived inability to understand—or engage with—longer and more formal texts, especially in print. Regardless of whether the concern is justified, the fact that it is *raised* reflects an anxiety caused by seismic shifts in the ways people read and the technologies they use to do so, which in turn influence the actual content of their reading. As scholars and teachers reflect on the literacy lives of the so-called Google generation, which as Rowlands et al. (2008) assert actually includes most of us instructors as well (p. 301), we need to also reflect on what we understand the goals of reading to be.

Like the authors of the study from which my epigram is taken, most college instructors can offer a myriad of examples of goals for which this kind of reading is essential. One genre of writing in which

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reading is essential is the college-level researched paper. When instructors assign such papers, they expect students to understand and reflect on their sources and use them to accomplish the goal of the paper, whether that is to synthesize and report thinking on a topic, to analyze it, or to argue an interpretation or application of that thinking (Davis & Shadle, 2000). At least some degree of understanding and reflection is essential before a writer can summarize or paraphrase a source, so these aspects of reading seem necessary for effectively fulfilling procedural goals, as well. In first-year writing courses, one of the customary goals is to help students develop the skills they need to produce papers that select, reflect on, and incorporate sources (see for example, Valentine, 2001). Because students' goals are often to produce papers to the satisfaction of their instructors and thereby pass the course (Head & Eisenberg, 2009, p. 33; Valentine, 2001, p. 109), instructors may assume that their students' goals for reading are also to develop the skills they need to produce those papers. Instructors may not even imagine the possibility that students could produce effective researched papers without deploying advanced reading and writing skills.

In courses beyond the first year, instructors' goals often include helping students to understand and reflect on the content of selected sources as itself an end, rather than as a means to another end. Those skills in comprehension and reflection are frequently demonstrated in researched papers that incorporate sources to achieve a purpose, but for instructors, the paper itself is less the goal than is the thinking it appears to reveal.

Unfortunately, the goal for too many students is still the paper itself—as it has been through most of their education to that point. And if the goal is simply to produce a "Research Paper," the kind of reading the students must do to accomplish that goal is not quite the same as the kind of reading they need to do to gain a deep knowledge of a topic. When instructors receive a researched paper that includes what appear to be summaries and paraphrases of appropriate sources woven into reasonably coherent paragraphs, they tend to take this as proof that their critical thinking goals have been met and that the apparent summaries are evidence of a deeper engagement with ideas and sources. They may also assume that the students, engaged with their reading in order to achieve these same goals of comprehending and reflecting upon the sources.

It is my contention that it is an error to assume that the goals instructors believe are being fulfilled by reading are actually the goals their students set out to fulfill by reading. This error leads to additional erroneous assumptions about how and why students read, assumptions that obscure the skills and practices that writing courses across the curriculum should be teaching. Instructors' erroneous assumptions about students' goals and practices of researched writing contribute to the startling patterns of shallow source engagement revealed by The Citation Project¹¹. Of particular interest to me is what these data reveal about reading and how we faculty might revise our assumptions and having done so find ways to more closely align student goals and course goals.

Assumptions About Student Reading and Writing Skills

The Typical Sophomore Reader of 1990

In 1990, Margaret Kantz published a description of "a typical college sophomore," whom she named Shirley. Shirley, she tells us, is "a composite derived from published research, from my own memories of being a student, and from students whom I have taught at an open admissions community college and at both public and private universities" (p. 74). Shirley is "a typical college student with an average academic preparation" she assures us (p. 75). Now if Shirley was a sophomore in college in 1990, it is just possible to imagine that her daughter is a sophomore in 2012, entering a WAC class after successfully completing first-year writing. Let's call her Ashley, the most popular girls' name in

the US in 1993, when she was born. A comparison of our imagined students Shirley and Ashley challenges us to revisit previous scholarship on student reading skills and the ways they are able to—or choose to—make use of researched material in source-based writing. And this in turn gives us a sense of the challenges we face as we think about how best to teach students like Ashley in writing courses beyond the first year. Citation context analysis of the reading and writing skills evidenced by Ashley's real-life peers as they complete their first-year writing courses calls into question some of our beliefs about the skills our students bring to their sophomore-year courses. It also challenges us to rethink the skills we assumed Shirley and her peers possessed, and the impact those assumptions have had on our pedagogy and policy for the last two decades.

Kantz describes Shirley in a *College English* article entitled "Helping Students Use Textual Sources Persuasively," and the general difficulties she describes Shirley encountering as she approaches her papers are probably similar to those that students like Ashley also face. What is striking about Shirley is what Kantz and the researchers she cites believe she is *already* able to do at the beginning of her sophomore-level courses:

Shirley can read and summarize source texts accurately (cf. Spivey; Winograd). She can select material that is relevant for her purpose in writing (Hayes, Waterman, and Robinson; Langer). She can make connections between the available information and her purpose for writing, including the needs of her readers when the audience is specified (Atlas). She can make original connections among ideas (Brown and Day, 1983; Langer). She can create an appropriate, audience-based structure for her paper (Spivey), ... and she can present information ... without relying on the phrasing of the original sources (Atlas; Winograd). (pp. 74-5)

I started teaching in the US in 1985, and I recognize Shirley not as a student that I actually taught, but as the student I *thought* I was teaching.

Shirley is the student who lives in our collective imagination so strongly that what we believe to be her skills and needs shape curriculum, assignments, information literacy programs, and academic integrity policies. Until recently, most WAC instructors and guides have assumed that students know what Kantz assures us Shirley knew, indeed; I co-authored one such text, *The Bedford Guide to Teaching Writing in the Disciplines*, in 1993, based on the same assumption. Like most writing teachers, I have worked with plagiarism policies that assume students "can present information ... without relying on the phrasing of the original sources" (Kantz, 1990, p. 75) and that therefore when they do rely on that phrasing, they are guilty of attempting to deceive us.

Since I began paying systematic attention to the ways students use sources in researched papers, though, I have come to suspect that Shirley never existed. I do not believe that in 1990 there were many college sophomores who were able to read and engage with sources the way we believed they could. And I don't believe their children can do so today. This has huge implications for the way we teach and assess student writing and the way we assign and guide student reading. Indeed, I believe it challenges us to entirely rethink our pedagogy and expectations across the curriculum.

Reading, Writing from Sentences, and Patchwriting in and Before 1990

Three years before Shirley entered college, Rebecca Moore Howard (1993) came across a problem in the papers of first year students at Colgate University. She called it "patchwriting."^[2] Unlike Shirley, nine of the twenty-six students Howard encountered in her class in 1986 were unable to "present information ... without relying on the phrasing of the original sources" (Kantz, 1990, p. 75) when that information was complex. Howard describes what she found as follows:

When recapitulating the source material, these writers "borrowed" phrases, patched together into "new" sentences; they "borrowed" whole sentences, deleting what they consider irrelevant words and phrases; and they "borrowed" a hodgepodge of phrases and sentences in which they changed grammar and syntax, and substituted synonyms straight from *Roget's*. (p. 235)

While two-thirds of Howard's students seemed not to patchwrite, her description of the writing of that one-third is troubling. Howard (1993) cites research by Carol Sherrard (1986) in which all of the students studied engaged in what she calls "copy-deletion" rather than the "mature summary" Sherrard, along with Brown, Day, and Jones (1983), claim we should expect to see in college-level writers.

Sherrard's (1986) exploratory controlled study focuses on how "text sentences [are] mapped into summary sentences" (p. 329) in 33 summaries written by 10 (paid) undergraduates at one institution. She found that "the largest single category of text-to-summary sentence mapping was one for one; that is, just one sentence was represented in a summary sentence" and this occurred in 77 (44%) of the 158 summary sentences (p. 331), although the sentences were "rarely verbatim repetitions of text sentences" (p. 339). Where students combined two sentences of the source into one summary sentence, the majority of those original sentences were adjacent (p. 334). Overall she found that "the major tendencies were to omit text sentences or map them one to one into summary sentences and to adhere closely to the sequence of sentences in the text, combining only those sentences in proximity to each other" (p. 339). By many definitions, including that of the Citation Project, this is not summary at all. At best, when students work with one or two sentences only the work they produce seems to replicate the level of summary expected by many researchers of 8th graders rather than college students. Like Howard's (1993) work, Sherrard's suggests that when trying to summarize college-level expository texts, students have more difficulty than scholars had previously thought, and challenges the expectation that students like Shirley could really "read and summarize source texts accurately" as Kantz claimed (1990, p. 74).

In fact, that expectation is also challenged, or at least complicated, by some of the sources Kantz (1990) herself cites. For example, the claim that college students can summarize accurately and put textual material into their own words is based in part on Winograd's 1984 comparison of "fluent adult readers" with strong and weak eighth grade readers. While Winograd did find that the 37 "fluent adult readers" in the study were able to produce 60-word summaries of the eight sources provided, that group of "adult readers" included graduate students as well as undergraduates from two colleges, so the pool hardly represents "typical" undergraduates—nor did Winograd intend it to do so. His purpose was to study what the weak readers could not do rather than exploring the skills of "typical" college students. In fact, even the summaries of his fluent adult readers were found to reproduce "individual sentences ... usually through paraphrase or word-for-word copying" (p. 409) approximately 25% of the time (Figure 3, p. 420), so his research does not support the notion that by the end of their first year in college all students are able to read and summarize sources. Even if by that time they were all "fluent adult readers" with skills matching those of graduate students we should only expect a 75% success rate.

Yet the mythic "typical college student" Shirley lives so strongly in instructors' minds that when they encounter contradictory research they frequently find a way to dismiss it as anomalous or not reflective of "typical students." If it is focused on first-year students for example, like those in Howard's (1993) and Sherrard's (1986) studies, many instructors may assume that those students will have mastered the skills Kantz (1990) describes by the time they enter their sophomore year and start writing for WAC courses. Or they may assume that the students were not doing their best

work in first-year writing courses, and will perform better when in advanced courses that engage them in discipline-specific questions and topics.

The erroneous assumption that the skills attributed to Shirley are typical persists despite the fact that scholars in other disciplines have also challenged it. In a 1999 study, psychologist Miguel Roig set out to test how well students could produce an appropriately paraphrased paragraph if that was all they were being asked to do—that is, if (like Sherrard's, 1986, and Winograd's, 1984, students) they were not trying to incorporate it into a paper or analyze it. He gave 196 students enrolled in various introductory courses in psychology, biology, and computer science at two different colleges a paragraph and asked them to paraphrase it as if they were going to use the paraphrase in a college paper, rewriting it "to the best of their ability in a manner that would not constitute plagiarism" (p. 975), and he predicted that they would not deliberately misuse the source given that instruction and the added scrutiny of being part of a research project.

Instead he found that 46% of the samples simply reproduced "most or all of a sentence from the original paragraph with... [either] no revisions [or] minor revisions [such as]... one- or two-word substitutions in a sentence, and the addition or omission of up to two words in a sentence" (p. 976). Further, 68% included at least one exactly copied word string of at least five words (p. 978). He does not provide sufficient data for us to determine how much overlap there was between the two groups, but based on Citation Project data, I would predict that the first group is largely subsumed within the second. He also counted students who reversed sentence order (p. 978), but again we do not know the extent to which they overlapped with the students in the other two groups. If those paragraphs were to be coded using Citation Project methodology, the percentage of patchwriting might be a little higher than 68%, but I doubt that it would be lower.

In a 2001 article on the same topic Roig (1999) describes this misuse of sources as "*cryptomnesia* or unconscious plagiarism" (p. 308) but acknowledges that many writing teachers call it patchwriting.^[3] In order to avoid patchwriting, students need to be able to in Kantz's (1990) words "present information ... without relying on the phrasing of the original sources" (p. 75). Roig's and Winograd's (1984) research, like Howard's (1993) and Sherrard's (1986), suggests that if she was indeed able to do this, Kantz's mythic student Shirley was far from a typical sophomore, after all.

The Complexities of Comprehension

To be fair, the focus of Kantz's (1990) article is not on Shirley's basic skills of source incorporation and reproduction, but on how she responds to assignments in which she is called upon to write "researched papers that express original arguments" (p. 75). And it is a valuable article for that reason. Kantz observes that the sophomores she studied find it difficult to use source materials as evidence in original arguments, and harder still to develop arguments from these sources. She identifies problems of selection, evaluation, and interpretation, aspects of the research writing process typically addressed by WAC courses and college librarians and delineated in information literacy guidelines such as those produced by the Association of College and Research Libraries (ACRL) in 2000. Kantz's study suggests that before students can master these larger aspects of "interpretation" and the "understanding and reflecting" identified as key aspects of reading in the quotation from the OECD in the epigraph to this article, they need to increase their skills at the much more basic but no less demanding level of "comprehension" (OECD, 2004, p. 26).

What Kantz (1990) and other researchers reveal is that the process of reading is complex, to say the least, and not always revealed in the prose produced in response to a reading. Decoding and comprehension are not so easily separated from interpreting, understanding, and reflecting. Indeed, the difference between "weak" and "fluent" readers seems to be not their ability to produce writing

that demonstrates these skills but the *frequency with which they do so* (Kennedy, 1985; Olshavsky, 1977; Sherrard, 1986; Winograd, 1984). What these researchers find is not that weaker writers *lack* the ability to understand, interpret, and reflect; it is that they are unable to do so all of the time for all of the material they read. This has important implications for instructors who are trying to understand how and why students use sources as they do. Winograd observes that students who have difficulty summarizing don't necessarily *not* understand the text or what is important in it. They just can't condense and transform the text the way we expect. He cautions that "there is more to reading comprehension difficulties than inadequate decoding skills and there is more to summarization than adequate comprehension" (p. 423).

Whether the studies of reading and source integration focus on a single artificially produced paragraph (Roig, 1999, 2001; Sherrard, 1986; Winograd, 1984), artificially produced papers (Kennedy, 1985), or naturalistically produced papers (Howard, 1993; Howard et al., 2010; Jamieson & Howard, 2011), it seems that the relationship between goal and source use may be closely connected. Kennedy (1985) reports that while the three fluent readers she studied "set aside the sources" before they wrote, "the not-so-fluent readers acted differently... as they wrote their essays they drew heavily on the sources, rereading them, extracting direct quotations, and inserting them into the piece" (p. 449). If Shirley and her peers worked this way too, many of the difficulties Kantz described would be explained.

Kantz (1990) says that students like Shirley find it "easier to quote than to paraphrase, and ... easier to build the paraphrases, without comment ... into a description of what [she] found" (p. 75). Kennedy (1985) describes one of the "weak" readers, Dave, similarly. She reports that "as he composed he reread sections of the sources and inserted them into the essay, stringing the various authors' ideas together in a piecemeal fashion. Dave's goal was very limited, namely to write an essay that included information from each of the articles" (452). If Shirley was a "typical sophomore," she was typical of the group most researchers of the time called "weak" or "less-than-fluent" readers.

The Typical Sophomore Reader of 2012

Like much writing scholarship of the 1980s and 1990s, Kantz (1990) relied on a close reading of Shirley's papers and drew her conclusions from observation and close textual analysis. Like Howard (1993), Kennedy (1985), and Sherrard (1986), she drew her student samples from a single institution. Two decades later, much more of our scholarship attempts to go beyond the single student or institution to generate data that will facilitate tracing broader patterns and national trends. Single-student and single-institution studies serve as pilot investigations that provide hypotheses to be tested by larger studies. Once the data reveal specific patterns, researchers can turn their attention to representative texts and conduct more of the kinds of analysis that Kantz performed; however, within the context of the data, they are able to use that analysis to make generalizable claims about the reading, writing, and researching skills the "typical sophomore" brings to WAC classes.

In the case of Shirley's daughter Ashley, data generated by the Citation Project and Project Information Literacy afford a deeper prediction of what skills her sophomore instructor can expect her to have "mastered" by the end of her first year, as well as how she might characterize her work and the ways she uses reading to accomplish her goals. Reviewing typical papers produced by the Citation Project's cross-section of US students who could be the imaginary Ashley's peers allows us to compare papers written in 2009 and 2010 with those Shirley produced and the source-use strategies Kennedy (1985) describes her students Dave and Tracy using a few years earlier. Such a review suggests that Kantz's analysis of what the "typical sophomore" struggled to do in 1990 still

applies today. But as Howard's (1993), Sherrard's (1986), and Roig's (1999, 2001) research suggest, both Shirley and her daughter Ashley need help with some fundamental skills as they attempt to create source-based papers.

Reading, Writing from Sentences, and Patchwriting in 2010 and Beyond

In 2010, Rebecca Moore Howard, Tanya Rodrigue, and Tricia Serviss published the results of a single-site study that traced the extent of patchwriting, summary, and quotation in a sample of eighteen student papers enrolled in a first-year writing course at a research university. In addition to finding no summary, the researchers found that of the papers studied, it "is consistently the sentences, not the sources, that are being written from" (p. 189). The researchers observe that when students write from sentences rather than from extended passages reproduced as summary or paraphrase, they are not necessarily *understanding* the text and it is less likely that they will be able to reflect on it or on the connections between it and other texts. Such limited overall comprehension of the source text as a whole could well explain the larger difficulties Shirley had when trying to create arguments from her sources.

Since Shirley graduated, there has been significantly more research into "expert" and "novice" reading skills, although more of it working with comprehension than with source use *per se* (Jolliffe & Harl, 2008; Horning, 2010; Horning, 2011). The findings about student comprehension do not all align with earlier research, but they raise challenging questions about what might reasonably be expected of Ashley and her peers as they move into their sophomore classes. Horning (2011), for example, describes "expert" or "meta-readers" based on her analysis of how students read the kinds of informational prose required of college students, specifically prose from one discipline (linguistics). Expert readers, she explains "are able to do things with texts as they read," making connections beyond the text and then engaging with the content using "specific kinds of awareness and an array of skills" (para. 12).

Perhaps most important as we think about the research paper, Horning (2011) finds that expert readers "are able to see the text as part of an on-going conversation about key issues or ideas in a discipline, drawing on their prior knowledge of the topic, the author's likely purpose and whatever else may bear on the text" (para. 14). Students writing the research papers typical of first-year writing courses and studied by Howard et al. (2010) are rarely in possession of the kinds of contextual information that would allow them to act as "expert" or "meta-readers" as they write, even if they are able to do so in other situations.

Writing from Sentences

Ashley and her real-life peers studied by Howard, Rodrigue, and Serviss (2010) write like the not-so-fluent readers Kennedy (1985) described, just as Shirley did before her. Rather than being able to "do things with texts as they read" (Horning, 2011, para. 12), they appear not to have "interact[ed] with the sources before they set out to write; instead, they retrieved information from the readings while they composed" (Kennedy, 1985, p. 450). Kennedy continues:

It appears that the not-so-fluent readers planned mostly at the sentence level. This is what Britton has called 'shaping at the point of utterance.' Flower and Hayes (1981a, p.4) have reminded us that 'an *exclusive* dependence on sentence-level planning may in fact be one of the marks of a poor writer.' This study indicates that it was one of the marks of a not-so-fluent reader as well. (451)

At best, Ashley is entering her sophomore classes unable to perform the skills of expert reading all of the time, and at worst, still shaping what she reads and writes "at the point of utterance." If she is to be an expert reader and "manipulate" her sources into academic conversations and arguments, she will need some help.

Horning (2011) observes that "most faculty don't aim to help students become expert readers....Instead, to achieve ordinary instructional goals, most faculty want students to DO the reading and get concepts and content that connect with the rest of their learning in the course" (para. 17). She argues that students should be taught meta-reading skills in discipline-based courses that are scaffolded to help them learn to read more effectively as they are also learning the vocabulary, concepts, and context of the discipline. Kantz (1990) also called on instructors to teach students to use conceptual and contextual knowledge. Absent any of that knowledge, Ashley and her peers approached their first-year research paper at a huge disadvantage. Unfamiliar with the topic, vocabulary, context, or the broader conversations of their topic, they were literally reading "in the dark," and it is not surprising that the students in Howard et al.'s (2010) study were unable to synthesize ideas into summaries.

The findings from that 2010 study acted as a pilot for the multi-institution research project exploring students' source use in researched papers that became the Citation Project. The first Citation Project study undertook to compile a data-based portrait of how students in first-year writing courses work with their sources. That portrait is drawn from analysis of the research papers produced in first-year writing courses by 174 students at 16 colleges and universities from a wide geographical distribution in the United States. The colleges and universities contributing student work include liberal arts colleges, Ivy League institutions, community colleges, research universities, religious colleges, and state colleges and universities.

The intertextual citation context analysis^[4] of those first-year students' research papers reveals an absence of the skills many of us assume students like Ashley have gained by the end of her first year of writing course. Like Shirley before her, Ashley and her peers seem not yet to know how to consistently "make original connections among ideas" and to reproduce those ideas in their own words, ideally through summary (Kantz, 1990, pp. 74-75). Students demonstrating an ability to do these things as they move into sophomore year courses are as far from "typical" in 2010 and beyond as they were in 1990.

What Citation Project Research Teaches us About Sophomore Writers

Citation Project Methods

Researchers first solicited copies of students' naturalistically produced researched writing from their first-year writing classes, enlisting the help of program administrators who acquired IRB approval and student permissions and submitted papers and permissions to the Citation Project database. All student identification was removed, the papers randomized, and pages 2-6 of 10 papers from each institution became part of the study. In a few cases the students' texts were shorter than 6 pages, so additional papers were selected to render 50 pages of student writing from each institution—800 pages in all. The 930 sources cited in those pages were retrieved, and each of the 1,911 citations in those 800 pages was coded. The team of coders was drawn from across the country, and was made up of faculty and graduate students who themselves teach college-level writing courses.^[5] No sets of papers were coded exclusively by instructors from the institution at which they were written, and most papers were coded twice and then reconciled. This provided double-coded data, and calibration sessions resulted in high levels of inter-rater consistency.^[6]

First, researchers read the sources cited in the paper and classified how each citation worked from its source, coding whether the student was summarizing, paraphrasing, patchwriting from, or quoting from the source. Coders noted where in their papers the students used each method to report what their sources said, and they noted the page in the source the student cited. The process is significantly slower than the various kinds of machine-coding available, but the act of reading and digesting the source and the student paper allows coders to engage with what is happening in the paper in ways that lead to nuanced interpretation and deeper understanding.^[7]

The sources themselves were also coded based on kind (book, journal article, website, etc.), page length, purpose (to inform, argue, advocate, etc.), and reading difficulty as measured by the Flesch Reading Ease scale and the Flesch-Kincaid Grade Level scale. Coders noted how many times each source was cited in the papers, and from which pages in the source the students drew the cited material. Using SPSS statistical analysis software, frequencies and correlations in the data were measured, both across the sixteen institutions and within individual institutions, allowing researchers to find patterns and develop new hypotheses to test. Working with PDFs of sources for everything except books allowed coders to identify material quickly and also ensured consistent page counts of source length and citation location.

The papers were coded to determine what percentage of the 1,911 citations reproduced source ideas as summaries, paraphrases, patchwriting, or quotations. The research definitions of these categories of source integration are as follows:

- *Direct copying, cited but not marked as quotation:* Reproducing the text exactly, with a source cited but with no indication that the material is directly quoted.
- *Direct copying, cited and marked as quotation:* Reproducing the text exactly, with a source cited and clear indication that the material is directly quoted.
- *Patchwriting:* Partially restating a phrase, clause, or one or more sentences while staying close to the language or syntax of the source.
- *Paraphrasing:* Restating a passage from a source in fresh language (though sometimes with keywords retained from the passage).
- *Summarizing:* Restating a passage from a source in fresh language and compressing by at least 50% the main points of at least three consecutive sentences (though sometimes with keywords retained from the passage)

Roig (2001) complained of a lack of definitions of terms such as "paraphrase" in the literature, noting that the most common involves counts of word strings, with reproduction of more than three consecutive words requiring quotation marks (p. 309). In his 1999 study, Roig coded for 4-word, 5-word, 6-word, 7-word, and 8-word strings. Citation Project coders did not specifically count word strings, but a random recoding using Roig's word string method revealed very similar results to those using Citation Project definitions, as can be seen in the sample in Figure 1.

The student paper from which the extracts in Figure 1 and Figure 2 were taken includes three citations to material from five paragraphs of a web page produced by NORML, an organization describing itself as "working to reform marijuana laws" (<http://norml.org/>). Figure 1 demonstrates how patchwriting was coded. While the passage of student text only includes three strings of four or more words, it reproduces twenty-seven of the forty-one words in the source sentence in full and three more in changed form ("conclude/concludes," "spreading/spread," and "forming/formation") and it also includes another six words that are synonyms or closely related terms ("cannabis" is replaced by "cannabinoids," and "growing body" with "increasing amount," for example). While some

words and phrases have been omitted and a few words have been added ("properties" replaced "activities," for example), the student text follows the same order as the source text and does not add anything original to the sentence or the presentation of the information. Both Roig's definition and the Citation Project's classify this as a failed paraphrase—patchwriting.

Figure 1. Example of Patchwriting. In each text, words copied directly from the source are highlighted, and word substitutions are indicated with a single line.

Student text coded (p. 6 of Z15, citation 21)	Source text (p. 2 of source Z1513)
<p>Most importantly, investigators are now studying the anti-cancer properties of cannabinoids. There is an increasing amount of preclinical and clinical data that conclude that cannabinoids stop the spreading of specific cancer cells through programmed cell death and the prevention of the forming of new blood vessels (Recent Research on Medicinal Marijuana).</p> <p>STUDENT CITATION: "Recent Research on Medical Marijuana." NORML, April 1, 2009 http://norml.org/index.cfm?Group_ID=7002</p>	<p>Investigators are also studying the anti-cancer activities of cannabis, as a growing body of preclinical and clinical data concludes that cannabinoids can reduce the spread of specific cancer cells via apoptosis (programmed cell death) and by the inhibition of angiogenesis (the formation of new blood vessels).</p>

The second sample (Figure 2) demonstrates successful paraphrase. It comes from the same paper as Figure 1 and uses the same source, but it reproduces information from that source differently. The student sentence in this sample does follow the general order of the two sentences in the source text and includes some of the same words; however, the information is reproduced in the student text as one sentence, and it uses original language without the close substitutions in the example of patchwriting. The words that are reproduced are mostly terms that would be difficult to replace (such as "journal article" and "scientific") and are mostly individual words or word pairs rather than longer strings. Additionally, the student has interpreted the source text and correctly identifies the meaning of its data—that there is "evidence of a jump in interest" in research on cannabis from 1996 to 2008. While some disciplines would prefer that the student used some kind of signal phrase to identify where the source use begins and different style sheets call for different citation formats (if any) for websites, I don't believe anyone would accuse this student of misusing her source in this passage.

Figure 2. Example of Paraphrase. In each text, words copied directly from the source are highlighted.

Student text coded (p. 6 of Z15, citation 18)	Source text (p. 2 of source Z1513)
<p>Evidence of a jump in interest can be seen in a jump from 258 journal articles that were published in 1996 on the subject of cannabis, to over 2,100 studies that were published in scientific journals in 2008 (Recent Research on Medicinal Marijuana).</p> <p>STUDENT CITATION: "Recent Research on Medical Marijuana." NORML, April 1, 2009 http://norml.org/index.cfm?Group_ID=7002</p>	<p>A keyword search using the terms "cannabis, 1996" (the year California voters became the first of 14 states to allow for the drug's medical use under state law) reveals just 258 scientific journal articles published on the subject during that year. Perform this same search for the year 2008, and one will find over 2,100 published scientific studies.</p>

The kind of transformation of source material in Figure 2 seems to meet Winograd's (1984) definition of "fluent adult readers" (p. 405) who are able to transform and combine sentences and who are much more likely to do so with two adjacent sentences. Winograd classifies such writing as summary,

while the Citation Project reserves that description for transformations that work with three or more consecutive sentences and reduce the length of the passage by at least 50%.

However, this sample does not come from a *consistently* "fluent adult reader." The examples in Figure 1 and Figure 2 were produced by the same student from the same source, and the first meets Winograd's (1984) definition of a weaker reader who would be more likely to reproduce "individual sentences" often through "word-for-word copying" (p. 409) and less likely to combine ideas from more than one sentence into a new sentence (p. 416). At the very least, the existence of these two forms of textual incorporation of one source by one student supports Winograd's assertion "there is more to reading comprehension difficulties than inadequate decoding skills and that there is more to summarization than adequate comprehension" (p. 423). It also specifically points to the possibility—as does much of the Citation Project data—that first-year writers have uneven success in reading and writing from sources, even from one sentence to the next.

Citation Project Data: How Students Incorporate Source Material

Using the categories above to code the 1,911 citations in the 800 pages of prose in the Citation Project sample reveals source use patterns that differ in some ways from those found in Howard et al.'s (2010) single institution study but seem to support the overall finding that students are working primarily from sentences in their sources rather than extended passages, as we saw in the examples above. Table 1 shows the patterns of source use across the 1,911 citations:

Table 1: Analysis of Source Use in 1,911 Student Citations

PREDOMINANT USE OF SOURCE MATERIAL WITHIN THE CITATION		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Copying, cited but not marked as quotation	83	4.3	4.3	4.3
	Copying, cited and marked as quotation	793	41.5	41.5	45.8
	Patchwriting	306	16.0	16.0	61.8
	Paraphrasing	609	31.9	31.9	93.7
	Summarizing	120	6.3	6.9	100.0
Total		1,911	100.0	100.0	

Most striking about these data is the small percentage of summaries (just 6.3%), especially given the generous definition of summary to include material from as few as three consecutive sentences. This is surprising, given that many first-year writing courses emphasize summary-writing, spending significant amounts of time teaching students to write summaries as a way of comprehending and engaging with a source (rather than just copying sentences from it). Indeed, some students in the sample attended institutions whose programs required summary papers, literature reviews, abstracts, and annotated bibliographies as part of the scaffolding for the final paper included in our study. While there are some differences in the percentage of summary from specific institutions, that difference is not large enough to challenge the overall pattern revealed here, suggesting that students do not or cannot transfer the summary skills learned in isolation into their researched essays (perhaps in much the same way as they do not automatically transfer what they learn in writing exercises to extended prose passages).

The initial question asked by Howard et al. in 2010 and also by Roig (1999) concerned individual students rather than the citations that are focused on in this phase of the Citation Project research. Analyzing the Citation Project data by paper rather than by citation, however, offers insights about student writers and not just their citations, and it uncovers patterns that are more troubling than those described in Table 1. Analysis of the overall patterns in the 1,911 citations does not reveal whether the 306 instances of patchwriting are clustered in a few papers or whether they are distributed across the sample. This is obviously important because at many institutions, including most of the sixteen institutions that participated in this research, patchwriting and the category "reproducing the text exactly, with a source cited but with no indication that the material is directly copied" are both classified as plagiarism or at least violations of academic integrity policies and in some cases could result in dismissal from the institution in question.

It is important to note here that, like the Council of Writing Program Administrators (WPA), Citation Project researchers classify such source use as misuse of sources rather than plagiarism because a source is cited. The WPA Best Practices document (2003) identifies a clear difference between *plagiarism* and *misuse of sources*. Based on this document, examples of source use like those presented in Figure 1 should be defined as a misuse of source material, as should examples where

the student fails to block or otherwise mark cited copying as quotation. As Howard (1993), Pecorari (2003) and others have argued, such source misuse requires a pedagogical intervention rather than judicial action, although I do not mean to in any way minimize the seriousness of the problem by making this recommendation. Indeed, Citation Project research is motivated by the desire to more fully understand these categories of misuse of sources, and it is Kantz's (1990) claim that the "typical" sophomore, Shirley, could "read and summarize source texts accurately" (p. 74) and "present information ... without relying on the phrasing of the original sources" (p. 75) that lead to this investigation of what WAC faculty might expect of her "typical" 2012 counterpart, the composite that is "Ashley."

An analysis of the data for the 174 individual papers in the sample reveals the quite different pattern of source use reported in Table 2. Table 1 shows that there were a total of 120 incidences of summary in the 1,911 citations (6.3%); however, we see in Table 2 that while there are not many instances of summary over all of the citations, they are distributed among 71 of the papers. So 71 of the 174 students (40.8 %) include at least one incidence of cited summary, and while many of them include *only* one summary, this finding does indicate that these students have some ability to summarize as they prepare to enter their sophomore year. On the other hand, 103 of the papers (59.2%) include no summary at all, and further analysis of those papers reveals that 18 of them include no paraphrase either, although 7 of them include cited patchwriting (attempted paraphrase). The remainder of the papers with no summary depend entirely on quotation to support claims, which may not be surprising given that 159 of the papers (91.4%) include at least one incidence of quotation. Quotation is a legitimate, important strategy of source use, yet when it is the dominant or sole strategy, it reveals little about the writer's understanding of and engagement with the source.

Table 2: Analysis of Source Use in Each of the 174 Student Papers

TYPE OF SOURCE USE OCCURRING AT LEAST ONCE IN THE PAPER	FREQUENCY			PERCENT		
	Occurs at least once	Does not occur	TOTAL	Occurs at least once	Does not occur	TOTAL
Copying, cited but not marked as quotation	33	141	174	19.0	81.0	100
Copying, cited and marked as quotation	159	15	174	91.4	8.6	100
Patchwriting	91	83	174	52.3	47.7	100
Paraphrasing	135	39	174	77.6	22.4	100
Summarizing	71	103	174	40.8	59.2	100

Table 2 reveals that a total of 135 of the 174 papers include at least one incidence of paraphrase (77.6%), which indicates that at least 135 of the students possess an ability to represent the ideas of others in original language at least some of the time. Indeed, as the data in Table 1 suggests, many of them do so three or more times. Yet as Roig's (1999, 2001) research predicts, a little over half of the papers (52.3%) also include at least one incidence of patchwriting. While the data from Table 1 reveal

that paraphrase occurs more frequently than patchwriting, Table 2 reveals patchwriting to be widely distributed, although many papers include only one or two instances of it. More significantly, the majority of the papers that include patchwriting also include at least one incidence of paraphrase, often from the same source, as is the case in the examples in Figure 1 and Figure 2. In many of the papers, the writers move back and forth between paraphrase and patchwriting, citing and incorporating each similarly and producing prose that to most readers would appear to be paraphrase or summary. This reinforces the definition of cited patchwriting as failed paraphrase rather than academic dishonesty. It also suggests an explanation for how we could all have been so mistaken about Shirley and the skills she took into her sophomore courses.

Citation Project Data: How Students Engage with Source Material

As in the case of Figure 1 and Figure 2, the data in Table 1 and Table 2 also reinforce a key aspect of the findings from Howard et al.'s (2010) study: it "is consistently the sentences, not the sources, that are being written from" (p. 189). If only 6.3% of the 1,911 citations in the Citation Project sample are to material of three or more sentences (based on a definition of summary as "restating a passage from a source in fresh language and compressing by at least 50% the main points of at least three consecutive sentences"), it is not possible to say conclusively that the students are comprehending the sources they read—or even that they are reading them at all. Several other findings from this research suggest that students may not be reading the sources they cite with the depth their instructors might imagine.

The first such finding concerns the page in the source that students cite most frequently. We may be impressed when students select and cite long and difficult sources, but we need to look at which page they are citing before we can assume they have read and digested the source as we expect. When the citation is to the first page of an extract in an anthology, a website, a chapter in a book, or a journal article, that fact is often obscured by the page number cited or by the lack of page numbers. Because Citation Project researchers made PDFs of all the cited sources, it is easy to see where in the source the citation occurs. In Table 3, "page 1" refers to the first page of the cited source material regardless of the pagination, or lack of it, in the source. And what we see is that 46.3% (885) of the 1,911 citations are to the first page of the source; an additional 23.2% (443) are to the second page. A total of 77.4% of all of the citations are to the first three pages of the source, regardless of whether the source is three pages long or more than 400 pages, and only 9.4% (180) of the citations are to page 8 or beyond.

Table 3: Analysis of Page Cited in the 1,911 Student Citations

PAGE IN SOURCE CITED		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Page 1	885	46.3	46.3	46.3
	Page 2	443	23.2	23.2	69.5
	Page 3	151	7.9	7.9	77.4
	Page 4	100	5.2	5.2	82.6
	Page 5	73	3.8	3.8	86.5

	Page 6	48	2.5	2.5	89.0
	Page 7	31	1.6	1.6	90.6
	Page 8 and beyond	180	9.4	9.4	100.0
Total		1,911	100.0	100.0	

Of course, a lot of important information appears on the first few pages of a source. The hypothesis, thesis, or topic of the text is generally there, as are definitions, descriptions of the context of the article, and often an abstract. Many expert scholars cite the first page of our sources disproportionately when introducing the ideas contained within the source; however, scholars tend to also cite from further into the source, working with conclusions, illustrations, secondary arguments, methods, results, and discussion.

A second set of data from the student sample reveals that such a pattern of source use is not so common amongst the students in this study. It is worth remembering here that only pages 2 through 6 of the student papers were coded, so the data here refers only to what happens in the five pages studied. Even with that caveat, the frequency with which each of the 930 sources was cited (Table 4) may come as a surprise.

Table 4: Number of Times Each Source is Cited Within the 800 Page Sample

NUMBER OF TIMES EACH OF THE 930 SOURCES IS CITED		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Once	525	56.5	56.5	56.5
	Twice	185	19.9	19.9	76.4
	Three times	89	9.6	9.6	86.0
	Four times	48	5.2	5.2	91.2
	Five times	34	3.7	3.7	94.9
	Six times	19	2.0	2.0	96.9
	Seven times	10	1.0	1.0	97.8
	Eight times	9	1.0	1.0	98.8
	Nine times	4	.4	.4	99.2
	Ten or more times	7	1.0	.9	100.0
Total		930	100.0	100.0	

As Table 4 shows, a total of 525 of the 930 sources (56.5%) were only cited once, and 710 (76.4%) only twice. Of the 930 sources, only 4 were cited more than 15 times, but in each case the student in question simply cited the source at the end of each sentence that drew from it, and in 3 of those 4 cases the students only used 1 or 2 pages from that source. Not only are 93.7% of the citations to one or two sentences in the source, but over half of those sources are cited only once. This suggests that like Dave, the not-so-fluent reader described by Kennedy (1985), the goals of many of the students in the Citation Project sample seem to be simply "to write an essay that included information from each of the articles" (452).

What Citation Project Research Teaches us About Sophomore Readers

It may be that Kantz (1990) sees Shirley as "typical" because the purpose of Kantz's article is to draw attention to the reading problems faced by students like Shirley when they are confronted with complex writing assignments. Kantz draws on her experience teaching and working with students as the basis for her description of the problems students experience when they are unable to accomplish the depth of reading necessary to engage with their sources.

An analysis of the Citation Project multi-institutional data confirms the accuracy of Kantz's (1990) observational claims. The papers submitted to the Citation Project reveal that her description of Shirley holds true two decades later. While the *skills* Kantz attributes to Shirley may not be typical, the *problems* she describes Shirley encountering as she works with sources are the same problems faced by students like Ashley today. And what might be more significant than the ways students use source material is how little of their papers are not based on those sources.

Amongst the observations Kantz makes are that it is easier for her students to write from one source and on a topic with which they are familiar than it is for them to write the traditional researched paper in which they must select sources on an unfamiliar topic, and then select material from those (often long) sources to support an argument on a topic they are only learning about as they read those sources and write the paper (p. 75). Put like that, the problem seems obvious and unavoidable. Yet in spite of scholarship that calls for abolition or at least revision of the research paper assignment (Anson, 2004; Davis & Shadle, 2000; Larson, 1982; McDonald, 2000) and that traces a disparity between faculty expectations and student understanding of the task at hand (Alvarez & Dimmock, 2007; Leckie, 1996; Schwegler & Shamoon, 1982; Valentine, 2001), some form of researched paper remains a staple of the majority of first-year writing programs. Hood's (2010) survey of 166 institutions reports that in 2009, 85% of first-year writing programs at public institutions and 50% at private institutions required an argumentative research paper, a research report, or some other research-based paper (p. 19).

Going beyond first year writing, Alison Head and Michael Eisenberg's (2010) study of 191 course-related research assignments from a variety of disciplines at 28 colleges reveals that 83% of them are standard research papers (p. 3). So it is reasonable to assume that as Ashley enters sophomore-year writing courses, she will face assignments similar to those Shirley faced: open-ended topics that call on her to make arguments about questions with which she is marginally familiar at best. As she focuses on amassing and reporting the necessary information, like Shirley, she may not have the time, the distance, or sufficient knowledge to ask contextual questions about what she reads, consider the motivations or biases of the authors, or explore the impact of the audiences for which those texts were written, as Kantz hopes she will. Even if she knows that she should ask such questions as she reads, it is unlikely that she will acquire the knowledge necessary to formulate them until she has completed the research.

Although many in the field of writing studies and writing across the curriculum have called on WAC courses to teach reading skills and scaffold assignments (see Horning, 2011), Head and Eisenberg's (2010) research indicates that few assignments contain evidence of either. What they found instead is that the handouts describing the assignments focus on procedure—66% included instructions on how to format the final paper, including page length; 57% specified the number of sources to be consulted; and 61% included "details about using proper citation style" (p. 8). At the same time, "in most handouts, there was a paucity of specific guidance about which information sources to use and where to begin finding them" (p. 18) or how to evaluate them (p. 19), and only 18% of the assignment handouts "either defined plagiarism, discussed it as a form of academic fraud, or explained ways of avoiding it" (p. 21). Although the faculty Head and Eisenberg interviewed as part of the study expressed little confidence in their students' research skills, and although most of the handouts included procedural information they believed the students lacked, the absence of comment about reading and source use suggests that like so many other instructors, these faculty assume that students will be able to read and incorporate the ideas from the sources they find without guidance.

So, we need to take a second look at a Ashley and her peers, a group of students who might be considered the poster children of the first-year writers the Citation Project multi-institutional research has uncovered: well-meaning students who are often anxious about correct citation, sometimes but not always able to paraphrase correctly, and sometimes but not always able to identify relevant sources. These students rarely analyze or engage with the sources they cite and tend to simplify the arguments within them, perhaps because only 30.5% of their citations are to material beyond the second page of the source and only 23.6% of the sources are cited more than twice. Viewing this data in the context of research on the reading abilities of students from a generation before them, challenges popular assumptions about the laziness of the "Google generation" and emphasizes the need for new responses. The closer study of contemporary students discussed in this essay reveals that they also seem unsure about the purpose of the research paper, the reasons writers cite sources, and academic writing in general. In short, while they may have learned a great deal about the mechanics of writing, research, and basic information literacy, they are not ready to jump into source-based writing at the sophomore level without a lot of guidance. As instructors develop writing courses across the curriculum, I hope they will keep these students in mind and build into their courses pedagogies and strategies to help Ashley and her peers develop the skills they have *begun* to learn in first-year writing.

Conclusions: Enhancing Student Reading and Source Use Skills

So I return to the quotation at the beginning of this article: "much more than decoding and literal comprehension, reading involves understanding and reflection, and the ability to use reading to fulfill one's goals" (OECD, 2004, p. 26). If among the goals in sophomore writing courses are that students read and engage with sources in ways that enhance their understanding of the material covered in the course and that help them gain deeper engagement with the topic, the research I have discussed here suggests that those students will need help, just as they always actually have.

Given what the Citation Project multi-institutional data reveal about students' source-use practices at the end of the first year, research that confirms the findings of other local studies and large-scale surveys alike, it does not seem wise to assume that "typical" students enter sophomore year courses prepared to read or use sources in the ways we would like. If, as Citation Project data indicates, students are leaving first-year writing courses without being fully able to correctly quote, summarize, or paraphrase sources—or without realizing why doing so might be an essential component of source-based writing—we might expect these problems to be reflected in later courses. Similarly, if they tend to work from sentences rather than extended passages, as do 93.7% of the 1,911 citations

in the sample, we might conclude that students are less likely to be able to understand the larger concepts in the texts they read, or to be able to assess how an argument unfolds, how sources are in dialogue with each other, or how the author uses an accumulation of references and sources to further a position of his or her own, or support, challenge, or revise a position or interpretation presented by another scholar.

In fields where the taking of positions is less important, where citing the abstract or other material from page 1 is more acceptable, and where quotation rather than summary and paraphrase is preferable, these data may suggest less cause for concern. However, rhetorical analysis of the *ways* these first-year students interact with their source material suggests that they lack the critical reading and thinking skills necessary to engage with the ideas of others and write papers reflecting that engagement in any discipline. The findings from several decades of research on reading and source use challenge us to rethink both our course outcomes and pedagogies. We can no longer assume, with Kantz, that sophomore students are able to read sources with the comprehension necessary to select and summarize material, draw connections between ideas within the texts they cite, or use them to develop arguments. Most of them seem able to do some of these things some of the time, but very few seem able to do these things with the frequency necessary to produce papers that achieve our course goals.

Understanding that our assumptions about what students like Ashley and Shirley can actually do are wrong challenges us to rethink the pedagogies we have developed at the first year and across the curriculum based on those assumptions. Before we can engage our students where they really are, we need to form a deep understanding of the skills they possess when they enter our courses, both as readers and as writers. Small assignments asking them to paraphrase and summarize one or two paragraphs will reveal how many of them are "composing at the point of utterance" and reading from sentences rather than engaging with whole sources and "do[ing] things with texts as they read" (Horning, 2011, para. 12). Stripped of the assumptions that blind us to the ways students are engaging with the material they read, we can scaffold assignments and provide feedback that will help them develop the reading and source-integration skills we want them to learn.

But we also need to avoid the mistake of assuming that all students possess the same skills and therefore developing one-size-fits-all pedagogies, attractive though such an option may be. Some students may benefit from instruction in the way sentences work. An inability to distinguish independent and subordinate clauses, for example, leaves the student blindly guessing the main ideas in each sentence and thereby unable to build a summary from important information. An understanding of the parts of academic texts functions in the same way as an understanding of the parts of the sentence, empowering students to identify and focus on key aspects of what they read and learn to engage with it as a whole—in other words, to understand the goals of reading and writing about what they read.

In order to engage with our students in this way, instructors will benefit from a less-is-more philosophy. If students are all assigned to read the same sources, summarize them and place them into dialogue with each other, they can evaluate each other's work and understand that not all summaries are the same. In WAC courses the shared text will be the textbook or course reading and summaries leading to extended dialogues take the form of what is frequently called "write-to-learn" assignments that help students prepare for class. Students learn more about the topic through this process, developing questions that can lead to further reading and researched writing that uses fewer sources to explore what others believe about a topic discussed in class rather than, necessarily, forming an argument about an unrelated topic. In first year-writing courses this would mean developing research papers from themes or topics already discussed in class, creating a writing situation that more directly mirrors other courses. This does not rule out also assigning research on

current events or popular culture, but such research might be better presented in some form other than the extended research paper.

If our goal in assigning researched writing is to teach students to engage with sources and enter conversations with them on a topic, there is no real reason for that process to include more than three or four sources. Similarly, if one of our goals is to teach information literacy skills, we can do that by asking students to find two additional sources that are in dialog with the sources read in class and the issues that interested students within them. More radically, we might consider the goal of creating flexible "expert readers" in whatever discipline the course teaches. Such a goal enables students to understand texts "as part of an on-going conversation about key issues or ideas in a discipline" and focusing on specific texts helps them to develop "knowledge of the topic, the author's likely purpose and whatever else may bear on the text" (Horning, 2011, para. 14).

Beyond course goals, given that more than half of the students in the Citation Project study misused sources at least once, this research also challenges us to rethink programmatic and institutional policies about appropriate source use. Among the assumptions instructors need to change is the belief that students are *able to* reproduce source text in their own words all of the time and that when they do not do so, they are *always* intending to deceive. When a source is cited but misused, instructors would be well advised to respond pedagogically as the Council of Writing Program Administrators (2003) suggests. However, if we develop pro-active pedagogies designed to increase the abilities of our students to engage with texts and their understanding of how texts work in general and as sources within academic texts, we may actually avoid the necessity of developing reactive pedagogies to respond to patchwriting and other misuse of sources. That seems like a very fine reading goal for us and our students to work toward.

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Notes

- [1] See Jamieson & Howard (2011) for some of the data reported in this article and additional data on source type and length. See Jamieson & Howard (2010) for discussion of this data and some of the implications. Jamieson & Howard (2013) also discusses the methodology of this research.
- [2] Howard (1993) classifies patchwriting as "copying from a source text and then deleting some words, altering grammatical structures, or plugging in one-for-one synonym substitutes" (233).
- [3] Roig (2001) describes this phenomena as "instances in which students correctly attribute their written material to the original author, but their writing is too close to the original. Such paraphrases often reveal only minor modifications, such as some word substitutions, deletions, or both, or superficial structural changes, such as a rearrangement of subject and predicate" (308-9). This definition is similar to Howard's (1993, 233).
- [4] The sources and their use were coded using a form of citation context analysis, a set of research methods established in the fields of applied linguistics and information studies and described by Linda Smith (1981) thus: "a citation implies a relationship between a part or the whole of the cited document and a part or the whole of the citing document. Citation analysis is that area of bibliometrics which deals with the study of these relationships" (83). See also White (2004).
- [5] The names of paper and source coders are listed at CitationProject.net. Without the generous contribution of time and labor provided by program directors, faculty, and coders this research would not have been possible. Thank you.
- [6] Although PASW (formerly SPSS), the program used to perform statistical analysis of Citation Project data, includes a mechanism to test for inter-coder reliability and variation among coder's decisions, final data was only entered once coding pairs had reconciled their coding sheets. For this reason, I cannot report PASW inter-coder reliability data. Because this research requires human judgment and interpretation, it is essential for coders to reach consensus on each individual citation. Where there were disagreements, one of the principal researchers joined the conversation to ensure consistency. The data for calibration papers coded by all coders therefore show 100% agreement rather than capturing the nuance of that conversation. When randomly selected papers were recoded by the principal researchers there was strong agreement between original and recoded data.
- [7] See Jamieson & Howard (2013) for a fuller discussion of Citation Project methods.

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