Illuminations. Trans. Harry Zohn. New York: Schocken, 1969. 219–54.

Blakesley, David. "Defining Film Rhetoric: The Case of Hitchcock's *Vertigo*." Helmers and Hill. 111–34.

Dickinson, Gary, and Casey Malone Maugh. "Placing Visual Rhetoric: Finding Material Comfort in Wild Oats Market." Helmers and Hill. 259–76.

Edwards, Janis L. "Echoes of Camelot: How Images Construct Cultural Memory through Framing." Helmers and Hill. 179–94.

Foss, Sonja K. "A Rhetorical Schema for the Evaluation of Visual Imagery." *Communication Studies* 45 (1994): 213–24.

Helmers, Marguerite, and Charles Hill, eds. *Defining Visual Rhetorics.* Mahwah, NJ: Erlbaum, 2004.

Helmers, Marguerite, and Charles Hill. Introduction. Helmers and Hill. 1–24.

Kostelnick, Charles, and Michael Hassett. *Shaping Information: The Rhetoric of Visual Conventions.* Carbondale: Southern Illinois UP, 2003.

Kress, Gunther, and Theo van Leeuwen. *Reading Images: The Grammar of Visual Design.* New York: Routledge, 1996.

Lange, Dorothea. *Migrant Mother.* "Photos That Changed the World." 2005. <http://photosthatchangedtheworld.com/migrant-mother/>.

Lucaites, John Louis, and Robert Hariman. "Visual Rhetoric, Photojournalism, and Democratic Public Culture." *Rhetoric Review* 20.1 (2001): 37–42.

Mowat, Farley. "Observing Wolves." Reid. 66–73.

Reid, Stephen. *The Prentice Hall Guide for College Writers.* 8th ed. Upper Saddle River, NJ: Pearson Prentice Hall, 2008.

Scudder, Samuel H. "Take This Fish and Look At It." Reid. 60–64.

Sturken, Marita, and Lisa Cartwright. *Practices of Looking: An Introduction to Visual Culture.* Oxford: Oxford UP, 2002.

Tange, Andrea Kaston. "Envisioning Domesticity, Locating Identity: Constructing the Victorian Middle Class through Images of Home." Helmers and Hill. 277–302.

Trimbur, John. "Theory of Visual Design." *Coming of Age: The Advanced Writing Curriculum.* Ed. Linda K. Shamoon. Portsmouth, NH: Boynton and Cook, 2000. 106–13.

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What about the "Google Effect"? Improving the Library Research Habits of First-Year Composition Students

> Patrick Corbett
New Voice

This article presents a consideration of how students' existing information-seeking behaviors affect traditional methods of teaching library research in first-year writing courses and offers an alternative method that uses both library and popular Internet search tools.

The prominence of information literacy as an outcome for postsecondary general education stems from the degree to which it is believed to affect students' preparation to do college-level work (Samson and Granath 149). As early as the 1998 report by the Academic Senate for California Community Colleges entitled *Information Competency in the California Community Colleges*, educational policy makers have argued for increasing two-year college students' proficiency with seeking, finding, and using information. As faculty who teach writing, we have long understood the need for students to improve their information literacy. We recognize the contribution of information-seeking skills and practices to students' academic success. For at least a decade, though, shifts in digital information and communication technologies have forced dramatic changes in the methods we use to teach information literacy (Warren 299). These frequent shifts within the new technological order have forced an across-the-board strategic reconsideration of what information-seeking tools and skills students must learn. In the writing disciplines, we have struggled to keep abreast of these shifts with relevant pedagogies that promote students' proper reliance on these tools and skills in their research and writing (see Sidler, Morris, and Overman-Smith for writing-relevant conversations).

This article addresses one aspect of the ongoing pedagogical struggle with new information technology. It explores the disconnect between the obligation we place on students to begin using sophisticated digital library tools for our classes and their ability and willingness to successfully use these tools to find the information that will serve them best. The article presents the results of a small HCI (human-computer interaction) study of first-year writing students and offers a possible explanation for the perceived intractability of these students in their un-academic information-seeking behaviors. Focusing on students' familiarity with popular Internet information tools like the Google search engine, it offers a *stage-process* approach to information literacy and a method for integrating information-seeking

instruction with assignments in first-year writing courses. It discusses how this approach can improve traditional information literacy instruction in the writing classroom before concluding with a discussion of my own implementation of the approach in research-based first-year composition courses.

The Library Research Barrier

Traditional pedagogy for teaching writing students to do library research is centered on the expectation that students learn to do research by emulating expert research practices with expert research tools (see Rockman for various perspectives). First-year writing students are typically given a brief, intensive introduction to library tools and then are expected to use these resources on their own time in support of a larger research writing project. This instruction usually comes from librarians or writing instructors in the form of instruction modules at the "point-of-need" (Peary and Ernick 39). The challenge of successfully using point-of-need instructional delivery is that it frames library research as a means to an end when library research is instead part of the practice of making knowledge and inseparably integrated with the intellectual project undertaken by the student.

For various reasons, writing faculty who use the point-of-need pedagogy often demand that students proscribe their own native Internet practices and habits. In Kate Manuel's survey of the portrayal of first-year students in information literacy literature, she notes that students are perceived by many faculty to be unsophisticated consumers of information and unnecessarily invested in easily available, but unreliable, Internet information (401).[1] This view is predicated on the belief that students expend as modest an effort in their research as possible and with little regard for the intellectual property of others (402). Though writing faculty generally have a more nuanced understanding of students' information-seeking behaviors, even if we do not attribute students' lack of sophistication to laziness, we typically discourage their reliance on the use of Internet information tools such as Google, Yahoo, Wikipedia, or Ask.com. The risk of this tactic is that it tempts us into seeing the task of introducing students to expert library research practices as an intervention in existing "bad" Internet habits. The tacit expectation of this point of view is that because these existing habits are not useful in an academic research context, students will "see the light" when we force them to use more academically appropriate tools and methods. Despite worthy intentions, we are then frustrated when many students insistently rely on the popular Internet for their writing projects, even when the information they find is inappropriate or inadequate.

The "Google Effect"

In the spring of 2007, I (with the help of three colleagues) conducted HCI usability research with first-year writing students as they used a digital library interface for basic research tasks. Through our usability research we analyzed students' at-the-keyboard search habits for what effects their prior learning had on how they conducted simple library research tasks. We learned that a key influence for how students perceive library research tools is the degree to which they are already familiar with and dependent on popular Internet information tools, particularly Google.[2] In other words, the ubiquity of Google in the information-seeking lives of writing students factors heavily on how they interact with more specialized expert search and retrieval tools like those associated with academic libraries.

At face value, finding that students preferred tools and skills gained from informal learning rather than direct instruction seems obvious; however, the "Google effect" (as we came to call it) is deceptive in its simplicity. In HCI terms, the "Google effect" refers to our finding that student-participants' "mental models" of how the Internet and Google worked were almost undifferentiated. Even though participants could offer matter-of-fact ways that the Internet and Google are different (e.g., Google searched the Internet), they saw no salient difference between the two entities in terms of how they worked, what they were able to provide under different circumstances, or why. The research suggests that participants' misconceptualization of Google, the Internet, and digital public information sites in general contributed to several other barriers: (1) their sense that Google is more dependable than library research tools; (2) their belief that it provides more appropriate feedback from searches; and (3) their view that it is more time-cost effective for achieving adequate results.

Student participants relied most heavily, if not exclusively, on Google for their information needs both in and out of school. When confronted with our library research tasks and tools, each student demonstrated a strong desire to use Google instead, including one vocal student who lectured us on the superiority of Google to library tools. The participants also shared a similar, and counter-productive, mental model of Google's function that stemmed from their familiarity with using it without understanding how it worked. Put simply, they conducted their searches as if the Web was found on Google rather than the other way around. Their operational assumption was that anything useful on the Web could be accessed through a Google search. Participants did not know that records found through the library's digital card catalog (or through other crucial library databases) were a different set of data than the information available through Google's front page and that there is irregular overlap.

Student participants' mental models of Google were born out of their relative familiarity with the surface features of it and similar tools. This familiarity contrasts markedly with their use of digital library resources, which many of them had difficulty using even for the most basic tasks. One reason for this is that Google appears to be intuitive and is "sold" as such. Participants believed that library resources would be intuitive to use as well, but library resources are expert information search and retrieval tools that require a significant time investment to learn to use properly. Despite first being given access to help modules specifically designed for the research tasks assigned to them, participants all but disregarded these materials and quickly began to apply the same search techniques to the research

tasks that that they found to be effective with Google. One explanation for this is that Google's interface privileges ease of access over powerful control and forces little of the precision that library research tools typically require of users. Accessing library digital records demands more precise language and logic than Google and with less point-and-click functionality. Library tools are unforgiving of spelling errors, and users must be aware of relatively complex strategies to find sought-after information. As a result, while none of the participants were able to articulate what a Boolean AND function was, the seven out of eight of them who were familiar with Google all relied on the Boolean AND operator being implicitly provided in their search strings, as it is with Google searches. This same behavior produced an error message with the library's digital card catalog because two or more keywords were inputted without explicit Boolean operators.

A final, but also significant, barrier participants encountered was that, unlike Google, digital card catalogs have low "information scent." This means that they provide few contextual clues (like annotated search results) to give the user an idea about what information their immediately future actions will provide. Library digital card catalogs do not provide clear and immediate feedback on the effectiveness of a search because users then must physically retrieve the information. This created a problem when study participants enacted a research strategy that is highly effective with Google—casting the "wide net." When casting the wide net, an information seeker begins a search with one or two broad search terms to which other terms are later added to narrow the search once a few web pages are reviewed. When the wide net strategy was used with the digital card catalog, participants were faced with hundreds or thousands of records that did not produce a web page when clicked (a source of great frustration to Google-trained participants).

The Stage-Process Approach

As a means of addressing some of the information-seeking barriers that students face, I have developed a *stage-process* approach for research instruction in writing courses that I teach. In this section I present a general discussion of the approach, followed by a more detailed explanation and examples of how I apply it. The stage-process approach is designed to make library research more approachable (and, hopefully, relevant) to students by helping them develop both Internet and library research skills and incorporating these together in an intertwined, ongoing, and recursive process. Conceptually, the approach is inspired by inquiry-based writing pedagogies like those espoused in textbooks by compositionists David A. Jolliffe (xiii–xiv) and Bruce Ballenger (xx), which provide students with clear methods for developing their writing project from its necessarily chaotic beginning. Methodologically, the stage-process approach resembles a similar method advocated by Alexandria Peary and Linda Ernick that focuses on engaging students in library research for an entire semester.

I developed the stage-process approach in recognition that my demand of students to begin immediately using these expert tools proficiently is often met with a scratching of heads, both students and my own, when the results are presented. To frame the issue as an HCI problem, students' existing behaviors, attitudes, and choices, which are shaped by previous learning, strongly lead them to misuse expert tools. Point-of-need methods of introducing digital library tools to students, such as guided library visits and scavenger hunts, only begin to resolve this issue. Increasingly, digital supplements like online directions, help modules, and tutorials are being used as solutions, but other research supports our own HCI findings that users, including students, do not benefit from most online help forms (see Dormann for a review of the literature). Without a solution, students who are not practiced in navigating the functional differences between intuitive and high information scent tools like Google and their university's digital card catalog and databases will likely as not abandon digital library resources because they produce unfamiliar and unhelpful results.

The problem of point-of-need pedagogy is addressed by Peary and Ernick, but nevertheless they recommend the traditional pedagogical technique of severely limiting students' ability and incentive to use popular Internet tools so that students will rely more heavily on scholarly resources (40). Recognizing that this attitude toward Internet sources often does not produce the intended result, the stage-process approach instead requires students to begin research with whatever common Internet tools they use natively. Rather than eschewing these tools as the objects of bad habits, the stage-process approach uses them to begin the research process and to demonstrate to students that research is a generative practice that can accommodate (even capitalize on) the humble beginnings, missteps, U-turns, and dead ends of an intellectual inquiry even as it seeks to move beyond them. The significant amount of informal and formal research-oriented text that students produce expands upon and modifies the research of previous stages so that other complex tasks of the research process can be explored. Once the research process has sufficiently advanced beyond the facility of common Internet tools, expert library tools are introduced to sustain and develop it.

The stage-process approach builds into writing classroom instruction the expectation that students will continue not only to investigate but also to rethink, retool, and expand their research throughout the semester. The tools become part of the research inquiry as students are asked to examine how their understanding of the tools changes. By design, the approach begins with assignments and classroom activities involving simple research tasks and familiar tools and moves (with a great deal of support) toward more complicated tasks with expert tools. The expectation is that over the duration of the course, while researching a topic of their own choosing, students will also be able to explain what it means to do research with both common and expert tools, explain the differences between them, and articulate a research strategy that uses both. While developing the approach, I have kept in mind several issues reported in scholarship focusing on information search and retrieval: that instructors want students to use "real" sources (Groce 196); that a mismatch exists between the broad scope of many first-year composition courses and the expectation that students use research written by experts for experts (Baker 181);

that students need extra support in navigating academic informational spaces (Ray 149); and that students find traditional methods of teaching information literacy to be "isolating" (Foster 175).

Applying a Stage-Process Approach

As the stage-process approach is further explained below, it is worth noting that assignments within a particular stage are arbitrary. These assignments, the individual stages, and their lengths are merely pedagogical strategies to assist the task of learning to do sustained research with an increasingly sophisticated information literacy. Any components of this approach can easily be adapted or substituted to suit individual teaching styles or course objectives. What is important is that the research process is broken down, explored meta-analytically, and sustained over the course of the semester so that students are continually asked to think like researchers, even as they are given license to struggle with what "thinking like a researcher" means. Similarly to Peary and Ernick, this approach asks students to engage in frequent meta-analysis of research tasks in the form of "research process notes" that, like writing process journals, allow students to consider their information seeking habits and techniques as they develop and change throughout the semester (38). By the time students have completed the course, they will likely have written several informal research-oriented papers on a topic, compiled a technical research document, and developed at least one extended research essay written with sources found using expert tools. They will have also written numerous short analytical texts designed to provide opportunities for reflection on and reconsideration of the information and tools that they encounter.

Stage 1: Exploration

In the first week of class I give an informal assessment of the information-seeking behaviors and needs of individual students and use this information to introduce a general discussion of secondary research. Students are assigned a very simple initial research task that asks them to find, read, and evaluate several Internet resources on a tangible topic of their own choosing. A few of the topics that students have chosen to develop in the past include Disney movies, barbecuing, and post-traumatic stress disorder (PTSD).[3] I ask students to take notes as they research and then to compose an informal analysis detailing the search engines they have used, their keywords, the usefulness of the search, websites visited, key information learned, further questions that the initial research has raised, problems encountered, and other information relevant to the search itself. I use this information to compile a report that shares with students their existing information-seeking profiles and habits: what tools they use, for what, how so, and to what extent. This information provides me with an understanding of what mental models, preconceptions, and tendencies are in play with a particular group of students, and it gives the students the beginning of a broader context for thinking about research as a recursive process involving various tools and techniques.

Stage 2: "Quick and Dirty" Research

Next, students are involved in a radically simplified version of the research process (a.k.a. "quick and dirty" research) in an effort to get them reading, and writing about what they read, as quickly as possible. In this way, from the beginning of the course, students produce their own research analyses that become objects of textual analysis, reconsideration, and learning. Students have the option of using the topic they have already chosen to explore, or choosing one that is different. Students are free to use popular Internet tools but are also expected to work with slightly longer sources at this stage. I ask them to take ample notes from these sources using pseudo- or proto-citation, which over the course of the semester we formalize to fit MLA or APA style.[4] A student who chose Disney movies to explore initially might research how romance is portrayed in several of these movies, while a student who is researching barbecuing might focus on his theory that outdoor grilling is a quintessential suburban activity. Similarly, a student interested in PTSD might focus specifically on female soldiers. I ask students to generate and organize fields of keywords that they can use as future search terms, and, as a class, we develop several possible directions that they can use to push more deeply into their topic. Later in this stage, students write simplified research plans that articulate what they already know about their topic and grasp for what they feel they need to know next.

Stage 3: From Familiar to New

As students continue to develop various threads of expertise within their chosen topic through their research of common Internet sites, the class develops an increasingly sophisticated understanding of what roles these sites can effectively play in the research process. The sites become the object of meta-analysis involving short writing assignments and class discussions. The class might read the editorial discussions from contested Wikipedia pages and other publicly edited content so students have the opportunity to become aware of the political nature of the information they seek. The class pushes Google's limits of utility for finding basic and sophisticated information and compares it to other tools like clustering search engines and visual information tools.

At this point, digital library resources are also introduced in conjunction with and in comparison to the more familiar tools. Students practice using the digital library card catalog and journal databases in class workshops (a prospect made easier by access to computer classrooms). This work is done collaboratively with particularly vexing research problems opened up to the entire group. Exercises using various hands-on research dilemmas illustrate basic Boolean search concepts (e.g., how to construct a search that differentiates the theologian Martin Luther from Martin Luther King Jr.), source management (e.g., practicing effective reading strategies for bulk research), and search redirection (e.g., processing indexes and bibliographies for key words). For example, I might ask students to explore the provenance of a particular idea or concept by pursuing additional sources from the bibliographic entries of their existing sources. I have also asked students to do this

sort of "intellectual digging" with their keywords by using an etymological dictionary and tracing historical and alternate meanings for their keywords. I typically use this exercise when students are having trouble conceptualizing how to shift their initial research into a more focused and systematic inquiry. For example, a student interested in exploring the act of barbecuing as a quintessential suburban activity will discover several things through an etymological study of the word "suburb": first, that the concept of the "suburb" is not strictly American or from the twentieth century; second, historically, the use of the term "suburb" has often carried an unflattering connotation; third, one cannot study "the suburbs" without taking into account the larger concept of "urbanization."

Stage 4: Guided Self-Assessment

By this point in the research process (four to six weeks in for my own classes), students have often written much more than what they typically would in a class where research is neither process based nor staged. The trade-off in work load is that the writing has low stakes and is not evaluated for stylistic efficacy. The goal of the frequent writing tasks is to get students confidently communicating their thinking through writing about their topic and their approach to it, while at the same time generating documents that are useful to them as they complicate their ideas with research found from more academic strategies.

In this stage I ask students to exercise more formality and sophistication in their research process while thinking about, using, and contextualizing the information sources that they are finding. When students have achieved a critical mass of research and can begin making serious connections between ideas and sources, they prepare a four-section technical document (with about five hundred words per section) in which they position themselves as a writer with respect to their topic, contextualize the topic according to issues that have come up in their research, and analyze the arguments of the writers on whom they are relying in their research. From this analysis they develop several questions for a more formal research inquiry, one that reformulates their research to date and pushes it in a new direction. A student who is interested in the portrayal of romance in Disney movies might, at this point, examine more closely the moral center of male-female romance in Disney animated films. A student who is interested in how the suburbs are portrayed in American culture (and possibly what role barbecuing plays in this) might begin exploring a historical or sociocultural analysis of American twentieth-century "suburbia" and shifts in urbanization trends. A student who is interested in PTSD and female soldiers could focus her inquiry on how returning female combat soldiers from the Second Iraq War are treated for PTSD in comparison to male soldiers.

Stage 5 (and Beyond): Being the Expert

As the semester progresses, students compose longer texts while focusing on the construction of arguments that make more sophisticated use of the research they continue to do. Often, students will write annotations of sources by providing a synopsis and an analysis of how the source fits into their inquiry. The class comes back to the trope of exploration and reconceptualization for each assignment in varying degrees of formality. One way this happens is that when students reach the limits of their research abilities in their own time we discuss possible strategies as a group. Another way is that when I comment on and return drafts of formal assignments, I often use this opportunity to suggest conceptual turns in their arguments that require additional research. For example, if a student who is interested in romance in Disney films has come to the limit of her ability to find sources that treat romance as a cultural and ideological construction, I might suggest that she look for sources that discuss the pseudo-feminist commodification of feminine power in Disney films. However the student chooses to move forward, the expectation is that she will not only be introduced to the features and strategies of successful information seeking—source access, Boolean searching, keyword generation, source assessment, research reading skills, citation, and so forth—but that she will have multiple opportunities to practice these skills in a project in which she is invested over several assignments throughout the course of the semester.

Examples from the Classroom

Since the 2007 HCI study, I have refashioned my own instruction to be more sensitive to helping students understand the function and differences between the computer tools they use in their everyday lives and the tools they use for academic purposes. I continue to develop and use the stage-process approach in my research-based first-year composition courses, both at two-year and four-year institutions. Though the nature and character of each individual class is different, generally the students are willing, and occasionally enthusiastic, about choosing topics according to their own interest and making research decisions. They are initially intrigued by the possibility of doing something that their instructor explains as "research," but that feels more like the Internet use to which they are accustomed. Students have reported to me that the slow introduction of formalization in the texts they compose and in their research processes has allowed them to take chances with their ideas that they otherwise would not have taken for fear of a harsh evaluation. Many times the topics that students initially choose evolve quite substantially as they progress to formal assignments. I am pleased that many students often write in-depth research papers that have benefited from several significant perceptual turns over the course of previous drafts and informal assignments. The account of a student I call Mina illustrates what these perceptual shifts look like and how students come to make them.

For her first informal research assignment, Mina chose a tangible topic, Botox, and asked why so many women feel they need Botox to be beautiful. She had initially wanted to write about credit cards, but she did not have the initial information search and retrieval skills to find anything more than sponsored ads and business news, which she had little interest in pursuing. Instead, she composed an informal but passionate text about the dangers of Botox injections. To promote

a higher degree of objectivity. I encouraged her to explore both medical and cosmetic uses of Botox if she were interested in writing a position paper on it. Over the next several weeks, Mina wrote a "quick and dirty" research essay on "Botox parties" and then a further short piece on the process of manufacturing Botox from the Botulinum toxin type A protein. As she continued her investigation, she was surprised to learn that Botox was originally used, and continues to be used, therapeutically. In her technical report, Mina linked the previous information she had researched with information about the therapeutic uses of Botox that she had gathered from more formal public Internet sites and her initial forays into library databases. Still interested in what she believed was the proliferation of unnecessary cosmetic enhancement, she shifted her focus in her formal research essay from Botox to body dysmorphic disorder (BDD), which was a rearticulation of what originally concerned her about Botox. Able to use her existing knowledge of Botox as an example, Mina used library tools to find information on BDD as well as the representation of women's beauty in magazines and wrote her paper linking together these three aspects of her research.

One aspect of the stage-process approach that helped Mina and other students the most was writing reflective assignments about the research process. Each formal and informal writing assignment students completed had a reflective component attached. In these shorter reflective pieces, students would discuss particular aspects of the research process and their experiences with them. For example, to begin the "Exploration" stage of their research, students work on formulating a research question. Using classroom exercises to generate and narrow ideas for their initial research inquiry, students have come up with broad, but addressable, questions, such as "Why is SPAM so popular a food product?" and "Where did the flush toilet come from?" Once students have their question for which they complete an informal research-based text, I also give them a reflective assignment like the following:

> Once you have determined your question and completed some prelminary Internet research, say for at least one full hour, take a moment to respond to the following questions. As you conduct your research, write down on the sheet provided the search engines you use, the keywords, whether they were helpful or not, the websites you have visited and found useful, key points of information you have learned, further questions you have raised, problems you have had, and anything else relevant to your search. From these notes, compose a response that discusses your basic research strategy (or lack thereof). Specifically address the how, what, why, and where of the work you did.

This type of reflective text, when coupled with the support of classroom discussions, instructor response, and further "re-reconsiderations," can become the seed for a new iteration of the project, or a significant development of a previous text. Students may resist what they feel is the "busy work" of such detailed record keeping, so I make immediate use of any data-collection assignment of this type in the discussions or exercises of the next class meeting, where we aggregate our information and use it to explore what has worked, what has not, and what might be the next step.

Final Thoughts

I have found that the stage-process approach benefits students' writing in my courses in several ways: (1) as Mina's work illustrates, students produce written projects that are often *re-visioned* several times; (2) students learn how to conduct research as a recursive process; (3) students gain valuable practice integrating researched information and their own previous syntheses of researched information into texts of increasing conceptual complexity, and (4) students leave the course with a more complex understanding of what role textual research and sophisticated information seeking can play in their own writing. Part of the strength of this approach, as I have emphasized, is that it takes the information search and retrieval portion of research pedagogy from a point-of-need and develops it concurrently with other aspects of the writing course over the length of the entire semester.

Implementing a stage-process approach does not come without costs. Time in the writing classroom is a limited, precious commodity. For every pedagogical strategy that is implemented, many must be left out. Activities that focus on writing skill building are what have been sacrificed in my classes as I've implemented the stage-process approach. They have, in many respects, been relegated to the status of point-of-need, and I feel fortunate to have had students who are comfortable learning this way. I have also had the good fortune of always having a computer classroom in which to teach my writing courses. I would not implement the stage-process approach as I have described it if the class, or my students at home, did not have regular access to Internet-ready computers. The technological demands of the approach would be a poor fit. Finally, because each assignment and each stage of the research process is so heavily dependent on the last, student absences are a significant factor.

I've come to believe that I am the first-best resource in assisting students in my classes to successfully learn how to conduct information search and retrieval in their writing research. This stance is supported by findings that instructor participation is a key component to student information literacy success (Samson and Granath 149; Zoellner, Samson, and Hines 378). I no longer "outsource" teaching library resources to librarians (though I have become more willing to call on them for advice and collaborative support). The stage-process approach offers a perspective that questions the point-of-need application of information search and retrieval pedagogy and instead places pedagogy within a context of information seeking as a natural behavior. Library research does not have to be an "isolating" practice (Foster 175), but faculty sometimes make it so through subtle misperceptions of why students exhibit the information-seeking behaviors that they do, and how to move them forward. The stage-process approach is intended to honor not only what information students seek, but why, and to move them forward in their expertise by making explicit links between their native information-seeking behaviors and the behaviors that we demand of them.

Notes

1. Kate Manuel's study of 2,877 first-year writing students at New Mexico State University in 2003–4 found that instruction alone does not resolve the misperceptions students hold toward library tools on account of the strength of these misperceptions and the manners in which they serve students.

2. This research was conducted by an interdisciplinary team of two compositionists and two computer engineers. Using an HCI usability test method, we designed and tested three prototype help interfaces to assist instructors in teaching first-semester writing students to use a library digital card catalog. We hoped that our new multimodal interfaces, which combined text with images, video, and interactive features, would assist student learning and teaching instruction of digital library tools. Not only did these prototype interfaces quickly prove to be ineffective in moving student writers forward to use the more sophisticated research tools that an academic library has to offer, but they also increased student resistance toward using digital library tools.

3. Students had more success when searching for tangible and specific concepts or objects rather than abstractions like love, war, freedom, truth, life, or death. As a heuristic for selecting a topic, I suggest that if they can "touch, taste, smell, see, or put it into exact words," they will have more success than if they choose something that they "feel" or that is too big to put into words.

4. Proto-citation offers students a way of working with the necessary information found in formal citations without grappling with the syntax. For example, I might ask students to find the author, date, publisher, and, if warranted, Uniform Resource Locator (web URL) for a source and then ask them to present this information in a manner that they believe is both logical and useful.

Works Cited

Academic Senate for California Community Colleges. "Information Competency in the California Community Colleges". 1998. <http://www.asccc.org/Publications/Papers/Info_competency.html>. November 5, 2009.

Baker, Robert K. "Faculty Perceptions towards Student Library Use in a Large Urban Community College." *Journal of Academic Librarianship* 23.3 (1997): 177–82.

Ballenger, Bruce. *The Curious Researcher: A Guide to Writing Research Papers*. 6th ed. Boston: Longman, 2009.

Dormann, Claire. "Designing On-Line Animated Help for Multimedia Applications." Lecture Notes in Computer Science 1077. London: Springer-Verlag, 1994: 73–84.

Foster, Helen. "Growing Researchers Using an Information-Retrieval Scaffold." *Teaching English in the Two-Year College* 31.2 (2003): 170–78.

Groce, Heather. "Information-Seeking Habits and Information Literacy of Community and Junior College Students: A Review of Literature." *Community and Junior College Libraries* 14.3 (2008): 191–97.

Jolliffe, David A. *Inquiry and Genre: Writing to Learn in College*. Boston: Allyn and Bacon, 1998.

Manuel, Kate. "What Do First-Year Students Know about Information Research? And What Can We Teach Them?" *Currents and Convergence: Navigating the Rivers of Change: Proceedings of the Association of College and Research Libraries*. Ed. Hugh A. Thompson. Minneapolis: 2005. 401–18.

Peary, Alexandria, and Linda Ernick. "Reading, Writing, Research: Incorporating Strategies from Composition and Rhetoric into Library Instruction." *College and Undergraduate Libraries* 11.1 (2004): 33–43.

Ray, Donald. "The Meaningful and the Procedural: Dilemmas of the Community College Library." *Journal of Academic Librarianship* 15.3 (1989): 147–50.

Rockman, Ilene F., ed. *Integrating Information Literacy into the Higher Education Curriculum: Practical Models for Transformation*. San Francisco: Jossey-Bass, 2004.

Samson, Sue, and Kim Granath. "Reading, Writing, and Research: Added Value to University First-Year Experience Programs." *Reference Services Review* 32.2 (2004): 149–56.

Sidler, Michelle, Richard Morris, and Elizabeth Overman-Smith, eds. *Computers in the Composition Classroom: A Critical Sourcebook*. Boston: Bedford/St. Martin's, 2008.

Warren, Leslie A. "Information Literacy in Community Colleges: Focused on Learning." *Information Literacy and Instruction* 45.4 (2006): 297–303.

Zoellner, Kate, Sue Samson, and Samantha Hines. "Continuing Assessment of Library Instruction to Undergraduates: A General Education Course Survey Research Project." *College and Research Libraries* 69.4 (2008): 370–83.

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