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Integrating Information Literacy Outcomes into Higher Education Courses

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ABSTRACT

Many colleges and universities are actively developing and implementing curricular initiatives to develop students' digital information literacy in an effort to prepare the next generation for lifelong learning and with critical thinking skills. Overall, each of these efforts are earnest attempts to consistently provide students with digital information literacy skills, yet each as an approach has fallen short of the digital information retrieval and information evaluation standards outlined by the Association of College and Research Libraries. This highlights the need to develop a comprehensive solution approach to integrating digital information literacy outcomes into higher education courses. This paper focuses on improving a student's capability for information retrieval and information evaluation through inclusion of digital information literacy outcomes into core course curricula and offers a proposed integrated solution approach involving faculty, academic librarians, information technology administration and students to effectively incorporate digital information literacy skills into a post-secondary courses and curricula.

Keywords

Digital Information literacy, curriculum development, course development, integrated learning outcomes

THE CRITICAL IMPORTANCE OF INFORMATION LITERACY FOR TODAY'S STUDENTS

Introduction

While most in academia can attest to the technological savvy of today's students, many wonder how such savvy is lost when applying technological tools to knowledge discovery. A student can almost instantaneously find one song on an iPod holding thousands of songs, yet cannot find the premier critique of a famous poem in the library stacks or online. This disconnect causes great frustration to faculty who find it mysterious that a student's comfort with technology ends at the doorstep of academic research. The root of the trouble lies in the explosion of electronic information, such as databases, web sites, and book archives, making it possible to navigate to vast amounts of information without the necessary portal of the campus library's front door (Foster, 2007). Many colleges and universities are actively developing curricular initiatives to develop students' information literacy, in an effort to prepare the next generation for lifelong learning and with critical thinking skills. Definitions of information literacy vary widely and have continued to evolve as technology and its applications to information resources continues to advance. Shapiro and Hughes (1996) suggest seven important components of information literacy focusing on technological tools, end users and information resources: 1) tool literacy; 2) resource literacy; 3) social and structural literacy; 4) research literacy; 5) publishing literacy; 6) emerging technology literacy; and 7) critical literacy. It is this critical literacy competency that is the one of most concern in today's undergraduate writing efforts, the ability to locate, evaluate and properly use information (Stern, 2002), with or without the use of technology. Digital information literacy, the application of information literacy in the digital environment (Stern, 2002), is the ultimate goal of higher education information literacy goals, as computer and information technology literacy are just as critical as library and information skills (Ralph, 1999).

As faculty and administrators, we cannot bury our heads in the collective sand (Chen, 2007) and force students to engage with information in ways we are more comfortable (Davidson, 2007); we must encourage students to use tools with which they are familiar to develop skills of lifelong learning and critical thinking. Students have different ways of approaching information seeking and use, and these different ways of approaching information seeking and use correlate with different levels of learning outcome (Limberg, 2000). At this nexus of technology and information evaluation, the Association of College and Research Libraries, a division of the American Library Association, outlined five standards for the implementation and assessment of post-secondary information literacy programs (Association of College and Research Libraries, 2000). These standards state that an information literate individual is able to: determine the extent of information

needed; access the needed information effectively and efficiently; evaluate information and its sources critically; incorporate selected information into one's knowledge base; use information effectively to accomplish a specific purpose; and understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally. This paper focuses on improving a student's capability for information retrieval and information evaluation, although the other aspects of information literacy are equally as important.

It is worth briefly discussing what characteristics of today's students make their approach to information navigation, retrieval and evaluation so different from past generations of students. The Millenials, for the purposes of this report considered to be students born between 1978 and 2000, are known for being deeply interconnected with their environment through multimedia technology, as well as accustomed to learning online (Maughan, 2006). Hence, to Google a topic or a person or consult Wikipedia are not an uncommon activities for a Millenial. These students are more engaged when learning through exploration and experimentation, as opposed to recitation. Therefore, it is natural to conclude that research is an active, technologically-based endeavor for today's student. Technological competence as a goal is a way to develop students' information literacy in a way that meets the students where they are with respect to technology, becoming even more important as researchers note that, among the Millenials, the "bricolage" approach to learning, the ability to piece together information from multiple sources, is much more common than the traditionally linear approach to learning (Maughan, 2006). With this perspective of collegiate students and their need to develop information literacy skills as part of their post-secondary education, any course or curriculum focusing on writing competency must incorporate digital information literacy outcomes.

ENVISIONING IMPLEMENTATION OF DIGITAL INFORMATION LITERACY OUTCOMES IN COURSES

Before explicitly requiring information literacy through technological competence within a course or curriculum, many colleges and universities have attempted efforts to incorporate these ideas into student instruction. Traditionally, librarians conduct individual student consultations to assist students in developing information literacy; however, very few students actually avail themselves of this opportunity outside of organized group participation. Even student orientations that include library orientations are rarely taken advantage of. Libraries also frequently offer information literacy student workshops throughout the semester; however, these workshops are rarely offered without a specific request from a professor or other group. In addition to these bottom-up approaches, information literacy has also been approached in the past from the top-down, with faculty encouraged to bring their students over to the library for information literacy instruction or to incorporate information literacy through technological competence directly into their syllabi. These initiatives have met with overall suboptimal outcomes. Having cadets come over to the library is not workable (Carrato and Holly, 2007), as the instruction provided is often too short to be effective long term as it is not reinforced in the future, and faculty can be discouraged from the instruction as it takes away from their "real" class time. In another approach, faculty will occasionally add information literacy exercises to their assigned work. These efforts have had varying success, with the biggest drawbacks being that students often do not see the broader import or transferability of the information literacy skills learned and that other faculty are not aware of what colleagues are doing and are therefore unable to build upon each other's work. Overall, each of these efforts were earnest attempts to consistently provide students with information literacy through technological competence skills, yet each as an approach has fallen short of the digital information retrieval and information evaluation standards of the ACRL. This highlights the need to develop a comprehensive solution approach to integrating digital information literacy outcomes into higher education courses.

A PROPOSED INTEGRATED SOLUTION APPROACH

This research offers a proposed integrated solution approach involving faculty, academic librarians, information technology administration and students to effectively incorporate digital information literacy skills into a post-secondary courses and curricula. This is a deviation from Bruce's (1997) framework in that today, information technology infrastructure and resources, institutional policy and overall curriculum are not major factors in the achievement of digital information literacy. Most institutions of higher education have the information technology infrastructure and resources to make information retrieval efficient for students and institutional policy that promotes the goal of information literacy. With respect to curricula, few collegiate mission statements today do not include reference to giving their students the tools for lifelong learning, with digital information literacy being implied if not explicitly stated.

Writing-intensive courses are prime candidates to use as vehicles to teach information literacy skills through technological competence in collegiate curricula. With writing-intensive courses spread throughout the courses in any major, incorporating digital information literacy into these courses ensures students exposure to information literacy concepts and development of

information literacy competency. One particular strength of this solution approach is that it can be rather easily developed for any post-secondary institution with input from all of the necessary constituencies to implement the plan. Reference librarians, leaders of student writing initiatives across campus, information technology administrators, faculty and students can all engage in executing very specific pieces of the skill set development to make the endeavor successful. As faculty members who would be responsible for incorporating the outcomes in courses, our role would be essential in ensuring that information literacy learning outcomes were achieved. However, rather than speaking only to faculty, it is important to develop a solution approach that reflected a systemic perspective of student digital information literacy, so each constituency could have input on how they could most effectively participate to lead to the successful implementation of this solution approach.

The other primary strength of this solution approach is that it focuses on information literacy through technological competence as more than just a "library thing." Although clearly libraries and information commons of the future will be central to the achievement of student information literacy (Owusu-Ansah, 2004), this approach proposes moving information literacy instruction out of the library strictly and into the writing-intensive course classroom through the syllabus in a way that incorporating digital information literacy outcomes is not one more add-on thing to do for faculty, does not threaten their academic autonomy in the classroom, nor add an inordinate amount of work to retool existing writing-intensive courses. The primary method of digital information literacy skill acquisition would be through course-integrated instruction, where information literacy instruction and assignments are integrated into the course and directly related to the content of that course (Eisenberg et al., 2004). This method obviates the need for stand-alone instruction, which would be difficult in light of a typical higher educational institution's fiscal constraints, online tutorials or separate course-related instruction. Academic librarians, along with curricular liaisons (i.e. Center for Teaching and Learning personnel), would serve in the role of collaborator and mentor (Eisenberg et al., 2004) to work actively with writing-intensive course faculty to thoroughly integrate information literacy skills into their courses and syllabi, easing the pedagogical burden on faculty by providing guidance to the faculty in creating or altering these courses. With the proper supporting staff, materials and guided process, faculty would have a clear, well-aided path to incorporate digital information literacy outcomes into their writing-intensive course syllabi, thereby effectively moving information literacy instruction out of the library and into the classroom.

FRAMEWORK FOR THE SOLUTION APPROACH TO ADDRESS LIMITATIONS

No sweeping digital curricular initiative stands the chance of being successful without the support of academic and information technology administration. The framework of this solution approach to integrating digital information literacy outcomes in writing-intensive courses includes some necessary instructions from administration that must be given to set the motivating incentives for the curricular plan in place. Assuming that all of the required financial resources are allocated, such as those to incentivize librarians to work with faculty on syllabi development, academic administration would need to *require* that digital information literacy outcomes be covered in writing-intensive courses, perhaps most easily in the general education core courses. While this requirement would surely illicit resistance from core course faculty, it also ensures that *all* students, not just the honors students or particular majors, will be exposed to digital information literacy instruction at some point in their collegiate career, and most likely more than once. Requiring that all general education core courses include the digital information literacy outcomes will effect two things: 1) that the students will have more choices of courses that they can take still being certain that they will be exposed to these outcomes; and 2) there will not be a bifurcated system of core curriculum courses *with* the digital information literacy outcomes embedded and core curriculum courses *without* the digital information literacy outcomes embedded. All writing-intensive general education core courses will be equal.

Perhaps most central to the need for administration support for the successful implementation of this proposed solution approach is to overcome the lack of buy-in from full-time faculty for information literacy initiatives and instruction to support digital information literacy outcomes (Holly and Carrato interview). There are several dimensions of faculty resistance, each which could be effectively addressed by explicit administration requirements. Some points of resistance include faculty's varying levels of information literacy through technological competence familiarity themselves, particularly in the technological domain; a lack of pedagogical knowledge on how-to incorporate digital information literacy outcomes into their courses; distrust of electronic sources; and professional discretion when choosing whether to include digital information literacy outcomes. When given discretion on including digital information literacy outcomes into writing-intensive general education core courses, faculty will generally choose not to, as it is "hard to justify more time away from *real* course material." (Holly and Carrato interview) The first three points of resistance can be eased through processes of education and collaboration proposed in this solution approach, while the final point can only be overcome by administration dictate. As a point in favor of requiring digital information literacy outcomes in all writing-intensive general education core

courses, faculty are almost always going to resist incorporating meta-competencies into their already established courses, as assessment of those outcomes frequently requires time in class not devoted to course-specific content. Without demanding that syllabi include meta-competency outcomes, it is unlikely that a faculty would volunteer to include them.

Faculty Involvement in the Solution Approach

It is at this point that I emphasize that faculty are an integral partner in successfully implementing this solution approach to information literacy instruction; therefore, the solution approach needs to be tailored so the essential faculty support needed for success is garnered. Aside from administration support, lowering the faculty resistance is going to be chiefly accomplished by "recruiting faculty to the cause" of information literacy instruction. Asking the question to faculty, "How are students doing research that you are not happy with?," focuses faculty attention on their primary benefit from incorporating digital information literacy outcomes in their courses, better student research (Ticen, 2007). Faculty will see that by incorporating digital information literacy outcomes into a course-integrated solution, students will be actively prompted to go beyond basic Google and Wikipedia research and learn how to find and use authoritative, credible, and broader avenues of research, effecting improved student research. Incorporating academic librarian collaboration, this solution approach will also help faculty embed goals by tying writing assignments to outcomes and having integrated syllabi grow out of what the faculty are already having the students do in the course. This collaboration will address three key points of faculty resistance: lack of pedagogical knowledge on incorporating outcomes; lack of personal information literacy knowledge; and distrust of electronic sources. By providing a facilitating capability to faculty in creating writing-intensive course syllabi, the collaboration provides an essential process mechanism to ensure successful implementation of this solution approach.

Incentives for Faculty Change through Ease of Use and Implementation of this Solution Approach

Another facet of faculty recruitment to support this initiative is to demonstrate to *all* faculty the benefit of information literacy instruction in their own particular courses of study. Whether the faculty member is in the sciences, engineering or the humanities, his or her students will need to be exposed to information literacy instruction. Students' work in any course is benefited from better research capability, regardless of discipline. As supporting material for faculty, this initiative could provide examples of writing-intensive course syllabi covering a range of disciplines at a particular institution. This way, faculty cannot shunt off the responsibility for information literacy instruction or contend that it is strictly a humanities issue or responsibility. If the institutional resources allow, it might also be possible to give grants to faculty for developing such courses.

With faculty incentives properly provided, the other aspect of the approach designed to facilitate faculty work in incorporating digital information literacy outcomes is that of including comprehensive supporting materials for faculty in their information literacy instruction efforts. This solution approach provides for three central pieces of supporting material. The first is a faculty seminar on digital information literacy outcomes in writing-intensive courses. The content of this seminar would include an overview of six digital information literacy outcomes, along with examples of how to incorporate information literacy concepts into course syllabi. This one-hour seminar could be delivered in person and recorded in a podcast, with the latter being available on the institution's web site for faculty to view or review at their convenience or when revising a new writing-intensive course.

This second piece of supporting material available for faculty would be a written manual for all writing-intensive course professors covering the meaning of the digital information literacy outcomes in brief and more comprehensive examples of how to implement the outcomes when making their own syllabi. An expanded companion to the oral presentation, the booklet will provide a written reference for faculty to use when they are creating or altering writing-intensive courses. The value-added to the written manual are the number and breadth across disciplines of complete syllabi in the manual for reference (the oral presentation can only partially cover one or two examples). Being made available on the school's intranet as a downloadable Adobe formatted document, the written manual will be an accessible aid to faculty, and, in addition to the collaboration provided by academic librarians, can be used to address the faculty's lack of pedagogical knowledge of how to incorporate digital information literacy outcomes into writing-intensive courses in their specific areas of study.

The final piece of supporting material will be a brochure or pamphlet for students that outlines for them the salient information literacy information that they will use throughout their studies, particularly in writing-intensive general education core courses. This brochure will ensure that regardless of the level of digital information literacy of the student coming into the course, all students will leave these courses with a tool for refresher and reference to use in any of their future courses.

Librarian Involvement in the Solution Approach

All of the effort invested in developing these supporting materials would be lost over time if there were not a process in place to ensure the materials were kept updated. Once these materials are finalized in initial form, the academic librarians could remain writing partners in the ongoing updating of these materials (Holly and Carrato interview). The continuing support of those in the academic library to keep the supporting materials (the faculty manual and cadet brochure) updated and available online for future writing-intensive core course professors would be necessary to ensure the continued success of the initiative. Facilitators across campus would also continue to help faculty develop syllabi relevant to the faculty's particular field as a compliment to the resources in the written faculty manual. This continuing support infrastructure would also be central as a part of the feedback loop in determining any changes to the solution approach once it is initially introduced.

Cadet Outcomes

The core goal of this entire solution approach is the student outcomes in digital information literacy. The immediate takeaways for students are the meta-competencies associated with digital information literacy, as well as having a short brochure to use in other courses (or even future life informal learning experiences) where research is pursued. Although the focus on digital information literacy outcomes can seem to reduce information literacy to strictly electronic data searching, retrieval and evaluation, actually the outcomes seek to address the student's overall information seeking behavior, whether it is technologically based or as low tech as browsing the stacks. It is this definition of technological versus traditional information searching, retrieval and evaluation that separates the American Library Association's information literacy outcomes (Association of College and Research Libraries, 2006) and that of most institutions. Although institutions focus on information literacy through technological competence, this does not imply that information literacy regardless of source origin is not a desired outcome. Competence in information literacy requires critical thinking skills to be effective at research, whether limiting the information to technological sources or not. With "Googling" being a lifestyle for the Millenials, digital information literacy empowers the student for lifelong formal and informal learning.

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