

Information Fluency: Goals and Outcomes

Mary V. Connolly
Associate Professor of Mathematics
Saint Mary's College
Notre Dame, Indiana 46556
574-284-4497
connolly@saintmarys.edu

Introduction

Certainly every college and university wants to graduate information and technology literate citizens. Various groups over the last few years have attempted to define exactly what this might mean, even as the technology and student experience change rapidly. Surely we want our students to be able to find, evaluate and use information which is appropriate to the task at hand. The Association of College and Research Libraries, in its Information Literacy Competency Standards for Higher Education, points out that "The sheer abundance of information will not in itself create a more informed citizenry without a complementary cluster of abilities necessary to use information effectively." [1] Technologically literate citizens must be able to do far more than just know how to use a particular piece of software. Such citizens must be life long learners, able to adapt quickly to new software and to evaluate the social, ethical and legal issues surrounding the use of new technology. For purposes of this paper, information fluency will include excellent research skills, including the ability to understand the types and sources of information available, the ability to assess the credibility of the information, and the ability to use the information effectively to solve problems and answer critical questions. Information fluency also includes the ability to use the technology tools available effectively. This involves knowing what tools are appropriate and why as well as how to use the tools in the problem solving process. Simply knowing how to use a spreadsheet or a word processor is only the tip of the iceberg here. The focus of this paper is on the general college or university students, i.e. not the student majoring in computer science, management information science, or other fields where there will be an obvious abundant use of technology.

What Do Our Students Know When They Enter?

Current popular thinking claims that students today are computer savvy, much more so than their parents. However, look carefully at what students really know as they begin college. At Saint Mary's, virtually every student arrives with a computer. However, not every student sets up her own computer! We can count on the fact that our students know how to use a word processor, although this may be a very rudimentary knowledge. As an example, students in an advanced first year mathematics class did not all know how to type a superscript. If one asks a current student how to begin a search for information, the answer is likely to be "a google search." This suggests that students do not think of academic databases, scholarly journals and other sources of scholarly information first. At Saint Mary's, every first year student takes a two session course introducing her to technology at Saint Mary's. As part of this, students were asked to take a twenty question survey designed to assess their research skills. The results were less than promising. There were 19 sections of this course, with an average student enrollment of 16.8 students per section. A significant portion of the students (30% or more) gave incorrect answers to half of the questions. Students had difficulty identifying a scholarly journal, suggesting that they really did not know what such a journal represents nor how the articles are reviewed. Students also had

difficulty in identifying the best set of key search terms for a research question. Particularly disturbing was the number of students who could not understand the difference between a search by author (for works by that author) or a search by subject for information about the author. Students failed to identify the importance of checking the bibliography, once a good article had been found on the desired topic. Students were also unable to read a bibliographic citation correctly to determine the kind of source being cited. All this suggests that our students do not know as much about research as they think they do. Clearly there is work to be done during the college years.

Do Our Students Know the Goals We Have for Them?

If we expect our students to become information and technologically literate citizens, the first question to be asked is whether we actually tell them that this is part of their education. A survey of the stated educational goals of over 30 colleges and universities produced some surprising results. The author began by examining the stated learning goals on the web sites for twenty colleges and universities. These schools were selected because they are on a list of aspirant schools that Saint Mary's uses for a variety of purposes. Often, in the search for learning goals, it was necessary to follow links to the school's catalog. Of the twenty schools, only six include information or technology fluency among their goals. Beloit College lists its goals immediately after its mission statement. One of the goals includes a core of what are labeled essential skills, with information literacy listed as one of those skills.[2] Connecticut College's general education requirements include a technology requirement. Students are expected to acquire skills in library research, database searching and Internet research. They are also expected to integrate technology into their research in whatever ways are appropriate.[3] Depauw University does not include information fluency in its goals, but very rich resources are provided for students who wish to develop their IT fluency. Under START (Student Technology, Assessment, Resources, and Training), pre-assessment prior to taking a workshop or online training course is encouraged. Post-assessment is also available, as are a number of ways to document student knowledge in ways that employers will recognize.[4] Earlham includes as one of its goals for general education the ability to gather and critically evaluate information from print and electronic sources.[5] Gettysburg structures its curriculum around four key elements, one of which is communication skills. "An effective education must teach students how to evaluate information, to marshal relevant evidence persuasively, and to communicate effectively – in person, in writing, and in technologically enhanced ways." [6] Macalester College recognizes the need for students to develop the ability to use information and communication resources effectively in its statement of purpose and belief. Computing skills are particularly mentioned under basic competencies.[7]

Schools Making Special Efforts in Information Fluency

The author became a bit discouraged by the lack of stated learning goals concerning information and technology fluency among the aspirant schools and thought, perhaps, the problem was the emphasis on liberal arts. Hence other schools were investigated, beginning with some mentioned in the 2006-2007 edition of Training College Students in Information Literacy, published by Primary Research Group. [8] This report describes the efforts of a broad range of schools, all of whom are working on some aspect of information literacy. Ulster County Community College received the 1996 ACRL Innovation in Instruction Award for its work in developing a web-based information literacy template that is now available to all SUNY campuses. Students at Ulster are required to take an information literacy course unless they test out. The course com-

2007 ASCUE Proceedings

bines basic computer skills and research techniques and requires students to locate, evaluate and synthesize information from a variety of sources.[9] Central Connecticut State University lists eight objectives for its general education, one of which is to develop computer literacy. Listed among the relevant outcomes is the ability to use technology for research, analysis and expression.[10] Southeastern Oklahoma University has a computer proficiency requirement which can be satisfied by taking one of two courses or by testing out. The courses emphasize skills more than information fluency.[11] The author also attempted to explore some large universities. However, learning goals in such schools are usually included in the particular colleges within the universities. For example, the College of Literature, Science and the Arts at the University of Michigan lists as part of its goals the expectation that students will express what they have learned in traditional written form and through technological media.[12]

ASCUE Schools

In a final attempt to find schools which really do list information fluency as a goal, the author looked at nine schools which were part of the 2002 annual ASCUE meeting. Only three of these really have well stated IT fluency goals. Winthrop University expects students to use critical thinking, problem-solving skills and a variety of research methods, incorporating technology competently.[13] The McAnulty College of Liberal Arts at Duquesne University specifically states that it trains students to use and appreciate the most current technologies for their chosen fields.[14] Monmouth University requires a course in information technology of every student. The course addresses research, problem solving, information literacy and ethics as well as basic skills.[15] It should be noted that the author's home institution fared no better in this survey. Saint Mary's general education program is currently focused around different ways of knowing. However, the campus is undergoing a complete review of its general education program, and at least one of the proposed models addresses accessing and evaluating information in a digital age.

Assessment

The assessment process properly begins with a set of stated goals. It is clear that in the area of information and technology fluency, not many schools have even arrived at this first step. If we can not agree on such goals, we can not expect our students to achieve the IT fluency they need. The schools discussed above certain will be capable of assessing whether or not students have met their goals if students are required to take a course which has these goals as its objectives. Monmouth University, for example, can surely structure its course assessment around its goals. Assessment of IT fluency becomes much harder when the goals are to be achieved across the curriculum. In this regard, DePauw's START model gives powerful opportunities to students who choose to take advantage of the assessment tools. However, most of us are not even at the first step of assessment.

Next Steps

It seems clear that many schools need to begin thinking about how to state their information and technology fluency expectations for their students in clear, visible language. Since most of us have a lot of work to do in this regard, we can at least think about assessment at the same time. The technology itself allows all of us to use a wide variety of assessment tools – projects, portfolios, research experiences, online assessment surveys, etc. As we expect students to move beyond simply mastering skills such as using a spreadsheet into the work of gathering, evaluat-

ing and applying information from all kinds of sources, we will need to be creative in our assessment approaches. The challenge will be in keeping our goals, programs and assessment tools up to date.

References

- [1] Association of College and Research Libraries: "Information Literacy Competency Standards for Higher Education." 2000. www.ala.org/ala/acrl/acrlstandards/standardsguidelines.htm
- [2] www.beloit.edu/about/mission.php
- [3] www.conncoll.edu/academics
- [4] www.depauw.edu/it/start
- [5] www.earlham.edu/curriculumguide/academics/genedintro.html
- [6] www.gettysburg.edu/academics/gettysburg_curriculum
- [7] www.macalester.edu/about/purpose.html
- [8] Primary Research Group, Training College Students in Information Literacy. 2006-07
- [9] www.sunyulster.edu/programs_courses
- [10] www.ccsu.edu/Catalogs/
- [11] www.sosu.edu/general-education/courses
- [12] www.lsa.umich.edu/lsa/cg/bulletin
- [13] www.winthrop.edu
- [14] www.liberalarts.duq.edu/undergraduate/mission.html
- [15] www.monmouth.edu/academics/API/gened.asp