The Activity of Information Literacy: A Process Assessment of Student Research Skills at The Evergreen State College

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Abstract

This report describes a process assessment of information technology literacy amongst seniors at The Evergreen State College. We view the students as co-researchers to help us uncover strengths and weaknesses of how Evergreen promotes the development of the methods used to formulate research questions and to seek and evaluate information.

Introduction

In 2000 the Washington State Legislature enacted legislation directing the six public baccalaureate institutions in the State to assess student learning with respect to information and technology literacy[1] Representatives from these institutions met and adopted the Information Literacy Competency Standards for Higher Education developed by the Association of College and Research Libraries (ACRL)[2]. The Standards define information literacy as "a set of abilities requiring individuals to recognize when information is needed and to have the ability to locate, evaluate, and use effectively the needed information…."

An inter-institutional working group created a scoring rubric loosely based on the ACRL Standards. Application of this rubric to student products (papers and projects that used information technology) yielded unsatisfactory results. The scoring team found that they were able to get some sense of students' abilities to write research papers, but it was very difficult to get a sense of the internal processes that the students were using to seek, evaluate, and synthesize information. They were not able to evaluate student final products against features of the Standards that related to these processes. The use of the statewide rubric was abandoned and efforts in Washington are now focussing on developing campus-specific assessments.

Besides the legislative impetus, Evergreen's accrediting body also includes standards that require us to ensure that our students obtain skills in communication, critical analysis, and literacy in the technology appropriate to the program of study, and several of our Expectations of an Evergreen Graduate[3] implicitly require ITL. An Evergreen assessment study group began meeting in the Fall of 2002 to further develop assessment of ITL at Evergreen. In reviewing our statewide experience and the ACRL Standards, we determined that our assessment must also examine the processes by which a student defines a need then accesses, critically examines, integrates, and presents information. Towards that end, we adopted a four-fold assessment approach:

1. an analysis of the ITL content of Evergreen's curriculum from End-of-Program Reviews;

2. a content analysis of "process-rich" student projects and products, recruiting from faculty known to assign a rich array of intermediate steps in research projects such a research question definition, annotated bibliographies, multiple drafts, etc.;

3. ITL learning gains, as self-reported from the National Survey of Student Engagement[4] and Evergreen student and alumni surveys; and

4. assessment of student process-oriented skills via a one-and-a-half day evaluative exercise.

This report discusses our development and testing of the evaluative exercise.

Description of Exercise

A brief description of the assessment exercise is given here. See our web site for an internal report on this project that includes the complete set of recruiting materials and guides for participants and facilitators that we used[5]. We conducted a pilot study in February 2003 with eight Library student interns, and implementation with a group of twelve senior students in May 2003.

Students were recruited and compensated for their participation. Each student brought questions related to their most recent major project, or another project that they retain a personal interest in, to a half-day exercise in designing and refining a specific research question based on the project. The following day, the students attempted to acquire the information needed to answer the question, gave a brief synopsis of what they learned, and participated in a debriefing session and free-write reflection at the end of the day. Their information-gathering and integration activities were monitored by observers and by software that recorded their computer use. Most students used wireless laptop computers checked out from the Library.

Each student kept a research binder with sections containing their research question and related notes, their research strategy outline, research log recording all activities not involving a computer (such as phone or in-person contacts for information), bibliography of sources found, the first page of any articles they gathered, and a free-write reflection of their response to the assessment exercise. The observers then met to review the student research records, paper and

computer logs, bibliographies, and reflection papers to assess student ITL skills. The student

quotations given below are taken from their research logs and reflection papers.

Findings

Standard One: The information literate student determines the nature and extent of the information

needed.

Our assessment exercise asked participants to develop a research question based on an area

or project of current interest to them, avoiding the artificiality of a predefined research question.

We wanted to avoid the stilted if not stultifying atmosphere of assessments on questions

unconnected to student interests. We also made use of Evergreen's style of collaborative teaching

techniques by having the students 'seminar' together in small groups of three or four (plus a

facilitator/observer) to share their research questions and strategies. We found that participants

were willing to push themselves into new research and disciplinary areas, and to modify or abandon

their research questions in light of experience or feedback from peers:

"Listening to other participants comments I began to realize that where I was searching was

very limiting."

"... the research strategy I laid out for myself on Friday did not end up being the approach I

used [on Saturday]."

Observations during the small group activity (refining the research question) as well as

participant comments during the debriefings testified to the value of peer feedback and interaction.

A striking feature of research question formulation was the degree to which questions and planned

search strategies were modified during the small group peer discussions. Many students expressed

gratitude at the extent to which their peers were able to assist them:

"I found the entire group process to be very gratifying: I enjoyed listening to the ideas and

projects of my peers as well as sharing my own work with other seniors, coming from a

variety of backgrounds and disciplinary perspectives. Moreover, I received very productive

feedback from my colleagues and from the facilitators and feel very lucky to be in an

environment where ideas can be constructively shared and deconstructed."

Standard Two: The information literate student accesses needed information effectively and

efficiently.

Participants demonstrated an impressive level of persistence in their search for information,

e.g. showing a willingness to venture into unfamiliar content areas and specialty databases. They

showed an understanding of interdisciplinary 'gray areas' to an at times remarkable degree, finding

disciplinary perspectives on their questions that were entirely new to them prior to participating in

the exercise. In one example, a social sciences student ventured for the first time into the

legal/justice databases and found what was needed. In another, a political economy student found

rich, previously unknown sources of information in the historical and sociological abstracts.

"Through this study I learned a new way to find papers! I was finally introduced to the

hardcopy science citation index, which has been very useful because most of the research

done on my topic was published long ago."

"Participating in this research exercise was useful to me in that it pushed me to maneuver in

databases outside of my academic discipline."

Participant search strategies within a given source of information demonstrated several areas

of weakness. Although most participants demonstrated a deep structural understanding of their

research area, they often showed a surface understanding of online resources: their search strategies

rarely utilized anything other than a simple string search, without Boolean operators. Their

structured, relational understanding of their research area did not seem to map onto a structured,

relational understanding of online resources. They seemed to have a naïve view of online searching

that expected intelligence on the part of the search engines and databases: expecting the computer to

puzzle out unarticulated aspects of a question. While their initial thinking was clearly question-

centric, actors with information, their search strategy weaknesses at times drove them back into being information-centric consumers of information.

> "I stopped and gave up on potentially very valuable survey statistics when I exhausted the methods of searching that I usually do."

<u>Standard Three</u>: The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

Our use of computer monitoring software also allowed detailed observations of the use and citation of sources. For instance, the computer recordings showed that several participants demonstrated a keen awareness of the importance of verifying information and tracing 'facts' to their primary sources, e.g., by making a substantial effort to follow a quotation back to its original appearance in the literature. We could also verify that most participants had an excellent overall command of their research areas, as evidenced by their ability to judge when they reached dead ends in their searches when the lack of information was due to inadequacies in their search methods, vs. information in that area simply not being available online, vs. that the relevant research has not yet been conducted to answer their question:

> "… this research topic re-iterated to me how you can't find everything you need on the internet or even in the library. There was definitely plenty of information that would probably have been incredibly helpful to my search today that was simply not available on-line…"

Participants seemed to have a good command of their disciplines, yet were open to new perspectives:

> "I was interested to see the wide range of groups, organizations, and institutions that spoke to my topic, and in what ways they approached and/or discussed it, as opposed to narrowing myself to those sources that I already know and use frequently… it was refreshing to spend the day exploring other sources that offer conflicting and/or contradictory perspectives."

Many participants had developed means of assessing the quality of online information, e.g., telling us that they do not trust sites that charge for papers, or that they used to trust .edu or .org sites but not any more. We also discovered weaknesses: in the debriefing we found that none of the students were aware of Citation Index as a means of tracking the evolution of ideas or of gaining a general sense of the quality and reliability of a particular research finding.

Standard Four: The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

During the exercise, many students used personal contacts to obtain information: personal visits with experts on campus, phone calls, and e-mail requests for information. One benefit of Evergreen's emphasis on collaborative learning is helping students see themselves as members of a larger community of scholars, and to help them overcome internal barriers to reaching out:

> "An observation that I had made of my research strategies before doing this exercise was that I would rather talk to people for information than sit in front of a book or computer to find it."

> "I'd say one of the more important things I learned in my 3 years doing research at TESC is that you shouldn't be afraid to call or e-mail people who are working on what you're researching – I've had very fruitful email correspondences and phone conversations in the past with various individuals and academics on different topics."

Standard Five: The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

Our discussions with students did not reveal any ethical or legal problems with their use of information, nor did any of the facilitators suspect any issues of this nature. However, this assessment is by design not likely to reveal any, given the extensive monitoring that was used.

Student Response to the Exercise

Students and facilitators alike found this assessment exercise to be useful and engaging. By treating the students as co-participants we were able to overcome much of the usual resistance to assessment, and shift the focus from judgements of worth to a co-exploration of process. By working together, we mutually became aware of some strengths and weaknesses of how ITL is taught and learned at Evergreen.

> "I appreciated the non-hierarchical approach to the project employed by the group from Assessment, and their explicit statement that the students were not there as guinea pigs or as objects of a study, but were there as co-researchers. At all times I sensed a mutually respectful and interested dynamic at work in the group, a characteristic of much of my experiences at Evergreen that cannot be determined by analyzing statistical information or averaging test scores, etc., and can only be learned and practiced in environments conducive not only to the production of academic work, but also the cultivation of reflexivity and critical thinking skills."

> "I had a very productive day. This has been a great opportunity for me to reflect on the skills and abilities I have learned as a student at Evergreen."

> "Thank you for the motivation to get this done."

Implications and Next Steps

The principle message to Evergreen faculty from this assessment exercise is that students may show some deficiencies in their understanding and efficient use of online resources. Their at times exemplary knowledge of their disciplinary area(s) does not seem to carry over into a knowledge of online resources specific to their discipline, nor to how best to go about seeking information in their field(s). A very clear idea of one's research question helps but does not in itself guarantee the ability to apply adequate information search and retrieval methods. Faculty may want to assess students' abilities to obtain information and offer tutorials or refer students to the Library

when deficiencies are detected. The genuinely positive and enthusiastic response of the participants to this exercise reaffirms that educating students about research methods works best when imbedded within subject areas and research questions of direct and immediate interest to them.

For assessors, the multiple sources of information utilized in this exercise revealed that assessors without knowledge of the relevant disciplinary areas would not and could not know about informational gaps in the final products of research, but these gaps can be detected by non-specialists upon careful and detailed examination of information search histories.

Finally, talking with students about their response to the assessment exercise was at least as valuable as the observations and records from the exercise itself, underscoring the primary importance of viewing the exercise as a collaborative ITL research project rather than a measurement of skills. In the end, we feel the principal value of this exercise was that it set up the conditions for a useful conversation with students about the process of ITL at Evergreen. We intend to repeat this study next year with a group of freshmen, to investigate some developmental aspects of ITL at Evergreen.

Further Information

For an example of student work from two of the participants in our assessment exercise, see:

www.users.qwest.net/~shaffordleeah/   Their web site on Feminist Studies in Political Economy contains information they gathered prior to and during the assessment exercise. They welcome your feedback on their site.

For additional information about general education and its assessment at Evergreen, or to contact us, please see our web site: www.evergreen.edu/institutionalresearch/.

Notes

[1] In an early draft the legislation targeted technology assessment, but the colleges argued for the broader outcome of information technology literacy, since they felt strongly that the ability to use technology should include mindfulness about critical thinking, evaluation, and research strategies.

[2] http://www.ala.org/Content/NavigationMenu/ACRL/Standards_and_Guidelines/standards.pdf

[3] http://www.evergreen.edu/expectations.htm

[4] http://www.iub.edu/~nsse/html/about.shtml

[5] http://www.evergreen.edu/institutionalresearch/pdf/informationliteracy.pdf