

Developing Follow-on Information Fluency Experiences for Students Completing a Computer Literacy Course

Ken Abernethy, Furman University
ken.abernethy@furman.edu

Bob Shive, Millsaps College
shivera@millsaps.edu

An Interim Report

The liberal arts graduate in the complex environment of the world today must be prepared for a wide variety of opportunities and issues, many of which are influenced by a need to acquire and assess information. Success in the information-driven society will be significantly influenced by the quality of the undergraduate learning experience. Our assertion is that the ability to transform data into actionable information should be a primary outcome of the liberal arts experience. This project focuses on this desired educational outcome by providing a new course which we feel will be an appropriate developmental framework for students to internalize the ability to work creatively in the information age.

One course cannot provide all the requisite experiences needed. And the desired outcome is actually a moving target, as information technology continues regularly to reinvent itself over ever-shrinking time cycles. So, it is important for students to understand that information fluency is not a skill obtained nor a destination to reach but a journey which is a lifetime of learning, engaging in ideas, and grappling with an ever-expanding body of knowledge and resources used in working with this knowledge. This course proposes to build on an assumed set of computer literacy competencies (a comfort level and basic set of skills in the use of a computer) which could be obtained in a variety of ways, including self-training, pre-college work or college-level computer literacy courses. The student is moved beyond this level to confront the issues of developing a path toward information fluency.

A fundamental assumption of the information fluency initiative in the Associated Colleges of the South is that information fluency lies somewhere in the confluence of computer literacy, information literacy, and critical thinking skills. Information fluency is a complex compendium of knowledge, nuance, and context, heavily influenced by experience and by technology, both of which are constantly changing. Information cannot be divorced from technology and thus one must be aware of current capabilities both in hardware and in software. Students will have knowledge of many facets of technology and, although technology skills are not the focus of the course, some attention will of necessity have to be given to this topic.

The course being developed will focus on extending the information and technology skills of students to help them evolve in information fluency. It is our opinion that information fluent graduates will be in increasing demand as we move further and faster into the digital age. The combination of traditional liberal arts capabilities and information fluency will foster the development of graduates who are much better prepared for the world in which they will live and work.

This course being designed is not “the answer” for information fluency. Rather, it will be one model which is an experiment that blends traditional teaching, self-teaching, teamwork, and collaborative experiences both on and off the home campus. It is expected that experiences from implementation on two campuses will lead toward continuing refinements each time the course is offered. And, it is expected that students who complete the course will have made significant progress in their lifelong journey toward information fluency.

Since our proposal was approved by ACS, we have exchanged much email, had numerous phone conversations, and have met together to work on the course. Initially we discussed using, as potential course focus topics, bioinformatics and enabling technologies such as knowledge discovery, data mining, and intelligent agents; nano-technology and micro-electromechanical systems; quantum computing; computer security; risk factors in computing systems; and neural networks. We felt these topics to be pertinent and appropriate because they involve information concepts, technology, and critical thinking and they have potentially significant and pervasive social, ethical, and economic impact.

We have considered preparation levels of typical students and have made several draft course outlines. As a result of these exercises, our current thinking is that we will focus on the digital technologies: bioinformatics, data mining, and computer security. This might yet change for the initial offering of the course, now planned for the 2003-2004 academic year, and certainly will change in future offerings, as we adjust the focus topics. Our current thinking is that we will title the course, "Future Impact of Information Technologies".

The planned course will be project-oriented and will focus on process as well as content. Students will learn tools and techniques that enable collaboration among small distributed teams. It is our expectation that inter-campus teams will conduct research into the future impact of the selected digital technologies, synthesize this research, and present their findings in oral presentations, in written reports, and on a team-developed Web site. Students will thus learn both about technologies that will have significant impact in the future and about techniques that will support mainstay processes in businesses and organizations in the future.

The first five weeks of the course will focus on basic concepts of the chosen focus areas and will employ lectures, hands-on activities, and the use of asynchronous, computer-based learning modules. We are now experimenting with development of these modules for the content areas. Part of the planning and work involves research in the use of knowledge management concepts in building the modules.

Course activity will then shift to small student teams working collaboratively on selected research topics. The instructors will guide this work, advise teams on issues in collaboration, consult on project content and direction, and supervise the evaluation of the work in progress. Students will use their research in the development of team-based oral presentations and Web sites and in individual comprehensive written reports. It is expected that evaluation will come from in-class assessments on basic concepts and on the projects and paper.

Our current thinking is that students should learn to use a collaborative tool in their work together, both with students on the same campus as well as with students on another campus. One such tool we are considering is *Groove Workspace* (<http://www.groove.net>), a peer-to-peer collaborative software product. Through the use of such a tool, project teams can share an on-line real-time workspace, working simultaneously with the same file or accessing archived e-mail without leaving the collaborative application.

In summary, objectives for the course are that students will:

- ▼ learn basic concepts of selected emerging digital technologies;
- ▼ organize themselves into teams to conduct independent research on the application and future impact of selected technologies;
- ▼ experience the value and power of teamwork in assimilating new information and assessing its impact;
- ▼ employ cutting-edge tools/techniques for managing effective distributed team collaboration;
- ▼ analyze, synthesize, and report on their research findings; and,

- ▼ develop and refine their presentation skills by presenting their findings in a cogent and convincing manner, employing three different methods/media: oral presentations (using presentation software such as PowerPoint), on-line Web site, and a written report.

Finally, from the beginning the intention was that this course would be designed, developed, and delivered employing a distributive collaborative model. The range of topics in digital technologies to be covered is broad. Thus, it is unlikely that any one professor will be fully conversant in all the areas. To meet this challenge, a team approach is being used to develop the course. Dr. Thomas Allen, Chair of the Department of Computer Science at Furman University, is joining the project team of Dr. Abernethy and Dr. Shive to assist in course development.

Each member of the team will be responsible for generating examples, lecture notes, and on-line learning modules for specific topics. It is expected that each course instructor will deliver all the content when teaching the course but will be relieved from content development in all but the assigned/selected area. For the selected topic area, that professor will be designated the "expert" and will be available to students from both campuses to engage in discussion of relevant questions/issues in that area. It is interesting to note that the faculty developing the course will be using the same collaborative model that students who enroll in the course will use.

Considerable effort has been expended to bring the course development to the current stage. However, it is certainly expected that additional modifications, additions/subtractions, and substitutions will be made as the course comes closer to the reality of being taught. Yet, it is expected that basic tenets of the course - modular design, distributed team-based work, and collaboration - will definitely be in the final design.

Work will continue during the fall semester on completing the course design and on developing the content material for the modules. Our goal is to complete work on the project by the end of the year and submit a final report. Our intention is to offer the course both at Furman and at Millsaps during the 2003-2004 academic year.

August 2002