

Student Skill Building Using Internet Resources

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Abstract

Our primary objective is to address issues of improving students' effectiveness in information gathering and sharing. The University of Florida has been addressing the issue of good scholars that have problems with finding employment due to a lack of communications skills. A secondary objective is the improvement of critical reading skills. The purpose is to develop a model for use in class. The program is applied to both graduate and undergraduate public works courses. Our intent is to improve the student's comprehension of course content and expand the student's ability to process a greater volume of information. The model we propose can be applied to any college discipline. The primary means of improving these communication skills will be a short focus on Internet interactive services.

TOOLS for DEVELOPMENT

It is our conviction that the rapid development of computers and the Internet make it imperative that students do not become software dependent. The software we use is a starting point. The tools will change over time. The student is encouraged to use the best tools he can find to process the ever-expanding volume of communications. The use of software tools for acquisition and reporting will be a valued skill both on a personal and professional level. When joined with improved skill at evaluation, they become a formidable advantage in today's competitive world, where effective communicators get heard first.

There are several online storage services on the Internet free of charge. We have been using the service provided by Driveway.com. Any of several similar services would do. Driveway provides a nice interface and is user friendly. Levels of service and reliability of service vary. This service is less commercially aggressive than other services.



Figure 1. Screen shot Driveway .com

Power Point is the presentation program of choice. It is readily available and widely accepted as a standard tool of communication.

We use a Power Point presentation on creating effective presentations. This is a small file and the student is invited to open it in the Power Point editor and explore the way it is customized. Another presentation on the use of search engines and Internet library systems is used. This makes files available to publish for public use in implementing this model. We encourage the use of brick and mortar libraries as well. There is a wealth of knowledge that was generated before libraries were computer literate.

We recommend Copernic, a search engine which mounts locally on a desktop hard drive. This program performs a meta search of many search engines and reports results in a very easy to use form. The searches are saved and may be refined and repeated to reflect new materials in changing environments. This fact allows a better learning experience and increases the student's success rate with Internet research. It has the capability of verifying the links it finds and eliminating dead links.

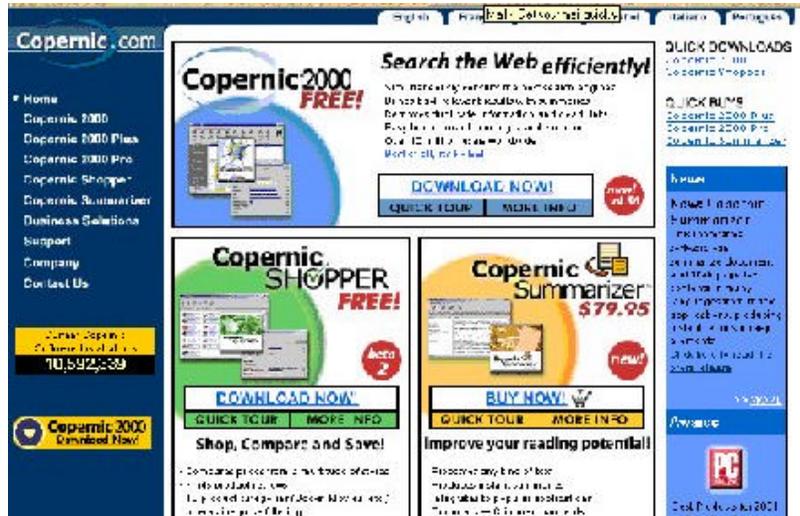


Figure 2. Screen shot Copernic.com

Our critical reading quiz is under development. This will be generated with a suite of Java programs, called Hot Potatoes, from Half-Baked Software.com. The results of this software are very clean and professional looking. The software is free if the products generated using the program are, in turn, freely available. Otherwise the price is nominal.

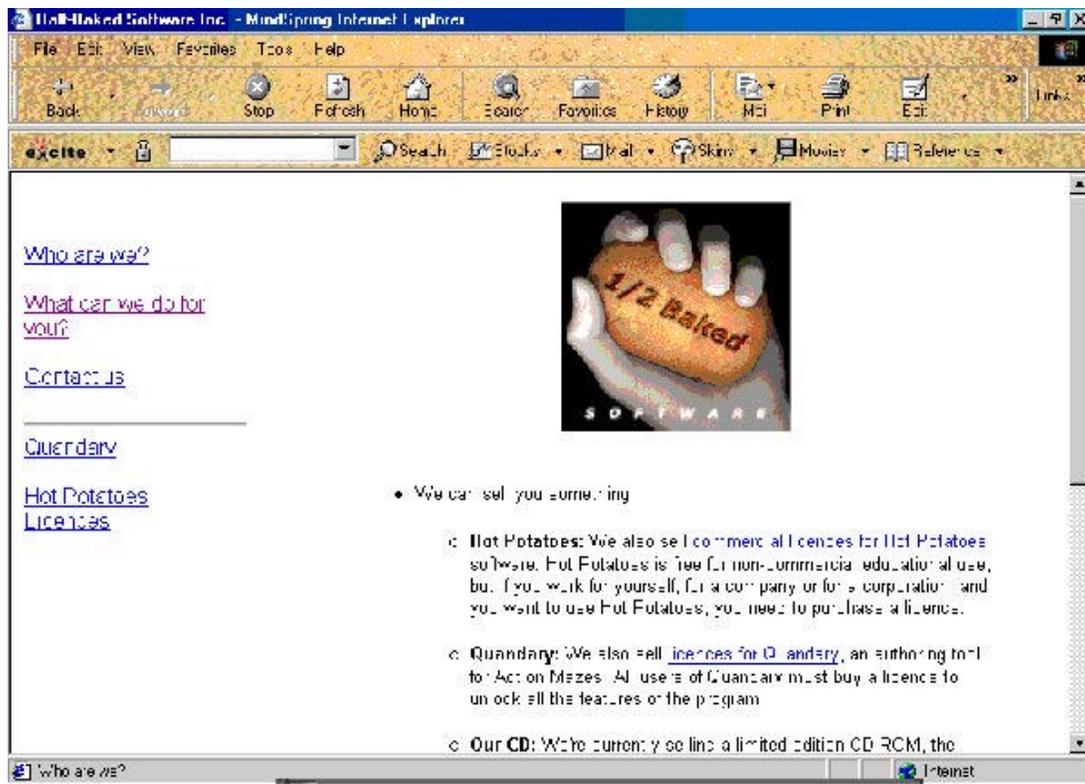


Figure 3. Screen shot Half Baked Software web site.

To test the effects of our critical reading program, we will employ another Java program from Half-Baked Software called Quandary to present a short "in-basket test," which will be an exercise involving most of the skills featured by this project.

Due to a large percentage of English-as-second-language students in engineering classes, there will be a recommended text: *Elements of Style*, fourth edition, by Strunk and White. It is in paperback: ISBN 0-205-30902-X

The course content also includes guest speakers from many aspects of public works. City managers, facilities spokespersons, police and fire executives, and engineers from public works contractors are some of the typical speakers. Students are able to see working professionals in the public works field. This gives them further appreciation the importance of communication in real world applications.

METHODS for IMPLEMENTATION

A stand-alone course could easily be based on the model we are developing. It is, however, our intent to provide a process that can be scaled to support any course that requires the search, assimilation and reporting of information. Professors are invited to freely adapt the model in whole or in part to assist their students in building skills to cope with the processing of information.

It is suggested that only one storage/file sharing service should be employed per term, to reduce confusion. These services have a lot of assistance for students. There are several levels of storage ranging from 25 megabytes to 300 megabytes; some services require signing up for e-mail as part of the account. The smaller storage limits should be adequate for most situations. Note that students may find several other uses for these accounts once they get started.

There is a web site containing a link to the text of this paper. The web site has links to many resources suitable for implementing our model. The presentation about presentations, the critical reading quiz and the in-basket test that we use are posted either to view or download from this page. It is <http://gatorengineer.com/comfile.html>.

Step one of process implementation will be the introduction of the chosen file sharing system. Students will receive only a general orientation. Going through the process of signing up and learning the features of the service is viewed as part of the learning experience. A light assignment to establish that students are signing up for the file sharing account is used here. This requires students to locate three paragraphs that are notable examples of either good or bad communication, and indicate why they chose the particular examples. This assignment is shared with the professor, giving students a first real use for the service. The professor gains an insight to the students' level of critical reading early in the course.

Second, we demonstrate using the file share system to download the guide to effective presentation. This presentation accents clarity and communication rather than operation of the software. It is meant to impress students with the concept that a presentation isn't communication until the other person correctly understands the message. This is posted on the Internet in its native file format (Power Point 95) with lecture notes.

The third class session will start with a search engine presentation, which covers effectively using the vast resource of the Internet and some specifics on library systems. Use of the local brick and mortar library will be encouraged as well. The assignment for this session will be locating two source items from the Internet at large, two from Internet library systems, such as LUIS, and two from the university library.

Practice of these skills comes from assigned presentations, which take several weeks of class. We have had the luxury of the use of television studio classrooms that are media enhanced. Output from any medium can be presented on large screen monitors. A computer workstation is available with web access. Students can acquire videotape of their presentations if they desire. The students are divided into teams and use the Internet for collaboration and support of their presentations. Since the presentations are given in a classroom with Internet access, students use the web interface of their accounts to deliver their presentations to the classroom computer. After presentation, the Power Point files are shared to the professor's account for grading.

The final project is a research paper chosen by each team from a list of topics provided by the professor. This paper is also given as a presentation. The completion of this assignment should show evidence of improved communications skills both for presentation and on an interpersonal level in the function of the teams.

We have the good fortune to be able to supply video feedback to the student. This is more effective than peer feedback. Peers tend to be conservative in their evaluation of other students. Video reveals mannerisms that are clearly counter to the impression of an authoritative speaker. The fact that a presentation is videotaped adds a feeling of higher expectation, similar to the difference between a drafting project completed in pencil as opposed to a finished ink rendering.

GOAL EVALUATION

As the term progresses, student assignments are evaluated for application of several criteria.

The students are graded on assigned homework and presentations as well as class participation. The student who shows evidence of the skills presented will achieve a superior grade.

The evaluation criteria are as follows:

Does the student comprehend the course content? (In this case, a text on public works and copious handouts)

Does the student demonstrate an ability to evaluate research materials in support of given topics and incorporate this information in support of his projects?

Does the student demonstrate an ability to work in a team environment?

Is the student establishing potential for leadership?

Is the student making progress with communication skills in terms of clear concepts, clarity of presentation, and actively interfacing with an audience?

Does the student manage to incorporate personality and humor as well as factual information?

The critical reading quiz and "in basket test" are not taken for a recorded grade. They are designed to allow students to self evaluate their skills in these areas. The critical reading will be easy for some and difficult for others. Recording a grade would penalize those who have difficulty. It is our preference to let students see how strong or weak they are in this skill. The "in basket test" is meant to demonstrate how the skills we encourage can be of value in a real world environment. Students who lack work experience also have little experience of decisions that can mean profit or loss, that solve ongoing work problems or that result in legal liabilities. Concise communication, critical reading and information evaluation are skills that make a difference. Demonstrating this is the purpose of an "in basket test."

SUMMARY

Our goal is to prepare students to perform in the work place with concise communications skills. Students will learn to locate, evaluate and process information resources in an efficient and meaningful process. These skills will be of value to them all through their lives.

The tools we present to students are meant to make it easier for them to deal with the massive information input in the modern work place. We hope our students will be above average in their ability to add to this mass of information.

The model we build here can be used in whole or in part to empower professors to improve communication skills in any number of situations. It is possible to incorporate this model at no cost. The class time spent on presentation of these materials should be gained back by the improved efficiency of your students. There are systems of education software that can accomplish many of

the interactions in our model. The "a la carte" approach leads the student into a more independent environment as opposed to an approach that is part of a university system. Each student has a personal account that can be applied to other courses, a job search or any personal interests.

Our observation to the present is that students react well to these tools. A concerned professor can learn a great deal about his students in this program and offer students advice specific to their strong and weak points. The modern engineer functions in a fast paced work environment that will favor those best equipped to absorb and report information.

Our program hopefully will be of value to aid professors in fast tracking a group of students to enable them to cover more course content in the time available.

Aknowledgements

The Outreach Engineering Education Program, University of Florida, College of Engineering facilities. In addition to the primary mission of producing materials for the Florida Engineering Education Delivery System (F.E.E.D.S.), Outreach provides media application support to many professors.

Driveway.com, the primary web storage used in developing this model: <http://www.driveway.com>

Half Baked Software.com, the provider of Java-based software products Hot Potatoes and Quandary, which are instrumental in this project: <http://www.halfbakedsoftware.com>

Copernic.com, provider of a powerful search tool we recommend in this project:

<http://www.copernic.com>

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Dr. Najafi has earned his B.S. (in architectural engineering), M.S., and Ph.D. degrees (in Civil Engineering) from Virginia Polytechnic Institute and State University (VPI&SU). He also has a BSCE from the American College of Engineering, Kabul, Afghanistan. For more than 25 years, Dr. Najafi has worked in industry, government, and education. This includes work as an engineer and general director in the Ministry of Public Works, Kabul, Afghanistan; work as an engineer in Connecticut, Pennsylvania, and Virginia, including the Federal Highway Administration and the Virginia Polytechnic Institute; and as an instructor at a) Villanova University in Pennsylvania, b) George Mason University in Virginia, and, c) currently, at the University of Florida, Gainesville, in the Department of Civil Engineering. Dr. Najafi is a member of several professional societies including the American Society of Civil Engineering, American Society of Engineering Education, American Public Works Association, and Tau Beta Pi, Florida Alpha Chapter, and has served on many professional committees and programs at the University of Florida. He has published numerous refereed publications and has presented a number of technical papers to professional national and international organizations. His areas of specialization include transportation planning and management, legal aspects, construction contract administration, and public works.

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Graduate of Vesper George School of Art, 1966, A.A. in Journalism, Santa Fe Community College, 1978, B.S. in Broadcasting, University of Florida, 1980. Art/Publication Specialist and Webmaster, Outreach Engineering Education Program, UF College of Engineering. A fifteen-year employee of the College of Engineering Outreach Engineering Education Program, Mr. Dobson has been deeply involved in all aspects of this distance learning program. Originally his duties involved the daily production of video tape classes for remote delivery. Part of the Outreach program has been the use of video feedback to students from several departments to promote communication skills. As webmaster of an award winning web site, he has served as a resource to faculty, assisting them with their own web sites and recommending software that may be of use in class presentations.