

# Moving Computer Literacy Beyond the Use of Digital Information

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**Abstract:** Based on the model of Metros (Grush, 2011), computer literacy evolves on a continuum from stimulated to fluent. There are four literacy attributes (comprehension, production, originality, and judgment) that progress as the individual becomes more proficient. This paper presents three projects in an undergraduate, human services program. The assignments are designed to identify the acquisition of novice computer literacy skills, and building upon these, help the students develop the abilities with which to make them truly computer literate. Sample assignments and student created web pages will be included in this presentation.

## A Continuum of Computer Literacy

Most common definitions of computer literacy for college students focus on the ability to use computers to write papers, create spreadsheets and make presentations. They should be able to find and use information from the Internet and various library databases. But computer literacy is not a “one size-fits all” kind of skill. Depending on the discipline, some students may be required to become proficient with specific mathematical or statistical software, digital photography or film editing, or specialized laboratory equipment.

Hignite, Margavio, and Margavio (2009) suggest that computer literacy is part of the larger field of information literacy education that focuses on the “development of students’ abilities to construct/collect and analyze information in a way that provides the basis for effective decision making” (p. 812). Using the Educational Testing Service (ETS) Information and Communication Technology (ICT) exam, these authors found that among freshman enrolled in a required general education information technology course only 40% of the students achieved the equivalent of a “passing” score. Obviously, college educators need to develop learning activities to improve the computer literacy skills of students. This may be particularly relevant for particular fields of study such as business (Ali & Katz, 2010).

Many aspects of college life require basic computer literacy. Everything from applying to college, registering for classes, ordering textbooks, and locating library books may occur online. Significant components of freshman orientation, club activities, and socialization in college may take place using social networking sites. Students are expected to use course management systems to find class materials, complete assignments, and participate in class activities. Goode (2010) reminds us that, even among traditional age college, students many may not have the prerequisite skills to successfully negotiate the digital college environment and therefore may not succeed as students. Nontraditional and older college students may have even less experience with the digital world.

Metros, in her Keynote for the 2010 Campus Technology Virtual Conference, suggested a continuum for computer literacy from stimulated to fluent (Grush, 2010). Each aspect of this continuum has four attributes (comprehension, production, originality and judgment) that become more sophisticated as the student becomes more computer competent. Table 1 presents this matrix of literacy attributes along the continuum (Grush, 2010, p. 42).

Using this model, the computer literate student should have an intermediate level of comprehension, be informed about production, be an innovator in originality and demonstrate competent judgment. This framework offers educators opportunities to design learning activities that help students improve their literacy skills and to move to higher levels of competence. This model of computer literacy proposes that the computer literate person should be able to exercise judgment and comprehension to produce innovative, informed electronic information that can be useful to others.

	LITERACY CONTINUUM			
Literacy Attributes	Stimulated	Novice	Literate	Fluent
<b>Comprehension</b>	Minimal	Basic	Intermediate	Advanced
<b>Production</b>	Observer	Tinkerer	Informed	Expert
<b>Originality</b>	None	Emulator	Innovator	Visionary
<b>Judgment</b>	Minimal	Unsophisticated	Competent	Sophisticated

**Table 1:** Attributes Along the Continuum of Computer Literacy

Many of today's students know how to interact on social networking sites and send and receive emails. These are introductory skills that begin to develop the abilities needed to produce electronic content. Metros (2008) indicates that while students

...traveled seamlessly in a world rich with sight and sound, they lacked the ability to express themselves visually. They could view pictures but could not craft images. They could read a map but could not map data. They could input numbers to build a chart but could not understand why one chart would be better than another for depicting data. They could copy and mash up images from the Web but could not create an original composition.... (pp. 103-104).

While Metros (2008) is discussing visual literacy, it is apparent that this lack of the ability to integrate and creatively produce new information is inherent in many areas of student functioning. Students are able to locate various relevant quotes and resources but are unable to produce a coherent essay. They are unable to interpret data presented in charts and graphs. Schools struggle with teaching "critical thinking" as faculty design assignments to help students answer questions requiring the integration of knowledge from various sources and helping them judge the reliability and validity of their source data. Many schools are using efolios to help students develop and demonstrate both their integration of knowledge and their computer literacy skills.

## Course Design for Developing Computer Literacy

This presentation focuses on the development and design of projects to help students move beyond novice computer literacy skills. Students are in a Bachelor of Professional Studies (BPS) program in human services and in a fifth semester course "Development of Counseling Systems from Political and Economic Perspectives". The Metropolitan College of New York (<http://www.mcny.edu>), in New York City, was founded as a welfare-to-career program providing education to non-traditional, culturally diverse, adult students. Many come to college with minimal computer skills. This course is designed to improve students' information technology capabilities. Courses in Human Services are trans-disciplinary in nature and include content from political science, ethics, economics, sociology, anthropology, education, psychology, and social work. Human Services is a non-technological program that expects students to use computer skills to collect and possibly disseminate information. Yet as social agencies become more dependent on digital resources such as record keeping, social networking, and web pages, students are expected to have developed computer literacy skills in addition to the traditional practice, knowledge, and values base of the profession. This course is heavily web-enhanced and is supported by a Moodle course website (<http://sites.google.com/site/aweinrh5systems/moodle-course>), which holds links to electronic readings, websites and videos. Library research takes place through an online system. Students submit their written assignments through Turnitin.com, an online service that checks for originality (plagiarism) and allows faculty to grade papers online. After papers are reviewed, students download marked rubrics and comments from the professor.

There are three projects in this course and all require students to use materials available in Moodle course management system and post a reflective statement to class forums at the completion of each assignment. While it is the third project that is most focused on computer literacy, all three projects are designed to build and assess the students' computer competencies. The assignments are designed to scaffold skills, building more complex skills on already acquired skills, in moving students from writing traditional papers using information literacy skills to producing a website. Most of the students have some acquaintance with the college's digital resources (moodle, library and turnitin), but some do not.

The first project requires students to visit a community counseling agency, write a traditional paper (see Table 2) and post a reflective statement on the Moodle forum. The student's ability to use the Moodle materials, submit and retrieve files from Turnitin, and post to the forums requires them to be at the novice level on the computer literacy continuum as described by Metros (Grush, 2011). The competence in performing these tasks allows the faculty to assess the students' computer literacy skills and identify those students who need additional supports and opportunities to master the novice skills.

#### **Community Agency Written Assignment**

Arrange for a visit to a community counseling agency and complete an analysis of the agency from a community counseling model.

Focus on the following issues:

1. What are the agency's mission, purpose and goals?
2. Does the agency fit the traditional paradigm or the new paradigm for counseling as discussed in Lewis & Lewis text? Please explain.
3. Give one example of each of the following and *explain how/why each of the agency's services fit the paradigm of community counseling.*
  - a. Direct client and community services.
  - b. In-direct client and community services
  - c. Prevention
  - d. Outreach
  - e. Advocacy
4. Keeping the four components of the community counseling model in mind, what sort of programs or additional services could the agency include to meet the needs of clients?

**Table 2:** Community Agency Written Assignment

The second assignment requires the students to explore the website of a community counseling agency and critique the quality of the site (see Table 3). For this assignment students are introduced to information on website design

#### **Evaluation of a Community Counseling Agency Website**

Locate a website for a community counseling agency.

1. Review the site and include the URL. You should select an agency that you do not know about.
2. Describe the structure of the website.
3. Focus exclusively on information provided on the web page. **DO NOT** use your knowledge of the agency and see if you can determine from reviewing the website:
  - a. What services does the agency provide? (Indicate whether they are direct client or community, indirect client or community, prevention, or advocacy services)
  - b. What is the geographic (catchment) area the agency serves?
  - c. What are the requirements for receiving services?
  - d. What is the process that an individual has to complete to receive services?
4. Are any needed forms easily available on the website?
5. Are the links to other web pages clear? Did you find any that did not work?
6. Is contact information easily accessible for individuals who want additional information?
7. Does the website provide any outreach/education/prevention information? If so please explain.
8. Apply one of the concepts from the class readings on website design in your evaluation of it. Explain/define the concept and then apply it in assessing the website.
9. Evaluate the site using criteria discussed in class and your readings and discuss:
  - a. Information that is presented well
  - b. Information that is missing and should be included
  - c. Suggestions for improving the website
10. Does the website reflect diversity? Explain.

**Table 3:** Evaluation of a Community Counseling Agency Website

and accessibility, which begins to move them beyond the novice literacy skills for production and judgment. Interestingly, this last semester the students assumed that they had to find a “good” website. While many found badly done websites, with little information, they continued to search until they found examples that they felt were good and could be used for the assignment. This formed a very productive discussion on the kinds of good and bad things they found on their website choices.

After completing their reviews, students were asked to write a reflective response to their web page assessments. Student responses to this assignment posted to the Moodle forum indicated that they were learning to look at websites more critically than they had in the past. Many used information from their readings to help them understand the function of agency web pages and a beginning understanding of design issues. The following are some of their unedited postings:

*Once I completed this assignment, I've learned how important it is to provide sufficient, clear and concise information on your site. In most cases, this is the first point of contact with an agency. If the information is difficult to understand or has to any missing pieces, an individual can easily find another in a matter of seconds.*

*I attempted to evaluate another community counseling website prior to the one that I chose, but the site was so bland and uninformative that I did not return to it. I now realized that an agency's website is the first line of communication. The website is a reflection of how the company presents itself and how others will perceive it. When it comes to the Internet, website presentation is everything.*

*After reading in detail and going over the website of my choice I learned several things concerning Community Counseling sites, one major point that I have learned is that it is very important to know who your audience is. Without knowing who your audience is you wont be able to pin point an eye catching rhythm to a specific audience and then you will lose the audience that have come to your web page and that is trying to connect to your thoughts, theory, system and or agency.*

The third assignment builds upon these skills and requires students to create a website for outreach/prevention education on a topic appropriate for a community counseling course (see Table 4). This is the project that most of the students identify as a “computer assignment”. Students use Google sites to create a website that incorporates course content and allows them to demonstrate comprehension of content (including text, graphics, and video), knowledge about website production, and innovation or creativity.

#### **Development of a Prevention/Outreach/Advocacy Public Education Website**

Students will learn to use a free, website provider (<http://sites.Google.com/>) to develop a professional website:

1. Students should think about the services offered by their field placement and/or employment agency.
2. Select one kind of service (i.e. childcare, home health care, etc.) or one social issue/problem (i.e. poverty, hunger, homelessness, etc.) that will be used to develop a public education prevention/outreach/advocacy website.
  - a. This topic should be appropriate to human services and community counseling.
  - b. Think about the audience for this site (ie., children, clients, professionals, etc.)
3. Students will be responsible for locating resources and evaluating the content accuracy and reliability.
4. Students should consider the appropriate use of the different types of pages available in Google sites (announcement, file and list pages) and should include at a minimum of one in addition to more traditional web pages.
5. Sites should
  - a. have at a minimum of five (5) pages and use both original content and multiple resources;
  - b. include text, graphics, links to other web pages, videos, MP3 files, blogs, etc. ;
  - c. be accurate, informative, accessible, organized, and graphically pleasing; and
  - d. be easy to navigate and all links should work.

**Table 4:** Development of a Prevention/Outreach/Advocacy Public Education Website

To support this final project, the faculty has developed a website with resources that demonstrates the use of the same online resources available to the students (<http://sites.google.com/site/aweinrhs5systems/>). Students are

provided with a rubric (<http://sites.google.com/site/aweinerhs5systems/home/web-page-rubric>) that helps them understand how their website will be reviewed. This rubric is distributed in class, posted on Moodle, and discussed with students throughout the web page creation process. The rubric criteria includes: content accuracy, interest of the site, quality of the links, navigation, layout, spelling and grammar, quality of graphics, and choice of fonts.

Several class sessions were held in a computer lab to allow students to work on their projects. In the past, students made in-person presentations of their websites in class. For this past semester, the presentations moved online (see Table 5). The final stage of this project involved posting the link for their website to a Moodle discussion forum and the review of it by others in the class. This required students to create a discussion forum for the first time (instead of simply replying to one set up by the faculty) and creating links. Other members of the class used the posted links to explore the student built website and then wrote their review in the forum.

#### **Directions for Online Postings and Reviews of Web Pages**

1. Each Student is to start a Discussion in the Moodle forum “Web Page Postings”
  - a. Use your name and the name of your website as the name of the discussion.
  - b. Post the link to your website.
  - c. Describe one principle of website design or use that you learned from your readings, with a proper citation, and explain how you used it in designing your web page.
2. Other members of the class are to review 10 websites for their classmates and to post constructive critiques of the website.
  - a. Use the “Rubric for Websites” distributed in class and available in Moodle.

**Table 5:** Directions for Online Postings and Reviews of Web Pages

## **Conclusions**

The website design assignment and subsequent website reviews required students to advance on the computer literacy continuum. To accomplish their project they needed to have achieved the level of *computer literate* as identified by Metros (Grush, 2011). In order to successfully complete this assignment, students demonstrated intermediate comprehension of materials found on the web, were informed producers using the Google sites tools, were innovative in creating their original website, and expressed competent judgment in selecting materials for their websites and in judging the work of others.

Many of the web pages developed by the students demonstrated their interest and concerns about various aspects of the field of human services. This progression of student assignments resulted in student developed web pages that can be used in other courses in support of discipline specific projects. Samples of selected student web page screen shots can be found at <http://sites.google.com/site/aweinerhs5systems/sample-shots-of-student-websites>. Thus, this course, mid-way through their college education, requires students to develop the abilities required for true computer literacy. The assignments are scaffolded to help students demonstrate their acquisition of more basic skills as they build on them to develop more advanced abilities.

At the completion of this final assignment many of the students were amazed that they could create a web page. This helped to add to their self-identity as computer literate, allowing them to take opportunities to use this knowledge in other classes and field settings while continuing to develop their abilities. This project also helped to demystify the process of web page creation. It allowed students to understand the lack of peer review on the Internet and increased their ability to be critical of materials they located. No longer did they think that if it is on the Internet, then it is “true”. Students become better informed consumers of digital information and resources.

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