

Instructional Strategies and Resources: Utilizing the Internet as a Technology Tool in Family and Consumer Sciences Classrooms

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The Internet is one pedagogically appropriate tool that can be successfully used to teach family and consumer sciences knowledge and skills. Strategies for integration of the Internet include locating and evaluating online information, using templates for technology integration, using family and consumer sciences content specific Web sites, using communication tools such as blogs and wikis, and using online assessment tools. Introducing these skills to pre-service teachers helps to develop their competence in and comfort with technology as a learning tool. The desired outcome is better preparation to engage students in multiple learning opportunities in a technologically advanced world.

An answer to the question “what should students know and be able to do?” after completion of a particular course of study has been sought throughout the history of education, most recently by the development of national content standards. The National Association of Teacher Educators for Family and Consumer Sciences (NATEFACS, 2004) recently developed and approved ten standards related to the initial preparation of family and consumer sciences middle school and high school teachers. Standard Six indicates family and consumer sciences initial teachers will be able to “facilitate students’ critical thinking and problem solving in family and consumer sciences through varied instructional strategies and technologies and through responsible management of resources in schools, communities, and the workplace” (n.p.).

Expectations for this standard are further delineated as (a) justify the use of a variety of best practice strategies to help all students learn; (b) critique methods, materials, technologies, and activities as related to lesson goals and student diversity; (c) manage community, business, and industry resources to enrich all student experiences; and (d) integrate family and consumer sciences content knowledge and skills with pedagogically appropriate strategies and resources (NATEFACS, 2005).

Background and Rationale for the Standard and Expectations

Accreditation is the process by which a facility becomes officially certified as providing services of a reasonably good quality, so that the public can trust in the quality of its services (Wikipedia, 2006). A specialized accrediting body evaluates particular units, schools, or programs within an organization (Higher Learning Commission, 2003). The National Council for Accreditation of Teacher Education (NCATE), founded in 1954, is recognized by the U.S. Department of Education as a professional accrediting body for colleges and universities that prepare teachers and other professional personnel for work in elementary and secondary schools. NCATE has six standards used for evaluating teacher education programs. Related to instructional strategies and technologies, Standard One specifies:

Candidates preparing to work in schools as teachers or other professional school personnel know and demonstrate the content, pedagogical, and professional knowledge,

skills and dispositions necessary to help all students learn. Assessments indicate that candidates meet professional, state, and institutional standards. (NCATE, 2007, p. 4)

Another organization working for the improvement of teacher education programs is the Interstate New Teacher Assessment and Support Consortium (INTASC). INTASC has also developed a set of standards based on what effective initial teachers should know and be able to do. The INTASC Standards are written as principles. Principle Four, related to instructional strategies and technologies states, “The teacher understands and uses a variety of instructional strategies to encourage students’ development of critical thinking, problem solving, and performance skills” (INTASC, 1992, p. 20).

Research indicates that teachers who understand how learning occurs are better able to select and develop curriculum that supports rather than undermines the learning process. Necessary for teacher success is ensuring that teachers have access to what is known about specific teaching strategies that foster more productive learning (Darling-Hammond & Bransford, 2005). Standard Six of the National Standards for Teachers of Family and Consumer Sciences reflects this premise and that of the NCATE and INTASC National Standards.

Use of the Internet as a Teaching and Learning Strategy

Numerous books and articles are written each year advocating that teachers implement technology in education. School workshops and state conferences include sessions on technology. It is difficult to find a university level teacher education program today that does not require students to complete technology coursework. When technology is properly implemented in the classroom, it can result in positive outcomes including increased student self-confidence and eagerness to learn (Kimble, 1999).

Since it burst on the educational scene in the 1980s, the Internet has expanded rapidly. Roblyer and Edwards (2000) identified “three primary reasons the Internet has become so popular: it is widely available, worldwide; it is easy to use, very simple and intuitive; and it is highly visual and graphical” (p. 209). As teacher and student access to the Internet continues to rise nationwide, opportunities for positive use of it as a teaching tool continue to expand. The information and communication capabilities offered by the Internet for education, research, commerce, and entertainment are seemingly endless (O’Neill, 1999).

Access to technology, including high speed Internet connectivity, is becoming increasingly available in schools today. As of fall 2003, nearly 100% of public schools in the United States had access to the Internet, compared with 35% in 1994; further, no differences in school Internet access were observed that could be based on any school characteristics (National Center for Education Statistics, 2003). Student-centered learning becomes a reality when students (a) learn to think critically about information they are accessing, (b) synthesize data and information received from multiple sources, and (c) use that information to solve problems and evaluate solutions (Maxam, 2002). Educators must prepare for a technology-rich future and keep up with change by adopting effective strategies that infuse lessons with appropriate technologies (Valdez, 2005).

Specific to family and consumer sciences, Daulton (1997) found an increase in teacher adoption rates for computer technology from 5% in 1983 to 83% in 1993. Another study conducted by Harrison, Redmann, and Kotrlik (2000) investigated Louisiana family and consumer sciences teachers perceptions of the value and usefulness of information technology. Their study included computers in general and specifically the Internet, laser discs, and video

conferencing. They reported that family and consumer sciences teachers placed a high value on information technology, should know how to use computers, and should have computers available for instruction.

In a recent survey, 91% of university faculty members rated "accessing information on the Internet as essential or required for achieving academic success in their course" (Osika & Sharp, 2002, p. 320). In the same study, 91% of students rated themselves competent in this area. Yet research shows students looking for information on the World Wide Web have a difficult time developing search queries and using a search engine (Lazonder, Biemans, & Wopereis, 2000).

Manley, Sweaney, and Valente (2000) identified three main reasons for family and consumer sciences professionals to stay current and knowledgeable about the Internet: (a) to be able to use the Internet as a tool in many family and consumer sciences related fields and access information quickly, (b) to help prepare students to live in a technologically oriented society, and (c) to prepare their students for today's workplaces. Levine (1995) urged educators to take advantage of new technology. He stated:

We have to become so familiar with new technology that we can move beyond its glitter and begin to creatively exploit the uses of the technology to better facilitate learning. And, we must do this in ways that are highly valued by the learner. Taking advantage of new technology can't be merely a matter of saving money, or saving space, or saving time. It has to be a matter of improving the learning potential of people. (¶ 8)

Internet Learning Activities for Family and Consumer Sciences

The National Council for the Accreditation of Teacher Education (NCATE, 2007) Standard One further delineates the expectation that professional studies for all teacher candidates include knowledge and experiences with educational technology, including the use of computer and related technologies in instruction, assessment, and professional productivity. Perhaps the simplest and most straight forward way of integrating technology into family and consumer sciences classrooms is the potential of the Internet as a source of information.

Every topic covered in any family and consumer sciences course has corresponding information available on the Internet. This is one place where the evaluation of information and critical thinking skills can be taught. According to Colaric (2002), there are 800 million publicly indexable pages on the World Wide Web, existing on over 3 million servers, 86% of which contain commercial messages, with only 6% containing scientific and/or educational content. Anyone can put anything on the Internet. While in theory one might assume an ongoing proliferation of Web sites, evidence gathered by O'Neill, Lavoie, and Bennett (2003) suggested growth in the public Web reached a plateau in 2002. The authors theorized the rush to "get online" during the early years of the Web, was replaced with a desire to refine and develop existing Web sites since that time.

One essential task which needs to be taught is how to easily and efficiently locate information online. There are three basic categories of search tools available to accomplish this: (a) subject directories, (b) search engines, and (c) the invisible Web. The first category is subject directories, which are databases arranged by subject. They are easy to use and identify highly relevant information. Recommended general subject directories include Librarian's Index, Infomine, Academic Info, About.com, Google Directory, and Yahoo! (Barker, 2006). Search engines are a second tool for locating information online. Search engines search databases of full text Web pages residing on servers. Recommended search engines include Google, Yahoo!,

Search, and Ask.com. The operation of each of the search engines varies. Search engines allow you to access a great deal of information, however, the relevancy is not consistent. The final search category is the invisible Web, defined as Web pages that cannot be found in search engines and rarely are in subject directories (Barker). It is estimated there are two to three times as many pages in the invisible Web as the visible Web. Tutorials for teaching how to use and access search tools are readily available online.

Once information is located, another critical task is to evaluate it. Schrock (2001) identified five key questions to use in evaluating Web sites:

1. Who wrote the documents and is the author an expert?
2. What does the author say is the purpose of the site?
3. When was the site created and last updated?
4. Where does the information come from?
5. Why is the information useful for my purposes?

A number of lesson plans related to evaluating Web site content are available online (Schrock).

The interactive nature of the Internet also makes it an appropriate medium through which to carry out more extensive activities. Filamentality (2006) is one online resource available to teachers as a technology integration tool. This free site provides teachers with templates to easily construct online, interactive lessons for students. Five specific types of activities can be created. Filamentality labels and describes these activities as follows:

1. Development of a hotlist. A hotlist compiles the URLs for Web sites teachers have researched and found useful related to a particular topic. In addition to the link for the Web site, a short description of the type of information found at each Web site is included on the list.
2. Development of a scrapbook. If learners already have a general understanding of the subject they are studying (i.e., they have done some preliminary learning in class or with traditional resources), teachers might develop guidelines for a Web-based activity known as a multimedia scrapbook. In this activity, learners dig through a collection of Internet sites organized around specific categories such as photographs, maps, stories, facts, quotations, sound clips, videos, virtual reality tours, etc. Learners use the scrapbook to find aspects of the broader topic that they feel are important. Students then download or copy and paste this collection into a variety of formats such as a newsletter, desktop slide presentation, collage, bulletin board, or Web page.
3. Development of a treasure hunt. The basic strategy is for the teacher to find Web pages that have information (text, graphics, sound, video, etc.) that they think is essential to understanding a given topic. After the teacher has gathered these links, one key question is then posed for each Web resource link.
4. Development of a subject sampler. In a subject sampler learners are presented with a smaller number (maybe half a dozen) of intriguing Web sites organized around a main topic. This is a particularly effective way to engage students for many reasons. First, teachers have chosen Web sites that offer something interesting to do, read, or see. Second, students are asked to respond to the Web-based activities from a personal perspective. Rather than uncover hard knowledge (as they do in a treasure hunt), students are asked to describe their perspectives on topics, compare to experiences they have had, interpret artworks or data, etc. Thus, more important than the right answer is that students are invited to join the community of learners surrounding the topic, and they can see that their views are valued in this context.

5. Development of a WebQuest. A WebQuest presents student groups with a challenging task, scenario, or problem to solve. It is better to choose aspects of a topic that are under dispute or that at least offer a couple of different perspectives. Current events and controversial social and environmental topics work well. Also anything that requires evaluation will evoke a variety of interpretations. The reason the Web is so critical is because it offers the breadth of perspectives and viewpoints that are usually needed to construct meaning on complex topics. Students benefit from being linked to a wide variety of Web resources so that they can explore and make sense of the issues involved in the challenge (Filamentality, 2006).

In life outside the classroom, one way of becoming more knowledgeable may result from being immersed in a learning situation. Some experiential learning can be difficult to implement in a classroom (Nabeth, 2006). Simulation games using the Internet allow learners to experience some of the daily responsibilities, decisions, consequences, and pressures inherent in life, without being in the actual situation (Chamberlain & Cummings, 2003). There are many online tools related to simulations of family and consumer sciences content. Some examples include tools that allow students to analyze their dietary intake and activity levels; tools that relate to consumer economics, including balancing a checkbook and investing in the stock market; and tools related to decorating, such as simulating moving furniture or changing wall colors or flooring.

The Internet can also be used as a communication tool to facilitate interaction between students in a classroom at one location and students in another city, state, or country. Online journals, also known as blogs, are a place where students can interact while being monitored for student participation and writing skills. Reflection on current issues impacting families is one example with potential for a blog. A group communication project can be achieved by setting up a wiki. A wiki allows a group of people access to a Web site where all can work together on its creation. These strategies can be integrated into all family and consumer sciences content areas. Comparing apparel traditions by culture, investigating developmentally appropriate practices for interacting with children, and implementing healthy nutritional practices are all family and consumer sciences related topics adaptable to a wiki.

These interactive uses of technology need to be added to family and consumer sciences teaching methods courses or considered as part of a stand-alone course for family and consumer sciences teacher education students. Outcomes of these learning processes may include presentations, products, and projects. The examples provided above lend themselves to authentic assessment to gauge their effectiveness. Existing rubrics found online can be easily adapted to be used as an assessment tool for family and consumer sciences content. The Internet can be utilized by educators to develop valid assessment devices as a measure of online learning.

The use of technology in family and consumer sciences middle school and high school classrooms is contingent upon preparing teacher candidates to be familiar with its capabilities and comfortable with its usage. Robertson and Stanforth (1999) suggested faculty should incorporate Internet activities, projects, and curriculum content into resident instruction to increase students' positive attitudes toward computers. Such activities would then be conducted in a supported environment where students may begin to experience positive results from Web-based activities. Students with these opportunities during their years at the university would be well prepared to develop Web-based learning experiences inherent to quality instruction and professional advancement.

The Internet has vast potential to enhance critical thinking and problem solving skills of family and consumer sciences students. These skills can be taught through family and consumer sciences content when teachers teach students how to critically evaluate online information, and when students and teachers integrate credible online information into classroom activities via hotlists, scrapbooks, WebQuests, blogs, and wikis. As reflected in the National Council for Accreditation of Teacher Education, Interstate New Teacher Assessment and Support Consortium, and family and consumer sciences teacher education standards, varied instructional strategies are key to effective teaching. The Internet is one strategy with great potential for enhancing learning in the family and consumer sciences classroom.

Brief Annotated List of Suggested Resources

Sites Related to Locating and Evaluating Online Information

Easily and Efficiently Locating Information Online

Web Link: <http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/FindInfo.html>

This site is sponsored by the University of California, Berkeley. The main tutorial includes information on how to effectively use search engines, subject directories, and the invisible Web.

Evaluating Web Content

Web Link: <http://www.hsl.unc.edu/services/tutorials/eval/Nuts.htm>

This site is sponsored by the University of North Carolina. It includes questions for consideration in the categories of credibility, bias, accuracy, currency, relevance, significance, intended audience, and usability.

E-Valuating the Web

Web Link: http://school.discovery.com/schrockguide/pdf/07_01_cic.pdf

This site lists questions to ask when evaluating Web-based information.

Templates for Technology Integration

Filamentality

Web link: <http://www.filamentality.com/wired/fil/index.html>

This Web site is sponsored by AT & T. It provides easy-to-use templates and free Web space to educators who want to publish hotlists, scrapbooks, treasure hunts, subject samplers, or WebQuests.

WebQuest Resources

Web link: <http://webquest.sdsu.edu>

The WebQuest page is sponsored through the University of San Diego. It contains freely available training materials about WebQuests and links to many ready-to-use lessons, sorted by subject matter and grade level.

Content Specific FCS Resources

American Association of Family and Consumer Sciences (AAFCS) Directory of Online Resources for Classroom Teachers

Web Link: <http://www.aafcs.org/fcs/index.html>

This site provides a listing of family and consumer sciences resources for teaching related to the sixteen areas of study identified in the National Standards for Family and Consumer Sciences.

Communication Tools

Blogs and Wikis, Video Blogging

Web Link: http://www.ibritt.com/resources/wp_blogs.htm

This site includes articles, tutorials and templates for developing blogs and wikis for educational purposes.

Online Assessment Resources

Kathy Schrock's Guide for Educators

Web Link: <http://school.discovery.com/schrockguide/assess.html>

This site contains a collection of assessment rubrics for use on the World Wide Web that may be helpful for you as you design your own.

North Central Regional Educational Laboratory (NCREL)

Web Link: <http://www.ncrel.org/sdrs/areas/te0cont.htm>

NCREL specializes in the educational applications of technology. Look specifically at the link for technology in education under the Pathways for School Improvement heading.

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