

## **THE PLACE OF COMPUTERS IN FAMILY AND CONSUMER SCIENCES CLASSROOMS**

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*The use of computer technology in the classroom presents challenges for Family and Consumer Sciences teachers. Such use is difficult to accomplish because of lack of time, hardware, and software. This article reviews many of the online resources that are available which empower the teacher with a desire to seek out and utilize them.*

The first decade of new millennium may well be known as the time the computer came of age in education. Consistent with recent research showing that the use of the computer as an instructional tool enhances learning and makes accomplishing teaching related tasks more efficient (Collins & Dewees, 2001; Kulik, 1994; Schacter, 1999), the use of computers by teachers and students is expected in all subject matter areas today.

The extent to which the computer is used as a tool for instruction or to support a teaching-learning experience varies between classrooms, schools, and states. Instruction in some classrooms may be saturated with the use of the computer while in others it is non-existent. Despite the goal of the federal government to "connect every classroom to the Internet by the year 2000" (U.S. Newswire, 1997) only 22% of the teachers reported Internet access in their classrooms at the close of the 1997-98 school year.

Collins and Dewees (2001) reported that the use of computers in the classroom can be an effective teaching and learning tool, but there is much to learn on the part of the teacher before it can be used to its fullest potential. Spencer (1995) found that the factors associated with increased computer use in the classroom included available resources, administrator support, teachers' belief in computer effectiveness, and available budget money.

### **Review of Literature**

Kulik (1994) did an extensive meta-analysis of the literature dealing with the outcomes of the computers used for instructional purposes. He found that most studies show that students using computers learn more in less time, like classes more, and have more positive attitudes towards computers in classes that utilize computers for instructional purposes.

Schacter (1999) compiled and analyzed five large-scale studies of education technology for the Milken Exchange on education technology. He concluded that in over 700 empirical research studies, including a study of the entire state of West Virginia, a national sample of fourth- and eighth-grade students and an analysis of newer educational technologies that students with access to computer assisted instruction, or integrated learning systems technology, show positive gains in achievement on standardized tests. He found the same to be true for students with access to computer simulations, software that teaches higher order thinking, collaborative networked technologies, or design and programming technologies.

### Reasons For Non-Use Of The Computer In The Classroom

Several studies of the use of the computer for instruction in schools across the U.S. have revealed numerous reasons for computer non-use, several of which are pervasive. The most commonly reported barriers to effective use of computers in the classroom are lack of knowledge, lack of time, and lack of hardware (Croxall, 1998; Salomon, 1992; Teasley, 1996; Smerdon, Cronen, Lanahan, Anderson, Iannotti, Angeles, & Greene, 1999; Wright, 1999).

The Office of Technology Assessment (1995) found that school districts spent less than 15% of their technology budgets for training. Education Secretary Riley (1998) stressed the need to increase funding for teacher training.

In 1999, \$135 million in grants was made available for training teachers to use technology in the classroom (The White House, 1999). While these grants were targeted at training new teachers rather than current teachers, the direction the funds was channeled is an indication that teacher training in computer technology has been falling behind.

Bulkeley (1997) reported that one-half of the teachers in the U.S. lack the necessary training to effectively use the computer in the classroom. Only 13% of school systems mandate computer training; less than half provide incentives to encourage teachers to seek computer training; and only 20% of teachers use computers regularly in classroom instruction. External factors frequently influence the integration of the computer into instruction. Facilities, a plan that includes an expectation that the computer will be used in instruction, and an active computer committee in the school system are associated with increased use of the computer for instruction. Rutherford and Grana (1995) identified other factors as preventing computer integration into the classroom, namely fear of the following: time commitment, change, appearing incompetent, techno lingo, techno failure, and not knowing where to start.

### How To Increase Computer Use In The Classroom

Not surprisingly, then, other researchers have studied what it takes to increase computer use in the classroom. Computer training was reported as a positive influence on computer usage, attitudes, and skills (Bradford, 1996; Croxall, 1998; Durham, 1997; Scigliano, 1997; Wright, 1999). Bradford found 80% of the participants in computer-related staff development increased their use for instructional purposes. The most effective strategy was extensive peer-directed hands-on staff development that was conducted in short segments, timed to allow assimilation between trainings, and teacher specific. Cwiklik (1997) reported that many teachers only use a computer for grades and word processing due to lack of teacher training in using the computer as an instructional tool. Also, Cwiklik reported that extensive in-service training does increase the use of the computer for instruction, especially when more computer literate teachers mentor teachers for whom using the computer is a new skill.

Literature that links FCS with use of the computer for classroom instruction include studies by Wright (1999), Croxall (1998), and Werhan (1999) reviewed here.

### Wright (1999), Utah

Wright (1999) reported that many studies have been conducted on the educational effects of computers in public schools. Much of the literature reports positive effects on student achievement as a result of the use of computers in instruction (Hadley & Sheingold, 1993; Reeves, 1998). Wright (1999) studied the factors affecting Family and Consumer Science Education (FACS) teachers' use of computers, barriers to use of computer technology in FACS education, and contributors to successful use of computer technology by FACS teachers.

Although computers are prevalent in all schools and are being used in nearly all disciplines, many teachers are not using them or are not using them effectively because they lack an understanding of how to do so. Research has suggested that application of the effective computer training findings has been weak or non-existent (Wright, 1999).

A random sample of FACS teachers in Utah was surveyed in 1995-96 to study the relationship between FACS teacher computer training and their utilization of computers in FACS teaching. Analysis from the 275 respondents (representing a 81% response rate) showed that teachers who participated in computer training had significantly lower computer anxiety and higher computer use and liking (Wright, 1999).

Specifically, FACS teachers who had participated in computer training workshops were more likely to use the computer in their classroom in a variety of ways to enhance the effectiveness of their instruction and to engage students in computer experiences. The longer the computer training, the more likely teachers were to use computers in the classroom for instruction and for such purposes as recording grades, generating materials, and inventory tracking (Wright, 1999).

Wright (1999) also found that when FACS teachers had taken a college computer class or participated in FACS-sponsored workshops, they were more likely to use computers in their classrooms for purposes that directly involved students in the use of computers. Other factors that correlated positively with increased computer use by FACS teachers included larger schools, higher computer confidence and liking, lower anxiety, and recency of college degree.

Other facts that emerged from Wright's study were that computers were used more frequently in higher grades, but the number of programs used was greater in lower grades. The average teacher spent over 74 hours in computer training, used the computer 11 hours per week for teaching tasks and two hours per week for instructional purposes. Over 90% of the respondents had access to a computer in their classroom. Only two teachers reported that they had no access to a computer in their school (Wright, 1999).

#### Croxall (1998), New Mexico

Croxall (1998) conducted a study of Family and Consumer Sciences (FACS) teachers in New Mexico, to determine the extent of classroom computer usage. Ways teachers incorporated and used computers within the classroom and in professional activities outside of class time were examined. Barriers to use of computers in the classroom and computer training were studied. Of the 267 FCS teachers surveyed in NM, responses from 199 teachers (75%) were analyzed for the study.

Croxall (1998) found that while 74% of the teachers had at least one computer in their classroom, that computer was likely outdated (85% of the time) and unable to either connect to the Internet or run a CD ROM program. Even without Internet access in their classrooms, many New Mexico Family and Consumer Sciences teachers are incorporating the Internet into their teaching; 27% reported using the Internet at least monthly with 14% reporting weekly usage. Many teachers responded that they sent students to the library or computer lab with assignments to complete on the Internet. For example, one teacher utilized Internet sites showing fetuses in-utero as she taught a child development course.

Computers in the classroom were most frequently used as word processors (41%), to access the Internet (33%), conduct research (28%), and have students prepare FCCLA materials (22%). Computers were most frequently used in either foods and nutrition classes (57%) or childcare and development classes (31%).

Teachers used computers to prepare tests (84%), prepare lesson materials (78%), prepare curriculum (73%), and compute grades (64%). Seventeen percent of the New Mexico FACS teachers reported having received no computer training with an additional 39% reporting less than 10 hours of training. Most teachers (73%) would like a course tailored towards teaching FACS content using computers. Nine teachers (5%) indicated that they did not need or want further training in using computers.

Lack of computer software and hardware were the most frequently cited barriers to using computers in the classroom (75% and 64% respectively). Over half (55%) identified a lack of time as a barrier to computer usage while over 40% lacked computer skills. It is vital that FACS teachers who currently utilize computers in the classroom assist in training FACS teachers who are not using the computer to do so.

Croxall (1998) reported that many teachers expressed frustration with the lack of computer hardware and software for FCS instruction. Computer training workshops that utilize FCS specific software familiarize the teacher with both hardware and software.

#### Werhan (1999), Indiana

Werhan (1999) studied the influence of a corporate sponsored computer training workshop on FACS teachers in Indiana. The experimental group consisted of teachers who attended the State and corporate sponsored workshop on computerizing FACS classrooms using the modules of the corporate sponsor. This group was not a random sample, but rather teachers who were interested in more information about the Cinergy/PSI program.

A control group of FACS teachers who attended a statewide conference in October, but did not attend the workshop was used for purposes of comparison. The experimental group scores increased for both professional and classroom use of the computer but only the professional use was statistically significant. During the same time frame, the control group had a statistically significant increase in the classroom use of PowerPoint software and the Internet. Therefore, the expectations that the computer usage of teachers in the experimental group would exceed those of the control group were not substantiated.

Werhan (1999) made several recommendations for more effective teacher computer training based on her findings. These included determining teacher interests, arranging workshops that support teacher interests, providing software for participants, registering teachers as a team to attend the workshop as support partners, and encouraging past participants of teacher training to act as mentors to recently trained teachers.

### **Use Of Computers In FCS Classrooms**

The following are some of the many ways in which computers may be used in the secondary FCS classroom.

#### Internet Sites

There are dozens of puzzle/game/worksheet/quiz generator programs on the web. Some of them charge a fee but many of the best sites are free. A few examples of such sites are [Puzzlemaker](#) that instantly creates puzzles with your content and [Quia](#) that allows you to create your own activities, quizzes and web pages.

Commercial web sites may also offer useful instructional material. To locate these sites use a web browser (i.e., Google, Yahoo) to search for the location of the site. Be aware that

commercial sites may contain information biased in favor of the company, but do not overlook these sites simply because they are sponsored by a commercial entity.

Many organizations also host web sites with information that can enhance the FCS curriculum. Some FCS teachers prefer sites sponsored by organizations above those sponsored by commercial enterprises since there is less likely to be a commercial bias reflected in the information at the site. Organizations hosting web sites include the [American Heart Association](#) and the [American Diabetes Association](#) and most educational institutions. The Utah Association of Family and Consumer Sciences hosts a page with links to many [FCS-related sites](#).

The [Utah Education Network](#) hosts a web site with an incredible wealth of useful information. (Other states undoubtedly also host such sites; make inquiries of your state office of education.) Among the useful items available at this site are contacts for Utah FCS teachers as well as curriculum (lesson plans), FCCLA links and the National FCS Standards.

San Diego State University hosts [The WebQuest Page](#). A WebQuest is an inquiry-based activity in which some of all of the information with which learners interact comes from resources on the Internet (Dodge, 2001). [Discovery School](#) hosts a wealth of information created by Kathy Schrock. Information available includes web site evaluation criteria, subject specific links (see Vocational Education), and other teaching aids. At Schrock's [Sites of School Days](#) you can find a new site each week that will help you integrate technology into the teaching/learning process.

Web-based tutorials can help teachers overcome a lack of knowledge about computers and specific computer programs. Self-instruction, for the self-motivated, is an excellent method of learning how to use computers in the classroom. There are plenty of self-help sites available on the Internet. [Free Tutorials](#) is an example of a site that provides self-instruction opportunities.

And last, but not least, the government hosts thousands of web sites with free information. Sites like [Nutrition.com](#) and the [Federal Consumer Information Center](#) provide a variety of useful information for both teachers and students.

### C-U-See-Me

This clever little program has been around for a decade or so. Its use requires free software (download from <http://www.rocketcharged.com/cu-seeme/download.htm>) and a video camera connected to your computer (can be purchased at a local computer store or on the internet for under \$100). This program works on both PC and Macintosh computers. Once set up, C-U-See-Me allows you to communicate with others anywhere in the world. You not only talk to the person, you can see them. You can speak with whomever happens to be online or you can plan in advance to visit with a specific person or group of people.

Potential uses of C-U-See-Me include visiting with other FCS classes around the country or the world. You could arrange for a foods class in another country to do a demonstration on cultural foods, then reciprocate. You could have a class discussion on any topic of contemporary concern between your students and other students anywhere in the world. The implications for cross-cultural education are greatly expanded with the use of this free program.

### Proprietary Software Programs

There are literally thousands of software programs that are FCS-related. Unfortunately the sheer number of programs available adds to the dilemma of determining which programs are appropriate for classroom use. Programs range in price from under \$10 to well over \$1000. Few, if any, stores allow return of opened software so you are faced with the quandary of

knowing which programs to purchase (if you have money to buy programs). Some software publishers will donate a copy of their software for educational use and others sell their software to educational institutions at a reduced price.

### Email

Although a powerful tool, with incredible potential for increasing learning, e-mail has potential for misuse in the classroom. Students e-mailing each other during class can distract them from fully participating in the classroom learning experience. One partial solution to misuse of e-mail during class is to require students to write a brief summary of what they discussed including a list of those with whom they communicated.

In the 1960's and 70's teachers often arranged for entire classes to have pen pals. Students exchanged letters with counterparts in some other region of the world in an effort to learn about culture, traditions, etc. E-mail can be the 21st century version of the pen pal and it is much easier on the teacher and the pocketbook. To identify teachers whose students may become your e-mail pals, go to [Web66: International School Web Site Registry](#). E-mail the teachers with a detailed explanation of your plan (how it will benefit not only your students, but theirs, how student privacy will be protected, etc.) and await a reply. One word of caution: make single inquiries (rather than blanket inquires) since you do not want to acquire an excess of e-mail pals or someone will end up disappointed.

### Books

*Computer Projects for Family and Consumer Sciences*, (2000), by Ruth E. Bragg, Ph.D. is available from the American Association of Family and Consumer Sciences (Item #0200-19). This book lists computer related projects that can be used in every content area of Family and Consumer Sciences. It includes worksheets and lesson plans.

A commercial book that can be useful to one segment of Family and Consumer Sciences is *Free Stuff for Sewing Fanatics on the Internet*, by Judy Heim & Gloria Hansen. It is available in most bookstores (ISBN #1-57120-073-8). It lists many Internet sites that can be utilized in clothing, apparel, textiles, and fashion courses.

## **Conclusions**

The use of computer technology in the classroom presents challenges for Family and Consumer Sciences teachers. Such use is difficult to accomplish because of lack of time, hardware, and software. Many sources of help are available and more are becoming available on a regular basis. These resources empower the teacher with a desire to seek out and utilize them.

It will take persistence on the part of classroom teachers to keep current with computer technology, both hardware and software. But, by doing so, they will also be preparing themselves and their students for the future. The task is easier when we work together to share resources and technology that works for us individually.

Note: Links to all Internet sites referenced in this paper can be found at the [UAFCS web site](#). If there are sites you would like added to this site email the URL to [C. Wright](#).

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