

COMPUTER APPLICATIONS IN THE FIELD OF FAMILY AND CONSUMER SCIENCE

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Trends in technology have had a great impact on the field of Home Economics. Curriculum in the field has been in a state of evolution since it began to receive federal funding in 1917. This transformation has been reflective of changes in society. Today the field has been renamed Family and Consumer Sciences (FCS) to more adequately represent its current teachings. Technology has a wide range of uses in the FCS classroom. Professionals have been able to teach their future consumers valuable lessons involving the latest trends in hardware purchases. They have been able to enhance their lesson plans through Internet research and activities. New software titles implement national Family and Consumer Science curriculum standards in a fresh and exciting way. The evolution from Home Economics to Family and Consumer Science can be illustrated through advancements in computer applications in the classroom.

The field of Home Economics has been in a constant state of evolution since the passage of the Smith-Hughes Vocational Education Act in 1917, when it became one of the first three disciplines to receive federal funding (Thaler-Carter, 2000). Since 1917, curriculum in this field has changed with the times to reflect new trends in society. By the 1980s, computers were beginning to significantly change the presentation of information in the Home Economics classroom. Advancements in computer hardware and software provided valuable tools in teaching consumer tactics, calculating nutritional content, and aiding in fashion design. These advancements most directly impacted the middle and high school curriculums. Professionals in the field were encouraged to embrace the new technology in their instruction (Browning & Durbin, 1985). By 1994, changes in the field had become significant enough to warrant a name change. Home Economics became Family and Consumer Sciences (FCS) through a vote by the American Association of Home Economics (Warren, n.d.). Today, changes and updates in the field continue to occur, and FCS professionals are using the latest developments in computer technology to help students grasp the important concepts they teach.

By 1984, the computer had become smaller, less expensive, and generally more practical for personal and educational use (Thomas, 1984). The field of Home Economics embraced this new technology in a variety of ways. Classroom kitchens and sewing rooms in the 1980s were home to the latest appliances equipped with computer programming. New microwaves, such as the R-8340, had surfaced on the market and were able to perform the majority of calculations for cooking food items on their own. Users provided some basic information, such as item name, weight, and degree of doneness desired and the microwave took care of the rest. The computer chip also enhanced the technology available in dish washers, washers and dryers, and sewing machines. These appliances were more specifically programmable than ever before, and they found a welcome home in the Home Economics classroom (Thomas, 1984).

By 1985, Janice Morgan, President of the Home Economics Education Association, stated, "I believe that the lifestyle of America will be impacted upon greatly by the new information technology. You, as a home economics teacher, must decide rather quickly whether

you will be a consumer or producer of the new information technology. But, you will not be allowed the privilege of being a neutral in the movement” (Browning & Durbin, 1985, p. i). Many Home Economics teachers heeded Morgan’s advice and began to adapt advancements in computer technology into their instruction in ways beyond the use of modern appliances.

Hardware Consumers

Though computers were not available in large numbers for many classrooms in the mid-1980s, Home Economics teachers could still educate students about their significance (Grogan, 1984). Many teachers focused on educating students about different types of computer hardware. Early hardware commonly presented in the Home Economics classroom included a keyboard, monitor, memory processor, and disk drive or cassette tape recorder. “A disk drive is easier to use than a cassette recorder and most home economics software comes on a floppy disk. A device called a mouse is available with some computers to control data” (Browning & Durbin, 1985, p. 2). Additional hardware, such as printers, modems, and acoustic couplers could be purchased after careful consideration of how the computer would be utilized (Browning & Durbin, 1985).

Students were encouraged in many Home Economics classes to view information on computer hardware as smart consumers. They studied different types of advertising for the latest computers, and compared prices and options. They were encouraged to distinguish needs from wants as a consumer, and in the area of computers many found that pocket calculators were much more appropriate for their needs than the latest desktop model. Many teachers also incorporated the impact of computers on families into their curriculum. Predictions were made about a future where a great deal of professional work would be accomplished on a small computer at home. The prediction inspired many class discussions involving the topic of the work-at-home adult, computers, and their impact on home design, child-care, family relationships, and transportation (Grogan, 1984).

Software Programs

For those Home Economics classrooms with computer access, a wide variety of software titles were available in the 1980s to aid in course instruction. Home Economics covered a wide variety of areas, and there was a range of correlating software available for the teacher to choose from. In the area of career development there was *Career Directions*, from System Design Associates, Inc. The software was made for the Apple computer and allowed users to identify career interests, skills and abilities. The cost was \$59.00. In the area of child development and child care there was *The Babysitter’s Manual*, from Intellectual Software. The software was made for the Apple and IBM computers, and covered the responsibilities of babysitting, dealing with parents, and providing for the needs and safety of children. The cost was \$34.95. In the area of housing, there was *Home Safe Home*, from MCE, Inc, for the Apple computer. The software helped users identify common home hazards and techniques for preventing them. The cost was \$165 for four disks. In the area of foods and nutrition there was *The Eating Machine*, from Muse Software, Inc. The software was made for the Apple computer and contained a comprehensive nutrient analysis program. The cost was \$49.50 for two disks. *The Eating Machine* is a good example of a software package where teachers were dealing with different types of disks: a program disk and a data disk. The disks had to be used together for the program to run. The program disk differed from the data disk, however, in that it could not be altered or copied. This served to protect the program from illegal copying. The data disk, on the other

hand, had to have altering capabilities since it contained the data for food analysis. All of these software titles helped teachers provide a more exciting and in-depth look at the topics they were covering (Browning & Durbin, 1985).

Research

The rising trends in computer usage among home economists in 1984 prompted the American Home Economics Association (AHEA) to create a computer software task force to help educate teachers about the best software available (Burkhart, Muller & O'Neill, 1985). Until then, teachers had been choosing their programs without any official guidance or suggestions. Research on specific types of computer usage among home economists also began to develop. This was the focus of research conducted by the New Jersey Home Economics Association (NJHEA) in 1984 (Burkhart et al., 1985). One survey published in the *Forecast for Home Economic* magazine received responses from 300 readers. The study found that while teachers were purchasing and using software, the programs were often only used for enhancement of classroom instruction. Teachers were not widely using the array of administrative software available for tasks such as grade keeping or attendance. Upon further investigation the NJHEA discovered that the biggest reason for non-use of these programs was lack of knowledge about them or how they worked. "How do we know what software programs we should buy if they are sealed in cellophane" (Burkhart et al., 1985, p. 29)? Efforts by the AHEA encouraged teachers to share their favorite program names with others by word of mouth and by developing recommended title lists. Administrative software use began to grow in popularity (Burkhart, et al., 1985).

Curricular Implications

By the early 1990s, Home Economics teachers were regular users of computers in the classroom, and were familiar with a variety of software in their discipline. The curriculum had been changing along with the advancements in technology. Spankie Lou Basset, President of the American Home Economics Association in 1994, summed up the changes: "basically, in the past 10 to 15 years, major changes have happened to make the image of our profession more oriented to meeting the needs of students seeking career offerings. Students today want validity. By offering career information, we are fulfilling their needs" (Thaler-Carter, 2000, p. 2). The focus turned from developing home making skills to preparing students to manage a home, family, a career, as well as themselves responsibly. Technology enhanced the transition by making "classroom experiences more like the television and video-game productions students are so used to seeing. Teachers no longer have to figure out a way to 'sing and dance' to make learning exciting" (Thaler-Carter, 2000, p. 3).

Family and Consumer Sciences

By 1998, the name of Home Economics had officially retired and the National Standards for Family and Consumer Sciences had been developed to officially implement changes in curriculum. "The National Standards for FCS Education present a vision for the future and provide FCS educators with a structure for identifying what learners should be able to do. (They) are based on the knowledge and skills needed for home and family life as well as those needed to succeed in related careers" (Warren, n.d., p. 1). Standards are arranged in the following 16 categories:

- Career, Community, and Family Connections

- Consumer and Family Resources
- Consumer Services
- Early Childhood, Education, and Services
- Facilities Management and Maintenance
- Family
- Family and Community Services
- Food Production and Services
- Food Science, Dietetics, and Nutrition
- Hospitality, Tourism, and Recreation
- Housing, Interiors and Furnishing
- Human Development
- Interpersonal Relationships
- Nutrition and Wellness
- Parenting
- Textiles and Apparel

Today, almost all teachers have access to computers, even if numbers are limited, for teaching purposes. “The United States Department of Education personnel have established a goal of having one computer for every five students in American schools. Currently, the average ratio is one computer for every seven students” (Croxall & Cummings, 2000 p. 1).

Software Programs

Software is available for different computers and in different forms, for the middle and high school grades. The Educational Software Institute (ESI) online (<http://www.edsoft.com/c/@eK40R93pRrBuQ/index.html>) offers programs for the following platforms: IBM PC, Windows, Macintosh, Power Macintosh, Apple II, Apple II GS, CD-ROM PC, MPC, CD-ROM Macintosh, and Power Macintosh, as well as programs on Laserdisc, VHS Tape, and in book form. In the area of housing, interiors and furnishing, ESI offers the software *Design Your Own Home*, a program that allows students to use patterns to create a home within a budget. The program is made for Macs and PCs and is on CD ROM or a 3.5” diskette. The software is regularly \$49.95. In the area of consumer services, ESI offers *Deals On Wheels*, a program that introduces students to the fundamentals of purchasing a car. The program is made for Macs and PCs and is available on a 3.5” diskette. The cost is \$59.95.

Evalutech online (<http://www.evalutech.sreb.org/>) offers reviews for a large number of software titles in different fields. In the area of nutrition and wellness, DK multimedia offers *My Amazing Human Body*, a program that allows students to explore parts of the human body and how they work. The program is made for Macs and PCs and is on one hybrid CD ROM. The product description for *My Amazing Human Body* specifies hardware requirements to run the program: microcomputer (486/66MHz, 12MB RAM, Windows 95), hard drive with 26MB free, SVGA monitor (256 colors), double-speed CD-ROM drive, sound card, amplified speakers or headphones and printer (optional). The cost is \$29.95. In the area of food production and services, CORD Communications offers *Cyber Snacks*, a program in which students are introduced to a simulated business world by role-playing as snack cart vendors. The program is intended for Macs or PCs with Windows 3.1 or higher and is on CD ROM. Hardware requirements for *Cyber Snacks* include: microcomputer (68040CPU or better, 4MB RAM,

System 7.0 or higher), hard drive with 10-20MB free, monitor (256 colors), double-speed CD-ROM drive. The cost is \$49.95, or \$225 for a five-copy lab pack.

The Internet

The rise in usage of these programs is indicative of an overall higher level of technology use by professionals in the field of Family and Consumer Science. In fall of 1999, the University of Georgia Department of Family and Consumer Science conducted a study of Internet usage by Georgia affiliates of the American Association for Family and Consumer Science (AAFCS) (Manley, Sweaney & Valente, 2000). "When comparing educators to non-educators, educators were significantly more likely than non-educators to use the Internet for activities such as e-mail, research, exploration of websites, education, and communication" (Manley et al., 2000, p. 5). Results also found that 93% of educators used the Internet, and 86% used e-mail (Manley et al., 2000, p. 5).

As FCS instructors become more familiar with the usage of the Internet, they gain even greater access to technology that will enhance their curriculum. The research opportunities in their field have become virtually limitless. "By becoming active users of and contributors to electronic means of research, today's family and consumer science researchers have the opportunity to help shape the technology that will, in turn, shape our world" (Abdel-Ghany, 1995, p. 7). Teachers can contact other professionals all over the world to discuss changes in their field, get lesson plan ideas and receive advice. Many professional journals are available online, as are other vehicles for formal information dissemination. Opportunities to gather more knowledge in the field have grown immensely. Teachers can also begin to provide some of their knowledge for others through personal and professional websites. In 2001, *Family Relations* magazine published an article entitled "A Process Evaluation of a Website for Family Life Educators" (Hughes). The article discusses ways to provide the information in newsletters and bulletins to a larger audience by posting the information on a well-designed website. The broader dissemination of the information would lead to professionals becoming more knowledgeable in their field. "The future strength of family life education is dependent on continued exploration of the Internet as a tool for helping professionals learn" (Hughes, 2001, p. 11).

Resources

FCS teachers do not need to share all of this new-found information regarding technology with students all at once. They can begin with basic consumer education, engaging students in activities such as "financial management, price comparisons, and product reviews" (Manley et al., 2000, p. 6), just as they did in the 1980s. Today teachers can also cover online purchases and security issues. There are many websites available as resources for use in the FCS classroom. Some websites provide access to a variety of software that can easily be directly downloaded, some of it without cost. There are many comprehensive sites available that list links to FCS resources. In South Dakota, the East Side Union High School District provides their students and teachers with such a site at http://teacher.esuhd.org/resources/home_economics.html. This site provides links to the following resources: The American Dietetic Association, Arbor Nutrition Guide, a list of cooking schools, The Craft Resource Guide, Delicious Magazine, and the Home Owners Finance Center, among others. The American Association of Family and Consumer Science homepage provides a list of links related to the discipline for teacher use at <http://www.aafcs.org/resources/links.html>. The list includes sites for the following: Financial

Literacy 2001, the Johnson & Johnson Pediatric Institute, the National Institute on Media and the Family, the USDA, and ParentsConnected, among others. Many teachers have compiled their own personal list of resources on the web as well.

Higher Education

Education of FCS professionals in the beneficial uses of technology is beginning much earlier in their career. Universities are adopting specific courses on how to best utilize the computer in the field of FCS for their students. “Teacher educators at the university level need to ensure that all teachers receive training in the use of computers, a basic teaching skill. Teacher educators in FCS at the university level should also incorporate teaching with computers into the methods classes students take during their teacher preparation” (Croxtall & Cummings, 2000, p. 12).

This rising population of professionals will have an edge that their predecessors did not. The University of Akron in Ohio offers a course entitled *Computer Applications in Family and Consumer Sciences* (<http://www3.uakron.edu/hefe/comapps/commapps.htm>). Objectives in the course include being capable of doing incredible things on a computer, getting around the Internet and the world wide web with facility and ease, investigating, researching and troubleshooting, and gaining skills and knowledge that will enhance scholarship, employability, and job performance.

Curricular Implications

Some states have decided to take the national standards for FCS one step further and specifically tailor them to their needs in the areas of technology. These measures are in part due to the Carl D. Perkins Vocational-Technical Education Act of 1998 (Smith & Hall, 1999, p. 1). The Act is the latest update of the 1984 Carl D. Perkins Vocational Education Act. The previous Acts have focused on “improving vocational programs and serving special populations such as the underemployed, unemployed, and disadvantaged. They strongly advocate the integration of occupational and academic skills to better compete in the world's economy” (Smith & Hall, 1999, p. 1). The most recent update is expected to “give states and local districts greater flexibility to develop programs while making them more accountable for student performance” (Smith & Hall, 1999, p. 1).

In accordance with the Perkins Act, the state of Virginia has adopted specific computer/technology standards within FCS that must be met by the end of grade 12 (<http://www.cteresource.org/VDOE/CTE/CTMatrix/fcsmatrix.pdf>). In all areas of FCS, students meet specific criteria to:

- demonstrate a basic understanding of fundamental computer operations and concepts
- use application software to accomplish a variety of learning tasks
- develop skills in the use of telecommunication networks
- demonstrate skills in the selection and use of appropriate technologies to gather, process, and analyze data and to report information related to an investigation

The state of Pennsylvania has also adopted technology standards taught through FCS that must be accomplished by grade 12, though they are not as specific or necessarily computer oriented as those required in Virginia. For instance, by grade 12, students must “assess the availability of emerging technology that is designed to do the work of the family and evaluate the

impact of its use on individuals, families and communities”

(<http://www.pde.psu.edu/standard/fcswhole.pdf>). Other states have a more general technology curriculum that must be followed but is not yet specifically adapted to the FCS classroom.

Curriculum in the field of Family and Consumer Science will continue to be in a constant state of revision because FCS teachings will have no validity if they do not reflect current societal trends. As technology use continues to rise, it is essential that FCS professionals grasp the latest concepts for use in their classroom. FCS professionals are in a unique position of incorporating technology into their classroom even when a limited budget prevents the purchase of the latest gear. Lesson plans can focus on the consumer aspects of technology and its impact on society, family life, and individuals (Grogan, 1984). If there is just one computer in the FCS classroom, students can take turns doing Internet research, or work in teams to utilize a software program. Teachers can also present the programs via overhead projection for total class involvement.

As the focus of many K-12 institutions turns towards strengthening skills in Language Arts and Mathematics, the importance of FCS has dwindled, to the point of extinction in many cases. One way to ensure its survival is through proving its applications in the real world. Technology use in the classroom is essential to achieve this goal. Teachers can research the latest trends and develop ways to incorporate them into their lesson plans. Administrators can support these efforts with workshops and through the purchase of modern equipment. Educators in each state who are committed to the survival of FCS can help develop computer and technology standards to be implemented specifically in the FCS classroom, similar to those in the state of Virginia. Surveys of graduating seniors and their experiences with FCS can provide directional feedback. Keeping curriculum in FCS current with trends in society, including technological advancements, is an important step in solidifying its place in the K-12 setting.

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