Implementation of blended instruction: A case study of secondary Family and Consumer Sciences

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Implementation of blended instruction: A case study of secondary Family and Consumer Sciences

by

Vivian G Baglien

A dissertation submitted to the graduate faculty in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY

Major: Family and Consumer Sciences Education

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2009
DEDICATION

The journey to complete anything worthy is often like learning to ride a bike. It is an exhilarating experience once you get it right. This research has been one of joy, challenges, successes and obstacles that sometimes appeared to be the drivers for completing the task rather than impediments that might persuade one to cave in and take an easy route. This study is a reflection of the goals instilled by a hard working and loving family whose daughter looked at education as a way to contribute back to society. Throughout the process of completing this study I have been reminded of my mother who encouraged me to read and my father who instilled in me the idea that hard work often begets great rewards. My parents were not high school completers, although they were avid readers. Their generation was one that often gave up their own dreams to help sustain families. My parents were no different.

The other driving force to complete my education started with the birth of my son. I knew that if I wanted to be a good provider that my own education was tantamount to any kind of security that I would be able to provide for him. At the time, just getting a teaching degree and holding down a full-time job seemed like a lifetime accomplishment. Working towards the PhD was not even a distant thought at that time.

As the years passed my son, Trevor, completed his college education, and married a great gal, Barb. They blessed his Mom with three great grandchildren—
Whitney, Max and Daniel. Obtaining that last educational goal became a grandmother’s desire to instill a love of learning in her grandchildren. May anyone challenged to go beyond the norm, realize that their own resolve, motivation, and love of family will serve them well.
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ABSTRACT

This qualitative study focused on the use of blended instruction as a method for teaching Family and Consumer Sciences Education (FCS). Blended instruction uses the best features of face-to-face and online instruction to create a rich learning environment. The study employed a descriptive case format to explore the perceptions of six FCS instructors and eight secondary FCS students who were engaged in the process of utilizing or learning how to use a blended instruction format.

A review of the collected data indicated that, if the funding, training and continuing technology support is in place, then FCS instructors and students will come to experience a positive learning experience utilizing blended instruction. Schools in the study that struggled to provide these supports had students who were slower to achieve a perceived level of success using a blended instruction format.

Blended learning has the potential to become the next cutting-edge use of technology not only in FCS but also Career and Technical Education (CTE) as well as general education classes. The researcher encourages the field of education, especially FCS and CTE, to explore further how the use of blended instruction can better facilitate instruction in a world that is increasingly becoming technologically advanced. The possibilities are only limited by the creativity and abilities of the FCS instructors who serve students for whom technology will become an embedded way of life and existence.
CHAPTER 1: INTRODUCTION

Background

Blended instruction was selected as the focus for this Family and Consumer Sciences (FCS) research study because it holds a promising futuristic trend in FCS secondary education. The possibilities for utilizing blended instruction are endless, depending on the creativity of the FCS instructor. Online learning is worthy of study, as it has become one of the “fastest growing trends in educational uses of technology” (Stansbury, 2009; U.S. Department of Education, 2009, p. ix). In 2009, the U.S. Department of Education focused on studies conducted both in totally online and in a blended format. The results suggested that blended instruction has resulted in better grade performance than strictly face-to-face teaching thus providing a rationale for the effort required to design and implement blended approaches (Stansbury, 2009; U.S. Department of Education, 2009).

President Obama recently proclaimed October, 2009 as National Information Month:

Every day, we are inundated with vast amounts of information. A 24-hour news cycle and thousands of global television and radio networks, coupled with an immense array of online resources, have challenged our long-held perceptions of information management. Rather than merely possessing data, we must also learn the skills necessary to acquire, collate, and evaluate information for any situation. This new type of literacy
also requires competency with communication technologies, including computers and mobile devices that can help in our day-to-day decision making. National Information Literacy Awareness Month highlights the need for all Americans to be adept in the skills necessary to effectively navigate the Information Age (Obama, 2009).

Blended instruction format would support the proclamation made by President Obama to increase our competency with communication technologies while encouraging students to be adept and knowledgeable on the use of technology in a fast paced information age. Blended instructional pedagogy is on the forefront of becoming a useful tool for implementing technology applications for FCS and secondary education.

Recent research done by Patrick and Powell (2009) on blended instruction and on-line learning refute earlier findings by Muir-Herzig (2004) who did not find a strong correlation between support from online instruction and over all student performance. The recent literature suggests that online supported learning holds much promise for better student performance when measured by grade performance (Patrick & Powell, 2009). According to Patrick and Powell (2009) students who took classes either totally online or in a blended format did better academically than those who were in a more traditional face to face classroom.

The use of blended instruction utilizing a web interface to support instruction is available across the globe. Blended instruction could enhance face-to-face instruction and give the Family and Consumer Sciences secondary programs the
tools to better meet the challenges of teaching in an ever evolving technology age. Utilizing blended instruction to deliver course content is a methodology that should be explored for not only FCS curriculum, but also for secondary education. In the early 1990s, the FCS profession was thought to be on the forefront of utilizing the web. The web was deemed an important tool to keep FCS instructors abreast of new information and provided alternatives to teaching and researching (Manley, Sweaney & Valente, 2000). If we are to keep abreast of the technology available today to teach students who are now blended together in a variety of age brackets, then instructors must learn to use technology that, perhaps, they have not experienced as a student (Milliron & Pelinski, 2009).

Today, teachers are seeing more and more students leave the halls of their schools to take classes online that physically remove them from high school and FCS classes. Could blended instruction at the secondary level be a good fit with the trend to provide more online instructional opportunities for students and staff in community and four-year colleges? The constructivist view, or the belief that learning should be more student centered rather than instructor provided, fits the use of blended instruction. One of the central arguments previously given for web-based resources in the classroom is that blended instruction provides learners access to information resources in ways that enable them to search for relevant data, synthesize that information, and then draw their own conclusions (Chapman & Mahlck, 2004).
Statement of the Problem

Although communication technologies have advanced in the FCS profession, there have been few studies done on the use of technology instruction as a blended instruction format for FCS curriculum delivery. Studies that focused solely on FCS secondary curriculum delivery utilizing blended instruction are just emerging. There is a need to research this method of instruction and determine if it will offer new avenues of connecting to students to learning FCS curriculum. Technology is available to FCS secondary instructors, but studies have not explored the use of a web interface to support secondary FCS secondary curriculum. Blended instruction according to Patrick and Powell (2009) has offered some promising indications of the success of blended instruction.

Purpose of the Study

Using a descriptive case study format to study FCS teachers and selected students, this study investigated how blended instruction was perceived by the participants in a secondary education setting. This case study was descriptive in nature to enable a rich dialog gathered from four different interview sessions: (a) technology background and experience; (b) course use of the web; (c) class supports and navigation; and (d) feedback and evaluation. A case study is described as being descriptive in nature if the study can in part:

1. Illustrate the complexities of a situation, the fact that not one but many factors contributed to it.

2. Have the advantage of hindsight yet can be relevant in the present.

Qualitative research results are grounded in the data that are gathered and ultimately tested when analyzed instead of being prior ideas that are tested against data (Maxwell, 2005). The researcher analyzed data from the interviews of the instructors and students and sought to ascertain how blended instruction is perceived by those who deliver and receive a blended instruction format.

Osguthorpe and Graham (2003) described instructors who use blended instruction as utilizing the best of face-to-face and online instruction. Blended instruction should attempt to address all of the strengths of the two methods of instruction and none of the weaknesses (Osguthorpe & Graham, 2003). The current research sought to address these concepts and relate how FCS educators might explore the use of blended instruction in the future.

Several dimensions were investigated to determine factors that might influence blended instruction, such as people, covert and overt agendas, non verbal behavior, and physical setting. Dimensions investigated and reviewed how FCS secondary educators and the students they serve perceive the use of blended instruction for delivery of curriculum. Four dimensions were explored:

- The FCS instructors’ and students’ perception about blended instruction as an effective method of instruction.
- The reasons for adopting blended instruction as pedagogy from the perspective of instructors and students.
• The significant learning experiences and implications for practice of blended instruction by FCS instructors and students?

• The challenges for the future use of technology as a teaching method for secondary FCS?

One dimension intertwined with another, making the final outcome and analysis an intricate pattern to unravel and examine.

This study focused on six FCS instructors and selected students who used blended instruction supported by a web interface as an instructional method for FCS curriculum. The analysis included evaluating each instructor and sampling two different classroom sets of students individually. The classroom students were freshmen and seniors selected from a Midwestern high school that had web support available to instructors and students over a long period of time. A statewide network was in place that supported its secondary programs, and made notebook computers available to staff and students. This state had involved instructors and students in web-based learning since the early 1990s. Two of the instructors that provided data for this study were from this system.

The other instructors included in the study were from a Northwestern state in which the district had recently adopted a web interface, called SWIFT (Systematic Web Interface for Teachers). The instructors from the Northwestern state were in the initial stages of implementing this pedagogy and, therefore, beginning to explore and adapt blended instruction. The teachers ranged from 28 to 59 years of age. The study of the Northwestern state district was limited to Family and Consumer
Sciences instructors, as the district was not comfortable granting permission to study other students and their use of blended instruction.

**Research Questions**

This study explored the use of blended instruction supported by a web interface as an instructional method for FCS secondary teachers. The research questions that the study addressed were:

- What is the FCS instructors’ and students’ perception about blended instruction as an effective method of instruction?
- What are the reasons for adopting blended instruction as pedagogy from the perspective of instructors and students?
- What are the significant learning experiences and implications for practice of blended instruction by FCS instructors and students?
- What are the challenges for the future use of technology as a teaching method for secondary FCS?

**Definition of Terms**

The following terms were defined for use in this study:

*Blended Instruction:* Utilizes pedagogy of instruction that maximizes the benefits of face-to-face and online methods. Blended instruction combines the engaging benefits of traditional instructor-led training with the advantages brought by a variety of technologies to create an optimum program (Alvarez, 2002; Osguthorpe &
Graham, 2003). Blended instruction is "using the web for what it does best, and using the class time for what it does best" (Osguthorpe & Graham, 2003, p. 227).

**Descriptive Case Study:** A study in education that presents an in-depth review or account of the phenomenon under study. This method of study is useful in presenting information on which previous research may not have been conducted. It is especially valid in studying innovative teaching methods that have not been presented in depth (Merriam, 1998). Case studies have a richness that describes the phenomenon and the complexities that often require the case study investigator to deal with technically unique circumstances (Yin, 2009).

**Face to Face Instruction:** A method of instruction performed formally in the same environment with both the teacher and students present in real time for instruction of course material. Interestingly, many authors assume that face-to-face instruction is a readily understood term and do not afford it a formal definition. In their glossary, the University of Illinois defines face-to-face instruction as: “… the traditional method of delivering instruction with a live teacher in front of live students” (Online Educational Overview, 2007).

**Online Instruction:** Described as that which is presented either asynchronously or synchronously with students and instructors separated by distance and usually connected via the web (Zirkle, 2002). Online instruction is also described as curriculum, discussions, or other means of communication occurring in an electronic format via the web (Brazoport College, 2009; Online Educational Overview, 2007).
Qualitative Research: A method that involves studying individual, group, social, political and related phenomena to explore a bounded system through generally an in-depth data collection that involves a rich context of information (Creswell, 1998).

Web Interface: Described as the interaction between a user and software running on a web server (Web Interface, 2009).

Summary

This research utilized a descriptive case study approach to explore how blended instruction is used when applied to Family and Consumer Sciences secondary curriculum. A brief introduction to the futuristic needs of technology in education was shared and how blended instruction might play a role in addressing future secondary FCS educational instructional needs. In addition, the researcher presented research questions that are addressed and answered in the following chapters.

How is blended instruction utilized to address education needs and challenges of education in secondary FCS education courses? Is this a simple process, much like one would do when assembling a project that comes with clearly written instructions and an illustration of the end result? Do instructors struggle with applying current technology available in a blended instruction format? Are the aspects of teaching with blended instruction intertwined with an end product? Do FCS instructors struggle to identify a clear path of how to use this new method of instruction? The FCS discipline has often been on the cutting edge of education and is adept at exploring new venues. The next chapter reviews the literature and
explores how, over time, FCS educators have constantly embraced modern technology and continue to be prepared to carefully examine perceptions of the use of new instructional techniques. The possibilities are endless.

This study explored how educators in FCS implemented and used blended instruction in their teaching. The following chapter explores the history, methods, and progress of technology as FCS has emerged into the 21st century.
CHAPTER 2: REVIEW OF LITERATURE

Introduction

This qualitative study focused on the use of blended instruction as a method for teaching Family and Consumer Sciences Education. The literature review explores the history, methods, and progress of technology as FCS has emerged into the 21st millennium. The discussion covers the early usage of technology as embraced by the FCS profession as well as emerging trends that transpired through the last millennium. The literature review encompasses technology and the world of work, historical and household use, trends and perceptions, K-12 learning and blended instruction, and implications for future use of technology and blended instruction.

Technology and the World of Work

What facts are known about technology in its relationship to secondary education? How has technology been used as well as is currently being used by educators? How is technology forecasted to be used in the future? The North American Council for On-line Learning and the Partnership for 21st Century Skills (NACOL) has articulated the need to address basic student learning skills to determine whether students are being prepared to enter a workforce that will demand a high level of technology and problem solving skills. What is the advantage of blended instruction as one addresses how to best prepare future learners and leaders to enter a work force that will demand high levels of problem
solving ability, creativity, communication and analytical thinking (NACOL, November 2006)? The NACOL (2006) gave educators of all disciplines additional reasons to ponder the status of education in the United States:

- 84% of employers say K-12 schools are not doing a good job of preparing students for the workplace.
- 55% say schools are deficient in preparing students with basic employability skills (such as attendance, timeliness and work ethic).
- 51% cite math and science deficiencies.
- 38% cite reading and comprehension deficiencies.
- A very small percentage of 4th and 8th grade students U.S. students (less than 30%) perform at a proficient level in math.
- 20% lack the competence to perform even basic mathematical computations.

The Secretary’s Commission on Achieving Necessary Skills (SCANS Report, 1991) identified competencies that need to be in place in the educational system in order to meet the demands of an evolving workforce and economy. An updated SCANS Report (U.S. Department of Labor, 2000) identified five areas that students would need a level of competency (see Table 1). Each of the competencies has a strong link to technology that reinforces the basic ideals outlined by the commission. Technology today enables users to operate with ease and efficiency. Preparing students to enter the workforce will require a strong emphasis in the use and application of technology, especially computers and digital tools (Lynch, 2000).
The status of education in the U.S. reported by NACOL (2000) and the historical implications in the SCANS Report (NACOL, 2006) has painted a probable picture that could be used in all Career and Technical Education areas. A possible thread or link to explore for future educators in all disciplines is described as follows:

Table 1.1. Competencies and skills identified by SCANS

<table>
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<tr>
<th>Competency</th>
<th>SCANS Skills</th>
<th>Technology: Implications for Teaching</th>
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<tr>
<td>Resources</td>
<td>Identifies, organizes, plans and allocates resources.</td>
<td>Managing time, money, human resources, material and facilities.</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Works well with others.</td>
<td>Working well with others, being a team member, teaching others skills, serving clients and customers.</td>
</tr>
<tr>
<td>Informational</td>
<td>Acquires and uses information.</td>
<td>Obtaining, organizing, maintaining, interpreting, communication skills, using computers to process information.</td>
</tr>
<tr>
<td>Systems</td>
<td>Understands complex inter-relationships.</td>
<td>Understands, monitors and corrects performance, improves and designs systems.</td>
</tr>
<tr>
<td>Technology</td>
<td>Works with a variety of technologies.</td>
<td>Selection, application, maintenance and troubleshooting technology.</td>
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Imagine, now, a “traditional” teacher interested in acquiring the skills to facilitate such an exciting and supportive learning environment for students. Perhaps this teacher would collaborate with a middle school or high school language teacher. Both teachers would require professional development in how to move into the online environment, to successfully facilitate students to work together, to develop content knowledge and application, and to develop thinking skills that are not limited to a single content area. Professional development of current
teachers and preparation of future teachers requires re-thinking in order to ensure student success in life and work (Virtual Schools and 21st Century Skills, 2006).

This collaborative effort with other content areas either within CTE or with basic education could give FCS programs a new venue to explore in the use of technology. It might be explored by future research on the use of blended instruction.

**Historical Background of the Use of Technology by Family and Consumer Sciences Educators**

There are several aspects to explore as to how blended instruction might be best used in FCS educational programs. Using technology as an instructional method in the profession of Family and Consumer Sciences has progressed along three dimensions: (a) historical; (b) trends; and (c) future needs of how to use technology effectively in education.

A look back at FCS history reveals an evolution of technology that, at first, appears to focus on improving the lives of typical individuals and families. Later, technology evolved to be a useful tool for delivery of instruction as well. As a profession, Family and Consumer Sciences has been on the cutting edge of technology for much of the previous century. From the very inception and vision of the Family and Consumer Sciences profession that was first explored and defined at the Lake Placid Conferences held over a century ago, from 1899 to 2009, FCS has struggled to identify how best to deliver the message of education that benefits the
home, family and community (Richards, 2000). From Ellen Richard’s early vision emphasizing the scientific nature of Home Economics, the field of FCS has engaged in challenging the status quo and collaborated to expand the profession to embrace recent scientific knowledge (Stage & Vicenti, 1997).

**Household technologies and trends**

Family and Consumer Sciences has long since abandoned the title of Home Economics, which was conjured in the mind of many students as visions of making an apron in a sewing class to wear in the cooking class. A look at FCS history reveals the following facts. Family and Consumer Sciences has focused on the home, school and community, and has consistently strived to improve conditions of the family while embracing the most current technologies. The American Association of Family and Consumer Sciences (AAFCS, 2000) reviewed the FCS profession for a span of 90 years. In a detailed introspection of the status of FCS as the profession headed into the 21st century, they noted, from its inception, the profession’s mission has been to improve living conditions in the home, institutional households, and the wider community (AAFCS, 2001). From the early years during the depression in the 1930s to the turbulent times of the 1940s and World War II, to the recovery years of the 1950s, the FCS profession has reached out to individuals in the home, school, and broader community.

With the first introduction of the woodstove that replaced a cooking pit to the current convection ovens, microwaves, high-end cook-tops and sewing machines that are more computer-like than standard sewing machines of the past, technology
has advanced people’s lives and simplified household tasks. Technology has steadily grown in use over a long period of time. Other inventions that improved lives were the washboard, which made washing clothes easier for the pioneer family, to the wringer washers of the 1920s and 1930s (Schmitt, 2008). Automatic dryers and washers made fast headway in the late 1940s, yet it was not until the mid 1950s to the early 1960s that this technology became commonplace in the average home (Schmitt, 2008). Has the FCS classroom kept pace with history?

**Technology in the FCS classroom**

In the 1980s electronics began to revolutionize how instructors presented information in the FCS classroom. The new technologies enabled instructors at the middle and high school levels to use electronics to calculate nutritional content, teach consumer tactics, and greatly aided instruction in fashion design (Keane, 2002). Currently, technology has produced modern conveniences that are voice enhanced, not only in the laundry room, but also in the kitchen and many other areas of the home. Invented during WWII as a spin-off of radar technology, microwaves were not produced for household use until the 1960s (Schmitt, 2008). Today, the microwave’s sophisticated technology can cook food efficiently with only the minimum amount of information entered by the user, such as weight, name of the item, and doneness desired. Electronics are the modern computerized version of what first started out as gadgets to make tasks simplified and a more efficient use of time, energy and resources (Keane, 2002, p. 37).
The use of computers in the classroom has enhanced instruction and is another tool in the long list of technologies that has also enhanced FCS instruction. In 1994 instructors saw changes continue in the field of Home Economics; the profession changed its name to Family and Consumer Sciences and continued to support computer technology. The profession used the new advancement to aid students to grasp concepts in the courses that were taught (Keane, 2002). The growth of technology use in the FCS classroom has continued to grow through the 21st century.

In a survey of 589 of Louisiana’s FCS instructors in grades 7-12, Harrison, Redman, and Kotrlik (2000) found that at least half had internet connection. At the time, many perceived the use of the web to correlate with whether there was a connection to the web both at home and in the school teaching environment. The study also revealed that FCS instructors do value information technology. However, FCS instructors had below average knowledge in skill and application, in general, as well as software technology. Harrison, Redman, and Kotrlik (2000) urged teachers to continue to value technology and seek ways that it could be used effectively when integrated with classroom instruction and the web.

McFadden, Croxall, and Wright (2001) reviewed several surveys to ascertain the place of computers in Family and Consumer Sciences classrooms. Their reviews dealt primarily with software and online links that could facilitate classroom learning. In their findings, McFadden, Croxall, and Wright (2001) urged FCS instructors to continue to share technology ideas that worked. The researchers also
noted that though FCS instructors often had access to computers, that they lacked the training to properly use the technology available to them.

Lokken, Cheek and Hastings (2003) examined the impact of training on FCS attitudes towards using computers as an instructional method. However, there were some flaws in this study, such as teachers being post tested on the training session immediately after conclusion of the study instead of implementing the skills and testing later. If FCS teachers appeared to have less anxiety prior to the training then computer use was more likely. Older teachers appeared to have more computer anxiety than their younger counterparts. This finding was significant as the nation has an aging population of teachers (Lokken, Cheek, & Hastings, 2003). Despite that fact, technology, the researchers perceived, has become a reality, and teaching with technology is a normal expectation in the FCS classroom (Lokken, Cheek, & Hastings, 2003).

**How has the FCS professional organization viewed the use of technology?**

Technology has been identified as an external trend as well as a cross-cutting thread for the FCS body of knowledge. The external influences that focus on the use of technology are digital technology and globalization. The digital technology information revolution has transformed society and created new careers, industries and ways of working, living, and learning (Baugher, Anderson, Green, Shane, & Jolly, 2000). The globalization of technology has linked the world and resulted in decisions in one country influencing what might occur in other countries (Baugher, Anderson, Green, Shane, & Jolly, 2000).
Technology has also influenced each of the cross-cutting threads identified in the FCS body of knowledge (Baugher, Anderson, Green, Shane, & Jolly, 2000). Likewise, it has been intertwined with each of the cross-cutting threads. Previously, basic human needs were described as being vastly improved by modern technology and inventions. The computer and how it might be used in instruction has enhanced communication skills for both the FCS instructors and the students they serve (Manley, Sweaney, & Valente, 2000). The web can also be a useful tool for FCS instructors across many disciplines (Manley, Sweaney, & Valente, 2000). Studies have indicated 93% of educators use the web and 86% use email (Keane, 2002). The literature has supported that the increase in use of web has provided greater access to technology that, in turn, could improve instruction (Keane, 2002; Manley, Sweaney, & Valente, 2000). In addition, the use of technology is often viewed as becoming an important tool for reducing the time spent gathering information in a profession that is experiencing a shortage of educators. Another finding revealed in the literature, is that FCS instructors are sometimes found to be the central source that first exposed students to new technology before they entered the workforce or sought post-secondary education (Manley, Sweaney, & Valente, 2000).

A survey on use of the web distributed to FCS undergraduate students at a large southern university revealed that 85% of students perceived they would need to know how to use the web to find information (Manley, Sweaney, & Valente, 2000). A larger percentage, 94%, expressed that they wanted to improve their knowledge on the use of the web. Despite this need to receive instruction on how to use the web effectively, many FCS instructors were found either to lack instruction on use of
the web or the training and resources when on their own to attempt to improve technology skills (Manley, Sweaney, & Valente, 2000).

Using of the web can offer an innovative way to converse with students and increase student performance and communication skills. Recent studies have indicated that blended instruction could be a useful tool for reaching students in a different web interface supported format and has much room for growth (Allen, Seaman & Garrett, 2007; Ng & Ho-Leung Tsoi, 2008).

Public policy, critical thinking, diversity, and global perspectives have been intertwined as threads or links that might affect technology use and its implementation in instructional use. Most states in the United States have curricular guidelines online that allow educators to assess and analyze curriculum via well designed websites. For example, the State of Washington displays course frameworks online that outline curriculum standards, general learning equivalents for basic education and benchmarks that allow Career and Technical Educators (CTE) to match up their instruction with current state guidelines (Office of State Public Instruction, Washington State, n. d.). Instructors have set up class emails, blogs and chat rooms with classrooms across the globe from their own teaching stations (Keane, 2002; Milliron & Plinske, 2009). Students can then discuss current issues, diversity and communicate on a global scale.

The web as an information source has also been explored in recent years. The web has both challenges and opportunities for individuals and families (Rehm, Allison, & Johnson, 2003). Sometimes FCS educators are viewed to be the vehicle for providing stimulating leadership to their students and families in thinking critically,
creatively, and wisely regarding web use (Reiboldt, 2001). Academic systems need to work on strengthening the current systems by use of distance education (Reiboldt, 2001).

When reviewing the number of research papers that were published between 1990 and 2000 by the two FCS professional journals—*Family and Consumer Sciences Research Journal* (FCSRJ) and *The Journal of Family and Consumer Sciences* (JFCS), the number has diminished. Only 24 of a total of 70 articles on use of web as an information source have been published in these journals since the early 1980s (Leahy & Crecelius, 2008).

With information that is available at any time of the day on any topic with a flick of the finger, the web has improved people’s awareness of diversity, as well as contributed to personal and social understanding of alternative views while exposing new views be known as well (Rehm, Allison & Johnson, 2003; Chapman & Mahlck, 2004). Time is a commodity that many educators and students alike agree is scarce when trying to multi-task in often busy lives. Distance education is available 24/7, enabling both receivers and deliverers of education with increased flexibility to manage busy lives (Reiboldt, 2001).

Increased flexibility in fulfilling requirements in an online class has enabled students to take a course, sustain families, keep jobs and not be space bound or geographically located on the same continent. In addition, students with handicapping conditions or special learning situations further benefit from increased access to online schooling. Face-to-face educators find that another benefit is decreased class size (Reiboldt, 2001). Instead of having 25-30 students, an online
class might be better managed with 12-20 students in an online environment (Reiboldt, 2001). Educators will need to understand the key issues surrounding how to formulate successful strategies for integrating technology into their instruction (Chapman & Mahlck, 2004). Blended instruction is another tool that can enable increased success in using technology for instruction (Ng & Ho-Leung Tsoi, 2008).

However, not all the literature on web learning is positive. Some view the web as a loss of community as, sometimes, the common good is lost in the vast rhetoric of the web (Rehm, Allison & Johnson, 2003). An equitable access to the web was not the same for instructors who were studied, although Rehm, Allison and Johnson (2003) revealed a higher percentage of instructors that had web access.

An FCS instructor’s perceived value of instructional technology is often influenced by whether the teacher works in a school with web connection (Harrison, Redman & Kotrlik, 2000). A lack of school and administrative support is also sometimes apparent (Lokken, 2003). Some have argued that online education is a supplement to face-to-face instruction, not a replacement (Reiboldt, 2001). There is also a fear of decreased enrollment in face-to-face classes if they have to compete with online instruction (Reiboldt, 2001).

As a researcher in an area that spawned Microsoft, it is incredible that many in the secondary cadre of FCS instructors have similar perceptions. Having piloted an unpublished project through Blackboard at the secondary level, this researcher found it surprising to learn that FCS educators in Western Washington perceived that their enrollment would decrease as a result of the project. Nevertheless, school districts in the Puget Sound area of Washington State were lagging behind in use of
technology when this research compared local districts to districts in other parts of the country.

Moral, ethical, and spiritual development has been addressed by Rehm, Allison and Johnson (2003). Findings of their studies revealed FCS educators need to continue to promote reflective and critical thinking skills, particularly as they relate to affective areas of life. Families not only need to reap the benefits of web use, but also avoid the risks often linked with the web (Rehm, Allison & Johnson, 2003). Despite the misgivings and criticisms generated, other researchers have offered challenges to the FCS profession. Manley (2000), and Leahy and Crecelius (2008) challenged FCS professionals to continue to assess the use of technology by state affiliates and share at the national level information on technology experiences and, thus, add to the knowledge of the FCS profession. Leahy and Crecelius (2008) studied the use of technology over a 25-year span in the profession of Family and Consumer Sciences. Their findings reflected the use and study of technology by FCS as focusing more on the main core subject areas, such as family, housing, child development, textiles, art and consumerism, rather than the delivery of FCS education through technology-supported programs or online instruction. Leahy and Crecelius (2008) also noted a reduction between 1990 and 2000 in theses and scholarly articles in FCS that focus on technology education.

Trends and Perceptions about the Use of Technology-based Instruction

Much has been written about the use of technology by FCS and how technology benefits the intended users or consumers of technology instruction
(Leahy & Crecelius, 2008; Disbrow, 2008). There is an interesting mix of both positive and negative perspectives depending upon whether it is information gathered from deliverers of technology instruction or receivers of technology instruction. What new tools for FCS education are becoming available? New tools for both asynchronous and synchronous learning are evolving rapidly (Disbrow, 2008). There is often a plethora of technology-based options available, but few are accessible by FCS instructors due to lack of support or funding. Most FCS instructors must come to grips with their fluctuating choices as well. Whether it is utilizing blended instruction or choosing equipment, the resources appear to be endless while the funds to provide them are limited (Disbrow, 2008).

Frydenberg (2008) noted that delivery of course material has recently been greatly expanded by the use of course management software such as WebCT and Blackboard. Instructors have the ability to post course content, assignments and student grades. In addition, online course management systems enable teachers to post Power Point presentations, Word and pdf files, and manage discussions and group practices as well as other course content that enhances learning (Frydenberg, 2008). Frydenberg presented a review of additional learning modes for blended instruction such as Wiki, a system of interlinked web interfaces that enables users to hypertext for storing and modifying information (2008). The database, Wiki, enables people to post their work which is easily edited by users and then later retrieved for all to view.

Are FCS instructors willing to change and adapt to new teaching environments such as technology based blend instruction? Mosenson and Johnson
(2008) challenged the FCS profession to better prepare new teachers for utilizing current teaching methods that employ the use of technology. Their findings shared that it was critical to place student teachers with FCS instructors who would model effective use of technology in their instruction (Mosenson & Johnson, 2008). Mosenson and Johnson shared their view of the placement needs for FCS student instructors, “The goal is to prepare future teachers who will use different technologies throughout the curriculum to help students expand their thinking and enhance their learning in the family and consumer sciences classroom” (p. 20, 2008).

Education is, perhaps, one of the few businesses still debating the usefulness of technology (Patrick, 2004). Furthermore, many institutions remain unchanged in their pedagogy and use of computers despite increased investments and reforms in education (Patrick, 2004). Students who are online often multitask and are highly productive. They tend to learn quickly and can be responsible for their own learning (Patrick, 2004). However, not all students feel successful when first introduced to technology. Computer literacy varies considerably between student, instructors, and districts (Lynch, 2004; Patrick & Powell, 2009). This lack of computer literacy may contribute to negative feelings and experiences regarding utilizing technology, whether it is for a blended instructional method or stand alone online instruction (Leach, 2004; Rice & Dawley, 2007).

In reviewing the use of technology and serving student needs, a common theme is whether classroom teachers are prepared to present online instruction (Burton, 2003; Lynch, 2004). Individuals who experience online course delivery are
from a wide background of education and age groups. As such, they bring a wide variety of experiences to the online learning environment. Whether they have experienced technology infused in their instruction as a regular classroom learner from an elementary age, or if they are adapting to a technology based instruction mode as an adult, each individual has diversified needs and motivations for seeking an online learning experience (Lynch, 2003).

**What is the current status of K-12 online learning in the U.S.?**

What do we know about the receivers of online instruction? What is known about why individuals seek online learning has been revealed by several researchers (Lynch, 2003; Patrick & Powell; 2009, Rice & Dawley, 2007; Watson, 2008). Each group of students enters learning experiences with a variety of triggers that determine their success as online learners. In the case of elementary students, one could expect that, by adolescence or the secondary education level, students have a certain level of awareness of online education as they most likely have had the opportunity to experience this method of instruction. According to Lynch (2003), the groups most likely to be successful using online instruction are individuals who have experienced a positive level of success with face-to-face instruction.

At-risk students or those targeted to have difficulty mastering academics are perceived to come to the online experience with less preparation and experiences that might interfere with their success as an online learner (Lynch, 2003). Additional findings that clarify success or anxiety about technology and blended instruction for at-risk learners stem from several factors reported by Lynch (2003, p. 31):
• Unlikely to be exposed to the use of technology.
• Unlikely to have a home computer.
• Unlikely to have well developed communication skills.
• Often easily discouraged.
• Need consistent positive guidance.
• Need consistently more allotment of time to complete tasks.
• Need consistently increased help to develop reasoning and higher level thinking skills.
• Need support and guidance in developing study skills.
• Often suffer from test anxiety.

A study by Debell and Chapman (2001) for the National Center on Education Statistics revealed that there are several factors surrounding student use of technology and computers. Most children and adolescents are able to use technologies. Approximately 90% of children and adolescents from the age of 5-17 can use computers and, of those, 59% use the web. Children are exposed to computer use at an early age. About 25% of 5-year-olds have been exposed to the web and use it. By the time they are 9 years old this percentage rises to 50%, with 75% of 17-year-olds using the web.

Demographically, Blacks and Hispanics have less access to computers than Whites. This inequitable access has created a digital divide for all students needing equal access to computers (DeBell & Chapman, 2001; Hohlfeld, Ritzhaupt, Barron, & Kemker, 2008). Studies by DeBell & Chapman (2001) and Hohlfeld, Ritzhaupt,
Barron, & Kemker, (2008) reveal that web use is higher among American Indians and Asians than Hispanics. In addition, the higher the education of the parent(s), the more likely it will be that computer access is available at home (DeBell & Chapman, 2001; Hohlfeld et al., 2008). Access to computers is greater at home, followed by school use. School use is greater for lower-income students whose families have less than a $35,000 income, and tends to be less if from a single parent home. Disadvantaged youth might only have access to computers at school; therefore making access to computers at school even more important in decreasing the digital divide. In addition, 72% of youth ages 5-17 use the web for schoolwork (Debell & Chapman, 2001; Hohlfeld, Ritzhaupt, Barron, & Kemker, 2008).

The Organization of Economic Cooperation and Development (OECD) (2003) made the following two key points based on a study of the status of technology and secondary learning worldwide: (a) students have more access to computers at school than at home; and (b) 15-year-olds used the computer frequently, with 75% using their computers several times each week. Furthermore, although students used their computers for a wide range of activities, fewer students used the computer for educational software or tasks (OECD, 2003).

Findings of the OECD study (2003) also revealed that Information Communication Technology (ICT) basic tasks were able to be tackled by most students, and they were generally confident about their abilities. Fewer students reported that they could tackle higher level tasks unaided, but most indicated that they could do so with added assistance. Worldwide, females used computers less frequently and were less confident (OECD, 2003). Although males did more games
and programming, both males and females used the computer for word processing and emails (OECD, 2003).

According to recent research on K-12 use of online learning, there has been some advancement in the use of web-supported interfaces (Patrick & Powell, 2009; Picciano & Seaman, 2007). The Picciano and Seaman (2007) study of 366 responders from a nationwide study of 3,632 schools, 2 million students, and 67,000 FTE teachers from every region focused on online and blended learning in the K-12 level in education (p. 5). Their review noted that studies were lacking in the K-12 level. Their study was conducted nationwide and responders tended to be chief administrators of K-12 programs. The study focused on four areas:

- Nature and scope of online and blended learning
- Perceived importance of online and blended learning programs.
- Issues and barriers that impeded the delivery of online and blended programs.
- Major providers of online or blended instruction. (Picciano & Seaman, 2007, pp. 7-12)

Their survey covered all areas of the United States, from the West coast to the East coast. Slightly more than two thirds (63%) of those studied were found to have at least one student who had taken an online course or planned to in the next three years. Another 27% were revealed to be planning to implement online or blended instruction in the future. In addition, 60% expected growth in fully online courses and 66% expected growth in blended course instruction (Picciano & Seaman, 2007). The areas receiving most support for online learning were identified as making
courses more available and meeting the needs of specific students. Online learning opportunities included taking advance placement or college level courses, or allowing students to repeat a failed course.

Areas revealed by Picciano and Seaman (2007) as beneficial were maintenance of student records online or in blended instruction courses. It was also noted that students needed more discipline to take an online or blended format course (Picciano & Seaman, 2007). Nevertheless, a more recent study conducted by Watson (2008) concluded that blended instruction could well be the next preferred method of instruction and will be more prevalent than strictly online instruction.

Picciano and Seaman (2007) also revealed areas that were more neutral for online or blended instruction, including availability of certified teachers for online or blended instruction, as well as addressing growing population of students and limited space to accommodate face-to-face instruction. Other concerns were whether blended and online instruction was financially feasible? As a whole, online and blended instruction offered more pedagogical methods of teaching while targeting students who preferred online or blended instruction (Picciano & Seaman, 2007; U.S. Department of Education, 2009; Watson, 2008;). Picciano and Seaman (2009) revealed there was a 10% increase in all reported data since the previous surveys conducted in 2005 and 2006. They also revealed:

- 75% of the responding public school districts are offering online or blended courses.
• 75% had one or more students enrolled in a fully online or blended course.
• 70% had one or more students enrolled in a fully online course.
• 41% had one or more students enrolled in a blended course,
  (Picciano & Seaman, 2009)

Another area that was revealed regarding the two schools in the current research study and also supported by Picciano and Seaman (2009), was that more rural schools found the availability of online instruction to be vital to offering course work that might not be accomplished in face-to-face instruction.

**Learning Styles and Student Expectations for Online or Blended Learning**

Another factor that contributes to how individuals might view blended instruction is their learning style. Students learn in a variety of ways, each bringing his or her own perspective and talents to the learning experience (Lynch, 2004). Do students fail to succeed because they might get bogged down in one style of learning? Lynch (2004) and Watson (2008) cautioned that instructors of online education need to be mindful of different learning styles and offer a variety of presentation techniques to provide a more robust learning environment.

Communicating electronically can offer some challenges for first-time users of blended instruction (Lynch, 2004). Having come from teacher-centered, face-to-face instruction, some instructors merge into the online instruction mode with somewhat unrealistic expectations and will need to respond differently (Watson, 2008). Lynch (2004) summarized these expectations as feeling the need to respond immediately
to an electronic message. Feeling that their message is lost in cyberspace and worried that a response is not forthcoming or their assignment is lost, many students will send multiple messages in the same day (Lynch, 2004). Instruction carried out in real time would not parallel this concern as a student would know that it was not logical to pester the same instructor four times in the same 24 hours. Perhaps the blended format might alleviate some of those frustrations and fears as the instructor is available part of the time for face-to-face interaction (Lynch, 2004; Watson, 2008).

Blended instruction has been perceived as helping to increase student-to-instructor contact and student-to-student contact over traditional online courses (Watson, 2008).

Vulnerability or perceptions of inadequacy are other feelings that may be experienced by users of technology (Lynch, 2004). How will the participants' written word given electronically be received by their peers and the instructor? Some of the issues Lynch identified were: misspelling of words, poor grammar, age perception, too old to learn, failure, etc. Many students feel intimidated about sharing their work with their online classmates and are concerned whether they "measure up" to the abilities of rest of the class (Lynch, 2004). Lynch noted that, in online learning, one cannot just sit and not participate. There is no "back of the room" in online instruction that students experience in face-to-face classrooms.

**Blended Instruction: Characteristics and Use**

Watson (2008), and Osguthorpe and Graham (2003) defined blended instruction as a teaching method that has the intent to maximize the benefits of face-
to-face and online methods. Thus, the instructor is utilizing the best of both methods. Blended learning, also known as hybrid learning, flexible learning, and web-enhanced learning, is becoming increasingly popular, especially in higher education formats (Condone, 2004; Watson, 2008). Blended learning is likely to emerge as “the predominant model of education” (Watson, 2008). Whether or not a course is taught asynchronous or through synchronous delivery may also contribute to how a student perceives the course during early experiences. Asynchronous learning enables the learner to log on at different times of the day, and not all class members are online at the same time. In contrast, synchronous learning requires that all members of the class log onto a chat room, discussion board, white board, email, or webs at the same time (Lynch, 2004). The latter method may enable quicker feedback, better connection to their learning peers, and be more motivating. These are advantages to synchronous learning (Lynch, 2004). Asynchronous learning may also be attractive for the following reasons: flexibility, time to reflect on assignments, situated learning, and as cost-effective technology (Lynch, 2004; Wu & Hiltz, 2004).

Blended learning is generally a combination of methods and learning strategies. It should combine both synchronous or face-to-face methods and asynchronous or self-directed activities by the student. Although there is a wide variety of instructional techniques, blended instruction has one constant feature—a website that can be accessed 24 hours a day at the student’s leisure (Condone, 2004). According to Alvarez (2005), blended instruction is being able to combine several different types of instruction enabling students to work on their own until it
becomes necessary to meet face-to-face. Thus, both distance barriers and time flexibility become very manageable giving the student autonomy to work independently 24 hours a day.

Berswin (2004) divided blended learning into five categories: (a) blended learning categorized into e-learning self-study blended with other media; (b) events or an instructor-led program blended with self-study e-learning; (c) live e-learning centered with other media; (d) on-the-job training centered; and (e) simulation and lab centered. However, blended learning has many interpretations and, for some, may be as simple as a course syllabus posted on the web or, for others, a highly interactive course website supplied by an interface such as WebCT or Blackboard. It is a combination of multiple approaches to learning that is supported by some form of technology (Watson, 2008).

Instructors using websites for blended instruction normally do not need to have expanded web design skills; however, they need access to a service that allows customized handouts for homework problems, reading lists, and course schedules (Condone, 2004). In the Puget Sound area of the state of Washington, participating school districts have access to a service called Simplified Web Interface for Teachers (SWIFT) which was created specifically for teachers by the Puget Sound Educational Services District (PSESD) Online Development Center (SWIFT, n.d.). The SWIFT interface has provided an inexpensive way for participating districts to link teachers with web support for their face-to-face classes and, thus, provide a blended support program.
Course websites serve a variety of purposes (Condone 2004; Watson, 2008). They can serve as an electronic bulletin board simply presented in an accessible format, especially for course items that students may misplace or forget. Course websites also provide a much more sophisticated avenue to interact with students than would normally be possible in a face-to-face meeting with the instructor. For example, discussion formats enable students to interact within discussion groups and post their replies any time of the day. A course website can also bridge the gap between in-class and out-of-class time.

Effective course websites may possibly offer increased course participation and interactions with the instructor and other students (Condone, 2004; Osguthorpe & Graham, 2003; Watson, 2008). Nevertheless, there needs to be a careful balance of online and face-to-face interaction (Osguthorpe & Graham, 2003). The manner and style of the instructor is often a factor in face-to-face instruction and continues to be an influence in blended instruction. A student has an easier time assessing the instructor when face to face. Some students may possibly drop out of blended programs if they are not getting the face-to-face supportive interaction they desire. It is necessary to find a harmonious balance between online and face-to-face instruction if one wants to increase participation and student satisfaction in a course (Osguthorpe & Graham, 2003). Watson (2008) noted that blended learning is utilized on several levels: (1) course level to student; (2) institution to institution; and (3) students enrolled in multiple blended courses.

Using the website to post examples of previous students’ work greatly increases student comfort and expectations of the level students perceive they might
perform on current assignments (Condone, 2004). Most sites have a login feature for students, especially if grades are to be displayed. Some students found the login facet frustrating, even though it might be a simplified process (Condone, 2004). The results of the Codone (2004) study revealed that not all findings were positive. In some cases students complained that the websites were not updated, consistently making it frustrating and difficult to match with what was done in class and what appeared on the web. Condone (2004) was surprised that students did not always use the posted links or expanded references; rather, most students preferred to peruse the assignment schedule and accompanying handouts.

In SWIFT model a review of instructors, SWIFT Web sites revealed that about one third of the instructors used the interface and then sometimes very minimally. A suspected factor is that basic instruction was limited to two seminars held before school term began in the summer. After fall term started, support for use dropped off considerably. The management of time available to learn how to use the interface was a difficult issue for the instructors. It has also been an issue for students as well, as previously discussed by Kagima (1998), Osguthorpe and Graham (2003), and Rice and Dawley (2007).

The management of course time both in and out of class is an issue in blended instruction (Osguthorpe & Graham, 2003). How much time should be spent out of class as well as in class? How often should participation be required of a student in a discussion board? What is the purpose of the interaction and does it foster community and interaction among the students? Osguthorpe and Graham posited that balance and harmony with students and the instructions are of the
utmost importance. They revealed three areas that are optimal for mixing together in a blended program:

- online and face to face learning activities,
- online and face to face students, and
- online and face to face instructors. (Osguthorpe & Graham, 2003, p. 229)

According to Osguthorpe and Graham (2003), six goals should be considered as instructors or educators design a blended format: (1) pedagogical richness; (2) access to knowledge; (3) social interaction; (4) personal agency; (5) cost effectiveness; and (6) ease of revision. Each of these goals may lead to students having greater autonomy and control of their learning (Osguthorpe & Graham, 2003). The authors described “access to knowledge” as increasing the availability of course materials for students, while “social interaction” is expanded in a blended format and somewhat limited in a strictly online format. “Pedagogical richness” is increased because the instructor spends less time giving out information, especially if it is available before a class session, which enables more time to be spent discussing the implication and meaning of the information during class sessions (Osguthorpe & Graham, 2003).

Another issue discussed by Osguthorpe and Graham (2003) is that of “personal agency,” in which the students are in charge of their own learning or, as this researcher would call it, “masters of their own ship.” In Cincinnati’s public virtual school students may choose to take classes through Apex, a support system for replacing lost credits, and work at their own pace with no fear or embarrassment
because they are behind their peers in coursework (Watson, 2008). This program has taken the risk out of “at risk;” the learners are given the opportunity to make choices how and when they will study (Watson, 2008).

Cost effectiveness is more applicable to post secondary education as the blended method might allow use of a teaching assistant or part-time faculty member rather than employing a fulltime member. More information should be gathered in this arena as this factor was deemed as threatening by some instructors at both the secondary and post-secondary level.

Blended instruction tends to have “ease of revision” as the formats are developed by the instructors themselves (Osguthorpe & Graham, 2003). Watson (2008) noted that blended instruction is unique and requires new methods of instruction, content development, and professional development.

Online systems, such as the SWIFT program, are relatively easy to navigate and use. According to Osguthorpe and Graham (2003), blended instruction grew out of face-to-face models, rather than online models. Nevertheless, education may potentially see more online models migrate towards increasing face-to-face contact with students (Watson, 2008).

Much of the literature available on blended instruction focuses on post secondary learning as opposed to secondary implementation of blended instruction, or hybrid learning as it is sometimes referenced. Mossavar-Rahmani (2007) used the term pedagogical pedagogy for utilizing what is referred to as hybrid learning, or blended instruction. Learning takes place over many environments, including web cafes, homes, libraries and other environments (Mossavar-Rahmani, 2007). One
cannot assume that learning is relegated to only the classroom environment or face-to-face learning. According to Mossavar-Rahmani (2007), the following features are characteristic of hybrid, or blended learning environments:

- access and interact with faculty and administrators both face-to-face and online,
- apply learned material during both face-to-face meetings and online,
- communicate with other students in both traditional and online formats, and
- work as a team in both traditional and virtual classrooms.

Instruction is further enhanced when teachers and students are well trained in the use of technology prior to instruction, and there are planned interactions between the instructor and students (Mossavar-Rahmani, 2007; Watson, 2008). A more extensive discussion of these findings will be presented in the summary and final analysis in Chapter 5.

**Availability of Technology for K-12 and Future Use**

Another issue that is brought up constantly regarding utilizing technology when teaching K-12 is the availability of computers. Do students have access to computers? Are districts willing to provide computers if access is limited for students? Many districts have been able to provide laptops for their students despite the often discussed barriers of financial support and feasibility (Balanger, 2002; Windschitl & Sahl, 2000). Belanger (2002) addressed the need to continue to explore solutions for issues of cost, technical support needs, security, and equitable
access that are challenging for many schools. Belanger noted that during the previous decade schools explored and expanded the use of laptops. Many districts have either leased or bid on laptops for general student use. Almost a decade ago, Windschitl and Sahl (2000) revealed that over 1,000 secondary schools in the United States used laptops. According to Belanger (2002), districts were buoyed by successful pilot programs in the 1990s that had been supported by Microsoft and Toshiba corporations when they advocated education anytime, anywhere, and the web as medium for education was beginning to flourish as an interface for educational purposes. Programs utilizing laptops are one of the fastest-spreading phenomena in American schooling today (Windschitl & Sahl, 2000).

Not all is equal among school districts that provide or utilize laptops and desktop computers for students. In a qualitative study conducted by Warshauer, Knobel, and Stone (2004), there was a difference between high-social economic status (SES) and low-SES schools a study of eight California schools. High-SES schools, on average, might appear to have more computers available, but results indicated that low-SES schools have a slight advantage (Warshauer, Knobel & Stone, 2004). However, this conclusion by Warshauer, Knobel and Stone (2004) was based on three high-SES schools and five low-SES schools. Other findings have linked the SES of a school to the access of computers. A higher SES of a school was related to the availability and funding of computers for student access. Schools that had a higher SES spent, on average, 173% more than less advantaged SES schools (Hohlfeld, Barron, Kemker, & Ritzhaupt, 2008).
In a report to the President on the Use of Technology to Strengthen K-12 Education in the United States conducted by Shaw, Becker, Bransford, Davidson, and Hawkins (1997) and the International Standards for Technology Education (ISTE, 2008) (see Appendix B), several conditions are recommended for the future use of technology in education. First, the focus should be learning with technology, not just about technology. Many past pedagogical methods have employed the study of learning how technology works as opposed to utilizing the unique features of technology that make learning an integrated process using the features of technology. The ISTE standards (2008) further stressed the need to utilize face-to-face and virtual environments, or what this research study explored—blended instruction.

Second, emphasize content and pedagogy, and not just hardware. Future educators and policy makers need to heed the necessity of future pedagogic methods focusing on a more active, student-centered approach to learning that emphasizes higher order reasoning and the ability to use problem solving skills. This can be accomplished by using digital tools and resources (ISTE, 2008; Shaw, Becker, Bransford, Davidson, and Hawkins, 1997).

A third point is to give special attention to professional development and engage in professional leadership in utilizing technology resources (ISTE, 2008; Shaw, Becker, Bransford, Davidson, and Hawkins, 1997). This was noted in a 1998 study conducted on self-efficacy and integration of electronic communication by Kagima (1998). Although the focus of the study was college instructors, there is a need to continue support and training into the new millennium for secondary
education as well (ISTE, 2008). Teachers need to familiarize themselves with the use of technology in their lesson planning and discuss the implementation of technology with other instructors. Districts and schools also need to provide time for implementation to take place. It is recommended that presidential leadership and federal funding be incorporated to help better prepare the next generation of teachers to make effective use of technology (Shaw, Becker, Bransford, Davidson, and Hawkins, 1997).

At least 5% of all funding made available to K-12 education should be spent on the use and expansion of technology (Shaw, Becker, Bransford, Davidson, and Hawkins, 1997). The level of support in 1997 was estimated to be at $13 billion annually. It was recommended that the President seek funding that will continue to support the development and use of technology in the nation's schools, especially at the K-12 level (Shaw, Becker, Bransford, Davidson, and Hawkins, 1997). Have institutions sustained the funding recommendations through the move into the 21st millennium? The newer ISTE standards (2008) emphasize a need to collaborate with administration, parents, peers, and the community to continue to facilitate the use of technology in schools. Issues of funding as well as training and availability of equipment were addressed in a study conducted in 1998 of Iowa State University instructors (Kagima, 1998). The same issues are still apparent in 2009 with secondary educators.

The President's Council on the Use of Technology to Strengthen K-12 Education in the United States (Shaw et al, 1997) stressed that access to technology should be available to all of the nation's students and be equitable. This access is to
be equitable regardless of SES, race, ethnicity, gender or geographical factors. Special needs students are to have priority in the use of technology. It was further noted in this report that, because much of the use of technology takes place at home, the disparity among users and learners who might utilize technology would need to be addressed (Shaw, Becker, Bransford, Davidson, and Hawkins, 1997). The ISTE standards (2008) further encouraged educators to model and facilitate the use of technology in the education of their students.

**Summary**

The review of literature described the use of technology in the FCS profession, from inventions that made life easier for the average homemaker and, therefore, promoted and explained by FCS educators, to the most current use of technology in the FCS profession. Many FCS educators continue to struggle to identify the best teaching methods to use as they reach out to a technologically advanced world that changes daily. These FCS educators are challenged with the task of continuing to support the FCS profession while meeting the changing needs of students and preparing them for the world of work.

Blended instruction was described in depth. It was selected for this study’s focus as there is a strong trend for blended instruction in FCS pedagogy in the future. The basic tenets of blended technology were discussed, and the positive and negative aspects of this pedagogy were also reviewed. The review of literature also addressed past recommendations made in the Report to the President on the Use of Technology to Strengthen K-12 Education in the United States given by President’s
Council on Advisors for Science and Technology (1997), and contrasted these findings with the ISTE standards presented in 2008.

The next chapter presents the methodology and method used to investigate the use of blended instruction in secondary FCS programs. The purpose of the study and rationale for using a descriptive case study method are also addressed.
CHAPTER 3. METHODOLOGY

Introduction

This study utilized case study methodology to investigate the experiences of FCS instructors and students in a blended instructional format. Before one begins a case study, it is necessary to understand how the case study came to be, the background of the writer and some of the issues surrounding the case (Maxwell, 2005). The researcher was somewhat puzzled regarding how slow the process is in some educational environments to embrace technology and its use as an instructional tool. That is not saying that the researcher’s teaching experience has been devoid of technology or teaching via the web, because the researcher has had extensive experience teaching online at the post secondary level and has piloted online instruction for secondary education through the use of Blackboard as a course management system.

The quandary comes at the secondary level. Technology has been utilized for some time in classroom instruction and there are virtual schools both in the researcher’s geographic area as well as worldwide. However, blended instruction is generally a new frontier for utilizing online technology. How was this relatively new instructional method perceived by FCS instructors at the secondary level and did they see blended instruction as a viable option in improving instruction for students while maintaining a rigorous learning environment? The researcher’s study focused on how individuals experienced blended instruction as a method of teaching and learning in FCS.
The interview process was used to explore and describe each participant’s perspective about the use of a web interface to supplement face-to-face instruction. This multiple descriptive case design followed the guidelines outlined by Yin (2009). Multiple case design has often been used to research school innovations that include use of new curriculum, changes in school schedules, or a new technology (Yin, 2009).

**Qualitative Research Pedagogy**

When reviewing qualitative research as a format for this study, the researcher was struck by a citation by Sally M. Oran from Northern Arizona University. Oran was a contributing author in *Qualitative research reflections* (deMarrais, 1998). Oran noted that, when conducting qualitative research, it is important to set aside her own comforts, assumptions and identities (deMarrais, 1998). According to Merriam (1998) qualitative research uses an umbrella approach that helps the researcher understand and explain the meaning of social phenomena while disturbing the setting as little as possible. My role as a researcher has been to view, record, and analyze how FCS secondary educators and students perceive blended instruction as a teaching method. The reality of the experience in qualitative research is how individuals view a situation as they interact with their social worlds (Merriam, 1998; Yin, 2009).

Qualitative research has distinct characteristics (Merriam, 1998). A key concern is recognizing that understanding the phenomenon studied is from the participants’ perspectives, not those of the researcher. This is termed as the *emic,*
or insider’s view. In contrast, *etic* refers to the outsider’s view. A second
characteristic of qualitative research is that the researcher is the primary instrument
for gathering data and performing the ultimate analysis of that data. Third, qualitative
research invariably involves doing fieldwork. Qualitative research also involves an
inductive approach. Finally, qualitative research involves focusing on the process in
order to create a rich understanding of the phenomena and events studied (Merriam,
1998; Yin, 2009).

Understanding the how’s and why’s of a phenomenon is enriching to both the
researcher and those who are studied. If one desires to understand the perceptions
FCS instructors have of blended instruction, and use of the web or online methods
then a qualitative approach might best serve these needs. Qualitative research
generally involves having some experience in a studied phenomenon (Maxwell,
2005; Yin, 2009). As an educator at the secondary and post secondary level, the
researcher had immersed herself in utilizing technology as a method of instruction.
Understanding how to best use that method of instruction helps not only when
looking forward to possible future teaching endeavors by others, but it also
enhances the teaching experience of fellow FCS instructors and the students who
are served.

**Purpose of the Study**

This study focused on how FCS instructors and students perceived blended
instruction as a method of instruction for FCS curriculum. The study also explored
the implications for future use of online instruction within the FCS profession at the
secondary level. Qualitative case methodology was employed to study and respond to the following questions:

- What is the FCS instructors’ and students’ perception about blended instruction as an effective method of instruction?
- What are the reasons for adopting blended instruction as pedagogy from the perspective of instructors and students?
- What are the significant learning experiences and implications for practice of blended instruction by FCS instructors and students?
- What are the challenges for the future use of technology as a teaching method for secondary FCS?

**Descriptive Case Study**

**Definition**

Yin (2009) described case study pedagogy as a way to contribute our knowledge of individual, group, organizational, social and political, and related phenomena. Yin (2003) defined a case study as an empirical inquiry that explores or investigates a contemporary phenomenon within a realistic life context when the boundaries between the studied phenomena and content are not clearly identified. Case studies are also classified or explained as being particularistic, descriptive, and heuristic (Merriam, 1998). Particularistic refers to a focus on a particular situation, event, program or phenomena, while descriptive refers to the end product as a rich “thick” description of the phenomena studied. Heuristic refers to illuminating the
reader’s understanding of the situation or phenomena being studied (Merriam, 1998).

A descriptive multiple case study approach is used to increase validity and rigor of the reported end results (Yin, 2003; Yin, 2009). A case study is descriptive in nature if it:

- Illustrates the complexities of a situation, the fact that not one but many factors contributed to it.
- Has the advantage of hindsight yet can be relevant in the present.
- Shows the influences of personalities on the issue. (Merriam, 1998, p. 30)

This study fits the qualitative case study format because it is the best way to view a phenomenon from the insider’s view or perspective (Yin, 2009). The study was designed to ascertain the real life phenomena of FCS instructors’ and students’ perceptions of utilizing a web interface for blended instruction.

Recognizing that a certain amount of bias can happen, the researcher focused on six FCS secondary instructors and a sampling of students who currently used blended instruction or were in the initial stages of using blended instruction as a learning method. The approach to this process included the following steps:

1. Describe the history and use of technology in the FCS profession.
2. Determine the focus of the study and how to bind the case study to create a qualitative descriptive review of the use of blended instruction in the FCS profession at the secondary level.
3. Select participants for the study based upon their use of blended instruction in FCS curriculum, proximity to researcher or ease of contacting them via electronic or conventional methods, such as mailings, emails, taped responses, and phone interviews. Two participants (instructors) were from contacts made in the Midwest as well as four local FCS instructors in the Pacific Northwest, plus the researchers’ own experience as a Family and Consumer Sciences instructor who has used technology as a teaching pedagogy.

4. Explore and review the factors that have shaped the use of blended and online instruction in the FCS profession at the secondary level.

5. Analyze the results of the study using a descriptive case study pedagogy format.

6. Validate the process by verifying the respondents’ statements after transcription to minimize bias and systematically solicit feedback about data. During a review with the interviewees, interpret and analyze their responses to support valid assessment of the findings (Maxwell, 2005), and to summarize and reference the data to represent the actual views of the respondents. A themed or pattern response tally was used to catalog the interview results. Other more sophisticated methods of analysis were also explored but found to be cumbersome and expensive, given the centralized focus of the study and the number of participants. An Excel spreadsheet format was used to catalog the interview data results.
7. Explore and make suggestions, implications, and recommendations for future use of blended instruction as a teaching method for secondary FCS educators.

**Research Questions**

This case study was guided by the following research questions.

1. What is the FCS instructors’ and students’ perceptions about blended instruction as an effective method of instruction?

2. What are the reasons for adopting blended instruction as pedagogy from the perspective of instructors and students?

3. What are the significant learning experiences and implications for practice of blended instruction by FCS instructors and students?

4. What are the challenges for the future use of technology as a teaching method for secondary FCS?

**Demographics**

Using a descriptive case study method requires the researcher to know the demographics of the participants in the study. This study included six FCS instructors, ranging in age from 28 to 59 years old. The instructors were selected either because they were known to be experienced users of online instruction or online support or web interface were available to them. They were also selected because they displayed a desire to use online web support in their teaching of FCS curriculum. Eight students were selected to be in the study, ranging from 14 to 19 years of age. There were three seniors and five 9th graders. Their selection was
primarily based upon a well-supported web interface for online instruction in their school system, and the fact that online instruction had been operational at their school for a number of years. Demographics of participants are shown in Table 3.1 and 3.2.

The demographics of the participating schools and districts are shown in Appendix C (Table 3.3-3.6). Demographics of the study participants were gained through responses in the beginning session and in a follow-up session to verify the information obtained about the education level, history of technology use, ethnicity of participating schools, and enrollments. The researcher verified the demographics researched on the web with the participating instructors (CCD Public School Data, 2006-2007).
Table 3.1. Demographics of Family and Consumer Sciences instructor participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Participant Codes</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>Total years teaching experience</td>
<td></td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>16</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>28</td>
<td>32</td>
<td>56</td>
<td>59</td>
<td>53</td>
<td>43</td>
</tr>
<tr>
<td>Degree held</td>
<td></td>
<td>BS/ME in progress</td>
<td>BA/MA</td>
<td>BA</td>
<td>BS</td>
<td>BS/MS</td>
<td>BS</td>
</tr>
<tr>
<td>Major focus</td>
<td></td>
<td>BS-FCS Ed. ME School counseling and mental health</td>
<td>Family and Consumer Sciences-BA MA-</td>
<td>Home Economics</td>
<td>Home Economics</td>
<td>BS: FCS MS: Curriculum &amp; Instruction</td>
<td>Home Economics/. Minor in Child Development</td>
</tr>
<tr>
<td>Interface online system available to support face to face instruction</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of years actively using online instruction</td>
<td>1 yr as an instructor; 5 yrs as a student</td>
<td>1 year as an instructor-5 yrs as a student</td>
<td>Less than one year as an instructor</td>
<td>10</td>
<td>5 yrs online 9 yrs synchronous video and online</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Systems used for online instruction either as an instructor or participant</td>
<td>Blackboard, WebCT, SWIFT</td>
<td>Blackboard, WebCT SWIFT</td>
<td>SWIFT</td>
<td>Blackboard, WebCT SWIFT</td>
<td>Blackboard WebCT</td>
<td>WebCT</td>
<td></td>
</tr>
<tr>
<td>Classes taught or supported using online instruction either currently or in the past.</td>
<td>NA</td>
<td>NA</td>
<td>6th grade electives 7th grade electives 8th grade-Home Ec. Intro to World Languages Home Club</td>
<td>CTE Health, Interior design Fashion design</td>
<td>Human Development, Intro to Hospitality&amp; Tourism, Instructional Strategies Parenting</td>
<td>Health FCS classes Consumerism Nutrition, Comp. H EC Parenting, Child D. Relations World to work</td>
<td></td>
</tr>
<tr>
<td>Ethnicity of student population at your school</td>
<td>Table- 3.4</td>
<td>Table- 3.4</td>
<td>Table 3.5</td>
<td>Table 3.3</td>
<td>No statistics available from national search. Provided by instructor-100%White</td>
<td>Table 3.7</td>
<td></td>
</tr>
<tr>
<td>Total enrollment of your school</td>
<td>Table- 3.4</td>
<td>Table- 3.4</td>
<td>Table 3.5</td>
<td>Table 3.3</td>
<td>172- K-12</td>
<td>Table 3.7</td>
<td></td>
</tr>
<tr>
<td>Characteristic</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>Total staff</td>
<td>Table 3.4</td>
<td>Table 3.4</td>
<td>Table 3.5</td>
<td>Table 3.3</td>
<td>19-K-12</td>
<td>Table 3.7</td>
<td></td>
</tr>
<tr>
<td>% total staff using online instruction support.</td>
<td>All have SWIFT; Most still learning system – 50%</td>
<td>All have SWIFT; Most still learning system-50%</td>
<td>75% SWIFT</td>
<td>All have SWIFT; Most still learning system-50%</td>
<td>36% WebCT</td>
<td>50% of staff: some use of Quia or personal Webs, Google and WebCT</td>
<td></td>
</tr>
<tr>
<td>3.1 Funding for online teaching interface obtained through?</td>
<td>School district funding</td>
<td>School district funding</td>
<td>School district funding</td>
<td>School district funding</td>
<td>Schools wired through state and use of state prison system. State program and individual school district funding</td>
<td>Schools wired through state and use of state prison system. State program and individual school district funding</td>
<td></td>
</tr>
<tr>
<td>Number of computer labs and computers available to students</td>
<td>2 Computer labs of 30 each. Average of 4 computers in each teacher classroom</td>
<td>2 Computer labs of 30 each. Average of 4 computers in each teacher classroom</td>
<td>1 computer lab- 30 computers Average of 4 computers in each teacher classroom</td>
<td>2 labs/ 56 computers Average of 4 computers in each teacher classroom</td>
<td>2 computer – 1 mobile lab &amp; 1 stationary and all students have laptop. Building wired for wireless</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of computers available in library for student use</td>
<td>60</td>
<td>60</td>
<td>30</td>
<td>56</td>
<td>24- stationary 20 mobile cart</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Approximate number of students who have home access to computers.</td>
<td>Unknown-estimated to be over 50%</td>
<td>Unknown-estimated to be over 50%</td>
<td>Unknown-estimated to be over 50%</td>
<td>Unknown-estimated to be over 50%</td>
<td>Total enrollment-laptops to grades 9-12 (62) students</td>
<td>Total enrollment-laptops to all students</td>
<td></td>
</tr>
<tr>
<td>Initial training period for online instruction-and follow up support?</td>
<td>District in-service: 2 1-hr sessions. Support available in building and teacher network.</td>
<td>District in-service: 2 1-hr sessions. Support available in building &amp; teacher network.</td>
<td>District in-service: 2 1-hr sessions. Support available in building &amp; teacher network.</td>
<td>District in-service: 2 1-hr sessions. Support available in building &amp; teacher network.</td>
<td>1 week workshop 2 credits online instruction.</td>
<td>6 days hands on training. Follow-up 1 day; 2 day upgrade trainings for new computers purchased.</td>
<td></td>
</tr>
<tr>
<td>Age range of students</td>
<td>14- 20</td>
<td>14- 20</td>
<td>11-14</td>
<td>14- 20</td>
<td>14-19</td>
<td>14-20</td>
<td></td>
</tr>
</tbody>
</table>
Table 3.2. Demographics of student participants

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of participants</td>
<td>14-18</td>
</tr>
<tr>
<td>Year in school</td>
<td>9th grade - 5 students 12th grade 3 students</td>
</tr>
<tr>
<td>Onset computers available to students provided by district</td>
<td>Yes</td>
</tr>
<tr>
<td>Systems used for online instruction</td>
<td>WebCT</td>
</tr>
<tr>
<td>Classes taught using online instruction</td>
<td>Math, Family &amp; Consumer Sciences</td>
</tr>
<tr>
<td>Ethnicity of student population at your school</td>
<td>Native American and Caucasian</td>
</tr>
<tr>
<td>Approximate number of students who have home access to computers</td>
<td>All enrolled students 9th-12th grades</td>
</tr>
<tr>
<td>School total enrollment</td>
<td>172 K-12</td>
</tr>
<tr>
<td>Initial training for computer use began formally in school system.</td>
<td>During primary grades</td>
</tr>
<tr>
<td>Number of classes that they are enrolled that use computer support</td>
<td>9th grade - 4 classes 12th grade 5-6 classes</td>
</tr>
<tr>
<td>Number of Family Consumer Science classes supported online that they were enrolled.</td>
<td>9th &amp; 12th grade - 1 class</td>
</tr>
</tbody>
</table>

**Human Subjects Approval and Consent Protocols**

Guidelines for conducting research on human participants was requested and granted from the Institutional Review Board (IRB) at Iowa State University. The IRB form was filed with the graduate office to gain approval to study the participants. A copy of the approval is shown in Appendix B. In addition, a letter of approval was sought from the three participating school districts. Additional approval was obtained from the teachers and students involved in the study (Appendix B).

**Gathering of Data**

On one hand, qualitative research should be conducted in partnership with the respondents to gain a more working relationship (Maxwell, 2005). On the other hand, the researcher needs to be aware of potential bias, logistics, and timing on the
part of the participant/observer (Yin, 2003). This case study analysis was grounded using a triangular methodology that approached the gathering of data on three different levels:

- Conduct interviews with the givers of information, i.e., instructors.
- Conduct interviews with the receivers of information, i.e., students.
- Review the interviews and confirm the data with both instructors and students.

A focused interview format derived from a set protocol was also used in this study. The focused interview format employed open-ended questions and encouraged responses in a conversational manner (Yin, 2003). Content validity was established by doing a trial interview with three instructors that were not part of the study and were geographically available in the researcher’s building. Session 1 was deemed by the pilot instructors to have questions that were too complex. As a result, the researcher spread the same concepts over 10 questions for this session only. Some revisions were made as the interviews progressed. Generally, the questions were used in applying the case study approach by interviewing local instructors, and instructors and students at a distance who were identified as willing to be part of the case study. The questions can be found in Appendix A.

Four sessions of approximately 30 minutes each were used to address each set of questions. The participants were contacted by email, phone interview, or face-to-face interview to clarify their responses before moving on to the next set of questions. The more distant schools were initially given a web cam to enable the
participants to be seen as the questions were asked. Originally, facial expression and communication were perceived as needed in order to verify responses and ascertain if questioning needed more probing or discussion. Unfortunately, despite preliminary investigation and many hours of communication with the distant school systems technical support personnel, that choice proved to be cumbersome and nearly impossible. The firewalls set up at the distant schools systems were too efficient and it was determined that conducting a web cam interview was not practical or feasible. In order to do the web cam feature, the researcher would have had to install a much more expensive camera system than the original purchase. The web cams were used by the individual teachers as they conducted intra-system work within their own network, but not out of the network. In the end participants were given the set of questions in four sessions, and then the researcher contacted them via email, to highlight the areas to be expanded and follow up with either a phone call or additional emails.

The researcher transcribed the responses and then read them back to the instructors for clarity. The students were not available except during school hours, and it was deemed that emails would have to be the main method of contact due to restrictions of the students’ time and available or appropriate phone time. Use of the students’ personal home numbers by the researcher seemed like an invasion of their privacy and a situation that was best not attempted. It was interesting to note that the participants who were the most distant were the easiest to contact and also complete a follow-up contact. The teachers closer to the researcher would appear to have been much easier but, due to their schedules and that of the researcher, it was
often a challenge to find compatible time to ask questions and conduct follow ups to verify responses.

**Methods of Analysis**

Analysis and interpretation of responses to the questions were explored to determine common themes regarding the use of technology for users in a blended online course format. Because multiple sources of evidence were more convincing in the final analysis of data (Merriam, 1998; Yin, 2009), information was cross-checked, probed, questioned, and clarified as the case studies evolved. Data were analyzed using an Excel spreadsheet as more formal methods such as WEFT QDA, a program for qualitative analysis, proved to be too cumbersome and time consuming for the number of participants.

Researchers should establish themes simultaneously as the data are gathered (Merriam, 1998). Furthermore, it is best to code data by hand on actual paper and then transfer the data into a format such as a spreadsheet for analysis while keeping the themes tentative (Seidman, 2006). A multi triangular approach was used to gather the interview data. As each interview was completed the data were examined for common themes and threads. Upon starting the next interview, previous themes were kept in mind while exploring and cataloging emerging themes. The goal was to have a composite cross-checked probe that would identify and support the case study (Merriam, 1998; Seidman, 2006; Yin, 2009). Interpretation of the data was balanced by confirming with the participants in the study to maintain validity and reliability within the realm of good case study analysis (Yin, 2003). After
the data and responses were received, the researcher contacted the participants again to clarify what was shared and expand the information by probing for a deeper understanding.

Four different interview sessions were held. Each session contained a set of questions ranging from four to ten questions, depending upon the session. Each set of questions was either sent back to the participant for further expansion and clarification, or verified through an electronic phone that had a speaker feature with the researcher repeating back to the participant what she said for clarification, or a face-to-face encounter. The information that needed clarification was highlighted, with more probing questioning designed to elicit information that would enhance the previous response. After verifying with the participant the final draft of the question session, the next set of questions was given to the participations for completion. The process was then repeated for all four interview sessions.

Then the information was personally transcribed by the researcher onto an Excel spreadsheet by copying verbatim the words of the participants. Themes were noted and recorded, and further notation made to classify the data from the interview process. The process was done carefully to preserve the intention of the participants and not incorporate biased opinions of the researcher.

To simplify the verification of the multi-cases studied, a cross case analysis of the question responses was employed. According to Yin (2009), this approach enables both the reader (of the study) and the researcher to discuss, explore, and analyze the data logically, question by question. Readers, in turn, can utilize the data to seek their own cross case analysis (Yin, 2009). Abbreviated vignettes were
used in Chapter 4, to discuss the results and provide a summation of the data presented.

**Credibility of the Researcher**

The researcher is a veteran teacher of 36 years, having taught one year in a suburban midsized, Midwestern high school and the remaining years in the same Northwest district. The researcher’s background in the field of FCS is extensive. She holds a BA degree in Family and Consumer Sciences from the University of Washington as well as an MA in Education. Her focus for the MA degree was Special Education Consultant. The researcher has taught all disciplines and subjects within the FCS curriculum at the secondary level, including: Family Relationships, Fashion and Design, Interior Design, Child Development, Careers with Children, Careers in Education, Food Science, Nutrition and Wellness, Culinary Arts (Food Education and Service Training, or FEAST), and Independent Living. In addition to teaching at the secondary level she has taught Child Development, Family Housing, Textiles, and Introduction to Special Education at the post secondary level.

Early in her career, the researcher discovered a love of technology and has enjoyed the benefits of using technology in her daily teaching. Throughout her career, the researcher has utilized support materials and handouts that she created electronically or typed before personal computers (PC) were commonplace. The researcher often found the workbooks that came with texts to be redundant and did not reflect her teaching style or the learning style of her students.
The researcher was recruited by Glencoe-McGraw Hill to write the accommodations for two different FCS texts, and was a contributing author on two separate supplemental guides provided to instructors to accommodate special needs students. In one of the guides, the researcher was the sole contributing author. The researcher was also hired to write all the annotations, or guidelines, for teachers for an additional FCS text. Thomson-Wadsworth hired the researcher to write for two different editions of a college child development text and the online text questions. The task involved writing pre and post multiple-choice questions that required each answer choice to be referenced back to the main text.

The researcher has taught online for over 13 years at both the secondary and the postsecondary level. The postsecondary level courses were taught at a community college and also at a local state university. The researcher is familiar with and has used WebCT, Blackboard and more recently, SWIFT. The researcher has served as her section’s state president for Washington Association of Career and Technical Education- Family and Consumer Sciences Education (WACTE-FACSE), and she has also co-chaired a sister organization, Washington Association of Family and Consumer Sciences (WAFACS). Prior to accepting the lead roles in her state’s organization, she chaired three different state FACSE committees. During those tenures of office, the researcher was an avid user of technology to support her leadership roles. Whether she used an emerging email system in 1995 as the FACSE State president or Power Point shows to share current developments, the researcher has been an early user of technology.
The researcher piloted a beginning FCS class, Independent Living on Blackboard, after receiving a grant from Blackboard. The researcher continues to teach online, supporting all of her current classes on SWIFT. The researcher was also instrumental in getting the SWIFT interface in her building and district. During the past year, the researcher has given several seminars on the use of SWIFT for all disciplines taught at the secondary level. The researcher is currently a participating instructor for the Pacific Northwest Alliance (PNA) which is comprised of regional colleges over three states that provide curriculum and support for those seeking to obtain the MA degree in FCS. The PNA model was fashioned after the initial Iowa State University FCS Leadership Academy program. Although the Iowa State program does not currently exist, it did provide the researcher and local Northwestern leaders in FCS with a template for the current MA program. The researcher teaches both face to face and in a blended format in that program.

**Summary**

This chapter described the background of the researcher and the forces that shaped her research. The purpose of the study was reviewed and shared as well as the pedagogy for a descriptive case study of blended instruction. A general overview of qualitative pedagogy was also reviewed. The demographics of the participants as well as the background creditability of the researcher were shared. The IRB guidelines were reviewed and documented. The method of gathering information was discussed as well as the roadblocks and challenges to the gathering of the data. The research questions were presented as well as focus interview
questions for the respondents in the study. The descriptive case format was utilized as a method to decrease bias and provide the study with greater rigor and validity.

The next chapter discusses the results regarding the threads and themes discovered in the cross-referenced recording of data by the researcher. The data were condensed to highlight the major themes and implications of this study.
CHAPTER 4. RESULTS

Introduction

The purpose of this study was to investigate how blended instruction might be utilized for future FCS curriculum. This chapter describes the data that were gathered through interviews conducted with selected instructors and students who were either currently using blended instruction or indicated a willingness to use this method given the proper web support or web interface. This case study was guided by the following research questions:

1. What are FCS instructors’ and students’ perceptions about blended instruction as a method of instruction?
2. What are the reasons for adopting blended instruction as pedagogy from the perspective of instructors and students?
3. What are the significant learning experiences and implications for practice of blended instruction by FCS instructors and students?
4. What are the challenges for the future use of technology as a teaching method for secondary FCS?

Chapter 4 explores the transcripts and shares, in the words of the participants, their thoughts and feelings on the posed questions and how their responses supported the findings in the emerging themes. Chapter 4 also presents three levels of information: (a) the responses from the adult instructor participants; (b) the responses from the student participants; and (c) a discussion of the results.
Every attempt was made to represent the clear intentions of the participants by sharing the text verbatim.

Study participants included both instructors and students. Data were gathered from three districts varying in size from rural to suburb districts. The students were from a rural district, as permission to gain access to the larger schools’ student population was denied. Research data were gathered through multiple techniques. Interview questions were provided to the participants by email or a hard copy was given. Participants responded to the interviews and then either emailed or mailed their responses back to the researcher. Then the researcher highlighted areas that needed to be expanded and added further questions to expand the answers. Final data were recorded on Excel spreadsheet to establish emerging themes.

To triangulate the collected data, the researcher viewed participants’ handouts for students and support web interface systems. In addition, the instructors' web sites were viewed to ascertain how the instructors had utilized the features of the web interface to support their instruction. This exchange of information provided the researcher with additional input as to the level of use of the web interface for blended instruction.

The descriptive characteristics are summarized for the participating schools as well as the instructors and students who were the primary participants in the study. The technology background and experience of the instructors and students are also provided. The following major themes emerged regarding FCS secondary
educators’ use of blended instruction to deliver FCS curriculum: (1) adequate training of FCS instructors and students to use the blended instruction via a given web interface; (2) sufficient time allowed to learn the new technology based instruction; (3) lack of funds for training; (4) continued support to learn how to use the web interface for blended instruction; (5) accessibility of equipment—computers. The dialog in this chapter has summarized the responses from the participants to clarify the emerging themes.

**Descriptive Characteristics of the Participants**

**Schools**

Demographics for all but one school were obtained from an online web source (CCD Public Schools, 2006). Two of the schools were larger, with student populations of approximately 1,800 and staffing from the high 70s to mid 80s (see Appendix D, Table D3.3 and D3.4). The third school from the same district (Appendix D, Table D3.5) was also classified as suburban and large, with an enrollment of approximately 800 and a staff of 43. Participant E’s school demographics were provided by the instructor (see Table 3.1), and revealed a K-12 population of 172 and a staff of 19. Classification was determined by the participant as rural and small. Participant F’s school demographics (see Appendix D, Table D3.6) included an enrollment of 810 K-12 and staff of 53. This school was classified as remote and regular size (CCD Public Schools, 2006).
FCS instructors

This study was comprised of six FCS instructors and eight students from one of the instructor’s program. The choices were both purposeful and convenient. The instructors were fulltime FCS teachers with each teaching a five period day. Four of the instructors were from one suburban school district in the Northwest area of the U.S. and taught at the secondary level. The remaining two secondary instructors were from smaller rural secondary schools in the Midwest of the U.S. These teachers were selected because of their use of blended instruction or because they had access to a web interface to create a blended instructional format.

As stated in Chapter 3, the demographics of the instructors were gathered to determine commonalities and differences among the participants in the study. The instructors had either a BS or BA degree. Three had either an advanced degree: MS, MA or ME, or were in the process of finishing their advanced degrees. The teachers’ BS or BA degrees were in either Home Economics or Family and Consumer Sciences, depending upon the time period in which they obtained the degree. A profile of each instructor is summarized by the researcher to facilitate understanding of the various demographic backgrounds

Instructor A is a 28 year-old fulltime FCS instructor who has taught for five years. She has a BS in FCS and is currently working on a ME degree in school counseling and mental health. Instructor A is from a large suburban high school. Due to her pursuit of the ME degree and adjusting to a hectic teaching schedule, she related that she found it difficult to implement the use of SWIFT, the interface for her building, in her teaching routine. She did, however, participate in the full set of four
interview sessions. The researcher felt that her experience would provide information as to how FCS instructors perceive the implementation of new technology when faced with demanding schedules (Instructor A, personal conversation, February 4, 2009).

Instructor B teaches in the same school and shares an adjoining office with instructor A. Nevertheless, she does not have the same early exposure to technology. She recently completed her MA in FCS from a Northwestern university and has been active on the state’s FCS Career and Technical Leadership board. She has taught five classes of FCS face to face and has recently been introduced to SWIFT, which was introduced in her district in 2007. In 2007, her school conducted a pilot project with their teachers before it was piloted in another high school within the district and subsequently adopted by the district (Instructor B, personal conversation, February 4, 2009).

Instructor C is in the same district as instructors A, B, and D., but is housed in a different school building. She is 56 years old and has a BA in Home Economics. She has been teaching for 15 years although she received her initial education in the 1970s. She took time off to raise a family and then returned to teaching about 14 years ago. She has taught four different classes and advised two groups beyond her school day. She has used the SWIFT web interface, available in the district for most of the last school year (Instructor C, personal conversation, February 5, 2009).

Instructor D is housed in a different secondary building than instructors, A, B or C. She is 59 years old and holds a BS in Home Economics. She has been teaching for 16 years and, like instructor D, took some time off to raise a family
before returning to teach FCS. She is familiar with Blackboard, WebCT and has access to SWIFT as an instructional web interface. She placed minimal support on SWIFT for three of her FCS classes. She was very enthusiastic about using the new web interface in the district, but got side tracked due to a family tragedy. This participant finished the study, but due to her family situation, found it difficult to utilize the web interface as actively as she wished. She was still in the beginning stages at the end of study (Instructor D, personal conversation, March 10, 2009).

Instructor E is from a Midwestern state that has actively endorsed and used technology since 1996. She is 53 years old and obtained her MS in Curriculum and Instruction two years ago. She has a BS degree in FCS. She has been teaching for 32 years. She has taught five years online, and nine years synchronously with video and an online web interface support. She was familiar with Blackboard and utilized WebCT in her current teaching assignment. She has taught six different FCS classes online throughout her years as an instructor (Instructor E, personal conversation, February 6, 2009).

Instructor F is 43 years old and from a rural small school district. She also resides in a Midwestern state. She has a BS in FCS with a minor in Child Development, and has actively used a web interface to support her instruction for three years. She has taught FCS curriculum fulltime. She had recently moved to a new school and city. The responses she shared in this study were from her previous job where she taught some classes totally online and others supplemented by WebCT. She also continued to use WebCT to support her daily classes in her new
assignment. She has experience teaching five different FCS programs supported by a web interface (Instructor F, personal conversation, February 7, 2009).

**Students**

The ethnicity of participating school enrollment varies. Ethnicities of students were very similar between the two larger suburban high schools and the other secondary school. Populations were identified as American Indian/Alaskan Native, Asian, Pacific Islander, Hispanic, Black/non-Hispanic, White, and non Hispanic. White, non-Hispanic was among the highest concentration of students, and represented over 75% of the student population (Appendix D, Table D3.3-D3.5). The two smaller rural schools had a primarily White/non Hispanic enrollment, with the exception of the larger of the two schools which had a small percentage of American Indian/Alaskan Native population (Appendix D, Table D3.6.). The smallest school was reported by the instructor to have 100% White enrollment (Instructor D, personal conversation, February 7, 2009).

The larger Northwestern school district was not comfortable granting permission to interview students for this study. Use of the web interface for the larger schools in the Northwest was through the lens of the instructors (R. Luke, personal conversation, December 11, 2008).

As such, student responses were focused on one of the Midwestern schools that granted permission to carry out the study. The researcher deemed this choice to be supportive of the investigative study as the participating district had an operational web interface support system since 1996 and the students were well established in the use of the web interface, WebCT and blended instruction.
The participating school had an enrollment of 172 students in K-12 and was classified as rural school of average size by instructor E (Instructor E, personal conversation, February 6, 2009). Five students from the 9th grade and three students from the 12th grade participated in the study. The student participants ranged from 14 to 18 years of age. Each student had a school-issued laptop since the 9th grade for both school and home use (see Table 3.2). The web interface system available to the students was WebCT. The students used WebCT interface for blended instructional support of assignments and instruction.

The classes that utilized this format were primarily Math and FCS, although other classes used WebCT interface to some degree. The 9th graders (students 4-8) stated four of their classes had used the web to support class instruction, while the 12th graders (students 1 – 3) shared that five to six had used it for class support. Each participant was White and enrolled in a FCS course that used WebCT interface. Students related that the introduction to use of the computer for studies had been initiated in the primary grades (see Table 3.2). They were upfront and forthright about sharing their perspectives on use of the web for instruction.

**Perspectives of FCS Instructors and Students on Use of Blended Instruction**

Background exposure on use of technology and training had an effect on the perceptions of the instructors’ and students’ understanding of blended instructional methods. Each instructor had experience using a web interface either as an instructor or as a student. Each also had access to a web interface to utilize as a
format to enhance face-to-face instruction. Two had extensive experience in using a web interface for enhanced face-to-face instruction and were from separate rural districts in the same Midwestern state.

The instructors from the Northwestern schools did not share the same background as the two instructors from the Midwest. Their responses indicated a lack of extensive background experience in using a computer. However, initially each instructor in the study had minimal training on using the computer for either personal use or professional instruction. For example, the following was shared by Instructor B:

*I have minimal background in technology and everything has been self taught and learn as I go pretty much* (Instructor B, personal conversation, February 4, 2009).

Instructors C and D also had minimal prior equipment experience. Instructor D shared she had access to PC’s as an adult (Instructor D, personal conversation, February 4, 2009). Instructor C simply stated she had access to an electric typewriter (Instructor C, personal conversation, March 10, 2009). Instructor F had a different experience but still supported minimal training in her early exposure to computers and technology:

*I was first exposed to a computer in high school and I remember there were maybe two computers. Our assignment on the computer was to go to the last of our math unit and type in all of the data on the and something was suppose to happen. Nothing ever seemed to happen! Nobody was teaching it and we had no support.*
In college our assignments involved taking the “floppy disk” and inserting it into the computer and working through the program. Apple IIe was what we used. I was stressed out.

As I got into the work force I used computers to manage student accounts at a college food service. I also input accounting information. I had to use a computer in Food Service. I would call back to South Dakota University for support. Major learning was since I started teaching. It wasn’t so much that I was taking classes, but had an awesome tech person who was very supportive and I learned on the job. Entering the education field is where I have learned the majority of my computer skills (Instructor F, personal conversation, February 7, 2009).

Each student in the study was from the same rural school and had extensive early exposure to using computers and the web for both pleasure and learning. Most students experienced using the web to support their learning either from such early programs as The Oregon Trail, a math simulation program to a web interface system, such as WebCT to support classroom instruction (Student 6, personal conversation, February 18, 2009). Several others had early exposure to more sophisticated technology. When asked to share their experience in using technology, their background indicated a high use of technology on a day-to-day basis:
Handheld learning device, tablet PC, Smart Board, Desktop PC, Mac
PC, Photoshop, Movie Maker, Digital Cameras, IPOD

Probably 6 or 7 (age), the handheld games (Student 4, personal
conversation, February 17, 2009).

I am pretty good with technology. I have always had a
computer at home I could use. When I was 12 in 7th grader we had
computers in our classrooms that we could use and we had computer
classes, I have used tablet P.C., smart board, Macs (Student 5,
personal conversation, February 17, 2009).

The early experiences of the instructors and students varied considerably on
their introduction to technology and use of web. The instructors were initially self
taught and learned by experience without formal training. As computer use
expanded and using the web became more commonplace, their skill level advanced.
Some experienced formal training at their assigned schools. Others received some
training, but it was not in depth and not supported substantially after the initial
training. Instructor B shared her perspective on an early experience that did not go
well:

Blackboard- I was frustrated with the process. I can understand what
the instructor wants to be submitted, but when on your own it’s
frustrating---you don’t know what you are doing. Even with
instructions, for different style of learners, not all will get how to use it.
If they have had a bad experience from day one, they will deter from
using it (Instructor B, personal conversation, June 19, 2009).
The instructors who utilized blended instruction supported by a web interface tended to be those who had substantial initial training on the use of the technology, and continued training and technology support thereafter. Instructor E shared her perception that supported the importance of instruction on how to use a web interface for blended instruction:

*We use WebCT. It is pretty user friendly. We do have a 3 day course for students. We do a day in the summer for WebCT and follow up 2 hours sessions. Your school district needs to supply professional development. Very few teachers will learn it on their own* (Instructor E, personal conversation, April 10, 2009).

Students, on the other hand, experienced early training in the elementary grades and found use of the web interface to be an integral process to support blended instruction. The students in the study were formally trained in the summer as indicated in the statement by Instructor E. The researcher noted, however, that the study did not include students from the more urban district who were just being introduced to a web interface and blended instruction. It has been established from researcher's studies that blended instruction has made strides forward. Picciano and Seaman (2009) revealed a 10% increase in the urban schools that were part of their study. Further study should be conducted to assess how the use of blended instruction has progressed in additional urban school districts as well as FCS courses at the secondary level.

In the current study, instructors and students were asked to share how they utilized technology in their school settings. This exchange was perceived by the
researcher to further support the effect of training on using technology for blended instruction. The following dialog was from an interview with instructor B from the Northwestern school district:

Type reports, and now I do spread sheets for my personal finance, emails for corresponding, I love using Publisher for flyers.

What skills do you think are imperative for FCS instructors related to technology?

Word, Excel-- for independent living for finance. That is a great topic to use that topic. Do just the real simple tasks. Yes, like doing budget or tables within word.

And one that kids really don't have much skill in is Publisher. In my fashion class I like to do a flyer on famous designers and they love that assignment. I always have them do at least two ppt (Power Point) projects. We just went to the library and did a Smart board and how to do their presentations using a Smart board and they loved that. It was something different.

Overheads are extinct and I use the document reader.

Do students use the document reader?

I have not had them use as of yet. LCD projector is good too because you can't do a document reader without the LCD Projector.

Something else that Stephanie (her fellow teacher) just did, she does her movies through the LCD projector and that is a nice feature (Instructor B, personal conversation, February 4, 2009).
This last response indicated a potential lack of connection or training on the use of LCD projector, or not having complimentary equipment to show DVDs in the classroom. For teachers in this school, the LCD projectors were introduced in 2002, when the district did an upgrade in that particular school. Specific instructions varied between the buildings. Each building had its own interpretation of how to use the new LCD projectors (V. Alonzo, personal conversation, July 27, 2009).

Instructor F, age 53, has used technology extensively in her teaching as evidenced by the following responses:

*I use basic office programs- Word and Power Point, Excel, a bit of Publisher. I have incorporated the use of technology in the classroom- for myself I have got away from notes, use ppts. The kids still take notes, and take notes off the ppt. I give them some study guides and they fill in the blanks. If I find a web site I use it and show them where they can go and do stuff. Like My pyramid.com. Use a tablet as well. Smart boards- don’t use them as I don’t have access to them. I use it for presentations- power points. All of my documents are typed. All are computer generated.*

*I have students use the computer to download assignments and submit completed assignments. They also use them to give presentations in the classroom. They are submitted and it is almost a paperless classroom. Everything was on there and they could complete the assignment and use the tablet or use their stylist. Writing in their own handwriting to use the stylist. You still get the doodling in
the margins along with their homework. Every student from 7-12 has a laptop assigned to them (Instructor F, personal conversation, February 7, 2009).

The other instructor from the Midwest also shared her expertise and experience in using technology:

*I have had several tasks to accomplish with technology:*

Incorporate the use of technology into the face to face classroom
Games, presentations, download assignments, submit assignments.

*In my first job students accessed every day. It was very much blended instruction. They would close their computers and then look up.*

Did they do their assignments away from you?

*They could, if they were sick then they could go right on line and get started with it. I had time that I could let them do it on their own, but we really did it together. What portion of the assignment did I assume they could do on their own, but I needed to be sure they had access to computers at home and the web. I would say what do you need to download before you leave school today? They could save to their computer. The nice thing with tablet you can just print to your hard drive. Kids had flash drives, but they used them for music and stuff. They weren’t using for assignments.*

*I wrote an online course that could be delivered at a distance- almost paperless. I actually did teach a distance where I never saw the*
students. What was through- DIAL or virtual school. I was hired to teach a class. Took an online course myself (Instructor E, personal conversation, February 7, 2009).

The researcher noted the reference to blended instruction. As defined in Chapter 1, blended instruction is instruction that combines the engaging benefits of traditional instructor-led training with the advantages brought by a variety of technologies to create an optimum program (Alvarez, 2002; Osguthorpe & Graham, 2003). The researcher reflected on the fact that some might view blended instruction as solely instruction that is carried out face-to-face with the portion supported over the web interface occurring away from the instructor. Instructor F shared a perspective that is more congruent with instructor A’s concern shared previously, that instruction was better if done in the presence of the instructor. The students in instructor F’s classroom did, however, have the option of doing assignments away from the instructor as her response warranted.

Instructor E shared the following perceptions:

The first push we had when went to class we were encouraged to use it as a resource for planning lessons, research. I would say probably more of the interactive games, but we got a lot of software to do enrichment activities.

How long before it was pedagogy for teaching?

About 8 years ago [2001], It started with video and interactive digital network. Deliver across in real time and finally used computers in the method of delivering that content.
Was that because students were more rural and didn't have access to the class?

_We use a state network which is a system that delivers courses in real class time. I have taught as many as three remote sites_ (personal conversation, February 6, 2009)

The students reported experiences that identified with a high level of training and use of technology to do school work as well as their support of blended instruction. Responses represented students who had become well versed in the use of their computers and the web. Even the younger students professed skills in application and use of their computers. Student 7, who is a 9th grader, shared that she and others had self taught themselves such as downloading and installing programs to their computer. Student 7 also shared that, although the web might be faster, sometimes the information found on the web in the library might be different and, at times, it could be just as time consuming as using the library (Student 7, personal conversation, March 11, 2009). Students used their computers for doing homework, taking notes, research and recreation, while noting that, for them, the web was faster than looking up material in a book or reading hard copy reference material (Students 1, 3, & 5, personal conversations February 17, 2009; Student 7, personal conversation, March 11, 2009).

Concerns about computers at home a not having the same quality as those at school did not appear to be a problem. Student 6 related that it did not matter if your home computer was different, or not updated, as students could take their laptops home and complete school projects (personal conversation, February 18, 2009).
Organization also was mentioned by Student 3, as well as being able to check for spelling (personal conversation, February 17, 2009). Student 6 related that WebCT enabled them to turn in assignments, and it was done because instructors liked it that way (personal conversation, February 18, 2009). Nearly all students shared that they felt well versed and trained in how to use their computers, as they had been trained in a computer class at school. The issue of training was reflected in their understanding of how to best utilize a computer for schoolwork and other tasks.

The fact that not all students had compatible software or programs on their home programs was identified by several students as not an issue. Because the students had school issued laptops, most simply took their laptops home to complete assigned work. Students were asked to share their ability to use a home computer and why they chose to use a computer to complete the identified tasks. Some of their responses were:

- *I have a PC at home.* I use the computer for math assignments, notes for every class, my homework is done on the computer, and use it for other time when there is nothing to do.

What do you do use the computer for during the free time use?

- *I e-mail, look up things on the Tar Heels, and play games* (Student 3, personal conversation, February 17, 2009).

- *I didn’t use the web very much for school because it wasn’t very convenient for me because I didn’t have a laptop before. However, now I*
do a lot of things on the computer. If I want to get information on something I just Google it instead of going to the library and seeing if I can find something on the topic.

How do you feel about the reliability of information that you find on the web?

Most of the information on the web is true. However, some sites you have to be careful on. It’s always good to see if you can find the information on one site on another site. I use it to email friends and teachers. I do vocabulary assignments on dictionary.com. I also do a lot of different essays and use the web to get information for the essays.

I think using technology is a very positive experience. Our computer lady doesn’t have to worry about where all the laptops are that are not checked out. We don’t have to check laptops out anymore because we have our own computer that has no one else’s stuff on it but ours (Student 6, personal conversation, February 17, 2009).

The previous sharing by the instructors and students indicated a wide variety of experiences, both on their initiation to the use of computers and technology, as well as the beginning exposure to blended instruction. The Northwestern instructors had less experience and exposure to the use of technology, and how to use their computers efficiently. The instructors and students from the Midwestern state, on the other hand, had more exposure and experience. Therefore, they were more efficient in navigating the tools found on their computers as well as being able to
perform at a higher level both as instructors and students. A positive experience when first introduced to using either technology or later more sophisticated web interface for instruction was perceived by the researcher to influence later perceptions on the use of blended instruction. This perception was generally true for the instructors whose first indoctrination about using technology for learning and instruction was not always positive.

**Provide support and training in blended instruction**

All districts in the study initially provided at least minimal training at the beginning of the introduction to using a web Interface for blended instruction. The experience from the rural schools was more intense as indicated by the following response from Instructor E:

> I originally attended in 1997 a teaching with tech class and since then our school district has encouraged us to use tech. 2 years ago MA and used technology. I have used (technology) extensively [since] 1997.

Do all teachers of different disciplines use this teaching method in your area?

1996-1997-99 we had month long very intense trainings. Goal was to reach every teacher. K-12 got 80% or more to participate and use technology as teaching method. Without the push from administration and the state in general our programs would not be as viable. (Instructor E, personal conversation, February 6, 2009).

Administrative support remained a strong theme for continued training support in the use of the web interface for blended instruction. Responses from
instructors revealed the necessity of being familiar with the technology, and initially having proper training on the use of the equipment and programs made available. Instructor B and F related that follow-up training was needed (Instructor B, personal conversation, June, 19, 2009; Instructor F, personal conversation, April 10, 2009). Instructor B expressed that the use of SWIFT had been introduced the previous summer, but she still did not feel as if the support training was there to actually use the interface. She also thought it should be mandatory (Instructor B, personal conversation, June, 19, 2009). Instructor F also discussed an experience that showed financial support to continue training was also not always there (Instructor F, personal conversation, April 10, 2009).

The support should be on going as related by Instructors B, E and F, (personal conversations, June 19, 2009 & April 10, 2009). Instructors E and F mentioned good tech support (personal conversation, April 10, 2009). Instructor F noted that your tech support staff needs to know how you are using the technology (personal conversation, April 10, 2009). Instructors were asked what would be the ideal supports necessary to deal with teaching a course in a blended format. Some of their responses were:

I have been trained, but not dedicated enough time to do it. It would be nice to have an in service day to get our sites up and mandatory to update our sites. You have to allow enough time to grasp the technique. We never return back to what was introduced at the beginning of the year. No follow up with using SWIFT. Now we need to
fine tune and use them. Have some collaboration with your colleagues
(Instructor B, personal conversation, June 19, 2009).

First of all computer access from home and school.

Clear expectations for the student.

Good communication both written and verbal.

Working knowledge of SWIFT or similar interface, software (Instructor C, Personal conversation, May 10, 2009).

I really don't have the tech background to know what the options are for this. I currently use SWIFT, e-mail, and grade posting. I know my kids have done assignments in class chat rooms (Instructor D, personal conversation, May 10, 2009).

First of all we need appropriate equipment and latest version of software, Adobe flash and thing that many web sites use.

Administrative rights for the teacher. If I do need to download something it works better. A tech person that is willing and available when you do have something that you can't solve.

How available is your tech?

She is half time every day and also is available by email. She is supporting two schools (Instructor E, personal conversation, April 10, 2009).

Good tech support. I feel you need to have a good relationship with your technology people in your school, keep them informed on
what you are doing and what type of support you would want from them. I also feel the instructor that is doing blended instruction needs to know how to work the site the students are using. This means the teacher needs to be able to attend classes on using the site before having students use the site.

How much instruction did you receive?

When the state went through and got laptops. We did 4 day training at school and 2 days at a college campus. Everything else I learned has been on the job training by listening, learning, networking. I have found we have opportunities to attend in the summer, but I will sit in the session for one hour and district won’t pay for it or I don’t have time to sit and apply it. There needs to be time to implement it and instruction on going (Instructor F, personal conversation, April 10, 2009).

Instructor C spent the previous year using the web interface provided by her district and is an active user of the web interface support to teach her classes. She had some computer training; however, much was basic and she expressed her limitations in how to use the technology skills:

I have had classes on using technology, but have seldom had classes that used technology primarily to teach other content. The exception to that was one on-line class several years ago. I think that there is a need to have more as one on one with the technology. I know enough to use the technology that I have right now. I wouldn’t know how to
*throw up on the wall what you are doing right now* (Instructor C, personal conversation, February 5, 2009).

Do you mean display what is up right now? For this particular interview session, instructor C asked to come to the researcher’s room after school to do the follow-up questions for Session 1 as it was on her way home and she felt it would save some time. When Instructor C walked in, the researcher was working on SWIFT and posting lessons for the upcoming week. She asked to see what the researcher was doing (Instructor C, personal conversation, February 5, 2009).

The students, on the other hand, came into the study with a broader based experience using both the web interface and computers for blended instruction. Their responses supported early exposure to computers and technology as well as experiencing blended instruction at the primary grade level. Student 3’s response was descriptive of the student’s early exposure to technology and learning how to use a computer:

*I have grown up with a computer and it was easy to have class that uses the computer. We also took class on how to use computers. I got to use a computer in school in second grade to type. I also had a computer at my house since I was five* (Student 3, personal conversation, February 17, 2009).

Student 7 listed an extensive use of technology for both personal and school use. She was also one of the younger students in the study:

*An iPod, tablet PC, Smart board, Digital Camera, Movie Maker, Desktop PC, Photoshop, and Mac computer. We use the Smart board*
in FSC (FCS). *We write information on it and it helps us learn and have fun learning about the subject. Ipod is just you-entertainment* (Student 7, personal conversation, February 18, 2009).

The students reported similar views on continuing support to use their web interface for blended instruction as well some initial frustration. Students 6 and 8 did admit to some confusion and difficulty in the beginning use of the web interface. With time and continued practice their ability appeared to improve:

*WebCT at first, it confused me. However, I am so use to WebCT now that it's very easy to use* (Student 6, personal conversation, February 18, 2009).

I didn’t really like it because I wasn’t use to it, but now it is no big deal since I have a computer all of the school day so the students and teachers are always handing in assignments over email.

(Student 8, personal conversation, February 17, 2009)

The students were asked to reflect on their use of the web interface tool bars in navigating a course and how to turn in assignments. They easily understood the question as their responses reflected active use and knowledge of how to use their web interface, WebCT. The question was stated as: Describe how you felt the web interface tool bars for the course worked in finding assignments and how to turn in the assignments. *Why do you feel this way?* Students 1-5 expressed an active knowledge of how to use the toolbar:
They work very well. For me it is very easy to understand, but that may be just because I have been working with computers for 9 years (Student One, personal conversation, February 20, 2009).

I think they are great because it is really easy to get around the site on. You don’t have to kick back to the home every time. It really simplifies it (Student 2, personal conversation, February 20, 2009).

I love finding it online and the toolbar makes it very easy to get around. I also like handing my assignments in online (Student 3, personal conversation, February 20, 2009).

When examining the data collected through the interview process, the researcher noted that students were perceived to do better than their instructors in ability to navigate and use the web interface tools such as WebCT. The instructors, especially those from the Northwestern state, were the most deficient in their training and skills. The instructors from the Midwestern state fared better. Their initial training was more hands-on and intense than the instructors from the Northwest. Nevertheless, continued training and support were perceived as an issue, especially for the instructors.

The Northwestern instructors were perceived as being somewhat frustrated in the lack of support and continued training. Although new concepts were introduced, follow-up training and support were not provided to continue the new programs or technology. The Midwestern schools received additional training, but much of what they learned after the training period occurred individually, on their own.
Fund web interface to support FCS blended instruction

Funding of web interface to support blended instruction varied between the districts in the study and became a strong dimension. The Midwestern state initiated use of the web to support a web interface in the early 1990s. The Northwestern state also began the process of using the web to support web interfaces during the same period of time in the 1990s, but widespread use was slow to develop. The researcher noted that the district from the Northwest that was part of this study accessed funds from local school levies. School levy funds were obtained through property assessments conducted annually of personal and commercial property owners. Some federal monies were also used to fund the advancement of technology in schools (N. Vien, personal conversation, August 7, 2009).

The schools in the Midwestern state utilized a creative source for actually installing the equipment and wires necessary to make the school building accessible for web access. Instructor F shared that her district used a rather unique resource for initially wiring the school buildings for web use:

*Some grants were written. As a state – we had carts available. In 1991 we had computer classes- Late 80’-90’s.began the use. They wired the schools in late 1990’s and did it with prison inmates. They set up cots and they did it at the school. Stayed at the school and did it one summer. A lot of it was just dropping wires. They learned a skill and were very productive. They had a couple different crews that went out* (Instructor F, personal conversation, February 7, 2009).
Funding in the Northwestern school district was much different and relied on federal funds as well as technology levies that were funded through school bond issues that were supported through local property taxes. Wiring of the buildings was conducted by district maintenance personnel and funded through the Northwestern School District (V. Alonzo, personal conversation, July 22, 2009). Other districts in the area had varying funding plans, but were not included in this study.

Funding was perceived by the participants as an important factor in the continued support of the blended instruction format as well being initially able to get the new technology off to a stable beginning. The more successful rural schools were creative in locating funding and support by utilizing the prison system to help wire their school buildings. Either due to greater geographic constraints and limitations in accessing such a support system, the larger school districts found that funding of blended instruction was more conventional and through normal funding channels. As such, their funds were not as accessible as they were tied to school funding levies, their state legislature, and federal funding (personal conversation, N. Vien, August 7, 2009).

**Make computers accessible for access to blended instruction**

Having access to a home computer was not necessarily a point of concern when applied to having the ability to use the computer for job or school related projects for either the instructors or students. However, the researcher did note that the more urban schools did not issue laptops to their students. The expectation by the instructors was that students could access computers either at home, or at
community and school resources, such as public and school libraries as well school computer labs and classrooms (Instructor B, personal conversation, June 19, 2009; Instructor C, personal conversation, May 20, 2009).

The students had a different perspective. Student 1 brought up the issue of equal access to computers and the web. Her perception was that it might not be fair if a student did not have access and needed to do an assignment. She also recognized that, for a rural school system, it would save resources such as time and gas for instructors if a class were delivered over the web by a single teacher. She used the example of her French teacher teaching for 12 different schools:

*If everyone has equal access to the web, I disagree. If people have limited access to the web, it would take more time and effort to learn online. It all depends on the course. For my French class, I never see my teacher, so I have to receive information from her through the course website. That makes things easier for both of us. She doesn’t have to pay the gas money to drive worksheet to the 12 different schools she teaches.* (Student 1, personal conversation, February 20, 2009)

The rural instructors shared the perception with their students that accessibility to computers was important for student success in a blended instruction format:

*Vast majority of students have web at home. When they have their home computer only they may not have the latest edition of what they need. That might be a heads up for the school to take a look at the*
technology. That might be a push comes to shove for schools to provide the technology. It is perhaps unfair to ask students to do something that they don’t have access to (Instructor E, personal conversation, April 10, 2009).

Before beginning blended instruction you need to know what kind of access your students will have and plan accordingly. First of all, does every student in your classroom have a computer assigned to them or do you have to reserve time in the computer lab at school? Can the students take their computer home? If they can, you cannot assume that every student has access to the web when they leave school, because they do not. Every classroom can incorporate the use of technology in their classroom, they just need to know what they have available to them and work with what access they have to technology.

The whole thing is assuming what kids have and don’t have. We use to have kids sit outside and finish assignments to link to the web. You really have to plan so kids have adequate links to do assignments (Instructor F, personal conversation, March 10, 2009).

The more urban instructors, however, viewed access to computers as a concern, but one that could be met by utilizing community resources. Most students had access to computers in their schools, local community libraries, school computer
labs, and there were at least a few computers in every classroom. Some of their responses highlighted this perception:

Even though they don’t have PC of their own, there are public libraries, grants on getting your own computer. There are all kinds of grants on getting your own pc. Or friends, computer labs, college campus. Also in the classroom and computer labs (Instructor B, personal conversation, June 19, 2009).

I have four computers in my classroom. We have two computer labs. There are computers in the library as well as the public library. (Instructor D, personal conversation, May 20, 2009).

The students interviewed in this study appeared to have easy access to a computer, whether it was provided by their school system or at home. They were well versed in completing assignments for school and logging into WebCT to download or turn in their assignments. Some expressed exposure to doing class discussions on the discussion board which, to the researcher, might represent learning that was conducted asynchronously over the web enabling students to login and participate when convenient, or conducted synchronously together as a class in real time.

The issue of accessibility was not a problem for most of the students in the study. Whether they used their school issued laptop or a home computer, all had access to a computer. The students used their computers to complete assignments, turn the assignments in, do research, and participate in online discussions with their classmates. Once again, the theme of accessibility of computers was supportive of
using a web interface for blended instruction. Some of the students’ responses were:

Yes and school provided. In my classes today, I use WebCT to hand in math assignments. I handwrite all of my math homework on the computer. I research for papers. I type my notes. My math teacher just recently gave us an interactive math website to use.

(Student 1, personal conversation, February 19, 2009)

Yes. I use the computer every day.

What kind of computer do you have?

At home we have a desk top, but I do have my laptop the school provided for me for the year. In my classes today, I do pretty much everything on the computer. I research, do my homework, I get my homework assignments on WebCT, I take my notes, socialize and use it for down time also. (Student 2, personal conversation, February 18, 2009)

The students were perceived by the researcher to have enhanced skills as a result of access and training available to them. Even the younger students had developed skills in application and use of their computers. Student 7, a 9th grader, shared that they had self-taught themselves processes such as downloading and installing programs to their computer. Student 7 also shared that, although the web might be faster, sometimes the information found on the web and in the library might be different and, at times, the web could be just as time consuming as using the library (Student 7, personal conversation, February 18, 2009). Others utilized their
computers for doing homework, taking notes, research and recreation, while noting that the web, for them, was faster than looking up material in a book or reading a hard copy of reference material (Students 1, 3, 5, & 7, personal conversations, February 17 & 18, 2009).

Organization also was mentioned by Student 3, as well as being able to check for spelling (Student 3, personal conversation, February 17, 2009). Student 6 related that WebCT enabled them to turn in assignments, and this was done because instructors liked it that way (Student 6, personal conversation, February 18, 2009). Nearly all of the students said they felt well versed and trained in how to use their computers, as they had been trained in a computer class at school. The issue of training was reflected in their understanding of how to best utilize a computer for school work as well as other tasks. The fact that their school system made access to technology equitable, by assigning laptops to students, also helped students gain expertise and experience in using blended instruction:

*I never have to do my assignments on my home computer because we can take our laptops home and we just do our homework on them. If for some reason we can’t do our assignments on our laptops, usually you just email it to yourself over your school email, or you put it on a jump drive and later download it onto your laptop

I do almost everything on my computer. I take notes on my computer because it is a lot easier to keep track of them. I do all of my assignments on computers. I also write all of my book reports, and essays on computers because the teachers like it if we just send them
Concerns about computers at home not being of the same quality as those at school did not appear to be a problem. Student 6 said it didn’t matter if your home computer was different or not updated as students could take their laptops home to complete school projects (Student 6, personal conversation, February 18, 2009).

Students were asked to share their ability to use a home computer and why they chose to use a computer to complete the identified tasks:

I can do almost everything that I needs to. I do typing, using web, and anything else. Since I am not very good at spelling I use like having to write my papers, which helps me learn the correct way to spell words (Student 3, personal conversation, February 17, 2009).

I never have to do my assignments on my home computer because we can take our laptops home and we just do our homework on them. If for some reason we can’t do our assignments on our laptops, usually you just email it to yourself over your school email, or you put it on a jump drive and later download it onto your laptop. I do almost everything on my computer. I take notes on my computer because it is a lot easier to keep track of them. I do all of my assignments on computers. I also write all of my book reports, and essays on computers because the teachers like it if we just send them to the teachers over WebCT (Student 6, personal conversation, February 18, 2009).
Although the participants in this study did not experience difficulty in accessing a computer to utilize a web interface for blended instruction, the researcher noted that this might be a handicap for students in different venues. The rural instructors and students were united in the belief that equitable access to computers was necessary to learn using a blended instruction format.

Despite the comments made by the urban schools, on a daily basis the researcher often hears remarks from students who say they do not have access to a computer or a way to travel to where one is available. This finding should be researched in future studies. The experiences shared by the more rural instructors and students were perceived to have more field experience in utilizing a web interface for blended instruction. Their experiences were from the mid 1990s to the present, and represented some realities that the larger schools had not yet addressed. Access to computers would appear to the researcher to be a continuing issue as expansion in the use of SWIFT, the web interface, increases at urban schools. Further research should be conducted to explore this perception.

**Address factors that influence blended instruction**

Responses from both instructors and students indicated that they recognized the need for good, solid training when first introduced to blended instruction and use of the web interface. Written explanations of how to use the web were identified as important. Both groups highlighted the need to have the beginning instruction be thorough and repeated several times during the learning process. Allowing enough time to become familiar with this approach to lessons was also indicated by
instructors and students. Instructor F shared this perception of how to begin blended instruction with new students:

*The first day would include demonstrations from the teacher and practice lessons for the students that are not graded. I would give students time to ask questions. The second session I would revisit some of the tasks we talked about the first session and see what the students remember and see if they have any questions. The first time we do a new task I would walk the students through the process.*

How well do students progress at this first session?

*They need to be reminded several times. It is not just like they can run with it. It is something that you need to restate several sessions. I might give them five sessions so they should know what they are doing and then perhaps deduct a point or two if progress isn’t made. With some students it will correct the problem and with other students they just don’t care* (Instructor F, personal conversation, February 17, 2009).

The students indicated they preferred being able to get right at the tasks or assignments. For example, Student 1 stated:

*Everyone is familiar with how the web works and not too much time has to be done explaining. We can jump right into the lesson.* (Student 1, personal conversation, February 20, 2009)
The other students expressed that using computers and using the web widened their expertise in the use of technology. Some indicated a desire for a faster computer or web connection. Others wanted web sites that are geared to students and are interactive:

- Getting to use a wide variety of technology such as the Smart board.
- Being able to have our own computer. Having a fast web.
- Websites that are interactive with us students (Student 4, personal conversation, February 17, 2009).

A fast computer, my own computer, instructions printed out or easy to access (Student 5, personal conversation, February 19, 2009).

Responses by the students again supported the themes of training and time, but with a different emphasis. The argument that using the web could take time were viewed by the students as not necessarily true if the students were trained and gained experience in using the web to find information:

- It’s only time consuming if you don’t know what you are looking for.
- Also it takes just as much time if not more to go to the library and look through all of the books to find what you are looking for (Student 6, personal conversation, February 18, 2009).

A couple of students perceived the web was faster than looking in a book:

- I think that it is fun to be able to explore the web and find things for classes - web is easier to use than having to look things up in a book takes tons more time (Student 3, personal conversation, February 20, 2009).
Instructor F also supported the notion that using the web to find information could provide as valid information as doing research in the library:

*Any time you are searching for information it is time consuming, whether you are in the library or on the web. I feel students are going to be more receptive to searching for information on the web than sitting in the library. Depending on the assignment, sometimes I have several sites I want the students to use. Other assignments I may have a few sites for them to start with and they will need to look for more sites to use. The instructor may also want to have some key words for the students to use in their search.*

*Library does have computers as well. What I have found with students if I just give them an assignment and say go to it. They will not progress as well. They do need a feeder link before they are willing to do it on their own. They still need models. They have been given computers, but they may not necessarily know how to use them for education. They do know the game formats, but not educational use* (Instructor F, personal conversation, February 17, 2009).

Instructor F also brought up the necessity of providing clear guidelines in using the web in blended instruction as well as noting that students do not necessarily know how to use a computer or the web for education, and that it is not the same as doing game formats (Instructor F, personal conversation, February 17, 2009).
Some students said that it would be time consuming without the web. One student shared that using Google made it easier to find information, and that there was so much information available that it would be hard to not find some information. Students shared that it was necessary to know what you were looking for (Student 4, personal conversation, February 17, 2009). Instructors’ responses were similar and supported the theme that learning something new takes time. For example, Instructor B stated, “It was not a quick in and out thing” (Instructor B, personal conversation, February 4, 2009). Instructor F related:

All learning takes time. They need to remember they are receiving the same information they would get in a traditional classroom, it is just a different approach in the delivery of the material (Instructor F, personal conversation, February 17, 2009).

Students expected the teacher to have the training necessary to guide them in the proper use of the course web site for a given class. This preference was shared by all students in their responses to the question posed on training by the researcher. They also appeared to know how to troubleshoot some on their own with suggestions on restarting the computer such as re-type the URL and starting over (Student 4, personal conversation, February 17, 2009).

Others perceived that asking for help from peers or someone in the room was appropriate (Student 2, personal conversation, February 20, 2009; Student 3, personal conversation, February 20, 2009). While some students suggested to move to another computer, one student thought of seeking out the technology
coordinator (Student 5, personal conversation, February 19, 2009; Student 4, personal conversation, February 17, 2009).

The themes of training and experience were high priorities for both instructors and students. Students were quick to note that their instructors needed to be thoroughly trained in order to teach blended instruction or use a web interface. On the other hand, students needed to be able to be somewhat self-reliant and do some problem solving on their own. Their earlier training in the elementary grades gave them an edge over their instructors in using the web interface. Students and instructors both noted that being efficient at using a Web interface for blended instruction does take time and that it was parallel to learning any new skill.

**Reasons for adopting blended instruction**

Why is blended instruction embraced in some venues, but fails to succeed or be tried in other secondary FCS teaching situations? The responses from instructors and students indicated several views on this particular dimension. The following perspectives represent those reflected through instructor and student interviews.

1. *Provides access and availability of course materials, handouts, and support information such as power points and web links to support instruction.*

Students were perceptive when it came to dealing with absences from class and how to address missed assignments. Several indicated that students needed to
show a certain level of responsibility in addressing missed work and seek out information on their own from the instructor if they needed help. Student 1 shared a mature perspective on this point:

The teacher needs to explain fully but the student still needs to take full responsibility as a matter of maturity more than fairness. The student should make it a point to seek out answers for things they do not fully comprehend. That is the job of a student. (Personal conversation, February 20, 2009)

2. Provides quick reference and accessibility of assignment for students needing to access course work due to an absence.

Instructor F shared this perception of how to handle absences and use of web interface to support assignments:

Every unit we went through had a Lesson Map (It was like a cover - it had in order what they needed to complete for that unit). If a student was absent from school or I was absent the students could continue working. The lesson map gave a brief over of what each lesson was about. The students than went to a different link to get to that lesson, all directions were given that they needed to complete that assignment.

The following provides a veteran approach to using technology. How easy was it to utilize this process?
Through trial and error we found that we needed more. It was like an introduction to a unit. The format is identical for each lesson. (Instructor F, personal conversation, March 10, 2009)

The instructor emailed a format to the researcher. The students referred to the mind map tool to get their lessons done. A copy of the instructor’s mind map is shown in Appendix C. (Instructor F, personal conversation, April 12, 2009).

3. Makes supplements to face-to-face instruction available on a 24-hour basis.

Student 5 shared the following perception on her use of the web or web interface to support her classes:

We use web for my classes at least once a day, and I did not used to use the computer before I had the Laptop PC. We use WebCT or an education website to learn and send information to our teacher (personal conversation, February 17, 2009).

From an instructor's perception, Instructor F shared how blended instruction has supplemented her presentation of course information:

I don't think it was any different than I imaged. One main difference between a traditional classroom and one that used blended instruction is it seemed like it took longer to get through a lesson. The nice part about incorporating technology in the face to face classroom is that the instructor is there to answer questions right away. In a distance class, there is always wait time before questions can be answered. Longer
for a distance lesson, than I was in face to face blended instruction-could move faster.

About how much time is spent face-to-face, and then distantly in your blended model?

*Blended instruction what I have found is where we do something together and then we do some online computer things together. I do not hand them a text book. Some classes did not have a text book.*

*Some classes I do a little bit of both* (Instructor F, personal conversation, March 10, 2009).

4. **Accesses the most current information available on a topic.**

Both students and instructors have shared that using a web interface to support blended instruction allows them to find the most current information quickly.

5. **Increases the level of responsibility for both students and instructors.**

There is no “back of the room” in blended instruction that is supported by a web interface. Student 4 noted that teachers can track students easily (personal conversation February 10, 2009). This factor was also noted by instructor F. She added that assignments turned in online were not vague in terms of when they were turned in. Once the assignment was sent there was a record of the assignment. There is no back of the room, and no wiggle room (Instructor F, personal conversation, April 10, 2009).

6. **Increases instructors’ preparedness to teach as it is difficult to “wing it” when teaching and presenting in a blended instruction format.**
In an earlier session, both Instructor A and B remarked they did not have positive experiences as students. Therefore, their responses reflected some reservation that web-based instruction might not be appropriate for all learners or instructors. Instructor B brought a new theme of scope and sequence. She shared the perception that instructors need to know the “road map” for the course. The issue of brighter students wanting to work ahead and have the total course was also shared (personal conversation, June 19, 2009). Instructor F noted that preparation was very important as one cannot “wing it” on the web. This point of view supports the theme of scope and sequence mentioned by instructor B (Instructor F, personal conversation, February 10, 2009).

7. **Provides opportunities for students to learn to be more self reliant and, as a result, problem solve and seek information independently.**

Once engaged in the blended instruction format, students were perceived as being able to be self reliant and work independently. Alvarez (2005) revealed similar findings. Student 6 related that it takes time effort to learn on the web because it requires students to stay on track (personal interview, February 19, 2009).

8. **Widens expertise in use of technology for both instructors and students.**

Students and instructors found the use of the web to be helpful with several issues, such as access to the most current and accurate information, easy accessibility, and a faster way to communicate. The underlying theme to these responses is that the students were educated and trained to be discriminate users of
the web. Therefore, they appeared to be more orientated in the use of appropriate techniques and habits in blended instruction.

9. Allows efficient means for instructors and students to track assignments and note if they are completed.

Student 4 shared this perspective on how the use of computers and the course web interface helped track assignments:

*I LOVE the computers and you don’t have to worry about losing your assignments and I would think it is easier for teachers too because when we hand our assignments in they can see who did or did not do the assignment and it can be done easily* (personal conversation, February 29, 2009).

10. Increases communication with parents about the classes that their students are enrolled and becomes a valuable support mechanism when parents need to intervene and encourage students to stay involved in learning.

Instructor E shared the following perception of how online access to a class taught in a blended format was viewed when a parent inquired about missing assignments:

*They like it. Did they get it from friends and is it vague. While online it is not vague. Once it is sent there is a record of the assignment.*

*There is no back of the room. No wiggle room* (personal conversation, April 10, 2009).
There are many reasons to adopt blended instruction as a support for teaching FCS courses. From the above viewpoints, blended instruction is perceived to offer flexibility, ease, and availability given the right background, training, support, and funding. However, to experience these positive outcomes, instructors, students and institutions will also need to address the challenges that are perceived in adopting new technology. The next section discusses and summarizes some of the challenges that face the use of blended instruction as perceived in the outcomes of this study.

Challenges for future use of technology in FCS

1. **Blended instruction takes a long time to learn for both instructors and students.**

   Instructors and students alike often hear that it takes too long to learn how to become familiar with a web interface to do blended instruction. The students’ responses to this concern again supported the issue of training. However, the student responses reflected that learning new skills does take time, but eventually it should get easier (Student 1, personal conversation, February 20, 2009; Student 8, personal conversation, February 17, 2009).

   At the same time other students stated that they learned more from the web supported worksheets and the process made it easier to keep track of things (Student 5, personal conversation, February 19, 2009; Student 6, personal conversation, February 18, 2009). Student 7 shared the perception that students had to stay on track which suggested to the researcher that students might need
some self discipline to be successful (personal conversation, February 19, 2009). Additional research, however, needs to be conducted to support this belief.

2. Can instructors and students trust the information that is available on the web while using blended instruction?

How instructors and students perceived using the web and what it had to offer in terms of reliability and a reputable source of information appeared to influence using the web Interface for blended instruction. The instructors and students were asked their perception about the use of the Web to find information and communicate. Their responses elicited some positive feedback as well as concerns about what the web has to offer. Positive responses included easy access to information and, for the instructors, the ability to teach smarter, not harder (Instructor A, personal conversation, February 4, 2009; Instructor B, personal conversation, February 4, 2009).

Instructors E and F shared additional positive perspectives. For these instructors more time was spent in training how to use the web Interface for blended instruction. Instructor E perceived the web as an enrichment source and used it extensively in her teaching. She also shared that other instructors in her building such as the Math department had gone paperless (personal conversation, February 6, 2009). Instructor F was tuned into the web as a way to save time and utilized it for an excellent tool for communicating with others (personal conversation, February 7, 2009).
All was not necessarily positive in the instructor’s view of using the Web to find information:

*That’s where a little bit of structuring would help or if you give them some guidelines. On first day of class we talk about validity. Look out for .com’s. Look at them what you are encouraging them to do. The benefits and what you are giving it is important.* (Instructor E, personal conversation, February 18, 2009)

Students also had misgivings at times about the use of computers and blended instruction. For some it could get boring as mentioned in the following statement by student 1:

*In a way, it was worse than I expected. When we have to use the web almost all day every day, I get very tired of it. I would rather look at someone’s face than a computer screen* (personal conversation, February 21, 2009).

**3. Instructors and Students alike need to be properly orientated and trained to use the web interface for blended instruction.**

The perceptions shared by the instructors indicated they had a good understanding of the need to orientate students to blended instruction process and use of the web Interface. Instructors A and D indicated that written explanations of how to use the web were important (Instructor A, personal interview, May 16, 2009; Instructor D, personal conversation, March 16, 2009). Instructors E and F highlighted the need to have the beginning instruction be thorough and go over the learning process several times (Instructor E, personal interview, February 18, 2009;
Instructor F, personal conversation, February 17, 2009). Allowing enough time to become familiar with this pedagogy was also indicated by instructors B-F. Once again, the researcher noted the continued theme of the necessity to have good training and support when using the web interface for blended instruction.

**4. Time to prepare for teaching using a blended instruction format and a commitment to this pedagogy was an additional challenge.**

Instructors A-F appeared to recognize that it would take time to learn how to use the web properly. Many of the instructors indicated features that they would like to either incorporate or use that would take additional instructor time and preparation. Instructor C noted she would like a “favorites list”, perhaps of her own, or did this mean provided by another source such as a fellow teacher (personal conversation, April 21, 2009)? Instructor F also addressed this concern by discussing the need to provide at least some basic sites or “feeder links” for students to utilize with other students than finding more of their own sites (personal conversation, February 18, 2009).

Instructor E stressed the need to establish validity and being aware of “.Coms” (personal conversation, February 18, 2009). Instructor F shared the need to have models for assignments and the fact that students might know how to use computers for pleasure such as games, but not perhaps education (personal conversation, February 17, 2009). Both instructors E and F stressed the need to have structure and guidelines for online assignments. Responses indicated to the researcher the themes of time to learn how to use the web and training on the proper use of the web as a support system to using blended instruction.
The researcher probed for the instructors’ perceptions about how much time it might take to utilize the web. When examining their responses, the researcher noted that instructors E and F, who had used the technology the longest, perceived the web more favorably. Instructor E viewed the experience of using the web as staying current in the World and the direction that education might be going, while instructor F noted that all learning takes time (Instructor E, personal conversation February 18; Instructor F, personal conversation, February 19, 2009). Other options were given as choices if one did not want to use the web by instructor C. Instructor C also endorsed that using the web could save time (personal conversation, May 10, 2009).

Instructors B and C shared that all learning takes time, whether it is face to face or on the web, and that learning to use the web interface for blended instruction might not be a fast process (Instructor B, personal conversation, June 9, 2009; Instructor C, May 9, 2009).

*I have been trained, but not dedicated enough time to do it. It would be nice to have an in service day to get our sites up and mandatory to update our sites. You have to allow enough time to grasp the technique. We never return back to what was introduced at the beginning of the year. No follow up with using SWIFT. Now we need to fine tune and use them. Have some collaboration with your colleagues* (Instructor B, personal conversation, June 19, 2009).

Student perceptions were supportive of using the web for finding information.
It is not time consuming, you just have to know what you are looking for and Google helps a lot with anything that we do in class. The web has so much information that it is pretty much impossible to not find what you are looking for (Student 4, personal conversation, February 17, 2009).

Student 1 was even bolder, and stated:

It was perhaps, even more time consuming to find information without the web (personal conversation, February 20, 2009)

5. Necessary support for facilitating blended instruction.

Instructors and students noted the necessity of having support when utilizing a blended instructor format. This support could be in the form of technology support personnel assigned to the school building or even the ability of students and instructors to problem solve on their own. Listening to instructions given by the instructor was deemed important as well as clearly written directions that were available both on the web interface and in a printed format.

This suggestion would fit with instructor E’s encouragement to try something on your own that might solve the technology problem (personal conversation, February 18, 2009). Instructor F also noted that if the majority did not understand how to solve a problem, then it might need to be re-taught (personal conversation, February 17, 2009). Face-to-face instructors would more than likely agree to that strategy. Once again, the researcher noted a strong indication that training and support are major factors when learning how to use and access the web for blended instruction. Instructor F also noted the following:
In the beginning I would tell the students that if they ever have problems they need to ask questions. If they do not ask questions, the instructor would not know there are problems. Goes back going over the directions several times. Students need to take responsibility for listening. They just don’t want to take responsibility. If they are not getting (it) then step back and re-teach it. Sometimes one on one, or the majority of the class might need it (personal conversation, February 17, 2009).

Instructors D and E emphasized the importance of computer access and technology support.

*First of all computer access from home and school.*

*Clear expectations for the student.*

*Good communication both written and verbal.*

*Working knowledge of SWIFT or similar interface, software* (Instructor D, personal conversation, May 10, 2009).

*First of all we need appropriate equipment and latest version of software, Adobe flash and thing that many web sites use.*

*Administrative rights for the teacher. If I do need to download something it works better. A tech person that is willing and available when you do have something that you can’t solve.*

How available is your tech?
She is half time every day and also is available by email. She is supporting two schools (Instructor E, personal conversation, April 10, 2009).

Good tech support. I feel you need to have a good relationship with your technology people in your school, keep them informed on what you are doing and what type of support you would want from them. I also feel the instructor that is doing blended instruction needs to know how to work the site the students are using. This means the teacher needs to be able to attend classes on using the site before having students use the site.

How much instruction did you receive?

When the state went through and got laptops. We did 4 day training at school and 2 days at a college campus. Everything else I learned has been on the job training by listening, learning, networking. I have found we have opportunities to attend in the summer, but I will sit in the session for one hour and district won’t pay for it or I don’t have time to sit and apply it. There needs to be time to implement it and instruction on going (Instructor E, personal conversation, April 10, 2009).

Student perceptions were descriptive of their background and extensive use of technology if they need help or assistance in using the web interface for blended instruction. They would most likely suggest refreshing or restarting the computer, talk to another student or ask the teacher.
6. **Knowing how to facilitate blended instruction to compliment face to face teaching.**

How did teachers utilize the web interface to facilitate blended instruction and their face to face encounters with students? Note taking was an issue that the researcher covered in questions posed to the instructors and students. Did the web interface used for blended instruction mean that students then didn’t need to pay attention in class? Would the information already posted on the web mean that students were not engaged in learning while in class? Instructors and students alike felt that the having the information on the web interface was supportive of class room learning.

*I always tell kids that the purpose of notes is for their knowledge. If they already know something there isn’t any reason to write it down. However if they haven’t already looked at the notes, they probably need to take them* (Instructor D, personal conversation, May 20, 2009).

*I say let them use the resources available in the way that works best for them. I usually like to take my own notes because it helps me remember the information, but I have also have had classes in which I was so overwhelmed by the information that I had to totally concentrate on the instructor’s presentation without spending some of my time looking down to take notes. In those classes it was very helpful to have prepared notes available* (Instructor C, personal conversation, May 20, 2009).
Students liked using their computers to supplement daily work and to track assignments. Some mentioned that they would not like to go back to paper and pencil and liked especially the web supported instruction. This student was in a class that had gone totally paperless (Student 6, personal conversation, February 20, 2009).

7. **Sustainability of blended instruction beyond pilot programs.**

Study participants shared several perceptions when looking at the continued use of blended instruction. Instructor F noted that response time can lag in distant courses and that in a blended format the responses could perhaps happen faster. Limited experience in using the web for support in teaching also was a factor that affected responses. Because they had a limited experience, expectations were lower or nonexistent. Instructor D, however, was surprised that what she had posted on her web site was, in fact, connecting with students and parents. This was apparent in her surprise at the number of hits she got on her SWIFT web site (personal conversation, May 20, 2009). On the instructor side of SWIFT, assignments will list how many hits each posting has received. From the researcher’s experience using SWIFT, one need to remember that the hits could be anyone on the web who is surfing for information as the hits are not limited to an instructor’s enrollment.

The researcher also noted that some others will hold a less positive point of view on web-based instruction. One should remember that not all will endorse the use of a web interface for their course work, either as a student or an instructor. Throughout the interview process, Instructor A expressed less interest in the use of
the web from both a student and instructor’s point of view. This point of view needs to be taken into account when promoting the web for education. Web-based instruction will not necessarily work for all. This point surfaced in the responses posed by the researcher:

I have taken distance learning in the past and I always am surprised at how much more I learn in a regular class than a web-based class. The web is a wonderful tool but cannot fully take the place of face-to-face instruction (Instructor A, personal conversation, June 9, 2009).

I would not have any expectations to know what an expectation would be. I just wouldn’t have thought that much about before taking the class and to the fact that it is so new. If someone thinks it will be easy and it is college level work then I look at the level of class. That tells me on much work is going to be required from the class. It doesn’t make any different if online or taught face to face (Instructor B, personal conversation, June 19, 2009).

Another instructor shared her perspective that showed apprehension at the beginning, but later a stronger level of confidence.

It is more personalized than I expected. First experience on TV I felt might be awkward, but it wasn’t. Then online, I found it really wasn’t. Thanks to discussion board, chat rooms. Another factor is the ability to get to know students and personal contact; plus, how much time it takes. But that one of the things that has to happen is that it really does
take time to set it up to make it work. I don’t know that it is that much of a time saver. Getting the lessons prepared and that the more time you spend preparing it probably the more accepted the lesson is. This is true whether you do online or face to face (Instructor E, personal conversation, April 10, 2009).

Students were quite perceptive when they viewed the overall experience of using a web interface for blended instruction. They noted that some issues, like learning how to use the web interface at the beginning of a course, were difficult (Student 3, personal conversation, February 21, 2009). Others noted that students needed to become familiar with the web and the web interface for blended instruction. Still others related that not having a teacher always in the room did take some self-reliance and ability to solve problems on their own (Student 2, personal conversation, February 20, 2009; Student 3, personal conversation, February 21, 2009). Other student suggestions for future use of the web interface for blended instruction revealed a mature level of understanding and advice.

Be self-disciplined because the teacher is not in the room to make sure you are doing what you are supposed to be doing. You can make it a good experience or a bad one. Also try to stay flexible because you just never know when some troubleshooting will happen (Student 2, personal conversation, March 11, 2009).

The instructor, or user, of the new technology needs to take the time to learn how to use the pedagogy correctly. A new theme was that a technology or web supported system may not always be functional. The need to have a back-up plan
was noted. Instructors also noted that students need to know their instructors are there to support student efforts and are available regardless whether it is “cyber” as explained by Instructor B. Some instructors’ perceptions may also reflect the view posed by instructor A, that more might be gained from a non-online class.

*From a teacher stand point- not to take advantage of not having to be there for every class that is already set up. Check in with students to be sure they understand the assignments and they understand the teacher is there to support them regardless if it is cyber. It should be easier to communicate. It should be even more available to your students (Instructor B, personal conversation, June 19, 2009).*

*I think it is a great option for kids. I think some kids do better outside of the traditional classroom.(Instructor D, personal conversation, May 20, 2009)*

*Use tech features that work for what you want to do, but keep the personal interaction. Know your students--do they have skills and materials to use your on-line resources? (Instructor C, personal conversation, May 20, 2009)*

*It is professional development. Know the program and classroom, know WebCT or Blackboard. Do some of that pre work then whole experience will turn out better for you. Take a class a workshop or seminar to train yourself. The trail and error curve is so much greater. Whereas if you work with somebody who has had*
You definitely need some kind of training (Instructor E, personal conversation, April 10, 2009).

You need to know if it is something that will work in your school district. Do you have the resources to support blended instruction in the classroom? (tech support, hardware, administration support, instructor knowledgeable in the use of technology, etc) Be prepared for technology to not work every day, have back up plans. Have an open mind; it is different than the traditional classroom. One of the things that could happen is that students could lose their computer use at home. So have back up handouts of the web material. At least enough that they could finish the assignment (Instructor F, personal conversation, March 10, 2009).

After compiling responses from both instructors and students, the researcher’s findings suggest the following on the use of blended instruction as a support for teaching FCS curriculum or course work: (1) sustain blended instruction once it is introduced as a support for FCS curriculum or any program will necessitate instructors being fully trained, prepared and supported to use the web interface; (2) the blended instruction format will falter and the users experience frustration and difficulty in using this pedagogy unless the funding, technology and training is continued administratively as a sustainable support.
Summary

This descriptive case study examined the blended instruction experiences of six FCS instructors and eight students. Two of the instructors were purposefully recruited from two different Midwestern schools based upon their expanded use of a web interface to support blended instruction. The remaining instructors were selected because of physical geographic location to the researcher and the fact that they were beginning users of a web interface. The study gathered the perceptions and views of the participants to better understand the use of blended instruction supported by a web interface. Information was also gathered to define the equipment, training and funding of web interfaces used by the studied school districts.

Information was obtained by conducting multiple interviews over four session periods of approximately 30 to 40 minutes each. Data were double-checked for accuracy, and then an additional follow-up interview was conducted to clarify the information. Students were included in the study to provide a different perspective than adult instructors, and obtain data from a separate source. Students were interviewed via an email system that followed the same protocol used for instructors.

Data analysis supported the following themes that affect the use of a web interface for blended instruction: (a) lack of funding (b) need for continual training support, and (c) accessibility of equipment or computers for the users of blended instruction. Chapter 5 presents the final analysis of this study and relates the
findings to previous research. The researcher also notes the implications of the study and suggests recommendations for future research.
CHAPTER V. DISCUSSION

This descriptive case study researched how FCS utilizes access to the web by a web interface to facilitate instruction through a blended instruction format. This chapter presents the implications of the case study of six instructors and eight students who were introduced to or actively used a web interface for blended FCS instruction. Five main subsections are presented: (1) Overview of the Study; (2) Summary of Previous Supportive Research; (3) The relationship of previous research to results of the study; (4) Implications and Findings of the Study; (5) Recommendations for Future Research.

Overview of the Study

In the literature in Chapter 2, the researcher explored the implication of blended instruction through several factors. The focus of this study was blended instruction that uses a web interface to support online instruction and face-to-face contact with students. This study summarized the results of data obtained by interviewing six instructors and eight students. The instructors were from two major regions of the United States: two instructors from the Midwest and six instructors from the Northwest. The instructors from the Midwest taught at smaller rural schools that had implemented the use of a web interface to support blended instruction since the early 1990s. The instructors from the Northwest were from larger urban schools that were initially introduced to a web interface for blended instruction in 2007. The
students in the study were from one of the smaller rural schools that used a web interface for blended instruction since the 1990s.

The study used a case study approach that reflected the perceptions of the participants and allowed the researcher to identify emerging themes on the use of blended instruction for FCS secondary education. The following section will identify how previous research is tied to results of the study

**Summary of Previous Supportive Research**

The researcher conducted a thorough review of studies that focused on historical, trends and future needs of how to use technology effectively in education. Ellen Richards’s early vision of emphasizing scientific nature in Home Economics evolved into the FCS profession challenging the status quo and encouraging the use of the latest scientific knowledge (Stage & Vicenti, 1997, pp. 26-27). Blended instruction is perceived by the researcher to be another of those challenges. Literature is emerging that explores blended or hybrid instruction (Patrick & Powell, 2009; Watson, 2008). However, there is a need for more research that focuses on the use of blended instruction for FCS secondary curriculum as well as CTE programs. Post-secondary programs have done better in this regard.

In a study on accessibility of the web, Harrison, Redman, and Kotrik (2000) found that at least half of the FCS instructors in the state of Louisiana in grades 7-12 had a web connection. The review of the literature also revealed that technology was identified as an external trend as well as a cross cutting thread or link in the FCS Body of Knowledge (Baugher, Anderson, Green, Shane, Jolly, et al., 2000).
According to Reibold (2001) academic systems need to work on strengthening the current systems by use of distance education. Reiboldt also posited that online instruction was supplemental to classroom instruction, or what the researcher and others have identified as blended instruction (p. 18). Frydenberg (2008) noted that WebCT, Blackboard and other web interfaces have the tools that enable instructors to post electronic files (e.g., Power Point, Word, & pdf files) handle discussions, and manage course related materials.

The review of the literature also looked at the current status of K-12 learning in the United States (Lynch 2003, Patrick & Powell, 2009; Picciano & Seaman 2009; Watson, 2008). Lynch (2003) noted that early exposure to online learning triggered future success as an adolescent. This perception was explored by questions in the descriptive case study. Another study completed by OECD (2003) revealed that students are able to do most Information Communication Technologies (ICT) tasks and are confident about their abilities. The acronym ICT refers to technology that is used to transmit electronic information such as emails, electronic files and information (OECD, 2003). Questions in the study probed for the students' perceptions of how well they can do tasks related to blended instruction and use of their computers.

Communicating electronically was also revealed as having certain limitations, such as students are not able to get a response back readily from the instructor in real time (Lynch, 2004). Lynch (2004) and Watson (2008) posited that blended instruction might alleviate some of the basic online frustrations because the instructor is available as well face to face. Sharing of work with peers was also
noted by Watson (2008) as being intimidating by some students. Would their work match up to the work of their peers? Watson (2008) perceived that blended instruction increases student-to-student contact and student-to-instructor contact. Lynch (2004) remarked that there is no back of the room which was also idealized by one of respondents in this study. Students eventually find blended instruction does not allow them to be unnoticed.

In a study of blended learning environments, Osguthorpe and Graham (2003) revealed that the time spent in and out of class were issues promoting a blended instruction format. They identified six goals for blended instruction: pedagogical richness, access to knowledge, social interaction, personal agency, cost effectiveness, and ease of revision (p. 231). Computer access also has an effect on the blended learning environment (Belanger, 2002; Picciano & Seaman 2009; Windschiti & Sahl, 2000). Access to computers and technology emerged as a major theme in this study. Previous research supported that, between the last decades from 1990 to 2000, schools have explored and expanded the use of laptops. Balanger (2002) addressed issues of technical support, equitable access, and cost. Each factor was explored in this study.

The aforementioned issues were strong themes in this study as well as training. In an earlier study on faculty computer self-efficacy and integration of electronic communication for post secondary education, Kagima (1998) revealed that training, funding and equitable access to computers were key themes. Although the Kagima (1998) study focused on college faculty, the same themes and issues presented by Kagima are still apparent today at the secondary level. A more recent
study by Picciano and Seaman (2009) researched blended instruction for K-12 and revealed that cost, funding, and training are barriers to successful implementation of blended instruction.

This researcher also explored SWIFT, the web Interface used by school in Northwestern U.S. The SWIFT interface was developed to bridge the gap between online instruction and face-to-face instruction. Four of the instructors in this study had access to SWIFT and the researcher explored their use of the web interface. Two of the instructors discussed their experiences using WebCT as the web interface for blended instruction.

**Relationship between Research Findings and Prior Research**

The following data are reflective of the findings of this study and prior research studies:

1. Data from this study support that school districts are still exploring how to best implement the use of web interfaces for support of instruction (Patrick & Powell, 2009; Stansbury, 2009). Necessary supports of funding, accessibility and training are issues that remain as concerns for users of web interface to support blended instruction (Kagima, 1998; Milliron & Plinske, 2009). Milliron and Plinske (2009) revealed seven different innovative, but current, trends in technology that will drive the use of blended instruction. However, issues of funding, training, maintenance and sustainability still remain if blended instruction is to move forward.
2. As instructors, we have underestimated the acceptance of learning how to use new technologies such as the learning to use a web interface for blended instruction. The acceptance, use and support of blended instruction do not appear to be universal with FCS instructors. In an article written for Cisco Systems, Lemke (2006) posited that administrators have vastly underestimated how teachers have chosen to use the technology supports that are available to them. The teachers in the current study did not necessarily utilize the web interface available to them for blended instruction. This was especially true for the instructors from the Northwestern schools that were provided minimal training and even less follow-up. Training is a key issue in implementation and use of the web interface for blended instruction.

3. Without the proper training, FCS instructors will struggle to utilize a web interface for blended instruction (Kagima, 1998; Leach, 2004; Lynch, 2004; Milliron & Plinske, 2009). The Midwestern schools that invested more training and time in training to use the web interface resulted in greater acceptance of blended learning than the Northwestern schools that had far less training.

4. In a study conducted by Picciano and Seaman (2009), more rural schools revealed the availability of online instruction was vital to offering coursework that might not be accomplished in face to face. Students in the study reported that taking classes such as French were made more available by use of the web for instructional delivery.

5. Equitable access to use of a computer for blended instruction was universal from the student’s viewpoint. Instructors were divided depending upon
whether the school district was more rural or located closer to larger cities. The instructors from smaller districts viewed the access to computers as imperative for blended instruction. The instructors from the larger schools viewed public access to libraries, school computer labs and individual classroom access as supportive of a blended instruction format. Access to computers to support online learning was recently addressed in a report by Project Tomorrow: Blackboard K-12 (2009), in which 16% of principals nationwide were concerned that students did not have access to web-connected computers.

6. Commitment to funding a web interface for blended instruction as well as instructor training was deemed important by instructors in this study. In the Blackboard K-12 national study, 22% of principals nationwide reported online learning was not a funding priority in their district, and 20% cited limited state funding as barriers to providing online classes at their school (Project Tomorrow: Blackboard K-12, 2009).

Findings of the Study and Future Implications

Use of web interface and providing training for instructors

The initial training period varied between the school districts and schools studied. According to the Midwestern teachers interviewed for this study, their initial training for utilizing the web interface for blended instruction was a five to six day intense workshop before school started, with either a one-day follow-up session or the opportunity to earn 2 credits (see Table 3.1). The schools in the Midwestern
state have been operational using the web and WebCT as a supportive interface for instruction since early 1990s. Instructor F also related that they will do another two-day intensive workshop in the fall of 2009 before school starts as they are upgrading the computers and their interface system. She also related later in a response to a research question that her state initially spent a month training staff in the latter 1990s (personal conversation, February 7, 2009). The two Midwestern instructors had from three to nine years of experience actively using blended instruction through a web interface system

The Northwestern schools confirmed that their training for SWIFT was two hours during a week-long workshop that introduced several other subjects in addition to the use of the new web interface, SWIFT (V. Alonzo, personal conversation, July 22, 2009). This school district offered workshops provided by individual school building technical support staff. However, the intensity and availability of support was not the same in all school buildings. Each school building had a staff person appointed by the principal to help others with the SWIFT system, but no time was allotted to do this and the expectation was that, through emails or individual planning time, the staff could help others. In reality, instructors A-D said that it was difficult to network and get assistance and support to learn the new interface system (Personal interviews, February 4, 2009).

All participating instructors had access to an online web interface system. The two Midwestern instructors used WebCT and the remaining instructors used SWIFT or Systematic web Interface for Teachers. Participants A-D had experienced using Blackboard, either as an instructor or a student. In addition, WebCT had been used
by all but participant D (Table 3.1). The instructors also revealed the percentage of staff in their buildings that were actively using a web interface to support face-to-face instruction. Instructor A-C said that approximately 50% of the staff in their buildings were actively using SWIFT to support their face-to-face instruction (personal conversations, April 21 and May 16, 2009). Instructor D estimated that 75% of the staff used the SWIFT interface (personal conversation, March 10, 2009). However, the FCS instructors from the Northwestern schools struggled to utilize SWIFT, their web interface. The researcher realized that the emerging themes—lack of training, time and funding—began to unfold in the Northwestern school instructors’ responses as the interview process continued. Funding was directly influential to accessibility of the equipment as well as continued support for training, upgrades, and availability of computers.

The Midwestern schools had similar responses that were shared in the interview process. Instructor E estimated that 33% of the staff used WebCT (personal conversation, April 10, 2009), and the other smaller school instructor F estimated 50% of staff used Quia or personal webs, Google and WebCT (personal conversation, March 10, 2009) (see Table 3.1)

The coursework supported by online web interface for all participants included CTE Health, Interior Design, Fashion Design, Introduction to Home Economics, 6th and 7th grade electives program, Human Development, Introduction to Hospitality and Tourism, Instructional World Languages, Home Club, Parenting, Child Development, Relationships, and World to Work (Table 3.1).
Funding of web interface to support FCS blended instruction

Funding for web interfaces varied between the three districts. The two districts from the Midwestern state were wired through state funds and utilized the state prison system to do the actual setup work. According to a personal conversation with Instructor E (February 20, 2006), the prison inmates were housed in gymnasiums and school cafeterias during the summer until the system was up and running. The Midwestern schools’ computers were funded through a state program and individual school system funds. Instructor E further shared that all students from 7th through 12th grade had personal emails and web access through the state system. The students were also issued a laptop computer in the 9th grade. This generally meant that the seniors had passed down their laptops to the 9th-graders.

The other schools from the Northwestern state had a much different situation. Wiring of the schools was funded through taxes levied for project funding of technology in the individual district (V. Alonzo, personal conversation, July 22, 2009). The actual wiring was done by district maintenance personal through the IT Department. At this time, the same district has no plans to issue personal laptops to individual students even though a neighboring school district is piloting the issuing of laptops to 7th grade students (V. Alonzo, personal conversation, July 22, 2009). The researcher observed that the Northwestern state has a wide variety of ways that technology is funded in this state. For the intent of this study, however, the researcher deemed that exploring all the methods of funding in the local Northwest state would more appropriately be discussed in future research.
Funding issues also affected the support given for initial and continuing training. The Midwestern schools had more administrative support for training as well as innovative means of initially installing the wiring for schools to become technologically active. In the late 1990s, prison inmates were used to wire the school buildings. The Northwestern schools relied on school levies and district funds for setting up their school buildings.

**Availability of computers for web interface access**

Each of the Northwestern schools had about the same number of computer labs available to students. Two of the schools had two computer labs each, with approximately 40 computers available to students. In each teacher’s classroom, there were four computers for student use, plus one desktop computer that was issued to the teacher. Their libraries had 56 to 60 computers available to students to conduct research on the web. The one smaller Northwestern school had 30 computers in their library and four computers were available for student use in each classroom (see Table 3.1). The researcher also noted that, on a district-wide basis, four computers per classroom have been made available during the past eight years. Original funding was obtained over an eight-year span, from 1996-2004. However, some buildings did not place the minimum of four computers in each classroom and, instead, opted to place the computers collectively together in a central computer lab for entire class usage (N. Vien, personal conversation, August 7, 2009). Laptops on carts also were provided at the same time, but actual placement for many school buildings did not happen until approximately five years
ago. In the average school building at the secondary level, there might be four carts available for approximately 80 teachers to check out for personal classroom use (N. Vien, personal conversation, August 7, 2009). Administratively, the IT department from the Northwestern district shared that continuing support for innovative programs in technology often gets funded separately from education funds and, once those funds expire, districts find it difficult to fund the technology at the local level (N. Vien, personal conversation, August 7, 2009).

The two Midwestern schools varied between the two schools studied. One had 24 stationary computers available in the library and a mobile cart of 20 computers available to teachers. However, the district issued all students a laptop that was used both at school and home (personal conversation, instructor F, February 7, 2009). The larger of the two Midwestern schools had only 12 computers available in their library, but each student had a laptop and the building was wired for wireless web throughout the building. Instructors also were issued a laptop that could be taken home. The other school was also totally wired throughout the building for wireless internet (personal conversation, Instructor E, February 6, 2009).

On the other hand, computer availability was much different for the larger Northwestern schools. Half (50%) of the students were estimated to have access to home computers by the teachers in the study (see Table 3.1). The 9th-12th grade students in the Midwestern schools all had school district issued laptops (personal conversation, Instructor E, February 6, 2009).

Student perceptions on the need to have access to computers were consistent and profoundly supported that each student needed their own computer
to complete assignments. Students in the study were from smaller rural schools that had provided a web interface, WebCT. In addition, the students were provided with their own web and state emails. Although the Northwestern schools did not allow their students to be part of the study, the students in the Northwestern schools would not have been provided with this level of technological support. This was reported previously in interviews with the instructors from the Northwestern schools as well as school administrators managing the IT support.

**Future Implications for the FCS Profession**

If the FCS profession is to stay on the cutting edge of utilizing the web and technology based instruction to enhance student learning, then the following suggestions would provide some basic guidelines. The following implications are made for the FCS profession based on the findings of the study:

1. FCS instructors will need to expand their technology training to stay abreast of current trends that utilize blended instruction as a support for class instruction. In the study on technology in schools Lemke (2006) posited that areas of learning in technology will advance for the K-12 population.

2. Blended instruction can be a way to ease into the further use of online instruction. For schools that want to ensure that students have effective support of face-to-face instruction, blended instruction may offer an easing into process for more online instruction (Patrick & Powell, 2009; Picciano & Seaman, 2009).
3. Larger school districts as well as more rural districts are beginning to utilize a web interface support system (Picciano & Seaman, 2009). A web interface support system may provide opportunities for FCS to reach populations that might otherwise be lost, such as the home-schooled students needing vital elective programs to graduate. One such example is the Oregon K-12 Online Schools that offer a course in dating, marriage and family (Oregon Network for Education, n.d.). What other courses may fit the online format, either as a blended instructional format or totally online? Following is a list of suggested courses that can be offered in a blended format:

- An orientation course for survival independent living skills needed by students transitioning from home to college or leaving home away from family for that first job.
- Supplemental skills instruction for clothing construction that have detailed instructions for doing repairs such as installing new zippers and making quick repairs to reinforce a ripped out pair of jeans, etc.
- Health courses are currently offered by several online disciplines. Investigate who is teaching this discipline locally online. FCS is certified in many states to teach family health and the FCS course is CTE curriculum.
- Food labs done at home with appropriate recipes and directions.
- Child Development supplemental instruction to community lab experiences.
Promote student leadership development by putting up the projects online and then tying them to the FCCLA leadership frameworks.

Work with local FCS instructors to identify other areas that could be supported online.

4. To combat the perception that FCS programs at the secondary level view online programs as threatening to enrollment, more research and trial programs should be investigated that might expand the catalog of classes that can be supported by a web interface system of blended instruction. FCS instructors may want to try some of these suggestions to utilize technology available to make their courses more viable in our technologically advancing world:

- Share ideas for courses being a blended format with your immediate teaching colleagues.

- Use a team approach when investigating a web interface to ensure that FCS instructor input will be valued when adopting this new technology.

- Investigate what is already working in a blended format for the FCS discipline.

- Adapt and be creative to find innovative ways to use the blended instructional support systems becoming available.
• Partner with post secondary institutions to offer supplemental instruction that could be supported by a web interface and perhaps offer cross crediting as well.

5. Investigate the online support web interfaces that are basically free such as:
   • Google
   • Moodle
   • Haiku Learning Management System
   All offer innovative ways to supplement face to face instruction, and the cost is zero.

6. Be on the team that investigates and proposes a web interface system for your school system.

7. Utilize the web interface that is available and then give constructive feedback on how to improve the system and delivery for blended instruction.

8. Encourage funding support for web interface through actively utilizing the service and then offering teaching support to colleagues new to the system.

9. Practice diplomacy with non users of the web Interface. Some instructors will prefer to learn at their own pace and even others not use the web interface at all.

10. Recognize that the web Interface will be ever changing and evolving. As such, FCS instructors will need to constantly upgrade and fine tune their skills when using a web interface for blended instruction.

11. Have a backup plan when the web interface is off line or not available.
   Technology is often unpredictable and having an alternate plan will greatly
facilitate instruction while providing less frustration for the instructor and students.

12. Realize that some skills may still be best taught entirely face to face and instruction is still valid and current if not supported by technology.

13. Recognize that information on the web is literally global and anyone can access the information. Information placed on the web needs to be correct, current, and without any mechanical errors such as spelling, grammar, etc.

14. Facilitate student usage of the web interface for blended instruction by being sure lessons and activities are kept up to date and reflect what is taught face to face.

**Limitations of the Study**

By nature, case studies are generally not conducted with a broad base population. This case study used a purposeful sampling of the FCS population to ascertain their perceptions on the use of blended instruction. The study was conducted with the outlook to be able apply the results to a larger FCS instructor population. This case study was limited to six FCS instructors and a separate set of eight students. The study was conducted with the mindset that generalization may be applied to larger populations teaching FCS curriculum. Some reviewers may feel that more data need to be collected and, as a result, a quantitative study of larger proportions is recommended for future studies.

Data were gathered during four different sessions that were approximately 30 minutes each. Student interviews were conducted solely via an email response
answer session due to distance, technology compatibility, and student confidentiality. Four of the instructors were previously known to the researcher, but did not teach in the same building.

As the primary interviewer, the researcher acknowledges her own background may have created some bias. The researcher is a veteran FCS instructor with a broad background of teaching online and actively supports her classes with a web interface system. However, every attempt was made to listen to the instructors in the study and see the data recorded through the lenses of the users of blended instruction. Two instructors were also veteran active users of utilizing a web interface to support blended instruction. The remaining four instructors had a one-year exposure using a web interface system to support their instruction. The students were all from same rural school district.

**Recommendations for Future Research**

This case study explored the use of a web interface system to support FCS blended instruction. The implication is that utilizing blended instruction may open the door for future use of this pedagogy for the FCS profession as well as the broader CTE community. The technology is available to instructors and the possibilities are only limited by the instructor's imagination, training, support, funding, and accessibility to equipment. Suggestions for future research might target the following areas:

- Broader study covering adequate funding and support to continue the use of a web interface to do blended instruction.
• CTE broad-based study that could give support for expanded use of blended instruction in multiple CTE disciplines.

• Equitable access to equipment to support blended instruction and who might provide the funding.

• Best practices that employ good training and education for FCS and CTE instructors and others to utilize blended instruction.

• Focus on the effect of web-based blended instruction and school to work training.

• Age differences in staff that might utilize blended instruction. Does younger staff necessarily mean more engaged in blended instruction and use of technology?

• Cross crediting post secondary with secondary CTE professionals that would utilize and support blended instruction through mutually supported web interface systems. For instance, an articulated high school child development class that combines online instruction shared between post secondary and secondary instructors while combining face to face instruction with the two levels of students who might share a common field experience. Study could be done as qualitative or quantitative depending on the focus of the research question.

Looking deeper at the ideas presented, one may envision a greater tie that fosters capacity building within the CTE profession. In a lecture presented to the
FCS Leadership Academy at Iowa State University, Ralston (2002) noted that capacity building involves these key elements:

- Strengthening the value of relationships where understanding can be shared,
- Developing a “culture of learning” where new knowledge and innovation can thrive and
- Identifying and nurturing future leaders who understand the importance of wisdom. (Ralston, 2002)

The use of technology can foster development of the aforementioned endeavors. Certainly, the exploration of how to utilize technology in the FCS profession will produce more answers and questions to ponder as FCS instructors explore how to use new knowledge and innovations such as blended instruction.
APPENDIX A. HUMAN SUBJECTS APPROVAL AND CONSENT FORMS

IOWA STATE UNIVERSITY

DATE:  14 January 2009
TO:  Vivian G. Baglien
     28008 193rd Ave. SE, Kent, IA 98042
CC:  Dr. Leah Keino
     302 MacKay Hall
FROM:  Jan Canny, IRB Administrator
        Office of Research Assurances
TITLE:  PhD study- Blended Instruction: A look to the future for Family and Consumer Sciences
IRB ID:  08-489

Approval Date:  13 January 2009
Date for Continuing Review:  12 January 2010

The Chair of Institutional Review Board of Iowa State University has reviewed and approved the modification of this project. Please refer to the IRB ID number shown above in all correspondence regarding this study.

Your study has been approved according to the dates shown above. To ensure compliance with federal regulations (45 CFR 46 & 21 CFR 56), please be sure to:

- **Use the documents with the IRB approval stamp** in your research.
- **Obtain IRB approval prior to implementing any changes** to the study by completing the “Continuing Review and/or Modification” form.
- **Immediately inform the IRB** of (1) all serious and/or unexpected adverse experiences involving risks to subjects or others; and (2) any other unanticipated problems involving risks to subjects or others.
- **Stop all research activity if IRB approval lapses**, unless continuation is necessary to prevent harm to research participants. Research activity can resume once IRB approval is reestablished.
- **Complete a new continuing review form** at least three to four weeks prior to the **date for continuing review** as noted above to provide sufficient time for the IRB to review and approve continuation of the study. We will send a courtesy reminder as this date approaches.

Research investigators are expected to comply with the principles of the Belmont Report, and state and federal regulations regarding the involvement of humans in research. These documents are located on the Office of Research Assurances Website [www.compliance.iastate.edu] or available by calling (515) 294-4566.

Upon completion of the project, please submit a Project Closure Form to the Office of Research Assurances, 1138 Pearson Hall, to officially close the project.
INFORMED CONSENT DOCUMENT FOR RESEARCH STUDY

Title of Study:

Blended Instruction: A Look to the Future for Family and Consumer Sciences.

Investigator: Vivian G. Baglien Instructor Auburn School District and Iowa State University PhD Candidate. This is a research study. Please take your time in deciding if you would like to participate. Please feel free to ask questions at any time.

INTRODUCTION

The purpose of this study is to study blended instruction methods for Family and Consumer Sciences curriculum. Blended instruction is teaching students face to face in a classroom, while engaging the students online or using the internet as a teaching medium. You are being invited to participate in this study because you are either enrolled in a Family and Consumer Sciences class or you are an instructor of that program. (Note: if you are a parent or guardian, the procedures describe what your child will be asked to do).

DESCRIPTION OF PROCEDURES

If you agree to participate in this study, your participation will last for approximately 9 weeks. During the study you may expect the following study procedures to be followed: Participants in this study will be involved in four different interview/survey response sessions that will focus on how they feel about the use of blended instruction. The length of each session will vary depending upon how you respond to the questions, but each session is not expected to last for more than one hour. Some participants will be selected to be interviewed via a taped discussion or instant message format if face to face interaction is not possible. A Web cam will be used for some participants that are distantly located. The Web cam will be provided by the researcher if this method is used. For students, interviews over the Web cam will take place in school. Records of all exchanges will be destroyed once the dissertation research is completed. The estimated time frame for deletion of interview recordings is August of 2009. You may skip any questions that you do not wish to respond or that makes you feel uncomfortable.

RISKS

There are no foreseeable risks at this time from participating in this study.

BENEFITS

If you decide to participate in this study there may not be any direct benefit to you. It is hoped that the information gained in this study will benefit society by providing valuable information about curriculum development and how it might be delivered effectively to students in Family and Consumer Sciences classes.

COSTS AND COMPENSATION

You will not have any costs from participating in this study. You will not be paid for participating in this study. ORA 10/06 2
PARTICIPANT RIGHTS  Participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled. If you are a student, your choice of whether or not to participate will not have any effect on your grade for the class.

CONFIDENTIALITY  Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information. To ensure confidentiality to the extent permitted by law, the following measures will be taken subjects will be assigned a unique code and letter and will be used on forms instead of their name. Any identifiers such as age, gender, or ethnicity will be protected and stored in a password protected computer file. Only the researcher will have access to these files. This data will only remain active to completion of the dissertation write up. If the results are published, your identity will remain confidential

QUESTIONS OR PROBLEMS  You are encouraged to ask questions at any time during this study.
- For further information about the study contact Vivian G. Baglien, researcher: 206-550-0294, vbaglien@auburn.wednet.edu. Or Dr. Leah Keino, keino@iastate.edu Iowa State University, 30C McKay Hall, Ames, Iowa, 50011-1125, Phone: 515 294 9371
- If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, (515) 294-3115, Office of Research Assurances, Iowa State University, Ames, Iowa 50011.

*************************************************************************************************

PARTICIPANT SIGNATURE  Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study. If you received this consent online, please print a copy of the informed consent for your own files. Participant’s Name (printed) (Participant’s Signature) (Date) I am an adult___________, minor child___________. ORA 10/06 3

If a minor child then parental approval is needed. Please sign below.

______________________________________ (please print your full name) and list your relationship to the minor child). _________ legal guardian __________ parent. I hereby give my consent for my son/daughter______________________ to participate in this study. (Print child’s name) (Signature of Parent/Guardian or (Date) Legally Authorized Representative)

INVESTIGATOR STATEMENT  I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits and the procedures that will be followed in this study and has voluntarily agreed to participate. (Signature of Person Obtaining (Date) Informed Consent)
Blended Instruction Study Questions

Researcher: Vivian G. Baglien

The proposed questions are:

Session One: Background Information

- How would you describe your background and experience in using technology as a method of learning? How old were you and what equipment was available to you?

- What was the task at hand or what were you expected to do with the technology? This could be both formal and informal such using game programs, taking a course, participating in an electronic interactive event, etc.

- How would you describe your ability to use a home computer? What skills or tasks do you utilize the computer? Why did you choose to use a computer to do the tasks?

- How often did you explore or use the Internet prior to enrolling in a course that used online support? Describe what was the purpose of this experience?

- How do you feel about the use of the Internet to find information and communicate?

Session Two- Course use of Internet

- Suppose it is my first day in a course that is going to use blended instruction. What would an ideal experience be like?

- Some people might say that it is time consuming to find things on the web for a class. What would you say to them?

- If I had a problem using the course website, what advise would you give me?

- Some people would say that learning on the internet takes too much time and effort. How would you respond to their concerns?

Session Three- Class Supports and Navigation
• What would be the ideal supports necessary to deal with teaching this course in a blended format? Why?

• Describe how you felt the WEB site tool bars for the course worked in finding assignments and how to turn in the assignments. Why do you feel this way?

• Some people would say that it is not necessary to take notes in class if the information is also available on the course website. What would you say to them?

• Were you able to navigate successfully the supplemental programs? If not, what made it difficult for you?

• In dealing with absences from class some people felt that additional information from the teacher was needed to explain the assignment. How would you respond to their concerns?

Session Four- Final Feedback and Evaluation

• Would you say that the blended instruction was different than you expected?

• What would you say to someone about taking or teaching future courses that might have an online or blended instruction feature?

• If you were to repeat this experience (technology based blended instruction) what would you suggest for future learners and instructors?
APPENDIX B. INTERNATIONAL STANDARDS FOR TECHNOLOGY EDUCATION (ISTE)

National Educational Technology Standards (NETS•T) and Performance Indicators for Teachers

Effective teachers model and apply the National Educational Technology Standards for Students (NETS•S) as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community. All teachers should meet the following standards and performance indicators.

Teachers:

1. Facilitate and Inspire Student Learning and Creativity
   Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments. Teachers:
   a. promote, support, and model creative and innovative thinking and inventiveness
   b. engage students in exploring real-world issues and solving authentic problems using digital tools and resources
   c. promote student reflection using collaborative tools to reveal and clarify students’ conceptual understanding and thinking, planning, and creative processes
   d. model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments

2. Design and Develop Digital-Age Learning Experiences and Assessments
   Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S. Teachers:
   a. design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity
   b. develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress
   c. customize and personalize learning activities to address students’ diverse learning styles, working strategies, and abilities using digital tools and resources
   d. provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching

3. Model Digital-Age Work and Learning
   Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. Teachers:
   a. demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations
   b. collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation
   c. communicates relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats
   d. model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning

4. Promote and Model Digital Citizenship and Responsibility
   Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Teachers:
a. advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources
b. address the diverse needs of all learners by using learner-centered strategies and providing equitable access to appropriate digital tools and resources
c. promote and model digital etiquette and responsible social interactions related to the use of technology and information
d. develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital-age communication and collaboration tools.

5. Engage in Professional Growth and Leadership
Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers:

a. participate in local and global learning communities to explore creative applications of technology to improve student learning
b. exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others
c. evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning
d. contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community

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APPENDIX C. MIND MAP

DIAL Virtual School – Health Education

Introduction to Wellness Lesson Map
1.1

Knowing about health and wellness is vital to your ability to enjoy life. This lesson begins our understanding of the importance of health and wellness and how it correlates to us. When you hear of someone talking about health, what comes to your mind? Many of us do not understand the importance of health and how it controls our bodies.

Standards

SM.1.1 Analyze the role of individual responsibility for enhancing health.

Assessments: Discussion (20 points)
Role Model (20 points)
Sentences (12 points)

Activities:

1.1.1 Wellness is an expanded idea of health. Read the article from the American University on the definition of health. [http://www.american.edu/academic.depts/cas/health/nchf/nchfhpdef.html](http://www.american.edu/academic.depts/cas/health/nchf/nchfhpdef.html)

1.1.2 Discussion: Of the six parts of health, which one do you think is the most important and why? Respond to three other classmates. The discussion board rubric will be used for grading.

1.1.3 Assignment: Find a wellness role model. Choose someone you consider to have embraced a wellness lifestyle. How is that person’s overall health reflected in each of the dimensions of wellness (the wellness diagram)? What can you borrow from her or his experiences and strategies for success in building a wellness lifestyle? Write a paragraph about this person by answering the questions above.

1.1.4 Assignment: You will complete an open ended sentence and submit your response.

Sentence: To me, being healthy means being able to....(Remember to write in four of your own sentence endings to this sentence.)
Table D3.3. School A

<table>
<thead>
<tr>
<th>Institution</th>
<th>Institution Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>Public School</td>
</tr>
</tbody>
</table>

**Characteristics**

- **Locale:** Suburb: Large (21)
- **Type:** Regular school
- **Total Teachers (FTE):** 83.0
- **Total Students:** 1847
- **Student/Teacher Ratio:** 22.3

**Enrollment by Race/Ethnicity**

- American Indian/Alaskan Native: 116
- Asian/Pacific Islander: 147
- Hispanic: 236
- Black, non-Hispanic: 110
- White, non-Hispanic: 1238

**Enrollment by Grade**

- **Grade Levels:** 09 - 12
  - 9th Grade: 511
  - 10th Grade: 476
  - 11th Grade: 486
  - 12th Grade: 374

(Source: CCD Public school data 2006-2007 school year.)
Table D3.4. School B

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<th>Characteristics</th>
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<tr>
<td><strong>Institution Type:</strong></td>
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<td><strong>Type:</strong></td>
<td>Regular school</td>
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<td><strong>Total Teachers (FTE):</strong></td>
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<td><strong>Total Students:</strong></td>
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<td><strong>Student/Teacher Ratio:</strong></td>
<td>22.8</td>
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**Enrollment by Race/Ethnicity**

- American Indian/Alaskan Native: 37
- Asian/Pacific Islander: 159
- Hispanic: 151
- Black, non-Hispanic: 83
- White, non-Hispanic: 1354

**Enrollment by Grade**

- Grade Levels: 09 - 12
  - 9th Grade: 490
  - 10th Grade: 455
  - 11th Grade: 433
  - 12th Grade: 406

(Source: CCD Public school data 2006-2007 school year)
Table D3.5. School C

<table>
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<tr>
<th>Institution Name: Middle School</th>
<th>Institution Type: Public School</th>
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</thead>
<tbody>
<tr>
<td>Characteristics</td>
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</table>

Locale: Suburb: Large (21)
Type: Regular school

<table>
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<tr>
<th>Characteristic</th>
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<tr>
<td>Total Teachers (FTE)</td>
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<tr>
<td>Total Students</td>
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<td>Student/Teacher Ratio</td>
<td>18.4</td>
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</table>

Enrollment by Race/Ethnicity

- American Indian/Alaskan Native: 27
- Asian/Pacific Islander: 63
- Hispanic: 128
- Black, non-Hispanic: 51
- White, non-Hispanic: 523

Enrollment by Grade

Grade Levels: 06 - 08

- 6th Grade: 263
- 7th Grade: 269
- 8th Grade: 260

(Source: CCD Public school data 2006-2007 school year)
Table D3.6: School E

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**Characteristics**

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<td>Total Teachers (FTE): 53.8</td>
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<tr>
<td>Total Students: 810</td>
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<td>Student/Teacher Ratio: 15.1</td>
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**Enrollment by Race/Ethnicity**

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<th>Race/Ethnicity</th>
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<td>Hispanic</td>
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<tr>
<td>Black, non-Hispanic</td>
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<td>White, non-Hispanic</td>
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**Enrollment by Grade**

<table>
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<th>Grade Levels: 09 - 12</th>
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<tbody>
<tr>
<td>9th Grade: 207</td>
</tr>
<tr>
<td>10th Grade: 207</td>
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<tr>
<td>11th Grade: 210</td>
</tr>
<tr>
<td>12th Grade: 186</td>
</tr>
</tbody>
</table>

(Source: CCD Public school data 2006-2007 school year)
REFERENCES


ACKNOWLEDGMENTS

Heartfelt thanks to the following people who have made a difference in my life:

Karen Bergh and Betty Wolf, who were dynamite daughter and mom combo, and encouraged a friend to join them in their journey to study for her PhD at Iowa State University.

A special thanks to Betty, who, at 80 years of age, began her PhD program of study with more zest than most could imagine. She is truly a lifelong learner.

My committee both past and present:

- Dr. Cheryl Hausafus, who was kind enough to serve on my committee during those first couple of fast paced years and whose role as the Director of Graduate Education we all came to value when urgent questions needed her experienced input.

- Dr. Niki Davis, who guided me through those first attempts at gathering research and offered her wonderful expertise on the use of technology in education.

- Dr. Beverly Kruempel, whose prompt responses urged me to continue. She was also so very positive and provided a kind, knowing approach that was truly appreciated.

- Dr. Leah Keino, for her patient support and words of advice. She also made sure that I could write through a world lens, not just sound like an American. She was a constant force to my finishing up the degree process.
• Dr. Gary Phye who agreed to take on yet one more committee and offered valuable input.

• Dr. Betty Trost, who also agreed to take on one more committee and gave insightful suggestions to finishing up the dissertation process. Her attention to detail is gratefully acknowledged even when I found myself sometimes questioning the process.

• Dr. Laurie Nichols, who was an instant catalyst that first hot summer in Iowa, and made all in cohort two feel welcomed, honored, and excited to start the PhD process.

• Dr. Mack Shelly, who was a constant member of the committee and offered advice in composing a qualitative research project.

Pat Hahn, who was kind enough to take on yet one more dissertation to edit and give positive feedback, your passion for helping at this level is a true gift.

My parents, who were lifelong learners, although they were unable to finish high school, they insisted that their children stay focused and finish their schooling.

My brothers—Jim and Ray, I wish you could see your sis now. I can finally really pedal!

My son, whose first gurgle said, “Education is where it’s at, Mom.” His future was my responsibility and as a Mom I knew I had to set the standards high in order for him to see education as a means to be the best you could possibly be.

My grandma, Merrila, who taught normal school and rode her horse every day to get there, often grabbing a banana on the way. She was the most patient, loving
and encouraging grandmother a kid could ever be fortunate to have! What a wonderful role model she was to over 90 grandkids!

The high school counselor who said my SAT scores weren’t good enough for college. I’m glad I didn’t listen and pedaled forward.

To my past 10,000+ high school students who reminded me daily about the importance of instilling in each and everyone to do their best.

Finally, to my son Trevor, his wife Barb, and my grandkids—Whitney, Max, and Daniel, you are the true gifts of a good life and the best cheering section any aspiring scholar could have.