COMPUTERS AS ROOMMATES: THE OHIO UNIVERSITY RESIDENCE HALL COMPUTER PROJECT AND THE LIVES OF FIRST-YEAR STUDENTS

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Computers as Roommates: The Ohio University Residence Hall Computer Project and the Lives of the First-Year Students (230pp.)

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The study examines and describes the impact of the Ohio University Residence Halls Computer project on first-year students' academic work and social lives. The study investigates students' perceptions and attitudes towards the Ohio University computer project, and how they use computers in their dormitory rooms for their academic work and in their social activities. The study also examines faculty members' perceptions on the computer project at OU and describes their point of view of its impact on teaching and learning process.

A qualitative research methodology was employed and an in-depth interview technique was used to collect data from participants. In this study a total of twenty four interviewees were participated: sixteen first-year students, four faculty members and four staff members. Whereas the main target group for this study was first-year students from the University College, the study included faculty and staff members to triangulate students' perceptions.

The findings presented in this study show that the OU residence halls computer project is impacting students' academic work and social lives in a positive manner. Concepts of computer ownership, computer privacy, immediate access, and convenience are behind the students' positive attitude towards the OU computer project. While men were found to be using computers more than women in playing games, the study finds that both men and women are equally using computers with the same intensity for
academic work. However, there is unanimous agreement among students that the OU computer project provides all students with equal access to computers on Ohio University main campus.

This study presents strong evidence that an informal learning community is developing as the result of the SCE in Ohio University's residence halls. An enriched-computer environment is not only providing opportunities for online interactions between students, but also is found to be promoting face-to-face meetings. Accordingly, new forms of learning are taking shape in OU residence halls, presenting new opportunities and challenges to faculty members.

Approved

W. Stephen Howard

Professor of Educational Studies
This work is dedicated to the memories of
my mother Fatma Elshareif and my father Alam Elmahdi
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## Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>4</td>
</tr>
<tr>
<td>Dedication</td>
<td>6</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>7</td>
</tr>
<tr>
<td><strong>Chapter One, Introduction</strong></td>
<td>11</td>
</tr>
<tr>
<td>Purpose of the study</td>
<td>14</td>
</tr>
<tr>
<td>Research Questions</td>
<td>16</td>
</tr>
<tr>
<td>Significance of the study</td>
<td>17</td>
</tr>
<tr>
<td>Limitation of the study</td>
<td>22</td>
</tr>
<tr>
<td>Definitions of terms</td>
<td>22</td>
</tr>
<tr>
<td>Organization of the study</td>
<td>23</td>
</tr>
<tr>
<td><strong>Chapter Two, Review of Related Literature</strong></td>
<td>25</td>
</tr>
<tr>
<td>The Role of Technology in reshaping Teaching and Learning</td>
<td>26</td>
</tr>
<tr>
<td>Problems Associated with Using Technology in Teaching</td>
<td>31</td>
</tr>
<tr>
<td>Learning Communities</td>
<td>35</td>
</tr>
<tr>
<td>Models and uses of learning communities</td>
<td>39</td>
</tr>
<tr>
<td>Philosophical background for learning communities</td>
<td>42</td>
</tr>
<tr>
<td>Learning communities as collaborative environments</td>
<td>45</td>
</tr>
<tr>
<td>Learning communities and technology</td>
<td>46</td>
</tr>
<tr>
<td>Building learning communities in cyberspace</td>
<td>50</td>
</tr>
<tr>
<td>Computer-Enriched Environments</td>
<td>52</td>
</tr>
<tr>
<td>Computers as Social Network Tools</td>
<td>55</td>
</tr>
<tr>
<td>Equal Access to Computers</td>
<td>56</td>
</tr>
<tr>
<td>First-Year students’ Skills on Computers and Internet</td>
<td>58</td>
</tr>
<tr>
<td>Computer Anxiety</td>
<td>59</td>
</tr>
<tr>
<td>Gender and Computer Experience</td>
<td>60</td>
</tr>
<tr>
<td>Students with disabilities</td>
<td>63</td>
</tr>
<tr>
<td>Students’ Use of Computers in Residence Halls</td>
<td>65</td>
</tr>
<tr>
<td>The Implications of Internet Use of College Students' Study Habits</td>
<td>68</td>
</tr>
<tr>
<td>Summary of the Literature Review</td>
<td>70</td>
</tr>
<tr>
<td><strong>Chapter Three, Methodology</strong></td>
<td>72</td>
</tr>
<tr>
<td>Qualitative Inquiry</td>
<td>73</td>
</tr>
<tr>
<td>The Setting</td>
<td>74</td>
</tr>
<tr>
<td>Ohio University</td>
<td>75</td>
</tr>
<tr>
<td>University College</td>
<td>75</td>
</tr>
<tr>
<td>Residence Halls</td>
<td>76</td>
</tr>
</tbody>
</table>
Chapter Four, Findings ......................................................................................................94
Introduction ..................................................................................................................94
Students and professors gave Computers in Residence Halls ‘thumbs up’:
Recruitment and Convenience .....................................................................................96
Technology promotes enrollment ............................................................................99
Students value the convenience of having computers in their rooms ................102
The impact of computers on students’ academic Work.............................................106
Word processing ........................................................................................................111
Presentation tools .......................................................................................................113
The Internet and academic work ..............................................................................114
The Internet and Research .......................................................................................115
Online notes, assignments, and Blackboard technology .............................................119
Collaborative learning ...............................................................................................121
E-mail and Instant (IM) Messaging ..........................................................................123
The impact of computers on students’ social lives ....................................................128
Online communication and personal interactions .....................................................129
Entertainment and play ............................................................................................133
Peer and informal learning .......................................................................................136
Computer Environment: Transforming Teaching and Research .........................144
Faculty members come under pressure to use technology ....................................145
Communication tools bring down the Barriers of Space and Time .........................150
Online course management application .................................................................152
Faculty Concerns in adopting Technology in their Instructional Activities ..........153
Training and Support ...............................................................................................153
Time .........................................................................................................................154
Incentive and rewards ..............................................................................................155
Students entering Libraries via Telephone Lines and Fiber-Optic Cables ..........156
Libraries responding positively to students’ demands .............................................160
Providing online services .......................................................................................160
Providing students with self-Learning materials .....................................................161
CHAPTER ONE

Introduction

Today we live in an information-rich global society. Schools and colleges applying rapidly-increasing technologies, have become places not only to learn new skills, but also to locate vast stores of needed information and to communicate with others in ways that were unthinkable only a decade ago. Technology is playing a critical role in shaping society, and a revolution in technology has been challenging and transforming all forms of education, including higher education. Today’s educators, in responding to these changes, are faced with the task of preparing professionals to become competent in the use of the current emerging technologies. The ways in which students are tasked with receiving and processing information have been drastically complicated. Cromer (1984) observed the beginnings of this trend two decades ago:

Students of the information age not only need an increased ability to function in the technological world but also must be prepared to work more independently, solve more complicated problems, and continue to expand their intellectual capabilities and skills throughout their lifetimes. (p. 2)

The integration of the Internet into school curricula is no longer a luxury, but a necessity, a prerequisite to survival in a future that will be driven and supported by technology (Mageau & Chion-Kenny, 1994). With the arrival of the new millennium, the use of technology in higher education has become a “must have” rather than a “nice to have,” an imperative rather than an option. Specifically, as Connick (1997) predicted a few years ago, “Technically, the barriers to change are falling rapidly, and by the
beginning of the next century we will have unparalleled technological capacity to link 
learners with educational providers” (p. 11). Indeed, that capacity is now coming to 
fruition.

Although the integration of new technologies into the curriculum is not a cure-all 
for education, indicators attest that new Internet and other technologies can resurrect 
classrooms with activities that promote collaboration, and can provide effective tools for 
teaching and learning interpretive skills, information management, and principles of open 
inquiry. Technology, however, is only a tool. The challenge rests with educators to 
effectively integrate technology into appropriate places across the curriculum. Thornburg 
(1992) notes that “technology, by itself is neutral … it is essential that we place pedagogy 
above technology” (p. 49). Connick (1997), however, suggests that, going into the future, 
the distinction between technology and pedagogy will not continue along such clear-cut 
lines:

The challenge for the educational community in the United States in the next few 
years is to bring information technology and telecommunications to the core of 
higher education. To do this requires that we actually use these powerful new 
technologies to restructure education to serve learners better and more cost-
effectively. (p. 10)

Similarly argued Stoik (2001) that "… simply integrating educational technology would 
not guarantee positive outcomes. The potential existed for hardware to become simply 
'shelfware'" (p. 38). He claimed that careful planning is vital for higher education 
intuitions to maximize the benefit of applying technology.
There is a strong movement in education towards a learner-centered pedagogical model with technology playing a fundamental role in a paradigm shift at all levels of teaching. Many colleges and universities have spent millions of dollars purchasing the latest technologies and building high-speed, high-tech networks, but few have placed that technology directly in the hands of students. Ohio University (OU) is one school that has. In the fall of 1999, OU placed a new personal computer and laser-quality printer in the residence hall room of every first-year student. At the time of the study, OU was the only state-supported university in Ohio, and one of the few higher education institutions nationwide, that provided computers and printers as a part of residence hall accommodations (Tampke, 2000).

The Ohio University Residence Hall Computer Project provided a new learning environment that could extend the classroom experience—discussion, information exchange, and teacher input—beyond the classroom’s traditional four walls. In the President’s Report of 1999, Dr. Robert Glidden, the president of Ohio University, indicated that the Residence Hall Computer Project was the most remarkable change in the university through the 1999 academic year. President Glidden stated: “interestingly, many of our students, faculty, and staff say that the technological revolution on campus has enhanced their relationships with their colleagues” (Office of, 1999, p. 5). Moreover, he pointed out the potential uses of technology for teaching, in particular its role in easing communication between faculty members: “A faculty member in Ellis Hall can contact her colleagues in Bentley Hall—or in Beijing—with equal ease” (Office of, 1999, p. 5).
The President’s Report also included some of the students’ thoughts and reflections about the role that technology was beginning to play in their social and academic lives. Students pointed out two particular beneficial elements to network conductivity:

1. “The Web-linked classroom provides an opportunity for students to communicate intimately with a professor, which is usually not possible in classes—whether it has 10 people or 200. The more one-on-one contact a student has with a professor or professional, the better he or she will learn.”

2. “Teachers web sites are very helpful. I have had classes where teachers post study guides and other helpful information that they cannot take time within a classroom atmosphere because of time constraints” (Office of, 1999, p. 14).

Purpose of the study

The purpose of this study is to describe the impact of the Ohio University Residence Hall Computer Project on first-year students’ academic and personal lives. We should expect that a technological innovation of the magnitude implemented by Ohio University’s Board of Trustees be coupled with social as well as academic impacts on the whole school environment. The study will examine what Perelman (1987) called “socio-technical” changes that occur as the result of the computer project, with the understanding that “technical change and social change are interdependent and inseparable” (Perelman, 1987, p. Es-5).

The Ohio University President’s Report of 1999, in addition to touting the potential of computer access to improve education generally, also lays out new
challenges to faculty and staff, indicating the obvious point that new forms of teaching, in which technology will play a strong role, are knocking on faculty members’ doors. The report sends an explicit and strong message to faculty to integrate technology into their teaching. President Glidden said:

We want teachers, some of whom have been eager to redesign their courses, to take full advantage of technology, to know that they can rethink their learning strategies and explore new electronically driven methodologies without concern about some students not having access. And we want our students to develop skills in finding, processing, and transmitting information in the manner that will be expected of them when they enter the workplace or graduate school. (Office of, 1999, p. 11)

To fully understand the impact of the Residence Hall Computer Project on first-year students’ academic and personal lives, data was collected directly from students and faculty members. Although the main focus of the study is on students, interviews with faculty members are included in order to facilitate understanding of what they see as the academic impact of computers on students’ learning. A group of staff members were also interviewed as subject-matter experts to expand on students' perspectives. The study was conducted using qualitative methods, primarily interviews. Glesne and Peshkin (1992) argue that qualitative research is somewhat tentative and that the researcher’s plan normally changes as the fieldwork progresses. The field research for this study, maintained a flexible approach as it developed, appropriate to the recognition that a full qualitative research design takes shape gradually as new avenues of inquiry open up.
The Ohio University main campus in Athens, Ohio, has undergone extensive networking; beginning in the fall of 1999, every first-year residence hall room was equipped with a desktop computer and a laser-quality printer. This study presumed that the availability of this technology has influenced students' activities outside and inside the classroom, and assessed the impact this computer network has had on students' attitudes, opinions, and relationships. The present work, set out to explore and answer the following questions:

1. How do the students describe the experiences of being provided with computers and printers in their residence hall rooms?

2. How has the availability of computers in the residence halls impacted students’ attitudes towards the use of computers in general?

3. How have computers in the residence halls affected students’ academic lives?

4. How have computers in residence halls impacted students’ personal lives?

5. What are the advantages and the disadvantages—personal and academic—of having computers in the students’ rooms?

6. To what extent do computer skills, gender, and socio-economic background play a role in how students use computers?
Interviews with faculty members aimed to answer related questions, and the following research inquiries guided the investigation into how faculty members perceive ubiquitous computer access:

1. What role do computer technologies play in the teaching process?
2. What strategies do faculty members use to integrate technology into their teaching?
3. How has the Ohio University Residence Hall Computer Project specifically impacted instructor’s teaching processes?
4. To what extent have faculty used the residence hall computers to transform pedagogy?

Significance of the study

It is the goal of this study to reveal recommendations that can help Ohio University in particular, and university systems in general, to utilize the computer project to enhance education while weighing the benefits and drawbacks of universal computer access. Qualitative indicators show that the computer project at Ohio University is primarily perceived as providing academic and personal benefits to students. "Ohio University freshmen say having computers in their residence hall rooms has provided academic and personal benefits and made them the envy of their friends at other universities" (Tampke, 2000, ¶ 1). This perception is supported by students’ comments at focus group meetings conducted in February and March of 2000 by the Office of Assessment at Ohio University. Dale Tampke, the director of the Office of Assessment, authored a report, published on the OU web site on April 20, 2000 under the title “Ohio
University Students Give Computer Initiatives High Marks,” that summarizes the focus group findings. These findings were listed by Tampke (2000, p. 7) as follows:

- Students are pleased with the SCE [Students Computer Environment] in an overall sense.
- Students find the desktop computer sufficient for storing and retrieving files.
- The software provided is sufficient for academic and personal use.
- Use of the H:\ drive is rare.
- More computer training is needed which should be conveniently delivered in the residence halls or via the network.
- Informal peer to peer training and assistance is common.
- Students are generally unaware of the full potential of the SCE.
- Academic and personal uses of SCE are interrelated and often occur during the same computing session.
- Communication via e-mail is the most common personal use of SCE.

Tampke (2000 & 2001) provided a significant contribution to this study, and the interviews here provide further description of what, precisely, students use the residence hall computer project for, and how they feel it benefits them.

While supporting Ohio University’s findings, this study extends those findings beyond the purely academic context of the school’s inquiry. In one of the university’s online document, for example, Abbey Emery, a first-year student who participated in the focus group meetings, noted several key uses for computers, but focused only on how they impacted academic life: “I use the computer a lot, at least two to three hours every
day. I use it for e-mail, research for class, and to find out about things without going to the library. I also use e-mail to ask my professor questions.” (Alice & Woodward, 2000, p. 1)

By taking the University’s inquiry outside the officiated focus-group environment and directly to students in their residences hall rooms, this study had the advantage to give the students more opportunity to speak more freely and openly about how they use computers in their residence hall rooms. These include entertainment and purely social, non-academic communication. This study, therefore, investigated the possibility that, since students now spend more time in non-productive “surfing” of the Internet (such as downloading MP3s), they consequently may spend less time studying. Tampke (2000) reported:

> Downloading music appears to be almost as prevalent as e-mail with many students reporting using popular web-based music programs like AIM to add to their personal libraries; copyright concerns are almost non-existent. Internet phone, a program that touts free long distance, gets frequent use…. Internet “surfing” is common. (p. 5)

Naturally, the Residence Hall Computer Project is impacting how professors approach the teaching process. Ann Kovalchick, the Director of the Center for Innovation in Technology for Learning (CITL), who works closely with faculty to integrate technology into the curriculum, indicated that placing computers in the residence halls has affected the teaching process, as it has deepened instructors’ knowledge of computers, as they, along with their students, learn the limits and possibilities of
university networks: “There has been an increase in professors coming in and asking for help designing instruction…Faculty are now offering online office hours by e-mail, e-mail document exchange, and a lot of Web-based assignments” (Alice & Woodward, 2000, p. 2). In a Press Conference, in May 18, 1999, the Ohio University Board of Trustees rationalized their decision for implementing SCE, stating:

Our concern is that faculty members be assured that every student has easy and immediate access to a computer so that they can feel comfortable in making assignments that require access to the internet, or communication between faculty and students via electronic mail, or group projects that depend on the capability for asynchronous electronic discussion among students, etc. (Board of, p. 1)

Indications from previous studies (Tampke, 2000, Tampke 2001) suggested that the Residence Hall Computer Project at OU has created a new educational culture that will require creative new directions for teaching and learning. While embracing the Residence Halls Computer Project, James Perotti, a professor of Management Information Systems in OU’s College of Business, argued that the OU curriculum as it stands lacks the technologically-focused courses that would allow professors to take full advantage of the University’s system. He further elaborated “Putting computers in residence hall rooms across campus helps, but the general curriculum fails to address technology or supply any hands-on experience” (Schonhardt, 2001, p. 1). Hence, this study was intended to have direct significance in producing practical suggestions that shed light on new educational directions that may address such concerns.
This study looked beyond the academic changes involved in new technologies to examine the social changes that took place as a result of the technological innovations. In this perspective the study was aimed to examine the roll that the SCE has played in building learning communities in OU's residence halls. Technological innovations are among the most important factors that led to the emergence of learning communities "as a practical, pedagogically sound concepts for addressing the criticism and challenges leveled at higher education today" (Shapiro & Levine, 1999, p. 14). The authors further added: "we now have compelling evidence to suggest that creating learning communities on campuses lead to greater student success in college" (pp. 14-15). Similarly, Strange and Banning (2001) argued "that, while safety, inclusion, and involvement, are all necessary conditions for the achievement of educational purposes, they alone are insufficient to ensure integrated, whole learning experience for students. This requires … Building a Community of Learners" (p. 110).

Access to advanced technologies is becoming one of the most important offerings used to recruit new students to colleges and universities throughout the United States. At the very least, virtually every school now strongly suggests that students have their own computers, calling for what Armstrong (2000) calls a “port-to-pillow-ratio” in dorms (¶ 5). Consequently, this study, although it represents only Ohio University’s computer program and thus reflects its uniqueness, is relevant both to schools that have similar programs and to those that have a broad technological base in education generally.
**Limitations of the study**

As with any study utilizing qualitative data collection, the results of this study cannot be generalized to other situations. However, the study's detail and its specificity may assist in understanding the general phenomenon in similar situations. In other words, the findings of this study should be confined to conclusions within the context of this study due to the limited number of participants. However, the findings of this study further our understanding of the impact of the SCE on the students' academic and social lives, and can be extended to understand similar contexts. Another limitation was related to the ability, the knowledge, and the desire of the informants to respond to the researcher's inquires.

**Definitions of terms**

**Technology:** It includes the use of desktop and laptop computers, their related accessories and their communicating abilities.

**Information technology:** IT (information technology) is a term that encompasses all forms of technology used to create, store, exchange, and use information in its various forms (data, voice conversations, still images, motion pictures, multimedia presentations, etc). It's a convenient term for including both telephony and computer technology in the same word. It is the technology that is driving what has often been called "the information revolution."

**Learning Communities:** Bielaczyc and Collins (1999) argued that the term learning community has been used to describe a cohesive community that embodies a
“culture of learning in which everyone is involved in collective efforts of understanding” (p. 271).

Synchronous: Electronic communication fashion that requires all participants to be online at the same time. People using synchronous communication can converse in "real time." Chatting with electronic tools such as Microsoft Instant Messenger, or America Online Instant Messenger are some examples for synchronous communication.

Asynchronous: Electronic discussion fashion that doesn't require participants to be on their computers at the same time. Participants in this form of computer-mediated communication can read and comment on the topic under discussion at their leisure. People in different time zones can easily communicate with each other using asynchronous communication fashion.

Organization of the study

This study is organized into five chapters. The first chapter introduces the nature of the study, the purpose of the study and the research questions were also outlined in this chapter. In addition to that the limitations of the study and the definitions of the terms were presented in chapter one.

Chapter two presents a review of literature relevant to the study. It focuses on the concept of learning communities and its philosophical background. The chapter also includes literature that shed light on the application of technology into instruction. Literature that highlights college students' use of computers was also presented in this chapter.
In chapter three the research methodology of the study was discussed. Chapter four presents the findings of the study. Chapter five, which is the final chapter, contains the discussion and the recommendations of the study.
This study examines, and describes the social and academic transformations that resulted from the creation of a technology-enriched environment in Ohio University residence halls, drawing primarily on the perspectives of students. This chapter covers literature for three major areas of concern. The first section discusses the subject of the integration of technology into higher education generally, and reviews literature that sheds light on the application of educational technologies in instruction, the pedagogical implications of applied technology in teaching and learning, the problems associated with using technology; and the challenges that face professors when incorporating technology into their teaching. The second section reviews literature that focuses on the role of technology in building learning communities in colleges, their characteristics, and their philosophical background, drawing largely from established social constructivist perspectives.

The third and closing section focuses on how college students overall, and first-year students in particular, used their computers, drawing on literature that examined other universities’ experiences providing, or requiring students to provide personal computer access. Student technical skills and attitudes toward the technology—computer problems, and time management issues—along with their academic and personal use of computers—are the topics that are covered in this section.
Barker (1994-5) predicts:

The underline pace of technological revolution in telecommunications has profound implications for the future of higher education. This trend will eventually alter almost entirely who, what and how we teach. As the availability and quality of telecommunications improves, we will begin educate a more diverse and geographically dispersed student population (p. 158)

Similarly, predicted James Stukel, president of the University of Illinois that "Information technology (IT) will change teaching and learning profoundly, no matter what the response of traditional higher education institutions …" He further warn higher education leaders that "if traditional colleges and universities do not exploit the new technologies other nontraditional providers of education will be quick to do so" (in Cuban, 2001, pp. 102-103). Connick (1997) foreseen the impact of technology on teaching and learning this way,

There will be less emphasis on evaluating how well a faculty member has taught and more on what students have learned. In addition, the academic enterprise will begin to move along a continuum from almost synchronous instruction to instruction that is much more asynchronous. Again this will place more learning options in the hands of consumers. (p. 11)

Likewise, Matthews (1998) argued that information technology is transforming learning in higher education to what he called, "outcome-based education" (p.51). Yamagata-Lynch (2003) noted that the pressure on higher education professionals to integrate
technology was coming from "business, competition with foreign countries, and educational research to improve their infrastructure for both equipment and professional development" (p. 594).

Support for the use of technology to promote fundamental changes in the learning process which reached a new high ground insofar as technology is viewed as a means of supporting goals and increasing student involvement with complex, authentic tasks and new organizational structures within classrooms and schools (Sheingold, 1990). The primary motivation for using technologies in higher education is the belief that they will support, even create, superior forms of learning commensurate with rapid advancements. According to Hanna, Glowacki-Dudka, and Conceição-Runlee (2000) integrating technology into teaching and learning benefits students by requiring them become active learners. Dr. Dolores E. Cross, the president of Morris Brown College in Atlanta Georgia, strongly linked students' success with technology availability. He stated, "Our increased emphasis on technology at Morris Brown is designed with our students' success in mind. We want every student who passes through Morris Brown to be part of America's information 'haves'," (in Roach (2000, p. 31). Matthews (1998) reported, "States and higher education institutions increasingly look to technology as the way to reconcile the paradox of exploding demand and constrained resources" (p. 48).

Over the past few years, there have been literally hundreds of published studies investigating technology’s educational effects. As none have suggested a definitive conclusion, nor have they collectively reached consensus, it is becoming apparent that the type of learning that technology best enhances is difficult to pinpoint (Johnson, 1996).
Most research, however, indicates that we now need to gain a deeper understanding of how to maximize the benefit of technology to learners. Among those researchers was Cuban (2001) who wrote:

As a result of these substantial increases in access to information technologies, remarkable changes have occurred in how students use computers in dorms, labs, libraries, and elsewhere in wired campuses. Furthermore, most professors conduct their research, produce publications, communicate in their scholarly disciplines, and prepare for teaching through electronic means. Yet when it comes to teaching, few close observers would deny that most professors in colleges and universities are either nonusers or occasional users of computer technology in the classroom.

(p. 104)

Increasingly, teachers do not have a choice over whether or not to use technology. Olsen (2000) reports that first-year college students arrive with technological skills that put pressure on faculty to integrate technology into their teaching:

Students also come to college with the expectation that lecture notes, outlines, and other materials related to their courses will be online, Ms. Benton says. “They ask, Why isn’t this online? I wish you would do this online.” The pressure comes not from college administrators, she says, “but from students, for Professor Jones to do what Professor Smith is doing.” (p. A39)

Jones (2002) reported what he called a "generation gap" between faculty members and students when it comes to the use of Internet. Accordingly he recommended "to
incorporate basic training about the use of Internet as a communication tool for teacher-student interaction" (p. 9).

Technology, meanwhile, has become one of the most attractive recruiting tools colleges and universities are “using to woo a generation of students who grew up around personal computers” (Armstrong, 2000, ¶ 2). Similarly, argued Blimling (2000), intense pressure to integrate technology into teaching and learning arises from competition among institutions:

If the pressure to advance [in using technology] does not come from our students, it will come from the institutions with which we compete. We will be compelled to keep up with peer institutions in the higher education community, or we will fall behind as technologically disadvantaged. (p. 6)

It is obvious that the roles of teachers and learners are bound to change as competition and pressure to integrate technology increases, moving toward something like what O’Donnell (1998) claims will dominate future classrooms:

The real roles of the professor in an information-rich world will be not to provide information but to guide and encourage students wading through deep waters of the information flood. [Educators] will thrive as mentors, tutors, backseat drivers, and coaches. They will use the best skill they have . . . to nudge, push, and sometimes pull students through the educationally crucial tasks of processing information: analysis, problem solving, and synthesis of ideas. These are the heart of education, and these are the activities on which our time can best be spent. (p. 156)
Many studies, like Kinnaman’s (1995), are unflinching in their support for the integration of technology into teaching and learning. “One thing is crystal clear,” Kinnaman noted, “The advance of technology makes constructing new and richer contexts for teaching and learning ever more tenable and more necessary” (p. 86). The question is no longer whether to integrate new tools into education, but, rather, how to best approach that task in a way commensurate with the needs of students, faculty members, and institutions alike, as well as what precisely to integrate, and how to provide ongoing support to that integration. As technological advances are introduced into the academy, and as campuses are more and more attracted by the promise and potential of technology for enhancing access and learning, faculty, staff, and administrators need to understand what technology can and cannot do.

It is key that educators bring a degree of healthy skepticism to the rush toward an electronic classroom, understanding that, while there are many situations in which the use of technology can improve the quality of teaching, there are circumstances in which the solution for a learning problem might not actually be technological at all, (Hamza & Alhalabi, 1999). Instructional technologies do not operate in isolation. They are parts of the whole educational system, and are interdependent with all other parts. As Rogers noted in his classic Diffusion of Innovations, “A system is like a bowl of marbles: move any one of its elements and the positions of all the others are inevitably changed also” (Rogers, 1995, p. 419). When technology is introduced in isolation, as it likely must be in a process of piecemeal change, it disturbs the rest of the system, resulting in instability.
and reducing the system’s overall effectiveness. “Everything is connected to everything else or we can never do merely one thing” (Perelman, 1987, p. 32).

Problems Associated With Using Technology in Teaching

Recent technological advances have created the possibility of new ways of teaching and learning. However, taking full advantage of this potential requires faculty to think about the teaching/learning process in new ways, as well as to master the pace of technological change and the technology itself. Blimling (2000) indicates that five years ago he felt that he was reasonably knowledgeable about computers. Five years later, though, he said, “I feel lost. I do not know the vocabulary to communicate adequately with our technologically advanced students let alone our professional IT” (p. 4). While higher education institutions are pushing their faculty members to incorporate technology into teaching, these same faculty members receive little or no training for teaching methods that can help them adopt and utilize new innovations. At the institutional level, real support for faculty training and development must be provided and maintained. While sheer enthusiasm may be incentive enough for teaching pioneers to develop innovative classroom uses for technology, it is not enough for the early and late majorities (Knapper, 1982).

The most critical factor associated with integrating technology into education is the support, enthusiasm, and participation of faculty. Technology has the potential to change every aspect of faculty work, from the nuts and bolts of workload and time management to broader issues of pedagogical practice and instructional roles. In a research study conducted at Indiana University; Hawley, Kirkley, Moore, and Duffy
(1996) identified several key concerns associated with using technology in teaching. Their conclusions can be summarized as follows:

1. *High demand on time commitment and organization*: A common theme among faculty is that using technology in teaching requires an enormous amount of time for planning, developing, preparing, and actually implementing technology. Many faculty members commented that non-tenured faculty shouldn’t spend time using technology in their teaching but should instead direct their effort and time toward activities that help them obtain tenure. Cuban (2001) found a consistent trend that "faculty were reluctant to take valuable time away from research, teaching, writing, securing grants, committee work, and other important tasks" (p. 122). Much research supports this point. McCollum (1998) notes that the amount of time that faculty invest behind the scenes mastering new technologies and applications, rethinking their teaching, and designing new curricula can scarcely be overestimated, and is perhaps matched only by the amount of time they spend up front communicating with students.

2. *Lack of incentives and rewards*: The culture of higher education tends not to reward, and sometimes effectively punishes, faculty who are working with technology. Once again, using technology in teaching is viewed as a disadvantage to non-tenured faculty. “There is little or no reward structure for teaching” (Hawley et al., 1996, p. 5), and institutions cannot reasonably expect faculty members to embrace something for which they may later be penalized during tenure and promotion reviews. Perelman (1987) argues that “an organizational environment that provides little incentives for serving
consumers productively also provides little payoff for educators’ adoption of technical innovations that promise to improve such performance” (p. 76).

Hawley et al. (1996), however, “did find that some administrators reward and support teaching activities more than others” (p. 5). Special grants and funds that allow faculty members to pursue professional development as well as curriculum development are one such incentive, as they permit faculty to attend conferences, organize speaker series, purchase software and equipment, or hire student assistants to aid technological innovation. Another common incentive is to provide release time to faculty for skills development. Hawley et al. (1996) reported that this is the approach taken by Wake Forest University, where a Computer Enhanced Learning Initiative gives faculty members the equivalent of one semester course in release time.1

3. **Training and support**: American higher education institutions are recognizing the critical importance of the need for faculty support, as reflected in Green’s (1998) Campus Computing Survey, which indicates that one third (33.3%) of respondents identified “assisting faculty to integrate technology into instruction” as the single most important information technology issue facing their campuses. This was also the top IT concern expressed in the previous two surveys by the same group (29.6% in 1997 and 27.3% in 1996). Cuban (2001) reported that "a consistent concern expressed [by faculty members] was not having reliable, accessible, and continuing support from technical staff when problems arose"(p. 122). Hawley et al. (1996) argued that “faculty need to have a network of support, as well as know where and how to obtain it…. They also need to

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1 Description of the projects undertaken by faculty who have been awarded these release-time grants can be found at [http://www.wfu.edu/CELI/grants1.htm](http://www.wfu.edu/CELI/grants1.htm).
know how the students can get support with technology used for classes” (p. 7). In a

Needs Analysis Report prepared for the Center for Innovation for Technology in Learning

at Ohio University, Orrill and Thayer (2000) stated: “Faculty express strong sentiments

that there is need [for] more and better support available to them, as well as to students”

(p. 6). Blimling (2000) argues that distributed support structure, which describes field-

based technical support, is the most suitable solution to addressing this concern, adding

that “technical support is most efficient when those providing it are intimately familiar

with the goals of the end users and the methods they used to achieve them” (p. 4).

4. Lack of information about technology: Hawley et al. (1996) recommended that

“faculty, both new and existing, need orientation and training to learn about technologies

available and how to use them” (p.7) Orrill and Thayer (2000) found that faculty

members lack available knowledge about technological possibilities. “They may not

know that the kinds of tools are available, or what kind of experiences they might be able

to develop with them” (p. 6). The authors further added that even if faculty members

have an awareness of the availability of the technology, they often lack the technical

skills to use it effectively.

Technology and teaching are intertwined, each affected by the other. As faculty

members become knowledgeable in the use of available technology, they are better able

to integrate it effectively into their teaching (Hawley et al., 1996). This kind of effective

integration, however, requires systematic institutional support not only in resolving

technical issues but also in developing pedagogical techniques. It is important to point out

that the challenge facing higher education institutions in the integration of technology
into instructional activities is mainly related to human resources rather than to equipment. Green (2000) noted that a shortage of technical staff affects user support, and thereafter the successful integration of technology across all sectors of higher education. “Even though institutions spend a huge portion of their IT budgets on personnel, colleges and universities remain significantly understaffed in the area of user support.” (¶ 3)

Learning Communities

The role of residence halls in educating students may ultimately be determined by how well the entire campus, not just the classroom, is understood as a student learning community. Research continues to indicate that students learn as much from one another as from the formal curriculum. Residences halls have the potential to challenge and educate students as they connect to their living realities…. Finally, when residence halls are designed as purposeful educational settings, they can promote effective undergraduate education. (Schroeder, 1994, p. 1)

Astin (1985, p. 161) defines learning communities as "small subgroups of students … characterized by a common sense of purpose … that can be used to build a sense of group identity, cohesiveness, and uniqueness that encourage continuity and the integration of diverse curricular and co-curricular experiences." Similarly, Hanna, Glowacki-Dudka, and Conceicao (2000) defined a learning community as “a group of people who come together to form a culture of learning in which everyone is involved in a collective effort of understanding” (p. 14). Bielaczyc and Collins (1999) argued that the term learning community has been used to describe a cohesive community that embodies
a “culture of learning in which everyone is involved in collective efforts of understanding” (p. 271). Reil and Fulton (2001) described learning communities as “communities of practice” (p. 519). They further defined “community of practice” as “a group of people who share a common interest in a topic or area as well as particular way of talking about the phenomena, tools, and sense-making approach for building their collaborative knowledge with a set of common collective tasks” (p. 519). The research literature on residence halls is replete with references to characteristics of learning communities; however the central theme in all this research is the students' involvement (Astin, 1992). In a learning community, no individual is responsible for “knowing it all,” as the task of learning is shared among the group members. As Reil and Fulton (2001) put it, “In a learning community, students learn to work in teams and learn how to make teams work” (p. 519).

The imperative to create learning communities has emerged within society in general and within higher education in particular. In the latter sphere, learning communities have been introduced in response to the fact that greater numbers of students with different levels of preparation are “enrolling in colleges and universities, and traditional models of higher education are no longer sufficient to respond to society's needs” (Shapiro & Levine, 1999, p. 14). Wells (1996) noted that the “creation of a sense of community on college and university campuses is viewed as one of the central tasks of leadership” (as cited by Strange & Banning, 2001, p. 168). In response to the question, “Why create learning communities on college campuses?” Shapiro and Levine (1999) said,
Because they build on our knowledge of undergraduate experience, reinvent undergraduate education, and expand on our contemporary understanding of liberal education to create a multidimensional student experience grounded on a foundation of what matters in college. (p. 15)

The authors added that learning communities provide a suitable environment for “greater faculty-student interaction, build on the strengths of interdisciplinary curricula, foster collaboration between academic affairs and student affairs, and generally provide creative space for thoughtful members of the college community to work together” (p. 43).

Similarly, Reil and Fulton (2001) argued that students in learning communities “build on one another’s strengths, develop a sense of competence and empowerment in areas where they are most motivated or skilled, and can pull others who are weaker in these areas up with them” (p. 519). Furthermore, “distributed knowledge is a building block for such learning communities” (Reil & Fulton, 2001, p. 519).

Strange and Banning (2001) pointed out that “if the learning potential for any environment is to be realized, a third and more complete condition is proposed: the experience of full membership in the learning setting” (p. 159). A standardized computer setting, along with universal network conductivity in college residence halls, provides an environment that promotes learning, growth, and social development. Such an environment “is characterized by the dimensions of community” (Strange & Banning, 2001, p. 159). Although students live in physical communities on campus, Strange and Banning (2001) argued that campus computer environments play a crucial role in building and holding together the already existing community. Advanced technologies,
especially computer networks, help to create new modes of social interaction that allow “new communities to form wherever communications links can be made” (Gergen, 1991, p. 213).

Learning communities on college campuses offer first-year students a sense of belonging, security, and common purpose. To enhance student learning and personal development by purposefully integrating curricular goals and outcomes with students’ experiences outside the classroom, colleges and universities created communities long before the introduction of computers. However, these traditional learning communities do not meet the expectations of younger Americans today, as pointed out by Shapiro and Levine (1999):

Learning communities have arrived at a critical moment. Although they are not new (in fact, they are among the oldest and the most revered models of education), they are experiencing a renaissance, particularly as they respond to the combination of internal and external pressures to better meet the needs of undergraduates and expectations of their parents “consumers” . . . (p. 2)

One of the greatest challenges for educators is upholding and maintaining the continuity of such communities. Educators are increasingly faced with acknowledging a growing number of fragmented subgroups associated with social diversity, each with its own set of interests, while at the same time aiming toward the wholeness of the traditional campus community. Higher education leaders are facing a new and challenging paradox, as highlighted by Spitzberg and Thorndike (1992):
Those who work to strengthen community on American campuses walk hand in hand with paradox. In the face of increasing complexity and diversity, they seek ways to connect individuals to subcommunities and subcommunities to community of the whole. Those aspiring to community have always possessed the ability to see the promise of wholeness in the apparent contradiction of competing individual and small-group needs and rights. Today the challenge is greater than it has ever been. (p. 145)

Models and uses of learning communities

Colleges and universities across the US are viewing learning communities as models of curricular reform that streamline undergraduate experience and promote student involvement in the learning process. Shapiro and Levine (1999) proposed four models of learning communities:

- Paired or clustered courses, cohorts in large courses or FIG (freshmen-interest-group), and team-taught programs. The fourth approach, residence-based learning communities, describes models that intentionally link the classroom-based learning community with a residential life component. (p. 22)

Brower and Dettinger (1998) suggested a comprehensive model of learning communities. They incorporated academic, social, and physical elements in the interest of developing students' professional, ethical, and civic responsibilities. These three components were defined in terms of “curriculum content” (academic), “interpersonal relations among students, faculty, and staff” (social), and the “place or facility where the community meets or resides” (physical) (Brower & Dettinger, 1998, p. 17). They further
stated, “for a program to create a community effectively and enhance learning … It must integrate these three components to some degree” (p. 17). The authors extended their discussion in order to delineate several characteristics that they perceived as common to all learning communities. They stated that all learning communities are purposefully designed to do the following:

1. Develop a sense of group identity in which all participants recognize one another as learners, while still valuing the contribution of each individual. Students recognize that participants are neither solely independent nor dependent.

2. Provide facilities or spaces in which people can come together to meet and engage in transformative learning activities.

3. Create a supportive environment that engages new students in the life of the institution. Activities and programs are designed to engage a continual stream of new members.

4. Develop a seamless student experience that integrates social and academic experiences. Although the level of integration varies, activities and programs are designed to enable students to bring their personal interests into their academic work, as well as to bring their academic work into their personal and social activities.

5. Develop conditions among disciplines, recognizing that although ways of knowing may be discipline-specific, knowledge and concepts are not.

6. Provide the context for developing complex thinking skills—including divergent, flexible, and critical thinking—and social cognition, creativity, and
metacognition, whether the focus is on civic, professional, or ethical responsibility. Programs and activities are designed so that students interact with material at a much deeper level than simply receiving information.

7. Continually evaluate the process and the outcomes. Modifications should be made as necessary. A learning community continually evolves as new members enter. Although this is essential to the validity of the community, it also requires that the community continually be evaluated to ensure that its stated objectives continue to be met. (Brower & Dettinger, 1998, pp. 20-21)

Shapiro and Levine (1999) indicated that colleges and universities adopt different approaches when using learning communities. The authors described three such approaches:

1. Many campuses build learning communities into existing general educational programs or use them as a centerpiece of general education reform. Learning communities can improve general education by bringing students and faculty together in ways that promote greater interaction with each other and deeper interaction of material being studied.

2. Other campuses place learning communities at the center of first-year-experience initiatives. Learning communities are ideal settings to introduce students to what it means to be a college student—most important, the difference between the high school and college classroom. Learning communities located within first-year-experience programs often link academic, discipline-based courses to new or existing first-year-experience courses or freshman seminars.
3. Learning communities can also be built into developmental studies programs that provide at-risk students with a support network of faculty, peers, and counselors. Learning communities that pair development or skills courses promote student success through an emphasis on basic skills. Communities can emphasis both skills enhancement and academic progress by linking developmental courses with credit-bearing courses in disciplines. (p. 20)

**Philosophical background for learning communities**

The contemporary philosophy of learning communities has been inspired and informed by the work of John Dewey and Lev Vygotsky (Rogoff, Turkanis, & Bartlett, 2001). As Shapiro and Levine (1999) noted, “no discussion on influences of learning communities would be complete without referring to John Dewey” (p. 17). Nearly a century ago, Dewey's analysis of schooling suggested that education should begin with and remain closely tied to the actual experience of students. Dewey (as cited by Rogoff et al. 2001) observed, “the teacher's suggestion is not a mold for a cast-iron result but is a starting point to be developed in the learning process” (p. 7). “Dewey describes education as a purposeful, student-centered social process that required a close relationship between teacher and student… He was committed to learning by doing and saw learning as a lifelong process” (Shapiro & Levine, 1999, p. 17). Huehner and Kallger (1999) argued that learning communities promote student-centered learning:

Even as undergraduates, sometimes the conversation that went on about classwork outside the classroom was more stimulating than what went on within. …Free from faculty dominance, students debated the great issues of the day and
history. Here the students and their views are the center of the educational enterprise. Putting the historical specifics aside, there is much to recommend informal educational activities that promote active student learning. Educational reformers now identify this activity as an important component of higher education and are developing a growing body of research on this and other forms of what is called student-centered learning. (p. 41)

Jones (2002) similarly reported that the Internet provide an informal learning environment for college students. He stated:

Informal learning often takes place online. The Internet is used in many cases to supplement students' academic activities and provide some alternatives for professors and students looking to bring new life to familiar educational experiences. For example, two-thirds (68%) of college students report that they have subscribed to one or more academic-oriented mailing lists that relate to their study. They use these lists to carry on email discussions about topics covered in their classes. (p. 12)

Huehner and Kallger (1999) pointed out that learning communities that encourage active and student-centered learning are central to energizing higher education and to guaranteeing student success: “learning communities and student-centered learning are producing a growing body of evidence which clearly indicates that students who engage in active learning are more successful in college than those not engaging in similar activities” (p. 41).
Learning communities’ philosophical background is rooted in the constructivist paradigm. The relationship between learning communities and the constructivist perspective can be seen clearly in the environments that learning communities provide, which are conducive to students building their own representations of knowledge. Constructivists advocate the development of learning environments that embed learning in authentic contexts, present learners with multiple perspectives, encourage self-awareness and responsibility for learning, and use modern technologies to facilitate telecommunications and the social construction of knowledge (Duffy, Lowyck, & Jonassen, 1993; Wilson, 1996). As constructivist theorists Adam and Burns (1999) stated, “We learn in a variety of ways and the more opportunities we have, the richer our understanding becomes” (p. 1). Jonassen, Peck, and Wilson (1999) described constructivist environments as “environments in which students can do something meaningful and useful.” They added, “The technologies afford students the tools to explore, experiment, construct, converse, and reflect on what they are doing, so that they learn from their experience” (p. 194).

Key to successful learning communities and, indeed, to engaging students in the knowledge building process is the involvement of students. Strange and Banning (2001) argued that active learning can only be achieved when learning environments are designed to encourage students' “participation and involvement” (p. 137). According to Astin (1985) involvement is characterized more by action than by attitudes:

Involvement is neither mysterious nor esoteric. Quite simply, student involvement refers to the amount of physical and psychological energy that the student devotes
to academic experience. A highly involved student is one who, for example, devotes considerable energy to studying, spends a lot of time on campus, participates actively in student organizations, and interacts frequently with faculty members and other students. (p. 133)

It is through involvement that students in learning communities share ideas and engage in authentic and collaborative activities that lead to real-life learning. Shapiro and Levine (1999) asserted that learning communities increase opportunities for dialogue between students and teachers and promote more active modes of learning. Schroeder (1994) pointed out that "residential communities that promote students learning and development are characterized by a high degree of student participation and involvement, control of bounded space, common interests and purposes, high degrees of social interaction and social stability…" (p. 168).

_Learning communities as cooperative environments_

The impact of cooperative learning on academics has been well documented, and research indicates that cooperative learning improves students’ academic achievement. Slavin (1986), for example, found that 63% of all cooperative learning studies showed significant increases in academic performance among students. Peer cooperative learning, as well, has been found to be an effective approach, as it fosters intellectual and social growth simultaneously. A study by Teer, Teer, and McKnight (1988) discovered that students who participate in peer tutoring gain greater computer and relational skills than students working independently.
Peer tutoring in education is likely to play an even more important role in student learning as computer-enriched environments increase in popularity and availability. Tampke (2001) indicated that students in Ohio University’s residence halls identified peer assistance as the first line of help for solving computer-related problems. As Palloff and Pratt (1999) noted: “Key to the learning process are the interactions among students themselves, the interactions between faculty and students, and the collaboration in learning that results from these interactions” (p.5).

Learning communities and technology

Learning communities have traditionally been defined by physical proximity between participants. However, new technologies—especially computers that connect to a residence hall network—provide a new dimension to community life that, in some cases, transcends physical proximity. Strange and Banning (2001) pointed out that “with increasing emphasis on the Internet and World Wide Web emerging on many college campuses, it is becoming a distinct possibility that our thinking about this particular dimension in the lives of students might change significantly in the years to come” (p. 179).

Building a community of learners may be one of the most important benefits to result from the implementation of technology-enriched college environments. Ohio University took what may be considered a constructivist approach to implementing its Residence Hall Computer Project by establishing the Residential Learning Communities Program (RLC). The mission of the RLC, according to Buhn (2001, ¶ 1), is to
Give first-year students all the advantages of a small college while providing the opportunities of Ohio University’s large campus. Students become part of a group of no more than 20 students who have similar educational interests, live in the same residential area, and are enrolled in two or more linked courses. The living-learning interaction designed into Residential Learning Communities helps them get to know other students, strengthen critical thinking skills, form study groups, and interact with faculty. The result: Students form connections that help them fit quickly into the academic and social fabric of Ohio University.

White (1995) claimed that constructivist understanding, technological tools, and the creation of learning communities are essential components are connected. In White’s words, “The major components for modeling, and applying, reflecting, involving students’ activity, and developing a community of learners is facilitated by integrating technology” (p. 6). Reil and Fulton (2001) insisted that technology plays a critical role in building a learning community: “We suggest that one of the most important uses of technology is as a vehicle for building and supporting learning communities that will help students strive in the new millennium” (p. 519). The authors articulated many reasons that “technology can play a central role in creating effective learning communities.” According to Reil and Fulton (2001),

These [reasons] include the potential of technology to increase our ability to work and learn from others who are distant in time and location. Technology supports and expands the sociocultural links that help give us intellectual identity. It also provides new “power tools” for learning that enable students to develop the
interpersonal and intellectual skills necessary to construct shared understandings of their world. These power tools are the keys for the creation and communication of ideas. Learning communities powered by these evolving tools provide a way to develop an instructional system that can help students learn to work in world culture and to share their destiny in the interdependent world of the 21st century. (p. 519)

At the University of Wisconsin, the availability of an on-campus computer network and the Internet extended the link between students to build what Huehner and Kallger (1999) termed the University of Wisconsin Student History Network. The authors described the network thus:

The network ... would be available any hour of the day and from off-campus sites. Given these conditions, an electronic linking of students seemed a natural fit for the student population and a wonderful way to expand student cultural contacts, as well as actively engaging U.W. Colleges' students in the study of history” (p. 41).

The authors concluded their research with the statement that “building on the growing student interest in computer technology and the opportunities the Internet and the World Wide Web offer can only enhance the ability of students to become lifelong learners” (p. 53).

Young (2000) reported that students in networked residence halls at the California Institute of Technology indicated that computers helped to build a community on campus. Although learning is normally pursued for individual reasons, online
Networked environments also help facilitate communication between people from diverse backgrounds who nonetheless have access to technology in common (Hanna, Glowacki-Dudka, & Conceição-Runlee, 2000). Research has shown that there are many positive results to be derived from democratic cooperation in computer-enriched learning environments. Johnson and Johnson (1986) and Johnson, Johnson and Stanne (1986) pointed out that group work generally encourages students to observe, imitate, and learn from each other, keep each other on task, and share a sense of accomplishment. Moreover, the engagement, support, and approval of peers build motivation and make learning a more enjoyable experience.

Jonassen, Peck and Wilson (1999) argued, “Technology plays a key role in knowledge building communities by providing a medium for sorting, organizing, and reformulating the ideas that are contributed by each community member” (p. 18). Rogoff et al. (2001), however, pointed out that simply adding new technologies in piecemeal changes does not create an integrated and coherent new philosophy of learning communities. Although the availability of networked computers in universities and college residence halls plays an important role in building learning communities, we should be cautious and understand that

Developing a community of learners cannot simply involve applying a recipe of techniques to a new collection of people. It requires the participation of the people involved in inventing and adapting customs and traditions, who learn from their
efforts to develop the principles and practices for themselves. (Rogoff et al., 2001, p. 10)

Connick (1997) put it this way: “The most critical issue affecting the role of higher education in the next decade is not technological. The real issue is leadership” (p. 11).

Computer-enriched environments such as learning communities in college residence halls help students to be active learners. For example, Jonassen, Peck, and Wilson (1999) stated that empowering learners to construct knowledge through active learning and the creation of learning communities can be achieved through the use of the Internet as a learning tool. Jonassen (2000) suggested that, since computers require engagement and educators encourage students to be engaged learners, we should recognize that “engagement cannot always reach fruition in 50-minute period” (p. 277). Jonassen further argued that once students become involved in their learning, they need larger blocks of time to dig deeper, discuss, analyze, and make meaning in collaborative groups. In learning communities, learners work naturally, exploring each others’ skills while providing social support and modeling and observing the contributions of each community member.

*Building learning communities in cyberspace*

Communities have traditionally been considered face-to-face, as well as place-based in nature. However, with the introduction of the Internet, this definition has begun to evolve. In Palloff and Pratt’s (1999) words, “with the advent of electronic communication and virtual reality, it has become difficult to determine exactly what is meant by the word community. Communities have spun off into many types, with many
varied attributes” (p. 22). There has been much discussion recently about the use of technology to create “virtual learning communities” or “electronic learning communities.” Educators from the fields of academia, training, and business are using the Internet with the shared goal of fostering collaborative learning through community building. According to Palloff and Pratt (1999)

Institutions of higher education are, with increasing frequently, turning to the use of the Internet to deliver courses to students at a distance, as well as to enhance educational programs that are delivered on campus. Some institutions view this as a way to attract students who might not otherwise attend classes; others use it as a way to begin meeting the needs of a new population of students. (p. 3)

Reil and Fulton (2001) argued, “Internet technology provides a rich format for the large community to participate in the education of the next generation” (p. 520). The authors provided four examples that show how technology helps in creating learning communities:

1. Electronic field trips: Electronic field trips make it possible for students and teachers to join teams of researchers, scientists, and technicians exploring distant regions, such as a rain forest, Antarctica, or Mars… In these electronic field trips, scientists and researchers are reaching out to schools, inviting students to be a part of their learning communities.

2. Online mentoring: Teachers can invite distant “team teachers” from any field, with any expertise, to work in their classrooms. For example, subject-matter experts are matched with teachers in programs such as Electronic Emissaries, and
Review of Related Literature

adult mentors are matched with students to provide support and directions in school learning the Hewlett-Packard Mentor Program.

3. Science investigation: Digital research tools support student efforts to collect observations, measurements, survey responses, and other data. Telecommunication networks make it possible for students to exchange, analyze, and discuss this information with their peers.

4. Learning communities in humanities: Students in the social sciences and humanities are also participating in learning communities that extend beyond the classroom. When students take part in such programs as Facing History and Ourselves and the Holocaust/Genocide Project (http://www.iearn.org/projects/hgp.html), they learn to look back into history and then look at their own actions in a new light. (pp. 520-521)

Computer-Enriched Environments

In their characterization of the computer-enriched environment, Mitra and Steffensmeier (2000) argued, "we refer to a condition that involves the transformation of an academic institution, its climate, its culture, and its physical environment by providing a reliable computer network made up of fiber-optic connections to create an intranet within the university" (p. 1). Schools, colleges, and universities in the United States are undergoing a major socio-technical transformation spearheaded by information technology and the ubiquity of microcomputers connected with local and wide area networks. Lawrence (1997) noted, for example:
Towson University is wiring its residence halls with a hybrid cable system that will provide students with very rapid Internet access and regular cable television. This hybrid system uses both fiber-optic and coaxial cable to connect to the web at speeds 75 times faster than standard ISDN lines. (p. A20)

Advances in telecommunication technologies have swiftly spurred Internet access, allowing students and teachers to communicate not only with each other, but also with people from around the globe. New ways of obtaining and presenting information have given students powerful tools for analyzing, relating to, and finding entertainment. According to Armstrong (2000),

Students now sign up for classes and receive final grades over campus networks. They view professors’ PowerPoint presentations in their dormitory rooms, consult faculty advisers using e-mail and stay in touch with friends back home or down the hall via the Internet. The hot movie on campus the other weekend was *The Beach*, downloaded from the Internet and playing (illegally) in dorm lounges across the country. (¶ 1)

Higher education institutions are unanimously convinced that computers play an important role in instruction, alongside the teacher, the book, and other instructional media. In their book *Blur: The Speed of Change in the Connected Economy*, Davis and Meyer (1998) claimed that, as the computer quickly changed from a technology that crunches numbers to a technology that connects people, it has become able to support a great deal of complicated, inter-personal activity and discussion that is asynchronous in space and time. “Across the country, universities and colleges have been scrambling to
computerize their campuses. Increasingly, courses are being taught with computers as an integral component” (Anderson & McClard, 1993, p. 159). Blimling (2000) argued that, “Higher education must keep pace with new technologies while addressing the policy issues that they inevitably raise” (p. 3). University policies vary across the country. Some schools argue that mandatory computer use is the only way to guarantee equal academic advantages to all students. For example, "Morris Brown College officials have required their undergraduates to participate in a laptop purchase program … a move that is sure to increase student use and awareness of the Internet" (Roach, 2000, p. 28).

Other universities are considering a range of ideas, including increasing fees, extending computer networks into residence halls, and contracting with companies to improve access to Internet. In the fall of 1999, the University of Florida spent $6 million to provide computers and high-speed network ports to every student in the residence halls. This university has worked out a plan under which the cost of this access can be figured out into student financial aid packages, alongside tuition and fees (McCollum, 1998).

Handheld computing devices which also called Personal Digital Assistants (PADs) such as Palm are getting their way to colleges' students. Roach (2001) argued "the trend of PADs use, is significant enough that more than a handful of colleges and universities have launched teaching and learning projects that use handheld devices in classrooms' (p. 44). Roach (2001) pointed out that the University of Minnesota-Duluth's new-year students were mandated to use PDAs in their classes. He noted:
At this university, this year's incoming freshman engineering and computer science students are required to use iPAQ computing devices in their computer science and engineering courses, iPAQ is the brand of handheld computing devices manufactured by the Compaq Computer Corporation. (p. 44)

*Computers as Social Network Tools*

Computer-enriched environments and their networks generally provide suitable social settings for interpersonal communication to flourish. According to Postman (1986), while “a technology… is merely a machine,” it “becomes a medium as it employs a symbolic code, as it finds its place in a particular social setting” (p. 86). Networked computer systems not only create new mediums for interpersonal communication, but also create new social settings in which those communications take place. There is no question that, as its networks grow, “the personal computer is gradually becoming the interpersonal computer” (Johansen, 1988, p. 1). Berge and Collins (1995) argued, “as an agent for socialization and collaboration, the networked computer has even greater potential in education for providing an active environment for social learning” (p. 8).

Computer-mediated communication (CMC) has emerged, allowing computer networks to become a popular communication medium rather than solely a processor of information. Although the World Wide Web provides unlimited access to information, Hudson (1997) claims that what actually draws people online is the desire to be in touch with others. “Using CMC to form a virtual community of common interests among students,” Strange and Banning (2001) argue, “seems to hold promise for reducing barriers between students’ academic lives and their social lives” (p. 187).
Equal Access to Computers

The concept of “universal service” in U.S. telecommunications policy has traditionally referred to the goal that all Americans should have guaranteed access to affordable telephone service. As America has become an information society, that concept has broadened to include access to all types of information services. Now that a considerable portion of today’s business, communication, and research takes place on the Internet, access to computers and networks may be as important as access to traditional telephone services. According to The Chronicle of Higher Education, David Brown, a vice president of Wake Forest University, which has had a laptop requirement since 1996, argued that it is simply unfair that some students on campus have their own computers and some do not. “It is as if some students have keys to the library and others don’t,” (¶ 12) he complains ("Growing Number," 2000).

While it has become increasingly necessary for students in universities and colleges to have unlimited access to computers, committing them to purchasing these computers presents a serious problem for democracy in education. Putting an extra financial burden on students who come from low-income families might cause them to look for another school, and consequently deny them equal opportunity. Many studies view technology as the new engine of inequality in higher education. Ronald (1999), reporting on this digital divide, presented data showing that freshmen at private and public historically black colleges and universities have the lowest rate of e-mail usage in higher education overall. Equal access to technology is perhaps the most important index of the success of technological innovation in higher education. To bridge the digital
divide the US House of Representative is moving to approve up to $2.5 million for each Black college to upgrade their technology programs. "It is in the national interest to ensure that minority-serving institutions have the capability to provide a quality education for their students," said, Rep. Eddie Bernice Johnson of Texas, (in Dervarics, 2003, p. 6).

Ohio University was able to provide easy and immediate computer access to all first-year students at the university’s main campus without excluding disadvantaged groups. The University’s Residence Hall Computer Program was launched specifically with the purpose of promoting equal access in what the Ohio University Board of Trustees, described as an increasingly computer-dependent educational environment:

We know that our students must be “computer astute” for nearly any pursuit in life, and that requirement will only become more intense in the future. While technology is not a panacea for higher education, we do believe that it affords the opportunity to make learning more engaging and more effective. We want both our students and our faculty to have that advantage… We must say that we believe that technology and its applications to teaching and learning are so important that we have reordered our priorities for residence hall improvements to make this possible. (Board of Trustees, 1999, pp 1-2)

Although a program with such magnitude demands much in the way of operating and maintaining capital and effort, it enjoys the advantage of providing equal access for first-year students regardless of their financial abilities.
Many colleges and universities in the US recommend that new students gain some computer skills prior to their enrollment. The College of Journalism and Communications at the University of Florida, for example, makes standard computer literacy expectations clear on its web site:

Incoming students are expected to have developed touch-typing skills and competence with computers and software before entering the College of Journalism and Communications. You are expected to already know how to use software for word processing, Web browsing, Internet access and the like. You also are expected to know how to operate your own computer and provide for its maintenance. Keeping your machine and its software in good running condition is your responsibility. ("College of Journalism," 2002, ¶ 26)

The fact that “this year’s 18-year-old college freshmen were born the year the PC was introduced to the public,” argued Jones (2002, p.6), proves that computer skills requirement is not an impossible standard for the majority of college students. Jones found that all college students who participated in a survey conducted for the Pew Internet & American Life Project had begun using a computer at the age of 18 or younger. He reported that 85% in his study "own their own computer, and two-third (66%) use at least two email addresses" (p. 6). In some colleges, argued Young (2000), half of the first-year students arrive with their own computers. Some even build their own computers. For example, “To get ready for his freshman year at the California Institute of Technology, Shane Arney decided what kind of computer he needed and then built it
himself, mostly with components he had purchased online” (Young, 2000, ¶ 1).

Furthermore, Jones (2002) stated, "the majority of college students (89%) have positive attitude toward the Internet and their communication tools" (p. 8).

Despite these encouraging figures administrators in colleges and universities shouldn't take computer literacy for granted and only focus their attention on what these machines can do for their students, not whether their students can use them (Kizza & Kizza, 1993). The technical difficulties that may encounter some of first-year students in using computers for academic work can be frustrating. Bischoff (2000) notes:

If the students are relatively non-technical, the mystery involved solving technical issues may seem overwhelming. Students may become so annoyed at their inability to set up an Internet service provider (ISP) connection, for example, that they get discouraged and frustrated instead of reaching out for technical assistance. (p. 71)

**Computer Anxiety**

The computer and its widespread influence have placed demands on everyone to become and remain current with fast-evolving interfaces and capabilities, which can lead to stresses and anxiety. The phenomenon of computer anxiety includes an apprehension of danger, a sense of fear and failure. Yaghi and Abu-Saba (1998) suggested that computer anxiety is more of a transitory state that tends to fade as the person acquires more experience with computer, (in Smith and Caputi, 2001, p. 265). More experienced users are likely to be less anxious and have a more positive attitude toward the *computer* than
less-experienced users, (Mirta & Steffensmeier (2000, p 2). A study by Anderson and Hornby (1996) confirms the findings that computer experience leads to more positive attitudes toward computers. As individuals are more exposed to technology the novelty wears off, as does anxiety and fear. While Krendl, Broihier, and Fleetwood (1989) reported that females have greater anxiety toward computers than men, other studies such as Clegg and Trayhum (2000), indicated an equal presence of computer anxiety among both men and women. Clegg and Trayhum (2000) stated, "Women from our own and other studies appear not to be lacking in either confidence or skills" (p. 87).

Although much of the research treats the problem of negative anxiety, “It is said that under certain circumstances anxiety may facilitate performance” (Schwarzer, 1986, p. 7). For students of high ability, it is possible that some anxiety can improve performance; students of low ability, however, experience more negative results. Extreme computer anxiety, which some have called “computerphobia,” surfaces in self-imposed negative messages such as “Everyone else knows how to do this but me!” or “I’m going to hit the wrong button and mess up the machine!” (Rosen & Weil, 1995, p. 29).

**Gender and Computer Experience**

In a computer-enriched environment where all students were provided with laptops and network access, Mirta (2000) found that women were less positive about computers compared to men, and that the use level of computers by women was less frequent than that of men. Shashaani (1994) noted, “involvement of women in computer science fields has declined. The women’s dropout rate in computer related fields has
increased in most colleges and universities nationwide” (p. 347). Some of the reasons given, in a cross-section of existing research, for differences in gender use are:

1. Computers are considered by girls to be part of a male culture.

2. The preponderance of computer games favors boys’ interests more than the interests of girls, and sex-biased software, which is designed to appeal only to boys, creates more distance between girls and computer learning.

3. More experience among males may account for confidence acquired from previous use.

4. Parents tend to purchase computers more for sons than for daughters.

5. “Lack of a female-user role model at home … may influence a girl’s self confidence” and leave the impression “that learning and working with computers are difficult tasks and that computers are in the masculine domain” (Shashaani, 1994, p. 362).

Boser, Palmer, and Daugherty (1998) suggested that female and male students have significantly different perceptions of some aspects of technology. Female students in their study consistently perceived technology to be less interesting than did male students. According to Sanders (1993), computer avoidance in girls is not due to any one particular factor, but is, however, “created or reinforced when teachers ask only the boys the technical questions, or when teachers wait longer for boys’ answers than for girls’. Or when girls see only men in computer-related roles on television programs and commercials” (p. 32). In a study that evaluated all-female computer science classes,
Crombie (2000) found that excluding boys from the classes not only increased female enrollment, but also improved female students’ attitudes toward computers.

Other researchers have different points of view regarding gender and computer experience. For example, in a study to assess the computer literacy of undergraduate college students, Smith, and Necessary (1996) concluded that "gender distinctions made about males and females on computing literacy may not be valid". The authors further argued "it may be that females score lower on computing literacy than their male counterparts because they have less computer-related experience, yet their scores may increase markedly as they are gain training" (p. 2). Odell, Korgen, Schumacher, and Delucchi (2000) reported, "Our results lend support to previous research suggesting a narrowing of a gender gap in Internet use. Both males and females in our sample make extensive use of the internet (94.2% and 95.6% respectively)"(p. 860). However, indicated the authors, the disparities remain in the purposes for which males and females use the Internet.

Studies that focus only on the relationship between variables like gender and computer anxiety, it should be noted, may be misleading, because demographic variables and computer anxiety both have a relationship with computer-related experience and access generally. A more direct relationship between computer-related experience and computer anxiety seems clearer, and several studies have suggested that prior computer-related experience should be weighed heavily when examining the relationship between computer anxiety and demographic variables (Mirta & Steffensmeier, 2000; Bohlin &
Students with disabilities also constitute a significant percentage of college students; low-income groups are not the only disadvantaged members of the campus community whose computer access must be made possible with the assistance of additional technology. “Surveys tell us that about 12 percent of college freshmen have some kind of disability. This number represents a sizable increase over what was reported a decade ago” (Coombs & Cartwright, 1994, p. 43). In order for campuses to use information technology in a manner that is inclusive of students, faculty, and staff with disabilities, assistive technologies must be considered. Although the Americans with Disabilities Act (ADA) do not specifically address assistive technology, Button and Wobschall (1994) pointed to the ADA statement which stated, "the message to our nation was clearly that the historical and often intentional segregation and exclusion of people with disabilities would no longer to be tolerated" (p. 196). Consequently, these two authors argued that assistive technologies are critical to achieve the ADA's nondiscrimination provision. In her article “Ensuring that Course Websites are ADA Compliant,” Susan Sarnoff, a professor at OU, wrote, “Few websites, including course websites, are currently accessible to people with the full range of disabling conditions, despite ADA guidelines for educators” (Sarnoff, 2001, p. 200).

Assistive technology allows individuals with physical and/or cognitive, learning, or speech disabilities to perform functions that may otherwise be difficult or impossible.
"Computer hardware has been customized to overcome the limitations of many handicapping conditions," reported (Sarnoff, 2001, p. 190). Day and Edwards (1996) argue that the need for assistive technology doesn't end with the individual's educational ambitions, but it continues through his/her life. It ranges from inexpensive “low-tech” solutions to more expensive “high-tech” solutions. It may involve adapting a computer by the use of special software to aid an individual to read, write, or perform other academic tasks. These are some examples of the assistive technologies available in the market:

1. Speech-recognition systems that provide help to people who cannot use a keyboard. Simply by talking, they can launch programs and use them effectively. Speech-recognition systems help disabled users send e-mail and access the Internet’s world of information.

2. Screen-reading devices enable blind and visually impaired individuals to access popular applications. There are many shareware and commercial software that automatically read through complete documents, including web pages and e-mail.

3. Alternative input devices include joysticks, sip-and-puff devices, optical/ultrasonic head pointers, and specialized keyboards. These devices provide help to individuals impaired in the use of their hands.

4. Screen-enlarging software that increases the size of fonts up to 16 percent makes reading and writing possible to people with limited vision.
Students' Use of Computers in Residence Halls

In a press conference, the Ohio University Board of Trustees (1999) explaining its decision to implement its residence hall computer program, noted:

Our concern is that faculty members be assured that every student has easy and immediate access to the computer so that they can feel comfortable in making assignments that require access to the Internet, or communication between faculty and students via electronic mail, or group projects that depend on the capability for asynchronous electronic discussion among students, etc. (Board of Trustees, 1999, p. 1).

Giving all first-year students immediate access, Ohio University administrators are hoping that their students would use networked computers extensively in academic work. College students across the US use computers for a range of activities. For example, Olsen (2000) reported:

For some, the computer is as much an entertainment appliance as a scholarly tool. A student at Wellesley College, for instance, uses the controversial Napster file-sharing program to collect digital recording.... Another student, at Huston-Tillotson College, uses the public terminal there to search for news about the singer Christina Aguilera. Students at Northern Virginia Community College, by contrast, say they use computers for entertainment relatively rarely, focusing instead on tasks such as algebra exercises and architectural drawing. (p. A43)

Olsen also reported that, among the first-year student residents at Michigan State University, it is common to find up to 56% of students using the Internet simultaneously.
Such numbers indicate that college students are using computer extensively, and using them for both academic entertainment. Similarly, remarked Jones (2002) "But the high degree to which today's college students perceive the Internet as something used for fun means that they will not limit their use to work or learning. College students are a group primed for interactive entertainment" (p. 19).

E-mail creates the highest activity in most computer-networked residence halls. A survey conducted by the Office of Assessment at Ohio University showed that first-year students in residence halls listed sending and receiving e-mail as their most common computer-related task (Mauzy, 2001). Jones (2002) noted, "Nearly 9 out of 10 (89%) college students report having received class announcements from professors via email" (p. 11). In 1997 article in the Chronicle of Higher Education, Young (1997) reported that Wake Forest’s Vice-President of Finance and Administration, John Anderson, "complains of students’ e-mailing video clips that weigh in at 70 megabytes, larger than many hard drives were just a few years ago. One student, he says, keeps a library of 500 megabytes’ worth of e-mail.” Young wrote, “such unabashed use of the network has repeatedly pushed Wake Forest’s computing infrastructure to the breaking point” (¶ 28).

Using computers in residence halls for entertainment is likely to remain common, and will continue to place a demand on system and academic administrators. Surveys such as the Pew Internet Project Survey Analysis by Jones (2002), showed that students spend many hours online downloading and exchanging music files. The Communication Network Services (CNS) at Ohio University dealt with the problem by deciding to block music file-sharing programs, such as the famous Napster, to free the network for
academic use. In an e-mail distributed to Ohio University’s network users, Sean O’Malley, the Public Relations Manager of CNS, wrote:

Since the opening of Fall quarter, Scour and Napster have consumed close to 75% of the university’s available Internet resources, 24 hours a day. As a result, academic users have suffered serious slowdowns. CNS is investigating various options to allow entertainment services to coexist peacefully with academic services; however, until that technology is in place, we have no choice but to block “bandwidth hogs” like Scour and Napster. (S. O’Malley, personal communication, September 2000)

Indiana University experienced the same situation and decided to ban such use altogether as well. “The current dilemma is Napster, a program that eases the trading of MP3 music files, a favorite pastime of students. Some colleges, such as Indiana University, have simply blocked access to Napster’s central servers” (Armstrong, 2000, ¶ 9). Though Napster is currently defunct, for the most part, other file sharing networks, such as Scour and Gnutella, continue to absorb college resources.

While it is inevitable that students will use computers for entertainment, Tampke (2001) reported widespread use of computers for academic purposes as well:

In addition to electronic mail, upper-class students and first-year students alike noted how their class-oriented computer work had increased… Class websites, required Internet research, and on-line assignments were among the most commonly reported academic uses. Students also reported using the computers for papers and presentations.” (p. 7)
Jones (2002) draw attention to the use of the Internet by college students for social activities which according to him "account for a great deal of their learning outside the classroom" (p. 15). While assuming that college students use the Internet more for social activities than for educational activities, Jones reported, "while (42%) of college students say they use the Internet primarily to communicate socially, nearly as many (38%) use it primarily to engage in work for classes" (p. 15). Email and instant messaging (IM) came at the top of the social activities in which Internet was utilized by students, according to Jones (2002). He concluded his remarks regarding the role of Internet in college students' social lives by saying, "All this suggests they view the Internet as a functional medium that can used to enrich college students' social environment" (p. 16).

The Implications of Internet use of college Students' Study habits

Higher education professionals in general and librarians in particular are very concerned that the convenience of the Internet may create poor research habits. Jones, (2002) said, "In our research, an overwhelming number of college students reported that the Internet, rather than the library, is the primary site of their information searches" (p. 12). Similarly, Schantz (1999) argued that no matter you may do to make your library attractive, experience showed that college students will go to the Internet instead:

Yes, your institution may have a fine library. And yes, you may go to great lengths to show your students how to effectively research a topic. Unfortunately, many of them still will view the Internet as the first and only source of information. (P.4)
Jones (2002) also indicated that libraries reported a dramatic decrease in reference queries, a trend that Carlson (2001) pointed out was occurring across the US, as students turn to online materials.

At the University of Idaho at Moscow, for example, door counts and book circulation have decreased by more than 20 percent since 1997, and reserve loans have plummeted by more than 60 percent. But Since 1999, the number of electronic articles that Idaho students retrieved went up by about 350 percent, and periodical database searches shot up by almost 800 percent. (Carlson, 2001, ¶ 6)

The Internet changed college students' research habits to the extent that “when students visit the library, it is our observation that they use electronic resources more than paper resources” (Jones, 2002, p. 13).

The dilemma that higher education professionals are facing was pointed out by Carlson (2001, ¶ 25) reporting that William N. Nelson, the director of Augusta’s library, “admits that it has been hard to track how students are using electronic resources and whether they are getting useful and valid information. My feeling is that availability of the Internet has probably degraded the level of information that students use…” Other researchers such as Jones (2002) expressed the same concern, “that students are less adept at recognizing credible, academic sources when conducting research” (p.13). He also added, "A great challenge for today's colleges is how to teach students search techniques that will get them the information they want and how to evaluate it" (p. 13).
The literature review focuses on three major aspects which together provided an overall understanding of the uses and the implications of technology, particularly the use of networked computers by college students. The first aspect of the literature review sheds light on literature that pertains to the applications and the implications of technology on learning and teaching in higher education. It also included literature that reflects on challenges and problems facing higher education professionals to integrate technology in curriculum. The second section looked into literature that covers the philosophical background of learning communities and the role of technology in aiding the formulation of these communities. The section also provided insightful information on the constructivist environment that has been created as a result of these communities.

The third and final section of the literature review concentrated on computer-enriched environments in college campuses and their impact on students' academic and social activities. It also reviews literature that highlighted the experience of a number of higher education institutions in the US with computerizing their colleges' campuses. Literature that talks about computer access, students' computer skills and attitude, use of Internet, computer and gender was also reviewed.

The review was valuable in identifying a number of important aspects that influencing the role that computer-enriched environments played in reshaping learning and teaching in colleges. Although the second section of the literature review focused on building learning communities in college campuses, little evidence in the literature that discusses *informal* learning communities was found. This study is an attempt to
contribute to the body of literature new depth of understanding to the phenomenon of computer-enriched environments and their role in building informal learning communities in college campuses.
CHAPTER THREE

Methodology

The main purpose of this study is to understand and describe the impact of the Ohio University Residence Hall Computer Project on first-year students’ educational and social lives. Its primary intent is to understand the motivations and meanings behind participants’ experiences relating to this project. Although the primary target group was first-year students, the research examined faculty members' experiences with technology and inquired about the impact of the student computer environment (SCE) on their instructional activities. The research also studied the impact of the SCE on building learning communities at Ohio University residence halls. Two sets of questions were prepared, one for first-year students in the University College at Ohio University, and the other for faculty members who taught some of those students. A sample of the questions that were directed to students:

1. How do the students describe the experiences of being provided with computers and printers in their residence hall rooms?
2. How has the availability of computers in the residence halls impacted students’ attitudes towards the use of computers in general?
3. How have computers in the residence halls affected students’ academic lives?
4. How have computers in residence halls impacted students’ personal lives?
5. What are the advantages and the disadvantages—personal and academic—of having computers in the students’ rooms?
6. To what extent do computer skills, gender, and socio-economic background play a role in how students use computers?

On the other hand, the following questions guided the interviews with faculty members:

1. What role do computer technologies play in the teaching process?
2. What strategies do faculty members use to integrate technology into their teaching?
3. How has the Ohio University's Residence Hall Computer Project specifically impacted instructor’s teaching processes?
4. To what extent have faculty used the residence hall computers to transform pedagogy?

**Qualitative Inquiry**

Qualitatively speaking, the concern of this study is directed towards what Bogdan and Biklen (1998) call “participant perspectives.” The decision to employ a qualitative research method in this study was based on the study's nature which requires deeper understanding of the phenomenon of computer-enriched environments and their role in building informal learning communities in college campuses. Silverman (2000) argued that qualitative research is suitable in studying a social phenomenon because it allows the researcher to gain "deeper" understanding. Furthermore, it is due to the fact that little prior research has been done on this project, it was thought best to begin with a holistic understanding which requires qualitative methods. Strauss and Corbin (1990) claim that qualitative methods can be used to study any phenomenon about which little is yet
known. They can also be used to gain more in-depth information that may be difficult to achieve through other research methods.

The ability of qualitative research methods to fully describe a phenomenon such as the Ohio University Residence Hall Computer project was an important consideration not only from the researcher's perspective but also from the reader's perspective as well. Lincoln and Guba (1985) argued, "if you want people to understand better than they otherwise might, provide them information in the form in which they usually experience it" (p. 120).

The appropriateness of employing a qualitative research methodology in this study arises not only from its ability to provide a holistic understanding to the problem under investigation, but also from its validated suitability in studying education technology. Johnson (1995) suggested that qualitative research methodologies are powerful tools for enhancing our understanding of teaching and learning, since education is a process of active dialogue and negotiation of meanings from shared social experience. Hence, case studies, and, in other related research, ethnographies are well suited to examining this dialogue and negotiation (Windschitl, 1998). The complexity of advanced educational technology and the diverse questions that face researchers in their studies of technology in education requires the kind of in-depth investigation that makes qualitative methods not only appropriate, but advantageous.

The Setting

To describe the setting of this study it is important first to inform the reader about Ohio University where the study took place. Second, and since all students who
participated in the study came from the University College, the researcher found it essential to describe that unit. The third area that needs to be described is the residence halls and in particular more attention will be given to students' rooms.

Ohio University

Ohio University is one of the midwestern public universities, located in a rural environment in Athens, Ohio with a total of 17,000 undergraduate and graduate students. Common knowledge among the students is the haunted dimension of Athens; "some Bobcats reported lying in bed while no one else is in the room and hearing phantom typing on their computer keyboards" (Jones & Rein, 2003, p. 714). However, "Combining a well-deserved party school reputation with solid academic programs and a picturesque campus," reported Jones and Rein (2003), "it is no wonder that neither the ghosts nor the students want to leave OU" (p. 714). The Princeton Review for 2003 by Franek, Meltzer, Opochinski, Owens, Bary, Maier et al. (2003) put Ohio University among the best 345 college in the US and described it as "beautiful campus, athletic facilities are great, the campus is easy to get around, great library, great computer facilities" (p.184).

University College

University College at Ohio University was established in 1935 for the instruction, direction, and guidance of freshmen. Today, while it continues to be the college of entry for many first-year and transfer students, University College has a more extensive undergraduate mission that includes support of teaching, learning, and advising.
University College assists students who want to explore a variety of areas of study before selecting a major. Typically, undecided freshmen work with both a faculty advisor and a University College professional advisor to investigate academic options so they can make an informed choice of major (University College, 2003).

Residence Halls

All Ohio University's freshmen and sophomores are required to live in single-sex or coed buildings in the university's residence halls. In OU main campus at Athens, Ohio residence halls were clustered in three main groups: East Green, West Green, and South Green and each Green consist of a number of dorms. All the residence halls have air-conditioning, and most rooms are doubles with common bathrooms. One of the major advantages about living on campus is that each dorm room comes furnished with a computer with high-speed internet access, so students do not necessarily have to purchase a computer of their own.

The dominant students' room area is 115 square feet and they were packed with furniture and students' belongings. With the help of a student advisor who work and live in one of first-year students' residence hall, the researcher was able to get volunteers to photograph their rooms. Four students agreed to take photographs to their rooms using a digital camera provided by the researcher as illustrated in (Appendices F & G). A quick glance to the four images indicates that there is no one standard setting or standard furniture. Some rooms with bunk beds in others beds were separated.

Students' computers are Gateway desktop and the printers are Okipage laser printers as shown in (Appendix F). The layout of computers was different from one room
to another. Some students put the system units under the desk; some put them on the top of the desk with the printer on the top of computer. One student elevated his bed very high (what students refer to as a "loft") and setup the computer on a cabinet beneath the bed. Beside the computer and the printer there are many other systems such as TV, phone, radio…etc. Accordingly, wires were hanging everywhere around the room. The reason for the cluttered setting of students' rooms is due to the fact that these rooms originally were designed before the advent of extensive computer technology.

The Researcher

Integrating technology into education, with the caveat that doing so should be done wisely and appropriately, is a life-long interest, commitment, and pursuit for the researcher of this study. The researcher is a doctoral student in instructional technology who also worked as a technology specialist for the African Studies program at Ohio University as a coordinator to develop an on-line MA program in African Studies. During the year 2001, the opportunity arose to develop and coordinate an advanced educational technology program for the college of Health and Human Services at the same university. The researcher has also developed and taught a graduate technology course in the College of Education.

A native of the Sudan, the researcher has experience working as a community development extension agent. The relevance of the researcher’s previous experience in community development to this study can be seen in the qualitative research methods he employed to assess and study social phenomena. Strauss and Corbin (1990) use the term “theoretical sensitivity” as a concept to evaluate any researcher’s skill and readiness to
Methodology

Methodology

attempt a qualitative inquiry. Qualitative research methods can be used to study education technology in an appropriate and advantageous manner. Even though, by their nature, qualitative research methods can be overwhelmingly time-consuming, they can also yield rich information not obtainable through other methods.

The researcher is a resident in the US for a period of 12 years which he spent either as a graduate student or working in the field of information technology as a technical support specialist. Although the research is an outsider for this research, his accumulated experience of conducting research, teaching and providing university-based technical support enhanced his ability to perform this study. In that he has the advantage to be able to explore both the academic and the technical aspects of concern to this study. Furthermore, the researcher's experience in supervising and training graduate as well as undergraduate students in the course of his job as a technology specialist and a computer lab manager for over 2 years in Ohio University, helped him significantly in communicating successfully with all participants in this study.

Selection of Participants

The study was designed to include two groups of interviewees. The main group of participants was composed of first-year students at three different residence halls at Ohio University (East Green, South Green, and West Green). At the time the interviews took place all of the students interviewees were finished their freshman for the academic year 2000-2001 in the University College and they just started their sophomore year. The second group of participants was comprised of faculty members who taught first-year students at the University College in the academic year 2000-2001. As the interviews
progressed, it became crucial to include other interviewees outside these parameters as it has been mentioned earlier: a library administrator, a residence hall assistant, a Communication Network Services (CNS) employee, and an administrator from the Office of Institutional Equity.

The rationale behind selecting participants from the University College arose from the fact that the University College held the majority of first-year students at Ohio University in 2000-2001. Also, since University College students have yet to declare a major, limiting the student sample to them increased the chance of diversity in disciplines, which enhanced the selection process by ensuring that the interviews were not overwhelmingly limited to computer science majors, for example. It was not practical to include all first-year students at Ohio University in this study, due to time and manageability constraints. “As much as you might want to, you cannot study everyone everywhere doing everything” (Miles and Huberman, 1994, p. 27). Focusing on University College students made it feasible to interview a representative cross-section of the student body.

The fact that the University College hosts a diverse population of first-year students also made it the most suitable site for this study. A diversity of subjects, in qualitative research, normally provides a range of facts, opinions, and perspectives that make the data rich and thick (Duffy & McMahon, 1999). This diversity, in relation to computer technology knowledge, resulted in a range of computer experience, from savvy to novice users. Including gender as a criterion in the selection process added more diversity and enrich the data. Understanding gender difference in relation to technology
was not only of high interest in and of itself, but it also helped to inclusively validate the outcomes, represent the student experience generally, and overcome the habit of generalizing the human experience from male experience, as pointed out by Harding and Hintikka in Punch (1998, p. 141):

Thus the experience on which the prevailing claims to social and natural knowledge are founded is, first of all, only partial human experience only partially understood: namely, masculine experience as understood by men. However, when this experience is presumed to be gender-free—when the male experience is taken to be the human experience—the resulting theories, concepts, methodologies, inquiry goals and knowledge-claims distort human social life and human thought.

A purposeful selection method was adopted in the selection of participants for this study. According to Merriam (1988), purposeful sampling is based on the assumption that “one wants to discover, understand, gain insight; therefore, one needs to select a sample from which one can learn the most” (p. 48). Morse, (1994), providing guidelines for sampling, suggests that the guiding logic behind purposeful selection is that the sample should be “information rich.” The sample selection for this study represented a diverse range of participants, combining purposeful sampling criteria with what Miles and Huberman (1994, p. 28) call “maximum-variation-sampling,” or “searching deliberately for confirming cases, extreme or diverse cases, and typical cases serves to increase confidence in conclusions.” Maximum variation sampling can yield a detailed description of each case, in addition to identifying shared patterns that cut across cases. Morse (1994) indicated that maximum variation sampling is a guiding process by which the qualitative
researcher goes about selecting an appropriately heterogeneous sample. Lincoln and Guba (1985), furthermore, argued that maximum variation sampling is the most useful sampling strategy for the naturalistic approach. According to Patton (1990):

This strategy aims at capturing and describing the central theme of principle outcomes that cut across a great deal of participants or program variation. For small samples a great deal of heterogeneity can be a problem because individual cases are so different from each other. The maximum variation sampling turns that apparent weakness into a strength applying the following logic: Any common patterns that emerge from great variation are of particular interest and value in capturing the core experiences and central, shared aspects or impacts of a program. (p. 172)

To select respondents in the light of “maximum-variation-sampling” criteria, a web-based questionnaire (Appendix A) was prepared to collect data about prospective participants’ majors, gender, residence halls, and computer knowledge. E-mail (Appendix B) was sent to over 200 first-year students in the University College explaining to them the purpose and the confidentiality of the study and asking them to initiate voluntary participation by filling in the online questionnaire. Unfortunately, the response from this approach was minimal. Consequently, three more aggressive approaches to reaching the target group were undertaken:

1. With the help of two professors who were teaching classes with a large number of first-year students, many of whom from the University College, potential participants were directly approached and flyers were distributed.
Methodology

2. Permission was granted to enter the reception areas of three first-year student residence halls, and informants were interviewed on the spot.

3. Students already participating in the study recommended other informants.

It was neither wise nor possible in the design stage of this qualitative research to determine the number of interviews in advance. Glesne and Peshkin (1992) articulate the sensibility of this unpremeditated approach:

The open nature of qualitative research inquiry, however, precludes the ability to know either all of the important selection criteria or the number of observation or interview sessions necessary to gather data. The selection strategy evolves as the researcher collects data. (p. 25)

The researcher continued to add interviewees until no new significant information was gathered. According to Rubin and Rubin (1995) “When each additional interviewee adds little to what you have already learned, you stop adding new interviewees” (p.72). Glaser and Straus, (1967) called this the saturation point of data gathering. The decision to stop interviewing participants thus took into account the research goals in obtaining in-depth understanding about research questions. The saturation point for this study was reached at 16 students, 11 men and 5 women.

Faculty members were selected with maximum variation from among a group of instructors who taught in the University College during the academic year 2000-2001 and who had been suggested by students as viable informant candidates. Four faculty members, two men and two women were selected to participate in this study. Four staff members were selected as subject matter experts to triangulate students' perspectives. The
Methodology

inclusion of the staff members was based on the initial themes that the researcher identified from the students and faculty members interviews. The researcher found it crucial to interview a librarian to further examine the impact of the SCE on how students conduct their research. All students who have been interviewed either criticized or praised the Communication Network Services (CNS) at Ohio University; therefore, the researcher interviewed a public relation personnel at the CNS to address these issues. To gather more useful data about the inclusion of students with special needs in the SCE the researcher interviewed a subject matter expert from the Office of Institutional Equity. A graduate student who worked as student advisor and lived in a first-year residence hall was also interviewed. The decision of interviewing student advisor was very helpful in adding a dimension of an observer and therefore, triangulates students' perspectives.

Data Collection

In qualitative research, typical data gathering methods include interviews, participant observation, and document analysis (Glesne and Peshkin, 1992; Punch, 1998). The combined use of different data gathering methods is one form of triangulation, which strengthens the credibility of the data and provides the researcher with a holistic view of the phenomenon under study. In support of the use of the triangulation approach, Howard (1987) states:

The triangulated method, in effect, serves to check each other, compensating for inherent weaknesses. This approach is particularly valuable in cases where the researcher is working in a field for the first time and where there is little prior research to provide contacts or sampling frames. (p. 72)
In this study the researcher adopted data triangulation technique by including a variety of data sources (students, faculty members, and staff members).

**Interviews**

Interviews were designed in a way that would allow for free flowing discussion guided by established foci and by emergent foci as the interviews developed. To keep the interviews on course, an overall framework was prepared with sufficient flexibility to allow interviewees to pursue uncharted issues related to the main research topic (Rubin & Rubin, 1995). Giving interviewees the opportunity to express their own experiences opens doors for important themes that the researcher may not have otherwise considered. Sanger (1996) argued the interviewing is the primary instrument for collecting data in qualitative research. He said, "The interview, even more than observation, is the predominant means of data gathering. Its flexibility and negotiability makes it uniquely attractive to … researchers who are pursuing longer term goals involving human action in organizational or other life" (p. 61). Bogdan and Biklen (1998) offer support for this open-ended approach:

Even when an interview guide is employed, qualitative interviews offer the interviewee considerable latitude to pursue a range of topics and offer the subject a chance to shape the content of the interview. When the interviewer controls the content too rigidly, when the subject can’t tell his or her story personally in his or her own words, the interview falls out of the qualitative range. (p. 94)

The goal of such interviews is to understand participants’ construction of reality by asking them questions in a way that opens the opportunity for them to tell their stories.
in their own terms. To achieve that, the researcher has to hear, listen, and share a common social experience with participants. Rubin and Rubin (1995) captured the researcher’s ideal attitude toward their interactions with interviewees by quoting one interviewee: “I’ll tell you one thing. It has been a very interesting conversation with you because I think in the course of conversation it’s given me the time ... to reflect ... on what we are doing and how we are doing it” (p. 1). Therefore, listening and sharing experiences are skills that qualitative researchers should exercise in order to gather rich and thick data. Eisner (1991) indicated that how much people are willing to say is surprising when they know that their interviewers are really willing to listen.

**Students Interviews**

Student interviews, an hour in length, were conducted by the researcher on a one-to-one basis at students’ residences in the evenings. Interviews were conducted during the months of September and October of 2001. All interviews were tape recorded with the participants’ permission to ensure that the data were preserved for later analysis and to allow the interviewer to listen attentively to respondents. Verbatim transcriptions of tape-recorded interviews provide the best source of data for analysis (Merriam, 1988). Hoepft (1997) claims that “recordings have the advantage of capturing data more faithfully than hurriedly written notes might, and can make it easier for the researcher to focus on the interview” (p. 7).

While the interviews were designed to be open-ended, a framework guided the discussions. On one hand, the main questions were open enough to allow interviewees to express their own experience and opinions, and, on the other hand, they were narrow
enough to prevent the discussions from wandering from the main topic. For example, a
general question about the effects of the computer on the students’ lives: What is the
effect of computers on your life? can be followed by a specific questions: of how
computers have helped students in their academic work and personal lives? Overall, the
initial questions were broad, and allowed participants to tell their stories on their own
terms (Appendix C).

Follow-up questions were normally conducted either during the interview with the
same interviewee or between interviews, anticipating the next informant. In all cases, the
purpose of follow-up questions was to explore further areas of interest arising from
discussion (Rubin & Rubin, 1995). Besides performing follow-up questions during the
data collection phase, in the same interview, or between interviews, the researcher used e-
mail as a tool to verify positions and to explore in depth themes recognized in the data
analysis stage of the research. All students interviewed for this study voluntary provided
their email addresses on the consent forms which they have signed for this study. The
researcher obtained their permission to email them for follow-ups and/or additional
explanations if needed. For example, the researcher emailed a female student to elaborate
more on her experience with computer in her residence room and how that impacted her
academic work.

Faculty Interviews

Faculty interviews took place in their offices during office hours or by
appointment, and were generally more intensive in comparison to the students' interviews
regarding the impact of the SCE on teaching, learning, and research. The purpose of
faculty and staff's interviews was to investigate and determine how the computer project in Ohio University’s residence halls was impacting teaching and learning. General guiding questions were: “What are the instructional implications that were created as the result of the computer project?”; “Do faculty members now teach differently?”; and “What would make the computer environment useful in the academic life at Ohio University?” The lengths of the faculty and staff interviews were extended to an hour or, in some cases, more. The researcher employed an interview protocol (Appendix D) to "structure the discussion by breaking the subject into specific answerable parts" (Rubin & Rubin, 1995, p. 203).

**Staff Interviews**

Similar to the interviews with faculty members the interviews with the staff members extended for 45-60 minutes and they took place in their offices. These interviews were structured in a manner that allowed the researcher to gather more information about topics raised in students' and faculty members' interviews. Rubin and Rubin (1995) called this type of interviews "topical interviewing." They argued, "an educational administrator might do topical interviews to find out how teachers are responding to a new curriculum" (p. 196). Likewise, in this study the researcher interviewed subject-matter experts to support, dispute, and/or explain issues mentioned in earlier interviews. For example, the topic of how students conducting their research and what was the role that SCE was playing in changing these dynamics was thoroughly explored with an informed librarian in Ohio University.
Data Analysis

The initial task in qualitative data analysis is to find some concepts that may help the researcher to make sense of and to understand the meanings of his or her subjects’ positions as documented by the data. As Bogdan and Biklen (1998) pointed out "Data analysis is the process of systematically searching and arranging the interviews transcripts, field notes, and other materials that you accumulate to increase your own understanding of them and to enable you to present what you have discovered to others" (p. 157). The identification of concepts and themes that weave into a broad explanation of theoretical or practical concepts guides the final report. The crucial element in data analysis is not only, however, the ability of the researcher to make the data understandable, “but to do so in an analytical way that provides a novel perspective on the phenomena we are concerned with or which promises to tell us much about other phenomena of other types” (Hammersley & Atkinson, 1995, p. 209). Although there are many methods that can be followed in conducting data analysis in qualitative research, the premise is that data analysis should be integrated in the process of data gathering, rather than as an afterthought (Punch, 1998; Rubin & Rubin, 1995).

Data analysis for this study was conducted simultaneously with data gathering, which allowed the analysis to guide the collection while generating follow-up questions that verify or pursue themes, ideas, and concepts emerging from the interview process. Glesne and Peshkin (1992) argued that analysis performed simultaneously with data collection enables a qualitative researcher to focus and shape the study as it proceeds while consistently reflecting on his or her data. Early data analysis gives the researcher
the opportunity to cycle back and forth between thinking about the already collected data and generating strategies to collect new data that will fill gaps or follow emerging themes. Miles and Huberman (1994) recommended such early analysis and indicate that it is a mistake for a researcher to put his/her full energy and spend months and years in collecting data and then retire from the field to work on his/her notes.

Miles and Huberman (1994) called the process of organizing data for analysis the “write-ups” stage of the study, and they called for “an intelligible product for anyone, not just for the field-worker,” which “can be read, edited for accuracy, commented on, coded, and analyzed” (p. 51). Data organization for this study consisted of transcribing tape-recorded interviews, which has been conducted with the help of a professional transcriber, followed by a formal analysis. In this formal analysis stage, dominant themes and patterns that emerged shaped an overall explanation of the phenomena under study. The general process followed has been laid out by Bogdan and Biklen (1982): “working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what to tell others” (p. 142).

**Coding**

Codes are tags, labels, and names that carry meanings for pieces of data. Developing coding categories is a process used by qualitative researchers to organize data into clusters of related ideas and concepts. In this study, categories were developed in a way that helped in answering the research's main questions. Then all related codes in all students' interviews, for example, were put under the relevant category. Such approach
was recommended by Rubin and Rubin (1995): "to begin the final data analysis, put into one category all the material from all interviews that speak to one theme or concept" (p. 226). Having the interviews transcriptions on a digital format helped the researcher to use color-coding. In that the researcher applied different color to each category. For example, peer learning category was given the red color, while the Internet and the academic work category took the dark blue color.

There was no intention to force the data towards any pre-assumed theme; rather the researcher identified emergent themes relevant to the research questions. It would have been premature to develop coding categories before reading and re-reading the data. Thus, the researcher developed coding categories after reading the data thoroughly, in order to ensure that said categories were logical and meaningful. The researcher’s strategy in coding was based on grouping interviewees’ responses into categories that brought together similar ideas, concepts, or themes that were discovered during the data collection process. For example, if two or three respondents indicated independently that they learned to do computer activities with the help of other students, the development of peer learning among students in the residence halls surfaced as a possible theme. The researcher followed such patterns and verified their existence in the preceding interview sessions. Strauss (1987) called this process “open coding.”

Memo Writing

Memoing is a procedure by which the researcher captures analytic thoughts that develop while reading or thinking about what has been said in the field. Cited by Miles and Huberman (1994), Glaser defined the memo as follows:
A memo is the theorizing write-up of ideas about codes and their relationships as they strike the analyst while coding… it can be a sentence, a paragraph or a few pages… it exhausts the analyst’s momentary ideation based on data with perhaps a little conceptual elaboration. (p. 72)

Memoing is the most creative-speculative stage of data analysis development, argues Punch (1998). Memos emerge when the researcher engages in an internal dialogue reflecting on his/her field experience. When a group of researchers pursue a common study, the dialogue is obvious and the emergence of memos is substantial. Glesne and Peshkin (1992) argue that no matter how preliminary or in what form these memos are, they facilitate the analysis process. They also observe that memo writing frees the researcher’s mind for new thoughts and perspectives.

Although the researcher in this study was projecting a linear procedure in analyzing his data, the steps of data analysis sometimes occurred simultaneously and repeatedly. For example, at some point, the researcher found it crucial to perform follow-ups, and therefore to collect more data. During the data analysis phase follow-up questions were emailed to two participants, one student and one staff member to seek clarifications and verification of answers they gave in the interviews. Also, during the data collection the researcher met with two of his advisors separately, to report his data collection process and get more guidance. The outcome of the two meetings helped the researcher from one hand, in writing memos that were useful in later analysis and from the other hand in preparing follow-up questions he used in the following interviews. The researcher wrote memos extensively on the margins of the interviews’ printed
transcriptions. Some of these memos were used as pointers to formulate ideas that linked the filtered data to the research questions.

**Ethical Issues**

In essence, most ethical concerns revolve around issues of harm, consent, deception, privacy, and confidentiality of data. While honesty is certainly crucial, qualitative researchers often face the dilemma of how honest to be about their research purposes. In this study, the researcher informed participants in a comprehensive and accurate way and received their informal consent (Appendix E). The researcher obtained approval for the use of human subjects from the Ohio University Institutional Review Board (IRB) before starting the research.

**Summary of the Methodology**

The employment of in-depth interviews allowed the researcher to access "people's perceptions, meanings, definitions of situations and constructions of reality" (Punch, 1998, pp. 174-175). Three different groups were interviewed for this study: first-year students in the University College as the main target group; faculty members; and staff members. The inclusion of three different groups of interviewees (students, faculty member and staff members) was not only triangulated the data, but also led to a holistic understanding of the phenomenon under study and increased the trustworthiness of the report.

Data were collected from sixteen first-year students, four faculty members, and four staff members. The data collected in the interviews were analyzed by organizing
them into categories that contain codes that speak to the same concept. In the final stage of data analysis, themes that emerged from these categories were identified and named.
CHAPTER FOUR

Findings

Introduction

The findings reported in this chapter are from a study conducted with first-year students, faculty members and staff members at Ohio University's main campus in Athens Ohio. The purpose of this study is to examine and describe the impact of the SCE on students' academic and social lives. Although the main target group of the study was first-year students in the University College, the study included faculty members who taught in the University College as well as staff members from different departments in OU. On the one hand, the rationale of including faculty members was based on the fact that the study is examining the educational implications of the SCE on first-year students and on the other hand staff members were included as subject-matter experts to triangulate students' perspectives.

A Qualitative methodology was employed because of its suitability in obtaining an understanding of human experiences. In-depth interviewing techniques were employed to collect data from participants. The study includes a total of 24 interviewees: sixteen first-year students, four faculty members and four staff members. All participants' names are pseudonyms. Interviews were conducted with the intention to collect data that would answer the research main questions. In particular, to explain, how has the Ohio University Residence Halls Computer Project impacted students' academic and social lives?
Findings

This chapter is organized into eight major themes and a number of related sub-themes. Under the first theme the researcher presented findings that support students' and faculty members' opinions about the SCE. Students and faculty gave positive reactions to the SCE. The second major theme laid out data that pertains to the role of the SCE in students' academic activities. Students talked about their experiences with the computer programs and tools that they used in their daily academic work. In the third theme the researcher put forward findings that document the impact of computer-enriched environment on students' social activities. The fourth major theme presents data that highlight peer and informal learning community in the residence hall as a result of the computer environment.

The fifth theme presented findings that reflect the transformative impact of computer-enriched environment on teaching. Under the sixth theme the researcher presented data that shows the students' new habits in conducting their research. It also reflects the challenges that face librarians in responding to these new research habits. The sixth theme talks about computer access and in particular, computer access for students with disabilities. Finally in the seventh theme the researcher laid out data that presents problems and complaints that students mentioned in the interviews. In general, the findings supported the idea that the SCE in Ohio University is creating new dynamics in the university's main campus. The SCE facilitated the creation of an informal learning community in which first-students' academic as well as social lives were enhanced.
Students and professors gave computers in residence halls a 'thumbs up':

Recruitment and Convenience

First-year students at Ohio University residence halls argued strongly that having computers in their rooms is not a luxury, but a necessity. They attested that the availability of Internet-enabled computers assisted them not only in completing their schoolwork, but also in keeping them connected with the world around them. Computers also conferred other critical advantages, since professors in all disciplines require typed reports, and knowledge of word processing, spreadsheets, and other computer applications is imperative for college students. Jim, a freshman entering OU with strong computer skills (a self-described “computer junky”), described the essentialness of computers to college students:

Computers were important before and they are getting more important every year. It’s getting to the point where you can’t really participate much in school without a computer because you have a report due. Most people don’t accept handwritten reports anymore. They have to be typed, double spaced, etc. And that kind of thing means you need a computer to do it. And having a computer in the room is making it much easier. They’re very incorporated in school now, and having one in your room is a definite asset. I think having computers in the room makes it easier. It’s easier to get your work done.

From this student’s point of view, “computers are going to be in every dorm room across the country,” as they are becoming “more ingrained in our lives” to such a degree that students simply “need to know how to use one,” added Jim.
Jim advocates putting a computer in every residence room, since doing so “forces people to use it.” If a computer is “sitting there on their desk, day in and day out, students are going to learn at least the basics of how to use it.” Predicting that the widespread dissemination of computers in dorms will “happen anyway in the next 10 years or even sooner,” Jim echoed the sentiments of many students, who indicated that it is impossible to survive in college without owning a computer. Dan is one such student, in his first year, who articulated this argument as follows:

[The] computer is a tool that I don’t know where we’d be today without it because so much revolves around it, which could be a good thing and a bad thing. But for the most part, it’s good because it helps people connect more, do more business, and get more work done quickly. It saves a lot of time and a lot of paper.

There was agreement with this point of view among the professors interviewed for this study, who stated that putting computers in every first-year student’s room was a good decision. For example, Professor Green said:

I think that the response that I’ve received from students who talked to me about having computers in their dorm room have been very positive. I think they appreciate it. I don’t know if they use it all the time for academic stuff. But I know that they really like that.

However, faculty members were unhappy that they haven't been invited to become involved in the planning stages of the residence hall computer program, which may require them to modify their teaching strategies. “I wasn’t involved in the decision-making process. I just -- I think they started last year and so I just heard about it. I think
we got something sent to us. But I don’t know,” said Green, expressing disappointment over the administration’s lack of communication. Another professor, Anderson, felt that “there is a detachment between technology improvement, or improvement of the technology used on campus, and the involvement of professors in this process.” When I asked David, the representative of the Communication Network Service at OU whether any study or collaboration preceded the residence halls computer project, he noted, “I don’t know if there was a study beforehand that they used. It was pretty much an idea from President Glidden [of OU]. One day he said, ‘Put computers in the residence halls,’ and everyone jumped and did it.”

While she was neither involved in nor consulted about the process of putting computers in residence rooms, Green, a professor who is incorporating technology into her teaching, believe that the computer project in the residence halls was a good idea:

I encourage my students, whenever possible, to get involved in learning the computer and using it, figuring out how it works and what to do with it. So I thought it was really a good decision. And I think it also kind of gives them a learning tool, but also a communication tool that they can use to communicate with people outside the university and their family and friends, academics from other universities, and students from other universities.

Professor Day, another faculty member at OU advocating technology-integrated learning and teaching, also supported the project. “It has the advantage of promoting interaction,” he said, adding that, “I thought it probably was going to standardize the access [each student could have to computers].” While recognizing the positive potential
of uniform access, Dr. Anderson was more ambivalent about how students will actually utilize computers. “In theory, I think it is a very good thing to do,” he argued. “We provide students with more potential opportunities to learn things. But whether they use technology to an advantage, that is a totally separate issue.”

*Technology promotes enrollment*

Offering students access to technology also promotes enrollment. John, a student advisor working with Residence Life, agreed that the residence halls computer project worked well as a recruiting idea for Ohio University. “From what I read in the paper,” he said, “Ohio University was trying to set itself apart from other universities. It was one of the first institutions in this state to provide computers for its first-year students.” Potential students have responded positively to technology as a commercial attraction; in their search to join universities, they consider access to technology to be a strong determining factor.

Although students indirectly paid for these computers, as the cost was embedded in new tuition fees, they felt overall that OU lifted a financial burden from their parents’ shoulders. Dan, an enthusiastic freshman, gave the administration’s decision his approval because “it is one less thing you have to spend on school when you come.” Even when students find out that they are paying for these computers, they give OU the credit for lowering their living costs overall. Kyle put it this way:

I think it would have a pretty good impact, you know? Not only is it free -- I mean, it’s not free. I mean you pay for it with tuition. But, you know, you don’t see the bills. I guess it makes them feel free.
Cost was a factor in another student's impression who said, "Well, it is nice to have a computer to use, you know, that is so convenient for you, for free, because computer aren't cheap and they get out dated so fast." Eric argued that although students pay for the computer, they have been compensated with cheap, fast Internet access. He noted, “I don’t figure it’s going to be that outrageously high of cost, considering it is included in the fees. Considering, too, that if you wanted the same Internet access, it could be a lot more expensive to buy.” Brandon, another first-year student, also said that computer access was a factor in his decision to attend OU. It was, he said:

Probably a pretty big part in my decision to come here, because at home we have only got one computer and it would be another big financial burden on my parents to have to buy another one for me to bring to college. So when I saw OU offered computers in the dorm rooms—yeah that made me a little more inclined to come here.

There are many other reasons that students choose their particular college or university, such as the type of courses offered, the location of the institution, or even, noted Danny, its having “a good wrestling team.” There was, however, strong agreement among many of the incoming freshmen that having technologically equipped and connected dorm room networks will become essential to the future of learning, even if it is not currently the sole concern when shopping for schools. Joe indicated that he would have come to OU regardless, but having computers connected to the Internet strengthened his decision to attend the university. “I mean,” he said, “if I were deciding
between this university and another university and a computer was provided for me, that would definitely be a major pro.”

Jennifer also indicated that she didn’t base her decision to come to OU entirely on the strength of its available technology. However, she was excited by the prospect of having immediate computer access to help her begin her college career. “Having my own little computer in my room was definitely an asset… I mean, no other colleges have computers actually in rooms, that I know of,” she said. Cami, a friend of Jennifer’s, indicated that she would have come to OU even without the offer of computers, “but it was definitely a big benefit.” Kyle, another Ohio freshman, admitted that he would have decided to attend OU regardless, but noted that the computer project is a great thing. He said:

*It didn’t really impact my decision because I already knew I wanted to go here. But that was a definite plus. I mean, I’m not going to complain about it. Yeah. It’s definitely a great thing, because my brother, he went to Ohio State. When he was a freshman, they had computers down in the lobby, I think. I’m not sure where they had them. They didn’t have them in the rooms, you know? So they had to go somewhere and use it.*

The availability of and easy access to computers constitutes a real concern to students looking forward to college life. Matt was very pleased when he learned that OU provided computers for freshmen. He said: “I think it made a really big impact on my decision because I was worried about having to take a computer to other schools and worried
Findings

about, like, access to them.” Comparing herself with friends who enrolled at other schools, a first-year student named Meredith said:

I’m glad for the reason that some of my friends that go to schools that don’t provide them, they have to go use the computer lab. It’s very inconvenient. It’s full sometimes. So it’s very nice to have them in our rooms. You can use it whenever you want.

On the other hand, students who think that computers are standard fare in dorm offerings, such as Brett, were not, however, as heavily swayed. “I would say no,” he said, “it didn’t impact my decision, just because of the fact that computers in the dorm rooms is the norm today.” Furthermore, like many self-described “computer nerds,” Brett expressed his dissatisfaction with the computers OU offered.

Students value the convenience of having computers in their rooms

In the interviews, it emerged that first-year students, like Eric, place great value on the convenience of having access to technology from the comfort of their rooms. “You know,” Eric noted, “sometimes the computer labs are completely full and you’d have your own computer right there for you to use. And even if someone in your room is using it, there’s always someone in the hall that’s not using their computer.” Students expressed that, in addition to appreciating the academic and social advantages that the computers provide, they were pleased with the ease of access, and privacy, that they experienced. Danny said, “I love just having it in here. I can walk in and click on it and talk to my friends, do e-mail, find out any type of information I want, or play music. That is another big thing, too.” Discussing a series of focus group interviews about the impact
of computers in general on students’ academic and social lives, Tampke (2000) has pointed out that first-year students at OU consistently,

> Noted the convenience of not having to leave their rooms to do library searches or walk to a lab with limited hours to use a network computer; several women said that they felt safer not needing to go to a lab at night. Others cited the convenience of having class notes available online” (p.3).

According to Jim, the in-room computers are making students’ lives significantly easier, as they have eliminated the need to use computers labs, which are often inconvenient:

> Well, because it’s in the room, they don’t have to go out to a computer lab. That’s probably the biggest impact I can see. I’ve had to use the computer lab sometimes for math lab and calculus concepts. It’s kind of inconvenient. You know, you have to get out and you have to go down there. I’m sure people wouldn’t be talking on their computers nearly as much if they found that they had to go to a computer lab every day to do it. They could just -- they can go back, they can chill out, you know, get some hot chocolate or something, and just start talking to their friends. We’re all online doing the same thing. It basically incorporates the computer more into their life. It’s not like a workstation. Plus, the fact that it’s their computer they can download things to it. They can just become more familiar using it. I can actually watch people getting more familiar with their computers as, you know, time goes by and they’re sitting in their dorms
Meredith agreed with Jim. She said:

I see it as a convenience. You know, you don’t have to leave your room. Some of my professors, they don’t pass back the tests, they just post the grades. So instead of having to walk, you know, to see your grades, you can find it out right away on the computer.

Several students indicated that they have had discouraging experiences with the university’s central computer labs, complaining that the labs not only waste their time and effort, but also impose too many rules and restrictions, which make them inconvenient. Jim straightforwardly expressed his critique and frustration with computer labs in general:

I notice that computers in labs tend to have a lot of restrictions. You can’t download. You can’t change the background. You can’t -- you can only mess with a couple of things. You’re not learning how to use it. You’re learning how to use a machine provided to you for a certain purpose. It’s keeping the computer distant from you. You need the computer to be more integrated in your life and to use it more frequently. Just to simply become more educated with it, it needs to be around you all the time. It needs to be a tool for life. And the only way to do it is to put them in the dorm rooms.

Matt also appreciated the ease of access. “I thought it was nice just to have it in our room where we didn’t have to walk to the library or anything to access it,” he reflected.
Immediate and easy access keeps Dan from going to the computer lab at night to do his schoolwork, he said, adding that

It kind of gives me a personal area too. I can work on it, do whatever I want with it… I can spread myself all out in the room and I don’t have to worry about getting in anybody’s way or being too loud. I can play music, let us say, if I am writing.

Likewise, Eric commented, “I highly value it because it saves me -- it saves me a walk -- it saves me a walk down the hall or a walk across campus.” Kali explained that she would,

much rather have them in my dorm than not because I don’t have to go out in the cold in the winter or have to find a computer available or use someone else’s when someone else isn’t using it. It’s very helpful having them in the dorms and having them available for writing papers, getting online, talking to people, e-mailing people.

The availability of computers in the residence halls has also provided convenience to students in accessing and executing school procedures, such as registering for classes. “I registered online yesterday, actually,” Brandon reported. “I thought that was really convenient. The phone system is not too bad either. The registration online, that helps a lot, too, because you can see what’s open and what’s not.”

College students in this study generally disliked having restrictions imposed on how they conduct their assignments. They wanted to perform their work with freedom and relaxation, in an informal atmosphere, and at their convenience. Having computers
inside their rooms helped in creating the type of environment they preferred working within, as indicated in Jim's statement:

> It’s much more relaxing at two in the morning to sit here. You have your pop here; your sandwich here, half eaten, and you’re sitting there typing up your report. People are coming out, you’re talking to them, breaking up the monotony. It’s a lot more relaxing. It’s not as -- it’s not as formal, really. It’s like -- it’s like you can do it on your own schedule. And that’s -- that’s very nice. I can’t see me spending much time on reports at all if I had to go to a different computer lab to do it.

**The impact of computers on students’ academic Work**

The data collected from students, faculty, and staff interviewed for this study showed strong evidence that the residence hall computer project was positively impacted the students’ academic activities. Jennifer, a first-year student said,

> Well, I’d say positively it’s impacted definitely the residence halls students in that they have the opportunity to use the computer to type up papers. They don’t have to go -- they don’t have to walk up Morton or Jefferson Hill to get to the library.” Amber similarly pointed out, "The advantages are obviously, like I can keep with my school work better. Like keep up with my websites for classes for example… The advantage is that you can get on a computer at 3:00 A.M. to do your school work." Like Jennifer and Amber, as demonstrated below, many interviewees considered the Ohio University computer project an effective instrument for promoting learning and social
interaction, because it creates an environment that fosters inclusion and provides a mechanism for active engagement between participants.

A wide range of responses from the interviews with students, faculty members, and staff members suggested that the Ohio University's SCE is positively impacting learning at Ohio University. As one student, Jennifer, said, “I think definitely we have better opportunity to do our academic studies” now that computers are standard tools. The need to know how to use computer for academic work became a necessity for college students as Jim pointed out:

Computers have been incorporated more and more in learning. Most classes have just some kind of – you have to do a report; you have to make a presentation. Most classes all do something like that… basically, you couldn’t really graduate without knowing what you were doing on the computer.”

Similarly, Cami argued, “If you didn’t use the computer or if you didn’t have a computer, you couldn’t complete schoolwork,” and Joe added that “some kind of tool like that, like a computer, you know, these days is just going to be amazingly beneficial for you, especially in the institute of higher learning like a university.” Students indicated specifically that computers in their own rooms helped them to improve their computer skills and learn programs and applications, something that would not happen otherwise. Jennifer said, in this regard,

Having the computer with me day in and day out is -- I got to use it more, and I increased my capabilities on a bunch of different programs that I’d never used before. Like before, I just basically used Microsoft Word to do high school
papers, and I used Microsoft Power Point to do presentations at my high school.

But I never really used them as in depth as I did when I came here.

Jones (2002) found that all college students who participated in a survey conducted for the Pew Internet & American Life Project had begun using a computer at the age of 18 or younger. Although all the first-year students interviewed in this study used computers before coming to OU, their skill levels, and their years of experience, varied. Among the sixteen students interviewed for this study 10 indicated that they have considerate experience and 6 have little experience with computer before coming to OU.

i. A sample of responses by students with considerate experience:

- “Well, I’ve had a computer basically my entire life. But I wasn’t hooked up to the Internet until I was about 12 years old. But for the most part it was early compared to a lot of other people my age. So, I mean, I had a lot of experience in computers before coming to Ohio University.” (Jennifer)

- “We had them at our school. I have been using computers for typing, for writing papers and all that stuff. I had computers at both my houses… I used computers since I was in fourth and fifth grade.” (Lincoln)

- “My experience? Well, let’s see. I probably had a computer at my home for about nine years, and I’ve used computers probably ever since I’ve been, like, eight years old in my school. So I’ve always been around computers.” (Meredith)

- “My dad, he works in [a federal government agency] he works on the computers. He works on computers. He does computer programming. So we’ve always had
computers in our house. I’m used to it. I’m used to typing out reports and stuff like that, messing around on the Internet, downloading music a little bit and stuff like that.” (Kyle)

- “I have had – I think I have had a computer in my house since I was about three. So I have pretty much been around them my whole life.” (Derick)

ii. A sample of responses by students who have little experience:

- "When I first came to school well my computer skills were slim to none. We had a really old Macintosh at home, and my parents didn't really believe in getting the Internet so we didn't have that. When I got to school it was my first time using the Internet." (Amber)

- “We have a couple in our house. I use those, not so often. I’m not a fan of using computers a lot. I’ve used them more since I’ve gotten here. I took a class in high school, which was the basics, just how to get on everything, get around the computer. And I took a class last year at our community college which was, I think, an [MIS] course.” (Dan)

- “We don’t have a computer in our house at home. So I just used one at school.” (Cami)

Students at Ohio University remarked that they have been using computers for a wide variety of academic activities. “The schoolwork alone is worth the computer in each dorm room,” noted Brett. “I use the computer academically 50% of the time. I use the computer for everything, from doing research to expanding my knowledge in HTML, to just, you know, writing papers.” While Eric indicated that he used the computer for
entertainment 90% of the time, he observed that his roommate spends 40% of his time on academic work. Jim stated that the use of computers depends on the time in the quarter: “It depends on what week you’re talking about. If you’re talking finals week, it’s probably around, you know, 75 academic, 25 personal.” Kyle found unlimited academic and personal uses for his computer. “I just like it because there’s so many things that you can do with it,” he said. “I mean, you can write stuff out, you can look stuff up, you can talk to people from your class, your professors, any number of things. I guess the sky is the limit.” Some of his classes, furthermore, were completely dependent on computers, he argued.

The following represent some of the primary academic computer activities first-year students mentioned in the interviews, some of them explored in more detail:

- Writing papers using word processing applications.
- Preparing PowerPoint presentations.
- Using Excel for spreadsheets.
- E-mailing professors and other students for academic purposes.
- Preparing and submitting homework online.
- Participating in online conferences (asynchronous as well as synchronous).
- Working on Blackboard (Online course management system).
- Conducting online research to collect information for papers or projects.
- Building websites.
- Checking grades.
- Using programming languages.
• Working on simulation programs.
• Registering online.

Word processing

Just as the typewriter was an integral tool to the journalists, broadcasters, advertising executives, academics, and public relations practitioners of the past, word processing is now an expectation for written work in every discipline. “Typed” and professional looking papers are no longer optional (Jim indicated that his professors no longer accept hand-written papers), and, consequently, college students have to use computer to meet basic writing obligations. According to Jim, most of his professors design assignments assuming you have a computer and you will do it on the computer. And they’re requiring it to be done on the computer and it will be done on the computer. I noticed teachers before saying, like, yeah, we liked it typed but it doesn’t have to be, because they’re assuming people aren’t -- may not want to go down to the lab. But here [since the introduction of OUSCE] they’re assuming you have it and they’re assuming you’ll use it.

Kali also indicated that some of her teachers do not accept handwritten papers and reports. “I’ve written a lot of papers. I mean, that’s what I’ve been doing a lot of this year for my classes, writing papers and, like, doing projects and stuff because some of my teachers don’t like it handwritten. I’ve been doing a lot of that this quarter,” she said.

Students in this study also indicated that they are looking towards future business opportunities, and see computers as essential to developing their professionalism. For
example, despite her complaint that the computer added a heavier workload outside the classroom, Cami expressed an awareness that “it is beneficial, like later on in life and if you use it on-the-job.” Jim insisted that “you certainly need it [a computer] for business. When you go to a business, they’re going to expect you to know how to use it.” Consequently, students in this study considered computers necessary for producing professional, business-like printed papers. No doubt the computer, in general, “has had a positive impact on students’ academic lives,” argued Joe, emphasizing the technical features that make word processing an essential computer application:

I think it makes you a better student because you come off more professionally when you have a paper typed that you’re handing in to your professor, rather than one [hand] written because you don’t have the computer. You have -- like, when you’re typing on Word, you have spell check, automatic spell check. I mean, sometimes it doesn’t catch it because it can’t differentiate between some words. But, you know, it gets some words that you might not have just writing it out. So I think that academically it’s extremely beneficial.

Dan explained, from his own experience, the difficulty of writing before he began using a word processor: “I think [word processing is] a huge help,” he said. “I know when I write papers, I used to write on paper and pad, you know, pencil. And here, you know, you get on the computer, you type it up, and you can change it and mess with it and you don’t have to write it over and over and over again.” The insertion of a picture, graph, or chart “makes your paper look more like a newspaper article or a magazine
Brett argued that word processing is the most important software a computer provides:

Word processing is worth the computer a lot. You can actually write a full-text document in perfect script and you can understand it easily. If you make stupid spelling mistakes, it will fix it. If you screw up a little bit on the grammar, it can be fixed. It might not be fixed correctly, but it will tell you that the computer thinks there’s something wrong there. Another feature is the thesaurus. I use that constantly when I’m writing essays. If I don’t like a certain word, I can just right click on it, click “thesaurus,” and it will give me a list of all the other words I can possibly use.

**Presentation tools**

The most utilized presentation program is Microsoft PowerPoint, which presents information in a dynamic slide show format. Text, charts, graphs, sound effects, and streaming video are some of the elements that students can incorporate into presentations with ease. Students contended that, like using word processing for a paper, using PowerPoint to present their projects helps them to look professional, a concern which most students consistently reiterated. According to Dan, PowerPoint makes things look more professional. I actually like to be professional with things like that. . . . I like to look professional when I do things. I’ve already said this before already. But it just -- it helps because you can do pictures. You can put them up there, along with the tools the teachers have in class. Like,
sometimes they’ll have laptops where they’ll have the computers hooked up to the
projectors. So you can put that up there.

Students also used PowerPoint for purposes beyond presenting their projects and
assignments. Joe, who came to OU with solid computer knowledge, illustrated the
multiple uses students find for presentation software packages: “With PowerPoint, I have
actually used it to make, like, signs and other stuff. Also you can use PowerPoint if you
need to hang fliers or something for a class.” Students were also pleased that they could
view their professor’s PowerPoint presentations in the comfort of their dorm rooms,
according to Jennifer. “I am happy with the increasing amount of use of [programs] like
PowerPoint, and just being able to go online . . . to get notes or to at least go visit the
professor’s website.” Green, a professor, pointed out that presentation tools in general
and PowerPoint in particular significantly enhance teaching, particularly in a visual field.
“I have made presentations on PowerPoint or slides,” she said, “because I have taught
[courses that] tend to be very visual. It is hard to talk about something if you don’t really
have a picture of it. So I have used it in that sense.”

The Internet and academic work

Residence halls in universities and college across the US are playing an important
role in creating informal learning communities in which undergraduates may learn from
each other. The students interviewed in this study expressed the view that the Internet not
only extends and solidifies the campus community, but also enhances campus
scholarship. Students who can browse professors’ lecture notes, download reading
assignments, and buy books online actually are more free to spend time with professors discussing subjects and analyzing research in principle.

First-year students at Ohio University think of the Internet as an integral component of their academic lives, and embrace having access to Internet connections in their rooms. From their point of view, the Internet has had a decidedly positive impact on their academics. “Well, it’s really nice -- you have Internet access. That’s very nice because on a lot of the assignments you need Internet sources. That’s very helpful. E-mail, we have the ability to use our e-mail, which is very nice, so you can e-mail your professors,” said Meredith. Dan pointed to the Web’s “communication ability, the different ways to share your ideas [it affords], different ways to present your ideas.” Joe enthusiastically remarked that you could go to, like, Encarta.com, which is like an encyclopedia online, and they have, sound bytes of, you know -- if you wanted to listen to a humpback whale or something. Or if you want to take a tour of the London Tower or something, you could. So that could be academically very helpful.

The Internet and Research

Students in this study remarked that they used the Internet extensively in their academic research. Dan said,

Internet I’d say it’s definitely one of the largest tools that I use. It’s the easiest way to find information. I don’t go to the library that much anymore because I just get it off the computer. Unless I have to go and do an actual book report, I
usually don’t go to the library, unless I’m just looking for books on a particular subject.

Other students overwhelmingly confessed that the Internet is the first place they turn for gathering information. Joe, for example, saw no problem with using the Internet as the main and only source for his papers.

When a professor says, okay, write a two-page essay on Christopher Columbus, you know, I don’t have to worry about where I’m going to get these sources from. I can go on the Internet and find out. And I can type it out all from the computer.

So I think it’s helped me academically.

Students value the convenience and ease with which they can now conduct research. Joe said, “The Internet cuts your research time in more than half. You can research information on the computer so incredibly quick, it’s unbelievable.”

Danny is another first-year student who strongly argues that he prefers to do his research on the Internet rather than going to the library.

I mean, it’s like I can go to the library and I can look for two hours to find a good resource, or I can go on the Internet and look for 20 minutes. Besides the fact that for me to go to the library, it’s a 15-minute walk there and a 15-minute walk back. That’s a half hour. And the amount of time I spend walking there and back, I can find probably three resources that are good.

Of course, defining what constitutes a good resource is an online skill that has to be learned, and some students realize that they should not entirely depend on this single source for their information. “You can go pretty much wherever you want on the World
Wide Web and get information,” Jennifer said. “It is definitely helps out a lot. You do get a vast amount of information, though, from the Internet. But I’m sure that there are things in the library that you can’t find on the Internet.” When I extended this discussion to explore her approach to finding online resources, in order to address concerns about possibly illegitimate or amateur content, she said,

Well, I guess that depends on the source on the Internet. I wouldn’t say every page on the Internet is completely true and has the correct facts. But for the most part, I think going to, like, a government-run website or an organizational website that’s directly based on that organization or whatever, I mean, you would -- I’m sure those are factual. There are a lot of pages that aren’t quite so factual, but you just leave those out of your paper.

Brandon agreed that sometimes the Internet becomes the only source for students to conduct their research, and that this should not pose a problem so long as professors give directions for citing online sources:

If I can find a book that has the information or a magazine article or a newspaper or something that has the same information as the web site, I’d be more apt to use that. But if there’s nothing else, if you can’t find anything else on the topic, then that’s the place to go. Professors give us guidelines for citing the sites. So it’s not too much trouble, really. I think they try to discourage, like, doing an entire paper with online research, unless they specifically assign that. But it’s not too bad.

Joe, who is interested in history of theater, commented, “If I needed to do a play or a sketch, I could find it online because the majority of them are online. So actually, that
would help me a lot on the theater front because I wouldn’t have to go to the library and search drastically for it. I could just look it up online."

Most of the students interviewed for this study demonstrated little knowledge of how to find and cite credible online sources. For example, in response to the question of how students determine the credibility of Internet website, Matt responded: "I am not even sure, really. You’ve got to find a good source that you know is true and just go to that, I guess." He added, "Usually the kids across the hall, they know a lot of the good sources because they’re always writing papers or something. They just help us out."

While three students in this study found to be overly reliant on questionable Internet resources, the rest of the interviewees indicated that they focused their online research using more legitimate library resources. Students who used the library website to conduct research printed out their search outcomes and visited the library just to get books or to photocopy articles already identified online, thereby reducing the need to spend extended time in the library.

Students like Kali combined the use of commercial sites with resources from Ohio University’s library site in their research. Said Kali, “I can just look up an article that I need on ALICE\(^2\) or on Yahoo … Instead of having to walk up 15 million stairs to go to the library, I can just hop on the computer and go to the library, you know, with the ALICE thing. You can do stuff like that.” Based on the students’ remarks in this study regarding the use of the Internet in their academic research, the study reported that all of

\(^2\) Alice is an electronic search system used by Ohio University's library. Alice is available on the Internet and can be accessed computer that connected to the internet. Books, articles, Journals, government documents, videos …etc resided in OH library can be searched and located via Alice.
them are using the web in conducting research to write their papers. Even when they have
decided to search materials in the library, they do it from their rooms using the internet.
To borrow the words of Carlson (2001) “These days . . . more and more students are
entering libraries not through turnstiles but through phone lines and fiber-optic cables” (¶
1). More findings and discussion about the challenges that face professors, librarians, and
libraries will be considered later.

*Online notes, assignments, and Blackboard technology*

Accessing class notes online from the residence hall rooms is one of the most
helpful academic aids from the perspective of students, who not only value the
convenience of printing class notes ahead of time, but also, as Danny pointed out,
perceive it as a valuable instructional strategy. Danny also voiced concern over the
potential for absenteeism resulting from such a convenient arrangement:

One of the things that does make the computer nice, though, is printing off notes.
I’ve never done that before in any of my other classes. It makes it a lot easier. I
kind of wonder sometimes because it’s so easy to print off notes and fill in the
blanks, or print off notes and just catch up from somebody else and not go to
class. But I really enjoy it. I still go to class because I’m an auditory learner. I
learn by hearing stuff, you know? So I print them off. But it makes it a lot easier
for me to have them written down there and just go in and listen, just try to learn
it, not try to jot stuff down . . . One of the things I like about it is that when I get
my printed-out notes, I can just add detail that isn’t already on there.
In spite of the possibility that online notes might contribute to student disengagement and absenteeism, Danny’s testimony, along with Kali’s, shows that for at least some students convenience may actually encourage engagement. In Kali’s words, “Instead of having to try to get everything down, I can just add what he didn’t have [in the notes].” Along the same lines Jennifer said:

Some people may think that it [technology] makes students nowadays lazy because, I mean, we have everything at our fingertips. But for the most part, that’s kind of what my realization is. I mean, it’s just -- the more technology, the easier things get, but the better off we usually are. You know?

Online assignments also helped to enhance the learning and teaching process at Ohio University. Students favored online assignments, because of its convenience and their ability to access it from anywhere, at any time. “Some of the classes -- like my chemistry class, we had to download our homework from the Internet and then do it and submit it online, too. So that’s another really nice thing, to be able to just sit at your desk and be able to do that,” said one student. Posting notes and assignments online has gained momentum among professors at Ohio University since the addition of SCE, and Cami observed that her roommate and other people she knows are tuned in to the technology: “Actually, some of our classes had online homework that we had to do, so I did a lot of that, too. And I know my roommate did a lot, too.” Several students, like Kyle, did not hesitate to tell me that they favor professors who use online notes. Cami suggested, however, that having online notes could create a negative impact on student class
The online course management program at Ohio University, called Blackboard, enhances online communication and personal interaction. For example, Dr. Day said, "I think when it is [Blackboard] done correctly, it has the ability to promote interaction. It has the ability to have people interact with the class process, rather than read it or take it in." Although the interviews revealed a limited use of the Blackboard platform, students who experienced using it found it a valuable learning tool. Danny was perhaps the most enthusiastic of its proponents. “The Blackboard thing is awesome,” he said. There’s a lot -- I mean, the professor’s got all kinds of cool links and stuff to just different historical issues and different things. It’s really pretty cool.” Brett drew attention to Blackboard’s grade posting capability:

Actually, in my Aviation 100 class, the professor tells us to use our computer through a Blackboard [server], and he posts our grades that only you can see. Nobody else can see them. And class information through Blackboard service. And if we do not use it, we can get ten percent of our grade knocked off. So you’re actually forced into it to some degree.

Collaborative learning

The OU residence halls computer project has provided an environment to foster cooperative and collaborative learning among students, the majority of whom in this study indicated that they have been involved in at least one collaborative learning activity in which the computer played a central role. For example, Matt said, "I think computer
helps everybody to interact with everybody in the floor. Like, we get together and discuss a problem and somebody can help to solve it."

Professors are beginning to actively involve students in taking advantage of the networked computers in residence halls. Cami noted that some professors are now requiring students to work in synchronous discussion groups, which allow students to continue class dialogue outside the classroom in real time. She states that the process is effective because “it’s rapid. You can just send it off once and it gets to everyone. And I think it’s good to have the peer interaction, even though it was just on the computer. It was nice to have feedback.”

Students also argue that the network has become extremely important in organizing face-to-face group meetings for academic work. Danny said,

In my past experience with working on projects, it’s [the network] really nice for scheduling. You know, you get everyone’s e-mail address and just send out a group e-mail saying, okay, group, how about this time? A few will come back and say, no, how about this time? And everybody can talk just so easily. Danny offered a further illustration of how collaborative dynamics have had a direct impact on the quality of his schoolwork:

It would make it easier for the paper. Like, if I wanted to have one of my friends edit it, you know, I could just send it to them. Especially like -- I mean, like, most all my friends live on the same Green as me, so it’s -- I mean, everyone’s real close. I would probably just walk back and forth. But I’ve got some friends that are over, like, further away, like South and East Green. Like, if I were in the
same class with them or if I was in a class and I just randomly met somebody who wanted to work on our papers, I would e-mail them back and forth, as opposed to spend 15 minutes walking over there, waiting for them to read it. I’d e-mail it to them, they’d read it whenever they’re ready to, they -- we’ve both got a copy of it. They’ve got it on their screen or they’ve got it in their hand. I’ve got it sitting right here. They can say, okay, look at, you know, the third paragraph on this page.

Another form of collaboration is “virtual study groups,” which Jones (2002) describes as “commonplace” on college campuses. Danny described the distribution of roles along study group members who work collaboratively online to compile a paper:

Like, okay, this person is working on this. You’re doing the intro, you’re doing the body, you’re doing the ending, just for example. And then they all e-mail them to another person who puts them together and links them up. You know, this person is doing the bibliography. It’s like, you can have one person be kind of like an organizer and have a bunch of people doing little pieces.

**E-mail and Instant Messaging**

E-mail and instant Messaging are the most common Internet peer-to-peer communication tools that students use; the students interviewed for this study claimed that both applications enhance their academic lives. Meredith, for example, said that software like AOL Messenger and Microsoft Outlook Express were among the most “positive aspects of the computer.” Dan, when asked about his browsing time, said that he used the Internet mainly for e-mail. “That’s the big thing. I’ll check my e-mail many
times every day, usually. I really kind of enjoy that.” Sending e-mail to a professor to ask
for help, to clarify an assignment, to make an appointment, to get grades, or to send
homework as an attachment is a common occurrence among OU the first-year students
interviewed. “Well, I e-mailed probably all my teachers so far this quarter,” said Kati,
adding, “… all my teachers will e-mail us, like we need to bring a calculator to class
today, or we’re meeting at the library at this time. They e-mail my grades.” Jones’ (2002)
findings are consistent with the opinions of these students, finding that college students in
his study, when they sent e-mail messages to faculty members, do so most often to make
appointments with them, discuss grades, or clarify assignments.

Students sometimes feel more comfortable using e-mail to communicate with
their professors than talking on the phone or meeting in person.

We e-mail to ask for help,” said Joe, “because I’ve always felt awkward in the
past calling my professor to say, you know, hey, I need your help. I have a
question. If you e-mail them here [at Ohio University], they’ll e-mail you back.

It’s usually in a couple hours, for the most part.

In response to a question asking whether the prevalence of email communication creates
a loss of face-to-face time, Derick offered that e-mail helps shy students who might
otherwise feel awkward, to avoid these personal encounters. “It’s an easier -- it’s a more
impersonal way to ask questions if you need help,” he said. “If you’re shy and you don’t
like calling people, you know, you don’t have to hear their voice. You just -- you know,
just email them real fast with quick questions.”
Findings

E-mail also helps students to organize group assignments; for example, e-mail can be used to “organize 50 people for a study session,” Kyle remarked. “You can just type all their names and send your mail. Do you want to get together for a study session, you know? We’ve done that a few times for some tests.” For absent students, e-mail provides an appropriate communication channel. “I missed the first week of school, actually,” said Kyle. When Kyle needed to miss some classes, the way he got in touch with his professors “was through e-mail. So I got to kind of catch up like that. I found out, you know, they would be okay if I missed the first week.” Derick added that e-mail and personal messaging are handy tools to communicate with classmates after missing a class. “If you miss class you can go on the computer and ask somebody what you missed. And if you’re having problems with something you don’t understand in class, you can ask on the computer and they can tell you.”

Students appreciate that their professors use e-mail to communicate announcements, since “professors are able to tell you, you know, for some reason class had to be canceled, or tests that are coming up,” Meredith told me, adding that IM and e-mail are very helpful during exam weeks, when “professors say that they’ll be online, be on their computers between seven to nine, and you can ask any questions you would like. Even if it isn’t before an exam, you can always e-mail your professor and ask them a question and they’ll, you know, answer you.” Kyle said he checks his e-mail before going to class to see if the professor has sent any announcement recommending materials or canceling. “We’ve had a few days of class canceled because our teachers were sick or
[there were] events going on. And they send e-mail: you don’t have to come to class today. I wouldn’t want to get there and find out class was canceled.”

Students find that their academic work is aided by these channels of communication. While the general feeling by the students in this study is that instant messaging primarily serves as entertainment, there is strong evidence that students use instant messaging for academic purposes as well. Kyle illustrated that in the following testimony:

I just really got into it [IM]. My brother set it up for me a few weeks ago. So I’ve got, like, ten people on there… If someone is down the hall and they’re on Instant Messenger, you can talk to them, ask them about homework or anything like that. It’s great. And I can set up a chat room with [some classmates] if I had some homework assignment. There are some people on my floor in my UC [University College] class. We all have the same classes. And we can just go on there instead of having to go meet in someone’s room, you know, or find someplace [to meet].

The students in this study highlighted another indirect benefit from e-mail and IM that enhanced their academic work. Meredith argued that using e-mail and IM improved her typing skills. “It helps your typing skills. It really does . . . because, you know, you have to have quick responses. You’re trying to hold a conversation, so you’re typing quicker. And this does help when you’re writing a paper or something.” Along with improvement in her typing skills, Meredith also saw improvement in her writing skills: “sometimes if you’re having a conversation with somebody and you’re on the phone, you
might say something, and it’s kind of like slang or whatever. On IM, I tend to be more careful. I read my sentences over to make sure they make sense. You don’t usually realize that, but it does help.”

Such indirect educational advantages of the Internet are another point of agreement between the Pew Internet and American Life study and the opinions of first-year students at Ohio University. Jones (2002) advised educators to acknowledge the indirect educational benefits of Internet tools sometimes classified as recreational. “It is important to note,” he pointed out, “that although activities like downloading files and using Instant Messenger may be categorized as ‘leisure,’ they can also be important learning activities” (p. 7). Some students, though, disagree with this conclusion. While agreeing that typing skills is improving, Jim claimed that students’ writing skills are actually degraded because of these technologies. “I mean, obviously,” he notes, If you practice more at typing, you’ll get better at it. And typing online, you’re typing, you know, three, four hours a day, every day for however many years you have a computer. You’re going to become efficient. It’s unavoidable. However, I think it actually degrades grammar because you’re just too lazy to actually type out full, complete phrases. You know, how can I get the thought across with as little effort as possible?

Interestingly, Jim also noticed a difference between all-male and gender-mixed communication standards. When males students go online, he said, they tend to “say stupid things online to one another and come up with different acronyms… but, guys talking to women will use actual complete phrases, which works well.”
Cami, like Jim, believes that messaging technology could possibly hurt students’ academic work, but in other ways. “If I were typing papers and I had my AOL chat on and someone would pop up, it is disruptive because you would start typing to your friend instead of finishing your paper.” Lincoln, however, believes that students, not the Internet, are to blame for these shortcomings, stating that the “Internet can go either way, destructive or constructive, like a hammer can be used for pounding nails or hurting someone.”

The impact of computers on students’ social lives

Computer-enriched environments and their networks generally provide suitable social settings for interpersonal communication to flourish. According to Postman (1986), while “a technology… is merely a machine,” it “becomes a medium as it employs a symbolic code, as it finds its place in a particular social setting” (p. 86). Networked computer systems not only create new mediums for interpersonal communication, but also create new social settings in which those communications take place. There is no question that, as its networks grow, “the personal computer is gradually becoming the interpersonal computer” (Johansen, 1988, p. 1). Although the World Wide Web provides unlimited access to information, Hudson (1997) claims that what actually draws people online is the desire to be in touch with others. “Using CMC to form a virtual community of common interests among students,” Strange and Banning (2001) argue, “seems to hold promise for reducing barriers between students’ academic lives and their social lives” (p. 187). The OUSCE plays an important role in shaping the dynamics that take place between students, as reflected in the interviews of students in the University College.
Online communication and personal interaction

E-mail and instant messaging, both ranked as the most used programs for social interaction by the students in this study, help them to overcome their isolation from distant friends and relatives while facilitating communication with their peers. Brett claimed he uses IM most often to keep in touch with his family and friends. Kyle said that “the most used computer activity” as far as chat is concerned “is keeping in touch with my family and friends at home on AOL Instant Messenger.” The impact of this trend was clearly articulated by Cami in her comments about how the Internet has affected her personal life. “Basically, just keeping in touch with friends and family on an everyday basis” is an important added value to online access. Matt also noted that e-mail and personal messaging “just makes it easier to talk to your friends, if you want to keep up with them. I like checking my e-mail and keeping up with friends from high school.”

Danny’s comments showed that students used the available technology to facilitate their social relations such as dining together. He said, “I mean, it’s like -- Instant Messenger. People just put up the little message that says: I’m eating. Well, then you know, okay, these two people are eating. I’m going to eat too.” Kyle noticed the positive impact of Internet communication tools on his social life. “With Instant Messenger,” he said, “I keep track of my friends from back home.”

While students strongly believed that nothing can substitute for face-to-face communication, they attested that e-mail and Instant Messenger are significantly stimulating the number and quality of their personal interactions. Brandon articulated this point of view as follows:
It usually kind of stimulates face-to-face [communication]. For example, every once in a while, like -- usually I’m just kind of sitting in my room on the computer listening to music or something and one of my friends from -- I don’t know -- across the Green or across campus will say, hey, what’s going on? Nothing. Can I come visit? And I’m like, sure. So it’s just kind of one of those causal things that pop up. I don’t think it really [negatively] affects how much time people spend together, usually, because there’s nothing that can really replace face-to-face social interaction. It just kind of helps to stimulate it in most cases. It gets you together quicker and easier. It helps you get things in order. Jones (2002) argued, along similar lines, that “online social interaction is a supplement rather than a substitute for offline social interaction” (p.17). Brett, likewise, held that online exchanges in many cases helped him to meet face-to-face with new as well as old friends. He said, “I’ve met people -- I mean physically met people that I would have never met if it were not for the computer.”

Derick explained that using the computer helps people to interact in personal relationships because it helps to build a basis of the friendship through prior communication.

I mean, if you’re here talking to somebody on the computer, he explained, not looking at them face-to-face, and getting to know them a little bit better on the computer, and then when you go to meet them, you actually know things about them. So I think it helps a lot.
Findings

Of course, not every student is convinced that network technology helps students to develop social relationships. Brett, for example, noted,

I think it kind of hindered us from going and getting to know some of our neighbors when we first came, because nobody really knew each other.

Everybody kind of stayed in their rooms and talked to people back home on their computers.

Danny also voiced concern that the computer and its Internet capability may create an antisocial environment for some students. “I think it’s somewhat of a problem for some people,” he added,

You know what I mean? It’s like -- I mean, computers, it’s -- it makes everything easier, or it probably makes it easier to be antisocial. But the question: Would those people be out talking to people [otherwise] . . . I don’t know. They just don’t seem like they’re that active or that socially active, you know, anyway.

Amber agreed with Danny saying that “I think if someone wants to stay in her/his room s/he is going to do it, whether it is watching TV, playing on a Playstation, or doing something else beyond the computer.” Amber further explained:

They choose to isolate themselves like I choose to use the computer to my benefit, when I need it. I have other activities in my life, like I play Rugby. I never isolate myself. There are other things going on in my life outside of my room. I guess for people who don't have a lot of activities outside their rooms, it might give them an excuse to stay in.
Brandon noted that “every once in a while – there is a couple kids in my dorm [that I never see] because they are in their dorm locked with their computer,” suggesting that some students are susceptible to computer isolation. John, from Residence Life, however, said that he had not observed this:

I haven’t seen any cases of isolation in the two buildings that I work in. And typically, in my experience, the first-year group, when they come to college, they are much more likely to sort of try to get out and know who the other people in the other buildings are. But, you know, as far as isolating people, we haven’t dealt with any case of a person who’s isolating himself or herself.

Whether or not student relations are now less social overall, students do make use of instant messaging and e-mail to organize social events such as parties. For example, Danny, like other OU students, took advantage of his access to the network to make plans for an annual Halloween event that draws students from other campuses. “I’ve got a ton of friends on there [Instant Messenger]. We figure out -- you know, like, some of my friends will be coming up for Halloween or just coming up to visit or whatever.” These are the sort of plans that used to be made by phone. Kyle planned his Halloween night in much the same way:

Like, for Halloween weekend some friends came down. Instead of, you know, going, like, five minutes on a phone card or ten bucks or whatever to call, they just e-mailed me and told me when they were coming down and asked for my phone number and stuff like that [for] when they got here.
Another student, Danny used the Internet for the purpose of finding a ride home at the end of a quarter.

*Entertainment and play*

It is perhaps obvious that college students use computers as entertainment tools, in addition to all the other uses they find for them. The first-year students at OU reported that they spent long hours on computers in a variety of leisure activities: listening to radio stations, downloading and listening to music, playing online and offline games, watching video clips, and watching TV episodes, to name just a few. Downloading music has at the top of this list of entertainment activities. Kyle not only downloaded music to his desktop but listened to streaming music regularly (a dormitory practice that has absorbed bandwidth at Ohio University) as noted by David, a CNS employee who have been interviewed for this study. Kyle said:

I have been downloading music, like – I have got, like, 500 songs I have downloaded in the last few weeks. One thing you can do is instead of downloading music directly to your hard drive, you can run it from the website so that you don’t have to take up that much space and you can just -- any time you want to listen to it, you just log on and you have got it, you know?

Jennifer said that she felt guilty “checking out a bunch of entertainment pages.” She further added, “I have got probably, like, 800 songs downloaded on my computer. But, I have heard of people who downloaded movies…. Sad, but true.” Some of the most popular sources of streaming music, John noted, are Internet radio stations. Brett, who brought his own computer to college, acknowledged that he downloaded more music files
than he could count. “I have more MP3s than I can count, and I have over 130 videos that can be accessed from any computer on the network. Any shared computer on the network, you can access it within seconds. Just search by my name. And you can access it,” he says.

Personal and online games were, like music, popular among first-year students at OU. For example, Brett said that “other than that, entertainment-wise,” he had “just basically a couple of games, favorite games. My most favorite game would probably be Snood. It is not a very, very hard game probably to make or play. But it’s very entertaining, and people play it constantly.” “Star Craft and Solitaire are pretty fun games,” said Kyle. He further added:

My roommate got some kind of virtual casino or something like that. You know, if you’re just bored and you want to blow a few minutes before class or something, you can go in there and play. It’s kind of fun. And Star Craft, you can play that stuff for hours.

Computers also served as a source of access to television. “Actually, entertainment-wise I watch old television episodes,” admitted Brett. “You can rent those and put those on the Internet. Like the Simpsons. People love watching the Simpsons on their computer. Also The Cartoon Network is by far unbelievable and awesome. I’m still a kid,” he confessed. “I like Saturday Night Live,” said Dan, “and you can download episodes from there. And it’s kind of interesting to watch the funny ones over and over again.”

Though it has been considered here as a means of significant communication, Instant Messenger also serves as an entertainment vehicle. For some students, like Cami,
Findings

communication tools serve as a more interesting alternative to video gaming: “I know they [computers] have, like, a lot of games,” she told me, “but I usually didn’t use it for that. I guess my only source of entertainment was the e-mail or AOL.” “Entertainment-wise, like I said,” Brett explained,

Chat is very large on AOL Instant Messenger. You cannot walk past a dorm without hearing the AOL Instant Messenger wave at least once. When you receive or send a message, you hear a ‘wave.’ It is kind of like a bleeping sound. It is a very distinct sound. And you cannot walk past a dorm room without hearing it at least once.

Students indicated that using computers as entertainment does have its negative side, and many expressed genuine concerns over problems related to certain prohibited uses. Ohio University, like many other colleges and universities in the U.S., has banned the use of their servers for downloading or browsing pornography, a ban that some students in residence halls simply ignore. “For my peers,” Dan explained, “they do stuff they shouldn’t do. They download a lot of music, a lot of videos. But when we first moved down here, they downloaded porno. But -- I personally don’t do it. I don’t find a big interest in it.” Derick commented on the distraction that immediate access to entertainment creates: “Sometimes the computer might keep you away from your school work,” he said. “I think it gives you an excuse not to do other things.” Danny acknowledged that “sometimes I will get lost and be on the computer and spend a long time in playing instead of using it to do homework or other things that I have to get done. This is one of the downfalls.”
The Communication Network Services (CNS) at Ohio University faced a serious challenge in communicating to students that the residence hall computers are primarily provided for academic purposes. David the CNS’s representative said,

In reality, most of them use computers as entertainment stations, or that seems to be what they expect. Especially the incoming freshman seem to -- many of them seem to have an assumption that the computer is there to do with as they wish, which, in large part, it is. But they don’t -- they don’t think of the fact that we put them there so that they can do their academic work. They see them as just, like, a television or something where they want to be able to download music, play games, do Instant Messenger chatting.

However, students interviewed in this study do not support David's position. While students understood that these computers were provided to aid them in their academic endeavor, they believe that they should be able to use them for their personal activities. These include personal communication and entertainment activities.

Peer and informal learning

Students in this study strongly argued that the residence halls computer project created a suitable environment for them to learn informally from each other. Brandon, a first-year student said,

Whenever somebody needs help, they just kind of walk down the hall asking people to help. It’s really -- it’s a good way to meet new people and make new friends, too. Like, a couple of the friends that I met here the first couple of weeks, was actually -- they needed help with their computers.
One advantage to offering computers in residence halls rooms has been the standardization of hardware and software that make it easy for students to share what they know with each other. Since “the university provides the same computers for all the students,” explained Brandon, “it’s really easy to get help from another student because you’re [all] working with the same things.” John, in his role as a first-year residence hall advisor, observed that peer learning is noticeably operative when students are working through technical issues related to their computers. He said

If you look at learning from the academic standpoint, I don’t think that is happening. But if you’re looking at it in terms of peer learning for using other software, that is being used very much. . . . If it [technology] is being used as a way of exchanging information, they are definitely using it, especially using the Instant Messenger.

Danny stated that in the residence hall environment, learning is happening more between students in activities that require face-to-face interaction, pointing out that "if you’re trying to figure out how to do a math problem, you are not going to be instant messaging back and forth to your friend . . . You’re going to sit down with him and they can help you out that way.” Danny does believe, however, that students reinforce each other’s learning in terms of things related to computers, “how to use them better, quicker and faster.” John witnessed that the technological learning dynamic between students on his floor happened primarily in relation to the computers themselves, and noted that he has watched students moving from one room to another, to investigate and learn new programs and games. “When somebody finds out something new, they are much more
likely to share it with others,” he said. According to John, “Peer pressure to learn how to use the computer” motivates some student interaction:

I mean, we get a situation where the floor section -- virtually everybody is on Instant Messenger, and you being the only one who is not on Instant Messenger. It is not nice to be the only person who is not in tune with everybody else. So they are forced in a situation like that to actively seek out the information on how to be part of the computer-based group.

Students with strong computer backgrounds play central roles in the informal training that takes place within this computer-enriched environment, and students are sometimes placed into one of two categories, based on their computer skills. “One extreme of people is those people who are very familiar with computers and know what to do with them,” explained John. “And then you have those people who know what computers are all about, but they don’t understand how the system works.” Males as well as females contributed in the informal learning and training that took place in the residence halls.

Amber a first-year student said,

There was one girl in my dorm who knew a lot about computers and everyone was asking her for help. She was running around trying to help everyone with their computer. She helped us how to get our email setup and how to download Instant Messenger.

Jim was one of many freshmen who came to Ohio University with advanced computer experience. Before coming to college, he built his own computer, which he used instead of the university’s. With his expertise, he helped many students to understand how to use
their machines. He described the teaching/learning dynamic he developed with some of his peers as a typical form of socializing, like any other:

When the guy across the hall calls me and says, you know, I have a virus on my computer. What can I do? I say, well, we have some virus software we can put on there. Okay. Well, so how do I do that? Just you put it in, and if something doesn’t come up, you just click on, start, run, and you click restart. Okay. So they’re kind of doing it and you are telling them how to do it. So they’re learning, you’re teaching, they’re learning what they’re doing. They are becoming more familiar with it. And in turn, just talking to them more. It’s just a different way to socialize, really.

Those who are not already versed in the technology will, the first-year students at OU reported, quickly learn from their peers. For example, Cami observed an intensively functioning peer learning process within the residence halls:

When we first got into the room, I wasn’t even sure how to set up the computer even with the instructions. And my roommate very much did it and showed me along the way. And whether it is using, like, something on Word or even downloading music, you can show each other how to do it.

Danny also saw reinforcing dynamics created around residence hall computers, and noted that learning takes place in residence rooms as a result of what he calls “information sharing.” “You know,” he said, “it’s like, say, hey, I found this really cool website that helps you make bibliographies, or, hey, I found this and it’s really -- you know, this might be a great thing for your paper.”
Kali also stated that real and sustainable learning, at least about computers, is taking place between students as the result of common access to technology. She said, “When I do have a problem with my computer that I don’t know how to fix, whoever is helping me with it will tell me why something happened or what I can do next time if it happens again if they are not around.” This kind of tutoring helps students to build the kind of solid and sustainable knowledge base that a novice computer learner needs. Reflecting on his experience of mentoring fellow students, Brandon said, “… the first time when they ask me, I do it for them and I show them how to so they can do it themselves afterwards.”

In his article, *How to help someone to use a computer*, Agre (1994, ¶ 2) describes the methods most useful for showing new users how to manipulate computer hardware and software:

Don’t take the keyboard. Let them do all the typing, even if it’s slower that way, and even if you have to point them to each and every key they need to type.

That’s the only way they’re going to learn from the interaction.

Ali and Elmahdi (2001), suggest to student mentors a “Don’t touch the mouse” rule that allows the trainee to learn, in the long-term, from first-hand experience. Students in residence halls intuitively understand the concept of helping others to help themselves. Brandon observed that women are more likely to help each other with a hands-off approach than are men: “The girls [sic] usually sit behind and tell you what to do, and guys will get in and show you what to do… But if you are really going to get anything
out of it, you have to sit down and actually do it to see what happens. It is kind of trial-
and-error thing.”

Besides promoting interaction, computers in the residence halls created a
“learning-by-doing environment” which in general “uplifts the peer teaching and advising
of other peers because you actually get to do it. You get to go back to your room and do it
yourself,” according to Joe. Brett, a freshman with advanced computer experience,
indicated that, when somebody asks him for help, he does more than just complete a task
for his dorm mates. He said,

I teach them what I’m doing so I don’t have to help them every single time. So if
somebody is requesting me – "I can’t get this to work. Can you do it for me?" I
can go to their computer. I make them watch me as I’m doing it. I’m telling them
exactly what I’m doing and -- telling them what I’m doing, why I’m doing it, and
why it’s working -- why it was not working. So I actually try to teach instead of
just doing everything.

Based on the interviews with students, the dynamics in peer learning between
female students showed marked differences from those between male students. The
residence hall advisor John reported that female students normally played out their
learning/teaching dynamics in small-to-medium-sized groups. John strongly agreed with
Brandon’s earlier position, that girls are more likely to help each other with a hands-off
approach, also observing that, from his perspective

The women are more likely to share information. So in the sense of -- say a
female has a problem with a computer or does not understand. There’s a sort of
fraternity where the person, you know, who knows more would go down and actually sit down with the individual and sort of walk the individual through and help the individual do it. Whereas, among the men, you will see an instance of whereby the guy would come in and physically deal with the problem, sort of a hands-on approach to help them with it. Alternatively, just a group of people would gather together and try to get this problem sorted out.

John further emphasized that women appeared to be more willing to share information. So that’s really one of the major dynamics, that women tend to go at it from the sharing standpoint, where, you know, the person who knows more is trying to guide the one who doesn’t know more through the process. And they’re encouraging the person to actually do it physically. Whereas, a man would come in and would want to help you physically correct the situation.

John attributed these different approaches to “the way the men and women are cultured, [since] women are cultured to be sharing . . . whereas men are sort of cultured to be the doers, to get their hands dirty.” Brett's explanation of how he provides help to other students supports John's statement. He said, “I make them watch me as I’m doing it” Also Brandon earlier statement goes in the same lines with John’s and Brett’s, “… the first time when they ask me, I do it for them.”

Since everyone is a peer in the processing of learning computer skills, the relationships that develop are generally equal, and almost all students feel more inclined to ask questions, reveal misconceptions, and admit confusion than they might in a classroom environment. Cami explained that students don’t hesitate to ask their peers for
help because, “I feel like it’s more direct than the actual professor telling you in a
classroom. It’s just a more informal way. You can always ask a friend if you forget later.
They’re a little bit easier to contact.” Jim concurred, stating that

People are much less resistant to ask the guy next door to come fix their
computer… And plus, they’re more comfortable talking to people their own age.
I think it’s pretty much a proven fact that the more associations you have with the
other person, the better the strength of trust is going to be. So you talk to them on
the student level instead of somebody high coming down, almost in a
condescending way to talk to the student about what they should and shouldn’t be
doing. They’re just more comfortable. I think they wouldn’t feel so bad about
calling, like one of their peers instead of somebody more technical. I just think it
would be more personal, I guess.

Meredith also indicated that peer learning is especially effective when it comes to
computer skills, and pointed out that personal friendships are key to the success of this
form of informational exchange:

It is a lot easier if you have someone, a friend or your peer, teach something to
you because they’re more on the same level as you are. So it’s easier to
understand. They can show you shortcuts, whereas maybe -- if you went to a
class to see how to work your computer, you know, it’s factual things that are
pretty boring. But if you have a peer, they can show you factually how to do it
and understand the way that -- you would understand the way that they would. So
it’s a lot easier.
In general, the learning activities and communication patterns that took place among students demonstrated a strong sense of belonging among a community of learners, enabling them to share experiences and knowledge with a decreased fear of failure. For this reason and others, even though it was not intentionally organized by the university, peer learning has become a significant feature of the residence hall community.

Computer Environments: Transforming Teaching and Research

Both teaching and research have been significantly affected by the implementation of the Residence Hall Computer Program at Ohio University. Students, faculty members, and staff members agreed that the OU computer program provided a learning community with powerful tools that transformed learning and teaching alike, and most predicted more transformations. For example, Dr. Anderson, a professor at Ohio University said, “I think the use of technology may play a major role in providing more opportunities for students to synthesize information and really transform it to something that the students can put to use.” Professor Green said that the availability of computers in Ohio University residence halls encouraged her to incorporate technology into her teaching. “I wouldn’t do that if I didn’t know that the students had those computers. I wouldn’t even consider it,” she said. “They would have too much trouble meeting the assignments successfully if they didn’t have that access to them.”

Professor Anderson raised similar questions in relation to the Ohio University Computer Program. He said,
Well, I think we need to think more and talk more about the philosophies behind all these developments. Why do we want to provide a computer to each student? What are the specific goals for this? Are we providing technology just for the sake of technology? Are we going to change our ways of thinking about learning and about teaching?

Professor Green also voiced strong concerns about technology guiding the way to teaching:

I think that we do need to watch out and not let the technology drive us, but we need to drive the technology. I clearly think that we have to search for a way to balance the use of technology in education. And my response, generally, when I feel sort of driven by technology is to sort of back up a step and rethink how I’m using it, why I’m using it.

Along the same lines, Professor Anderson called for a balance between technology and instruction. He said, “We need to achieve some balance down the road between technology and substance.” He further added, “I think that the depth of how we go about using technology wisely is the question that needs to be addressed by educators. So I think we haven’t yet developed methods on how to use technology wisely.”

*Faculty members come under pressure to use technology*

Faculty members at Ohio University have been under dual pressure to use technology in their daily teaching. On the one hand, they have been challenged by their administration to adopt technology in teaching, as called for in the 1999 *President’s Report* (Office of, 1999):
We want teachers, some of whom have been eager to redesign their courses, to take full advantage of technology, to know that they can rethink their learning strategies and explore new electronically driven methodologies without concern about some students not having access. And we want our students to develop skills in finding, processing, and transmitting information in the manner that will be expected of them when they entered the workplace or graduate school.

On the other hand, students themselves began to include the employment of technology as a factor in evaluating their professors. Matt, a first-year student, favored classes in which technology was adopted, drawing a comparison between two of his professors. He criticized one for not using technology in the classroom.

Dr. [X], -- his lectures just weren’t interesting. I don’t know whether it’s because he didn’t have any kind of technology in the classroom -- like, he just wrote on the chalkboard. And it wasn’t legible, like I said. I don’t know. You just couldn’t follow him very well because -- I love history myself, and that’s what he taught. But I just could not find an interest.

On the other hand, Matt appreciated Dr. Y’s style, more beneficial to students:

Everything that he covered was on the website and already in, you know, in note format. And all you had to do was just listen to his lecture. And he -- he was just a fabulous lecturer, and you wanted to listen instead of writing notes, personally, because you just wanted to just take it all in. More people went to Dr. Y’s class than ever went to Dr. X’s class.
Jennifer concurred that teachers who use PowerPoint in the classroom enhance their lectures:

Not a lot, but quite a few use PowerPoint to do their notes, and it’s much nicer than having the teacher write on the board. It definitely keeps your attention. I mean, it’s more legible and, you know, you don’t have to strain your eyes to see it on the chalkboard.

Likewise, Kyle was appreciated the style of teaching of one of his professors who was using technology in his teaching: “My teacher, who teaches plant biology,” he said, “does the PowerPoint thing. He’s a really cool guy. And if you really like what he teaches, he has a links page where you can go there and get, like, information he talked about in class. I really like that. That’s something nice.” Joe, another freshman, highlighted the pressure that instructors face in their daily teaching:

With the computer right there in the classroom, it probably would put a little pressure on the professor, especially when the majority of the professors, or at least some, probably aren’t as familiar with the computers. And the computer age is just kind of, like, out of grasp to them, you know.

Faculty members agreed that pressure from students was a strong impetus to their application of technology in the classroom. According to Professor Day:

Students would ask, can I give my report with Power Point? Well, this really made the professors make sure the equipment would work. And they found themselves sort of forced to do a bit more. The students began to embarrass them a little bit. So they thought, well, if students can do it, maybe it isn’t that hard.
Another faculty member, Professor Carter, confessed that she knew little about using new technologies in teaching, but began learning how to use PowerPoint. “I have now started using technology,” she said, 

Because I think students expect it. They expect -- well, they acknowledge overhead projectors. But I think they expect newer technology in the classroom, at least in teaching. So I’ve started to learn how to use PowerPoint and give my presentations, instead of using overhead projectors or the board.

Professor Carter viewed pressure from students as positively encouraging better teaching. “There is pressure to use it. Sure. That’s not bad, though. It’s not bad because, well, we all have to move ahead and move on to meeting the needs of the students.”

The generation gap between first-year students and most of their professors in relation to the use of technology has continued, though, as Professor Carter highlighted:

They [the students] are ahead of the game as far as using the technology. Most of us are catching up. They’ve been with it, and the rest of us are catching up. I certainly am, because it wasn’t part of my life. And so maybe the brand-new faculty members who have just finished school are a little bit more versed in it. But the rest of us that have been around, you know, just been around in life, it just isn’t that much a part of our life.

Brett argued that younger people have the ability to become more skilled at using computer than old people. He said,

When we got our first Pentium 60 [computer], my dad wouldn't let me touch it. He wouldn't let me open it up. Now I get calls from him weekly asking me
questions. I have introduced him to downloading Saturday Night Live clips on our computer and he loves it. And I am usually the one who fixing his computer and his clients' computers.

Professor Day, a technology advocate, argued that, because some faculty members resisted the implementation of technology at Ohio University, it has resulted in widening the gap between faculty members and their students. He noted:

It's a little harder to move the people into technology who aren't using it. And so you sort of widen the gap. I think eventually it will lift them. I think this is just a replay of something that happened earlier. What happened earlier was people were supposed to use the computer, and so we had people who rebelled against it. There were people who had to be forced to use it. This man over here [for example] uses it a lot today, but he was a holdout.

Despite generation gaps, the use of the Internet as an aid to teaching and learning has gained strong support among faculty members at Ohio University. A growing number of faculty members use the web to post their syllabi, readings, class notes, announcements, and other class-related material. For example, Professor Day noted simply,

I don't give handouts anymore. I give web addresses. If you want my handout, it's on the web at this site. You don't have to carry it around. And I think most people know how to get to the web sites, or if they don't, they know somebody who can. But one time I think when I did that, I was excluding some people. Now I don't think I am.
Communication tools bring down the Barriers of Space and Time

Email, listservs, and discussion boards have eliminated the barriers of time and location in student-teacher communication process. While convenience and ease of access, however, have encouraged students to use email to communicate with their professors, many professors have found it difficult, to read and reply to each individual email. Professor Day, for example, expressed frustration with the way students send him individual emails. “They would ask me a question in an e-mail,” he said, “and I’ll throw it into the discussion, because usually I got tired of answering the same question three times. So I answer it where everybody could see it.”

Professors at Ohio University also make use of asynchronous discussion boards, which allow them to “respond to several students at once by weaving their contributions together or summarizing the discussion” (Elmahdi, 2000, p. 9). In discussion boards, according to Professor Green, the professor can “send feedback to every student.” Her use of the discussion board has also facilitated the development of positive student relationships:

I set them up into discussion groups where I just randomly divided them up into groups of five or six. And they didn’t necessarily know the other four or five people. But I thought it provided a really good opportunity for them to discuss topics related to the class in sort of a less intimidating [environment] -- they could be in their dorm room. It’s comfortable. There’s maybe only one other person there -- their roommate. And then they can answer the questions and say what
they think without sort of fear of being -- of [being] made a fool of or being foolish.

Professor Green received good responses from students, but due to time constraints and class size, she reluctantly stopped using the discussion board. She explained: “But what did take a lot of time was actually reading the student replies. And that is, in fact, one main reason why I sort of got away from it.” Nevertheless, she said, “I would probably go back to it in a smaller class.”

Professor Day found the discussion board a perfect solution to the problem of redundancy of answering individual questions to students writing emails, and students benefited from each others’ posted inquiries:

Discussion board worked better than e-mail. I had to discipline them to it. It wasn’t natural. They wanted to send an e-mail because they knew how. And I would say, I’m not going to answer you. I’m going to post it over in the discussion board. And when I answer it, everybody can see the answer. And once they saw the value of me answering things for other students, they appreciated being able to appreciate what might have been private discussions, but they were relevant to everybody. Then it worked.

According to Bishoff (2000), “if instructors answer individual questions by replying to personal mailboxes, other students fail to see the interaction” (p. 60). Discussion boards remove this obstacle. Elmahdi (2000) reported that online discussion boards encourage students to reflect on issues under discussion and to share experiences. It has been found important, however, that, like Professor Day, instructors create a visible presence in the
discussion forum, which helps determine the success of online board. “An instructor modeling a high level of participation motivates students to enhance their own participation” (Bischoff, 2000, p. 61).

Online course management application

Ohio University has been using Blackboard since 1999, and the Center for Innovation in Technology for Learning (CITL) at Ohio University encourages faculty members to use Blackboard both to design and deliver online courses as well as to employ features such as discussion boards. CITL, to facilitate this implementation, provided professors instructional as well as technical training in the use of Blackboard’s features.

While some faculty members were knowledgeable and enthusiastic about using Blackboard, others had yet to consider it. “Using Blackboard!” said Professor Carter. “I haven’t done that yet, but I’ve been kind of investigating it a little bit.” Others have enthusiastically embraced the technology. “I started developing a series of Blackboard courses or courses with Blackboard. With the understanding that the students now have computers in their dorms, I can give [them] a little bit more home assignments that they can complete,” noted Professor Anderson. Professor Green thought that Blackboard was an easy system to use. “It seemed to me that it was a very easy system to use and didn’t require too much time,” she said, “especially because mostly what I did was [to] take assignments I already had in the computer and transferred them.” What worried Professor Green was the volume of student postings to which she now had to respond.
Whereas Anderson and Green used Blackboard to support their face-to-face interactions in class, another faculty member, Professor Day, used Blackboard to teach online classes. “I was one of the first faculty members who chose to teach through the Internet,” he said. “I taught the class twice. I had 30 students one year and approximately 48 the other year. I think when it’s done correctly, it has the advantage of promoting interaction.” To make his online classes effective, Day said that he has tried to use all the features available in Blackboard, including announcements, discussion boards, quizzes, grading, and chat rooms. He also noted that online class technology widened his student base: “I would bring people in from other states. Actually, I almost brought somebody in from Australia. We had an interaction once a week for an hour,” he said.

Faculty Concerns in adopting Technology in their Instructional Activities

Critical to integrating technology into teaching is technical as well as instructional support along with faculty enthusiasm. Technology has the potential to change every aspect of faculty work, from the nuts and bolts of workload and time management to broader issues of pedagogical practice and the role of the professor. Based on their brief experiences using Blackboard and other technologies to enhance their teaching, the professors interviewed for this study raised three major concerns.

i. Training and Support

Green’s (1998) Campus Computing Survey indicated that one third (33.3%) of respondents rated “assisting faculty to integrate technology into instruction” as the single most important information technology issue facing their campuses. Faculty members at Ohio University expressed similar concerns. While two gave the University positive
Findings remarks for technical and instructional support, two others said the support did not meet their specific needs. Professor Green, who found CITL support helpful, said, “I did go over to CITL. I think I had two workshops on just how to set up Blackboard and how to use it. And they were very, very helpful, especially in the tiny fine points that you wouldn’t necessarily learn.” She went on to say, “I felt that there was a lot of faculty support getting into the Blackboard system that you could take advantage of, if you knew it was there and if you wanted to take advantage of it.” Professor Carter noted that faculty support was “always available,” but added, “I haven’t taken advantage of it.” Professor Day, on the other hand, said,

Most of the support that I need isn’t really there. I have to go look real hard for it. For example, I needed support in how to work with these video clips. I don’t need any support for Blackboard. I don’t need any -- I taught myself Blackboard. So the support that’s there is not for me.

Professor Anderson, another critic of the level and type of technological support provided at Ohio University, said, “The University has tried to provide some training, some workshops for faculty. However, I believe the major resource of the university has been spent or directed towards the machinery.” He went to say that the key question should now be “how to integrate the availability of our current assets into professors' actually teaching.”

ii. Time

As much as teaching with technology can save time, it can also waste time. According to Professor Anderson, “some people have a misconception that, well,
technology is a powerful tool so that it will help you save time, which is absolutely not the case. It usually turns out that you need to spend more time in developing it, maintaining it, and implementing it.” Hanna, Glowacki-Dudka, and Conceição-Runlee (2000, p. 24) reached the same conclusion with regard to online teaching: “Many teachers see it, at first, as a potential time saver. Unfortunately, though, this is not the case.”

Professor Anderson further explained that, “When you teach a course on-line, you have bypassed or surpassed the time barrier, the location barrier. You can have constant communication between the learner and the mentor.” One professor told me that by 12 o’clock in the evening, he has found that he still has 12 e-mails to respond to from students. Professor Day, however, perceived technology as a time consumer as well as a time saver. “The only problem that caused me some difficulty,” he argued, “is that it takes more time to do the set up. But I think you save the time not having to grade as much. I think you save the time later.” Day connected time consumption to the technical awareness of the instructor. “I mean, preparation takes time,” he said. “Preparation with tools that you’re unfamiliar with takes more time. But if you’re preparing with tools that you know and understand, you’re okay until you try to upgrade.”

iii. Incentives and rewards

Professors interviewed in this study disagreed about how faculty members should be rewarded for using technology in their teaching. Professor Carter, for example, said, “I think we have to keep up with technology and continue to use what’s available, whether it’s going to help us get a promotion or not, simply because we just have to.” Along these lines, Professor Day compared skill in teaching with technology to overall
academic skills: “You will be a better presenter of your research. You will use technology better. It’s not incompatible with the life of research and research sharing.”

He continued,

Let me give you an example: How many times have I seen people at a national convention -- they go there and they’re helpless because their PowerPoint presentation doesn’t run….So it is not incompatible to promotion. From my vantage point, I see the glory. From their vantage point, it’s a dichotomy.

Professor Anderson complained about the promotion system in his college. He said:

In my college we have a faculty evaluation system. It’s a very meticulous way to develop a scoring system. For example, if you have reviewed a journal as a journal consultant, you get so many points. If you develop a new course, you get so much merit points. If you look at that evaluation package, you find there are no points allocated to the use of technology.

Professor Green, however, contextualized this exclusive merit system: “I think no matter what you do in teaching, there’s always going to be something that you’re doing that you don’t feel compensated for.”

Students entering Libraries via Telephone lines and Fiber-Optic cables

Discussing the impact of the Ohio University Residence Hall Computer program on student research strategies, Nora, an administrator at the Ohio University library, indicated that she has observed a “decreasing number of students coming to the library.” Reading from her records, Nora said, “Actually, this year while we have a decrease in the number of people entering the library through physical gates, there is an increase in the
demand for online resources.” Moreover, she added, “It’s quite clear that even those
individuals that come into the library, they would rather be able to get the material on-
line, full text, than to go to find a book or go to our periodical collection and have to
photocopy something from printed material.” Nora also reported a dramatic decrease in
reserve materials, a trend that Carlson (2001) pointed out was occurring across the US as
students turn to online materials.

The pressure on Ohio University’s library to provide users with more electronic
materials has grown rapidly. Referring to the results of a survey the library conducted in
the spring of 2000 to examine user satisfaction with the online materials, Nora reported:

We were quite surprised to find out that our users’ expectations were very high,
and that despite the fact that we have hundreds and hundreds of resources, they
were not satisfied with what we had. It was a low degree of satisfaction
expressed. So it really took us back because we thought we were doing very well
in providing electronic resources. And we have to be because of Ohio Link,
among other things, one of the most electronic resources of libraries, academic
libraries, in the country. And our users didn’t think we had enough.

Nora argued that the availability of the Internet in the dorms rooms was one of the main
factors leading students to change their research strategies, a point given support by Joe, a
first-year student, who said, “If I didn’t have a computer in the room, if there wasn’t one
provided and I didn’t have one, I think I would be in the library a lot.” Joe, however,
further added, “Obviously, if I want to do my report at three o’clock in the morning, I
can’t go down to the library and do it. But now if I want to stay up until six o’clock in
the morning doing it, I can.”

Nora was troubled with the fact “that the students think the Internet is quite
satisfactory for their information needs and the library is only sort of a last resort with
them. I don’t understand that.” What had troubled Nora was confirmed by many of the
students interviewed. When I asked Brett how often he goes to the library, for example,
he said:

The library! I’ve been inside its walls maybe once. The library is far. It’s about a
seven-minute walk for me. So, you know, when I study, I go down to the lobby
of my dorm. I don’t ever go to the library for computer reasons or anything
because I have one in my room. I don’t know. It’s just everything I can find at
the library I can find elsewhere. And I’ve been using a computer for years. I
know how to find information online. Even for reports, I don’t really use books
much anymore. I can just find it online.

Two professors and a librarian in this study voiced their concern that students
using the Internet as the first choice for conducting research may cut corners in
approaching their research materials. Professor Carter complained, “They could just click
and they don’t even have to probably read it. They can probably just click on the address
and just start writing addresses,” without reading at all. Faculty members like Professor
Green were troubled and frustrated with the quality of information their students
collected from the Internet. She said:
I think the most pressure comes from students who want to use Internet web sites as sources for their research projects, or papers -- instead of or in addition to going to the library. And so it is hard to keep up with, you know, what’s an acceptable source on the Internet, how do you cite that, how do you judge whether it’s a good quality source or not? I think that’s where I get most of the pressure.

Nora from Alden library said,

Well, as I said at the outset, it’s very troubling. I really think it is true, that the students think the Internet is quite satisfactory for their information needs and the library is only sort of a last resort with them. I don’t understand that. It’s a very subjective viewpoint. It’s something [happening a lot] these days. Oh, gosh, I’m only going to go to the library if I do not have any other options.

The credibility of Internet information is debatable, according to Jim, who claimed to possess a bias toward books. “I’ve found conflicting information, you know. But for credibility on reports, books are the best. I haven’t had any actual reports to do yet. So when I do, I’ll probably end up going to the library for them.” Jim’s praise for books and libraries suggested that students are listening to professors who openly address the issue of credible resources. “There is still very little replacement for books as far as just raw accurate information goes,” he insisted, “because anybody can publish a site on the Internet. But, books take more work to be published and the credibility can be guaranteed.”

While students like Danny value convenience of Internet browsing for research, they also understood that not everything on the Internet is credible. Danny said, “I want
Findings

something that is published. I want something that got an author that’s has reputation.”

Some students either didn’t care about credibility, or didn’t know how to evaluate an
Internet source for credibility. Lincoln, for example, said, “It is the same as, like,
knowing which magazines are credible.” Kali, another first-year student, vaguely
responded, “I don’t take anything that doesn’t have references, that doesn’t have a good
reference. I don’t know how else to word it. But if it doesn’t look credible, then I don’t
use it, if it’s not an official page.”

Libraries responding positively to students' demands

Across the U.S. colleges and universities adopted different ways to attract
students to their libraries. Ohio University planned a number of steps to make the library
a more inviting place while implementing technology to address students who retreated
into their rooms. Nora, an Ohio University librarian proposed that the university library’s
upgrades should address several of the following concerns.

i. Providing online services:

“We are starting to work with delivering a reference service online,” Nora
reported. She explained that the librarians here who run this service “are spending some
hours every afternoon being available for on-line chats. So if a student comes on and
needs some help, they have access to a librarian to give them personal assistance.” In this
way, “online service is available to the student without having to come up to the library,
you know, walk up the hill and then come in and have the courage to ask a question at the
reference desk. You know,” Nora concluded, “instead of expecting them to come to the
library, we can take what we can offer them to them.”
ii. *Providing students with self-learning materials*

Nora expressed the importance of making self-learning materials available. “We’re working with a program,” she said, “which was developed at the University of Texas called TILT. And we’re looking to customize it for our users so that we have available on the web something students can use to learn more about using information and how to find information. And, of course, that takes some initiative on their part.” She added,

I think we’re going to be very creative and think about lots of different ways to package this kind of approach that really will somehow help people feel like they need this. I mean, we make it so convenient so that when they ask a question, there’s something right there to answer that question for them.

A *Research Starter Kit*, which the library was creating, is one example of “a clever kind of approach to helping people understand where to begin with research,” noted Nora.

iii. *Working with faculty members to provide reference consultation*

Nora put a great deal of emphasis on the involvement and the collaboration of faculty members with library personnel in assisting students to perform research. “I would like to see us working more closely with faculty” she said.

We have for many years had a program here in the library where each of our librarians is a subject bibliographer and is assigned to a specific unit, to work with that unit in terms of providing reference consultation. But I sure would like to see those bibliographers work with more faculty in terms of letting the faculty know how they can assist us and assist the students’ education.
Funded partly by grants, Nora expressed hope that soon the library would “be publicizing the results of these collaborations between librarians and faculty in the hopes that it’s an idea that faculty can embrace and become more involved in assisting their student to conduct research.”

iv. *Longer library hours*

“We have been hearing for a number of years,” according to Nora, “students saying they want longer library hours. And certainly, many libraries in this country have been able to open at least a part of one or maybe some small branch library or part of a larger library for longer hours. And we’re looking for ways to do that.” Nora was, however, interested in what some students want at three a.m. in the library, and put forward a number of questions:

What are they interested in? Do they just want a quiet place where, you know, it’s safe, secure? It’s well lit? There’s a table and, you know, a place where they can bring their materials and write papers or read? Or do they want more? Do they need -- do they need access to the collections that are in this building? Do they need access to services that we offer at that time in the morning? I’d be interested in knowing what they want beyond a study space. And I’m worried that maybe that’s not what the expectation is.
v.  **Digitization**

"Going one-hundred percent digital is a dream to me," Nora said. She further added,

It’s going to be a long, long time getting there, though. When you consider this library has two million volumes, it’s going to take a heck of a lot of work to digitize that content. Having the money and resources and -- I don’t see it happening for in the near future. The real emphasis on electronic publishing has been in the journal world, and now, we have access to over 4000 electronic journals, and the number is growing. And many more journals are published only in electronic format all the time.

vi.  **Library renovation**

The library’s focus group held a few years before our interview consisted of first-year students, upper class, undergraduate, and graduate students, and faculty members. According to Nora, the focus group found that, “They think it’s drab, they think it’s run down. It’s not very, you know -- just not very appealing.” Nora said that the library staff has as its goal making “this facility as warm and welcoming and comfortable as it possibly can be. However,” she added, “we’re stuck here in a kind of old building, and it’s very difficult for us to do renovations because we cannot close it down for a year or two and get a makeover.” So the idea, said Nora, would be “to do the renovation a little at a time in the least disruptive way as possible,” evidence of which was evident on the first floor. “I think the first floor has turned into a very attractive area,” Nora said.
But we need to do more. We tried to increase lighting. We’re putting in a couple lounge areas in the sixth floor. We put in a bunch of soft chairs and kind of a lounge setting on the third floor. So slowly and, you know -- we’re really trying to work at making the library more inviting.

**Equal access to computers in residence halls**

One of the central advantages of providing computers in residence halls was to provide all students with equal access, a fact pointed out by most of the interviewees (students, professors, and staff members), regardless of their enthusiasm for the plan itself. Jim, a first-year student, admired the fact that the plan would “give everyone equal chance to experience working with computers.” He explained:

The rich people would bring computers. For example, if they come from a rich background, their parents would give them a computer for college. The people who weren’t so rich, they wouldn’t. I come from a rich background. I brought my own computer. But other people who don’t have their own computers are [now] learning how to use them. They’re coming up to my level. They’re getting the experience they need.

Jennifer made a similar argument, saying,

There are people who don’t have the financial capabilities to bring their computer. I would have been in that category. They [would] be really disadvantaged compared to their peers, who were able to afford a computer. I mean, the people who are able to bring their own computer and afford it, they have better access to computers, and they most likely get their work done more than those who don’t
have a computer. So I definitely think that the university, you know, by installing computers in each room definitely made it more equal to the first-year students, you know, they all have an equal opportunity.

John, a student advisor for the first-year students’ residence hall, noted that:

“From a learning standpoint” the program “was great because it offers those people who may not otherwise be able to actually purchase a computer to have access to a computer most of the time.” John however, expressed reservations about the success of universal access in the residence halls. He defined universal access as all students not only having access to networked computers, but also knowing how to use them:

Providing universal access! I think “universal” is too big of a word to use. Maybe, you know, it provides access to eventually all students. But whether “access” means having the computer there physically in the room and connected to the network and that it’s actually functioning, that’s one element. Whether “access” also assumes that the person knows how to use the computer -- and I don’t think that’s an assumption that I can make about every single incoming first-year student that comes into the hall.

Professor Green pointed out that training must take place before equal access may be realized. “I think that the problems that I ran into that some of the students just couldn’t seem to get a handle on figuring out Blackboard,” she said. “So maybe some computer classes to ease that from the other end of it would make it more attractive to faculty members as well.” As noted by other first-year students, however, the availability of computers inside rooms created a perfect opportunity for hands-on experience. Moreover,
students repeatedly gave examples of peer learning as an effective way to transfer computer skills.

The discussion of access took another route with David from CNS. Students in many programs may need computers with high memory, large hard drives, special software, different operating systems (UNIX), or even different hardware (Macintosh). Responding to this concern, David said:

If you have a program that requires very specific hard drive . . . or you have students in academic programs that require computer intensive work, whether it’s CAD in engineering or Divine software for visual arts, those departments are going to provide labs so that the hard drives and software are going to be able to meet such needs.

David noted that students who need resource-intensive programs might not be able to use the computer provided by the university.

This is a compromise that unfortunately happens in large institutions. You end up having to decide, do we please everyone right down to the absolute most special case, or do we -- you know, where do we -- how wide do we make our criteria for acceptable?

Accordingly, the CNS implemented a system for the dorms designed to accommodate 85 percent of users, argued David.
Students interviewees indicated that they had no knowledge of, nor had they observed, a different computer setup provided to students with disabilities. John noted that, as far as his two buildings were concerned,

We do not have a disability access, so all the computers are the same. All the computers come with a printer, the -- I mean a keyboard and integrated speakers within the monitor and a microphone in it. So for somebody who, for example, does not have use of his or her hands, the computers can’t really help. The way they are set up right now, they can’t help such person.

In John’s opinion, the dorm room computer project was approached with “a mindset that all students are normal and right-handed people.” The university, however, he explained, has worked with students with disabilities on a case-by-case approach. “What I know is within the university, typically,” he said, “if there is a person with disability, the Office of Institutional Equity would be the one to follow that and try to get, you know, the necessary room and equipment to make that person’s life comfortable.”

A representative of the Office of Institutional Equity, Susan, noted, “Learning-disabled students sometimes have the impression that universities should be changing so that they have the greatest possible chance of success,” adding, “Well, that’s not entirely true. What we have to do,” she said, “is [to] make accommodations so that they have an equal chance to participate.” The Office of Institutional Equity at OU has provided special technology assistance to students with disabilities, including software, hardware, and human assistance:
If somebody had a disability, or people who have disabilities, we would have to provide computer equipment that was adaptive to whatever their disability was. So, for instance, people with visual impairments, we have provided large screen monitors.

However, said Susan “most people with disabilities come to school having had special computers provided for them by the bureau -- the Bureau for the Visually Impaired, which is a state agency that provides funding and auxiliary aides for people with disabilities.” Ohio University also, she said, has provided a special computer lab called “Adaptive Equipment Lab” to students with disabilities, and several other technological aids:

We provided voice recognition program called CAST eReader. So you scan print material in, and it will read it back to you. There are two kinds: one for people with visual impairments that is less mouse-related -- and it’s pretty much just straight speech-to-text -- or text-to-speech -- and then there’s another one that’s directed more towards learning-disabled students that have capacities for definitions and note-taking and things like that.

Susan argued that computers with special configurations are of benefit to students with disabilities who find it difficult to access information through regular means:

So I think that by and large the computer has really enhanced learning for students with disabilities, because in some respects it has made some learners much more independent than if they didn’t use them -- we get books on tape for people through an agency called Recordings for the Blind and Dyslexic, or we have to
tape them ourselves. So let’s say, you know, you were holding a class and you
gave out, like, a 50-page reading. If -- that person would either have to bring it to
me and have somebody read it to them.

In conclusion, Susan said, “I think it makes you a lot more independent. I think most
people with disabilities want that kind of independence.”

The adoption of technology by faculty members has also benefited students with
disabilities, as Susan pointed out:

The faculty members have seemed to . . . have been more inclined to put, like,
PowerPoint presentations on a website for the class. So that’s benefited a lot of
disabled students in a lot of ways, because if you have a guideline of what the
notes are going to be, that’s helpful in class. And almost every disabled person
has some kind of problem taking notes, learning disabled or sight impaired or
whatever.

Though encouraged by faculty members at OU integrating technology in their teaching,
however, Susan has remained concerned about the accessibility of materials for students
with disabilities:

The thing people have to be concerned about the most is making sure that web-
based designs are accessible through, like, speech programs. I think that’s the
place where people would be left behind the most. I think it’s useful for
professors to keep in mind that if they’re using -- if they have course materials, to
put those things on the web -- it makes it easier for people -- but to make sure that
you aren’t so graphic based that people with sight impairments are being left behind.

Sarnoff, a professor at OU, wrote, “Few websites, including course websites, are currently accessible to people with the full range of disabling conditions, despite ADA guidelines for educators” (Sarnoff, 2001, p.200).

According to Susan, The Office of Institutional Equity has possessed both the experience and the will to run testing on course websites to check their accessibility to people with disability:

I’ve had other professors come to me and say: will you look at my website and see if it seems accessible? And so we’ll put it on this computer that we have with the CAST eReader and see how easy it is to a visually impaired person. And I’ll have some students look through it, and they’ll say whether there were barriers or not. But certainly not everybody is doing it.

Susan also indicated that the Office of Institutional Equity was interested in providing advice to OU departments that deliver online courses:

I try, you know, sometimes to talk to -- when Life-Long Learning was developing a lot of web classes, I tried to talk to them and say, you know, this is something you’ve got to be paying attention to. And I don’t know if they were paying that much attention to me. But they’re text mostly anyway.

Life Long Learning at OU has relied heavily on online videos to deliver course content to their students, and as yet needed to integrate “close captioning” into these videos, because, “That would really have implications for somebody who was hard of hearing.”
Problems, complains, and solutions (The role of CNS)

First-year students at OU voiced a variety of complaints, concerns, and problems related to their experiences of using the residence hall computer network. Two major areas of concern highlighted by students interviewed for this study are hardware specifications concerns and network slowness.

i. Hardware specifications concerns

Four students interviewed for this study argued that residence hall computers were not “state-of-the-art,” as they had expected or been promised. Jim said the main reason he brought his own computer to college was that “the hard drives are not really enough” at school. In other words, “there’s not really enough storage capacity associated with the school computers. You can’t really have, like, a movie collection on a 6 gig hard drive. It just doesn’t work.” Students' complaints about hard drive capacity were due to the fact they wanted to download music, graphics, and movies, all of which require space. Jim noted, “The single thing most people complained about is just the hard drive space. They just want to download some music, you know, and they can’t because they download some songs and they fill all the hard drive space.”

Brett, another first year student, told me that he had three hard drives in the computer he brought to OU, totaling 53 gigabits. “Besides all the school work I do,” he said, “I have a couple of games on my computer. You can’t put some of these games on the university computers because they don’t have enough space or the advanced video card that I have on my own computer.” Brett was confident, however, that OU computers appeared satisfactory for academic work: “The computer that they supply us in the dorm
rooms, they run the academic programs that are asked for us to run. That’s the bottom line. They give us working computers and that’s what we’ve got.” Derick, however, “was frustrated by the slowness of his University computer:

You know, sometimes when it’s slow and you need to find things. You know, you get frustrated like that. Every now and then I get a -- well, I get a message that pops up that says ‘your system is low on vital memory.’ It’s just kind of annoying when they keep popping up and you have to keep restart your computer.

John explained that students bring their own computers to OU and he observed that male students are more likely to bring their own computers to the residence halls. He noted:

This is much more common among the men, bringing their own computers, because typically, it’s with the people who have sort of designed their own computer. They have certain programs on there that the residence computer doesn’t have.

He further explained the rationale behind students' bringing their own computers by saying:

For example, most of the residence computers do not have CD burners, and the capacity on the hard drive is only six gigabytes. And for some people, that is too small. For a lot of people who are playing memory-intensive games, the university computer doesn’t help them because it only has 128 megabytes of RAM, whereas some people have higher, up in the 500 -- you know, 400 RAM. So those are some reasons. And then it’s because -- some people run a lot more
programs out of their computers, or they run an entirely different operating system that they prefer over, say, Windows XP.

The OU computers were not a state-of-the-art, because the project was essentially designed “to make it easier for the students to incorporate technology into their course work, and also, likewise, to encourage the faculty to use the technology,” argued the David, a CNS representative. Consequently, David believed that the computers’ capabilities were reasonably satisfactory.

Faculty members at Ohio University voiced concern about the capability and speed of their own computers, as well, which they felt may have a negative impact on the adoption of teaching technologies. “My computer now is -- I’m not sure how old,” Professor Green said,

I know I inherited it from somebody else and it doesn’t have the ideal amount of memory. It doesn’t have some of the things I’d like. So it is a big problem, especially now with the budget cut in all departments…. And ironically, I think that might slow down the impact of technology on teaching a little bit and, you know, force those people to go back to the basics occasionally.

According to David from CNS students, more than faculty, have directed their complaints and criticisms to his department. David shared some of the more outrageous complaints that he has received from students, but confessed that “some of the computers [in the residence halls] are not state-of-the-art,” further explaining:

They were the best we could get for the money at the time. So they were good -- they were good machines two-and-a-half years ago. But the budget the way it is,
they -- housing can’t replace them. So now they’re starting to go to the bottom end of the curve. But then there are other buildings that have Pentium IV machines in them.

However, complaints about hard drive capacity usually are not related to students’ academic needs, said David

As far as hard drive capacity -- most of the complaints come back to asking them what they want to do with the machine. If they’re doing normal academic work, we will consider that. If you want to do music downloading and those kinds of things, we can’t change that. You can usually fill up a hard drive very quickly with an MP3 collection.

David reported that they constantly received calls from students complaining about their computers crashing or running slowly. “Well, some of that is just the nature of Windows,” David pointed out. “A lot of crashes and a lot of speed are, again, a result of -- probably, I would guess, 80 or 90 percent of the students who use the computers don’t understand really how they work.” One of the notable reasons for slowness and system crashes has been that students “install programs that most of the time create background tasks” and therefore are consuming computer resources. Monitoring the activity on residence hall computers to assess the network performance, CNS noticed

Machines where there will be eight or ten of these programs running all at once. And then to them it’s obvious why the machine is slow and crashing all the time because it doesn’t have any resources left to be able to run the normal programs. But the students don’t understand that.
Similarly, Jim, a first-year student reported that students in the residence halls run many computer programs simultaneously,

> Instant messenger is always open. Whether or not you have a report going at the same time is another story. But the average person has their MP3s they’re downloading at one end, they’re talking on IM on the other end, and then their reports, you know, take up a little corner. That occasionally gets -- the average report takes, like, five hours to type for this reason.

While the CNS understood that first-year students needed to be educated to “know up front that [academics] is the purpose we see the computers serving and this is why we have set them up the way we have,” they experienced difficulty reaching out to students to make this message clear argued David. He added:

> We’ve tried mass mailings. We’ve tried fliers. We have support information on our web sites. We don’t have a good answer yet. I’m not happy with the effectiveness of any of the things we’ve done. We just printed manuals. They’re thrown away right away. Web sites usually don’t get read. Mass mailings seem to be the most effective for reaching the largest number of students, but if it’s more complex than two sentences, you can give up trying to make anyone understand it because the students won’t have the patience to read a whole page.

David found that “Word of mouth,” was effective in communicating information to students,
In talking to students at the end of the first two years in the program, many of them learned the things they did from talking to someone who had figured it out themselves or who already -- you know, who was good enough in computers. Printed materials, however, simply didn’t work to educate students on computer access, according to one story he reported:

One of those students we talked to told this story where he said that -- one of the people that he had met on the floor saying, I can’t get to my e-mail. I don’t know how to activate it and he said, well, here, this will show you. And he took the handout that we had given in everybody’s mailbox and said, here, read this. He’s like, I don’t have time to read that. And he’s like, that’s how you get your e-mail. And he’s like, oh, okay. Even though the kid had already asked the question, had the paper in front of him, none of that was going on in his head until the friend forced him to say, look at this, read this, this will give you the answer.

ii. **Network slowness**

Complains about the speed of the network at Ohio University were raised not only by students, but also by faculty members. Professor Green reported her experience with the slowness of the OU network and called for hardware improvement:

I noticed, especially when I was using it, that the server speed, especially if I looked at it in the afternoon, was amazingly slow. But if I did it in the morning, I could get it done relatively quickly. And so I think that addressing just the needs of the storage systems and just the hardware parts of it might be something that would make it easier.
Network speed is affected by time of day, Merideth, a first-year student at OU, explained: “The Internet can be fast sometimes and it can be extremely slow, and it all depends on what time you’re on the Internet. So the busier times it’s slower.” Brandon and other students were aware of the relationship between network traffic and network slowness:

Sometimes, like when there are a lot of people on the network, it runs a little slow. People get frustrated with that, and I hear it once in a while, someone yelling out down the hall because they can’t get on when they want to.

Joe’s concerns were representative of the frustration felt by many students who perceived the network as too slow. He noted the impact of network slowness on academic and personal use alike:

I don’t have, like, a big research paper that I need to do right now. But if I did, that would be -- I would want -- you know, I’m relying on the computer and then it’s not able to do that. So I would be frustrated with that. I wouldn’t like that.

But, you know -- I still am a little bit, though, because of the personal use that I wanted to do on the Internet.

Some students have called for upgrades to OU’s system, noting, as did Brett, that “most of schools now are using fiber optic networks, and they have Internet speeds that are almost incomprehensible. They are amazing. I can get faster downloads at home that I do here [at OU],” he added.

Most network slowness resulted from the fact that students in residence halls were downloading high bandwidth materials and using file-sharing programs such as Napster and Scour. “Scour was eating 90 percent of our bandwidth very quickly,” reported David
Findings

from the CNS. “It happens within the three or four weeks of the beginning of the fall quarter.” When, to save bandwidth, CNS decided to block the music file sharing programs, “that, of course, created a huge negative reaction from students. It is funny, you know, nine out of ten were calling us Nazi’s and other mindless insults. Saying we are out to take away their freedom.” David has archived the contents of emails received from the students complaining about the measure. He shared these contents with me:

- Dear Nazis – Please stop using BANDWIDTH as a pitiful attempt to disguise your anti-consumerist activities. Why don’t you try concentrating on actually getting YOUR service to work properly before you stop the flow of capitalism? Maybe we should call for a campus-wide ban on YOUR service.

- I would just like to express my complete disgust for this action. What will be next? Chat rooms?

- Best of luck making Scour coexisting w/academic needs. Scour/Napster is important to people. Music, *Free* music, allows us to expand our tastes and communicate. Don’t ban it, eh?

- It is a sad day in the history of growing technology when a beautiful advance such as Napster or Scour is banned simply because of a lack of funds needed to support them. I hope, that in the future, efforts will be made to ensure that the exchange of community files over the Internet will be free to students and not restricted because of “academic slowdowns.”
Findings

• I don’t believe I ever signed up for a service to monitor what I am using?? You had better check your privacy agreement; I think you may have a few lawsuits on your hands.

• What other freedoms does Ohio University plan on taking away from its students next? Perhaps they will block any site pertaining to Religion so that if we wanted to pull up site such as these we would not be ‘hopping the Internet resources’. Just a simple question, which I am sure will go unanswered.

• Why isn’t possible to bring more bandwidth into the school system? Then everyone would be happy?

• Dear Sir or Madam – I received your notice on the banning of Napster and Scour and I would just like to tell you that what you are doing is very unfair and unjust action. The reason why the bands are over loaded with users on these sites is that these are the sites that the students like. Obviously they are in favor of them, and if you deny them from access to Napster and scour, you will be denying them their freedom of choice. Personally, I live off campus, so the banning does not affect me, but I remember how Napster and Scour helped open my ears to new varieties of music and become more interactive with others with the same interest as myself.

• If Napster can slow down your systems so easily then perhaps you should think about running a better server. What are you using anyone an old T-1?

• I would like to know what progress has been made in finding a way to reinstate Napster. Music on the Internet is a valuable tool, and there should NOT be any
block put on such sites. I use the Internet for school purposes also, being a physical therapy major which require vast amounts of research, etc… If such a block continues, I am sure myself and others will be forced to relocate service to a source that can provide service without interference. A reply with info. Would be appreciated.

In response to students' complaints, David took steps to lift the ban on file-sharing programs, the representative said, beginning with “the process of doubling our Internet capacity.” David was quick to point out, however, that,

Unfortunately, capacity by itself won’t solve the problem. Services like Napster and Scour are designed to take advantage of all available capacity. If we cranked up our bandwidth a hundredfold, Scour traffic will also jump a hundredfold. That is the way their directory service works—when someone requests a file, their server looks for the fastest connection over which to send that file. We really are looking for a way to lift this ban. Once we upgrade our current routers, we should be able to set an upper limit on Scour traffic. That way, people can still use the service, but it won’t be able to choke out other traffic.

File-sharing programs were not the only network activity that slowed the network. David argued that there are some users who occasionally perform some computer activities that consume network resources. He further added,

This activity – this usually isn’t something like Napster. Probably the most common cause here is someone who has a large pornography collection and they make it available for share. And the word gets out and suddenly that building’s
network just becomes unusable because, you know, there’s 500 other people on campus all watching these movies directly off of that person’s computer.

**Conclusion for the findings**

This chapter documented the viewpoint of first-year students, faculty, and staff members who have been interviewed for this study, on the SCE at Ohio University’s residence halls. The themes that emerged from the data collected in the study offered strong evidence that the SCE is impacting the academic and social lives of the OU first-year students in many ways. As intended in chapter three (Methodology), the inclusion of faculty and staff members in this study added another perspective that triangulated the students’ positions.

In the next chapter (chapter Five) the researcher discusses the findings in the light of the literature review in an attempt to formulate and present a holistic understanding for the SCE in Ohio University. Chapter Five is concluded with recommendations and future work.
Discussion and Recommendations

The primary objective of this study was to provide a detailed description of the impact of the Ohio University Residence Hall Computer Project on first-year students’ academic and social lives. This chapter is organized in three main sections: In the first section the researcher discusses each research question based on the participants' perspectives and in light of the literature review. The discussion in the first section also focuses on a central topic that is the role of SEC in building informal learning communities in OU residence halls. Moreover, in section one, the researcher expands the discussion to shed light on the topic of interpersonal communication that emerged from students' interviews. The second section of this chapter presents the researcher's recommendations to better utilize OU SCE in enhancing students' academic and social lives. The third section suggests future research to investigate the role of computer-enriched environments in enhancing the learning and social processes on college campuses.

Discussion of the Research Main Questions

In this study the researcher used a set of questions that guided his discussion with first-year students in University College in Ohio University. Each research question is discussed in the light of what the students said in the interviews as documented in chapter four. Although the discussion of these research questions is inseparable, to organize this section, the researcher discussed these questions in turn. However, this does not prevent the researcher from recognizing the overlaps and the links in discussing the questions.
i. How do the students describe the experiences of being provided with computers and printers in their residence hall rooms?

The prevailing reaction by students regarding the SCE at Ohio University was very positive. Students were encouraged by the fact that their university is providing them with computers and access to the Internet from their own rooms. What made these computers special for students is the feeling of ownership that was very evident in the students' reflections. As one female student joyfully said, "having my own little computer in my room" is something great. Giving students the sense of ownership of powerful educational tools such as networked computers not only empowers their potential as self-directed learners, but also gives them the opportunity to construct their own knowledge through communication technologies. Perelman (1987) argued that the people who actually use technology, given the freedom to design their own work environments, are most likely to create productive systems.

Along with ownership comes computer privacy which is very much appreciated by students. Jones (2002) reported, "students may also value their privacy and prefer to use computers they own, in private, rather than ones in public places like campus computer labs where the computer monitor is readily visible to others" (p. 14). Furthermore, unlimited access to networked computers is another factor that drew positive responses from students. Students were given the freedom to explore the cyber world from the comfort of their own rooms 24 hours a day seven days a week. The convenience of providing students with immediate access to networked computers and
printers had positive impact on students. As mentioned earlier in the findings, Meredith, a first-year student said,

I see it as a convenience. You know, you don’t have to leave your room. Some of my professors, they don’t pass back the tests, they just post the grades. So instead of having to walk, you know, to see your grades, you can find it out right away on the computer.

Tampke (2000) also reported that convenience played strong role in students' positive responses to the SCE at Ohio University's residence halls. Jones (2002) argued, "The convenience of having a computer in a setting quieter than a school computer lab, one within easy reach of other amenities (like the refrigerator) also contributes to the heavy home computer use" (p. 14).

Not only, that, the concepts of ownership, privacy, access, and convenience are linked to each other, but also they supported the notion of democracy. The researcher argues that the computer-enriched environment at OU is helping students to be independent, self-directed learners. The peer and informal learning phenomenon that has been reported in the previous chapter is an evident to the emergent of the new learning styles. Consequently, students' opinions in describing the Ohio University Residence Halls Computer Project can be understood within the constructivist philosophical framework.
ii. How has the availability of computers in the residence halls impacted students’ attitudes towards the use of computers in general?

The findings in this study revealed that all students have different levels of previous experiences in computer use prior to their coming to Ohio University. These findings were supported by recent research (Jones, 2002) that college students of today "were born the year the PC was introduced to the public" (p. 6). Accordingly, this explains that the findings in this study did not report fear or anxiety towards using computers. However, the general perception from informants in this study was that the availability of computers in the residence rooms helped students in learning more to use them. As one of the students said, if a computer is “sitting there on their desk, day in and day out, students are going to learn at least the basics of how to use it.” In general, students were pleased to have networked computers in their rooms and they have positive attitudes towards these computers. For example, one student said “I love just having it [the computer] in here [her room].”

The concepts of computer ownership, immediate access, privacy, and convenience collectively played positive role in enhancing students' attitudes towards computers. Students who have little experience in using computers prior to their coming to Ohio University, because they do not have computers at their homes or they come from schools with poor computer facilities, were given the opportunity to improve their experiences and attitudes towards computers. This explanation is in line with the available literature which argued that more experience in using computers generates positive attitude towards them, (Anderson & Hornby, 1996).
iii. How have computers in the residence halls affected students’ academic and social lives?

Students strongly believe that the SCE in Ohio University residence halls enhanced their academic work and social lives. For example, Jennifer, one of the first-year students, said, "I think definitely we have better opportunity to do our academic studies." Students argued that the successes in achieving a daily academic activity required immediate access to a computer. The study showed that students' academic work and social activities are not only connected, but also in many situations mixed when it comes to using computers.

Activities that are leisure in nature such as downloading music files or chatting with a friend also proved to be helping students in their academic work. Similarly, argued Jones (2002) that educators should not ignore the possibility of educational gains of some entertainment Internet activities. "For example, learning how to manage a file-sharing system, or [to] navigate in a real-time chat can be complicated tasks that teach college students valuable technical skills they might need in the workplace" (p. 7). On the other hand, when students gather around a computer in a dorm room to work on a school project, or an assignment, they also interact with each other more and in the process strengthen their social ties. Jones (2002) also noticed,

While in groups, students often appear to be working on academic tasks although most often one student is at a computer typing while the remaining group members are socializing and contributing information when asked by the typist. (p. 14)
Students interviewed for this study were generally satisfied with the SCE, concluding that it had an overall positive impact on their academic work and social lives. The SCE helped to promote and maintain the Ohio University first-year community of learners, both “virtually” and in face-to-face interactions. The positive effects of the SCE on first-year students was almost immediately evident to the dormitory residents interviewed to offer at least five key benefits:

i. Expanding students’ access to core curriculum materials (Online syllabi, notes, and assignments).

ii. Enhancing students’ academic reports and papers by helping them to produce professional-looking work.

iii. Preparing students for the workplace;

iv. Providing students with an easy and convenient communication tool to be in touch with family and friends.

v. Providing peer and collaborative learning environments in which social and academic interaction worked hand-in-hand to build a community of learners.

*SCE helps to build an informal learning community*

The findings in this study presented strong evidence that an informal learning community was greatly enhanced as the result of the SCE in Ohio University's residence halls. The study's results demonstrated that both face-to-face and online interactions between students in the residence halls combined to build a community of learners in which academic and social activities intersect. In other words, the SCE generates new dynamics in Ohio University's main campus. Activities that involve computers played an
important role in bringing students together in physical as well as in cyber settings. Cited by Strange and Banning (2001, p. 198), Godzdz (1995) asked a question central to the study of technology and its influence: “How is the use of technology enhancing or detracting from a systematic sense of community?” Strange and Banning (2001) responded to Godzdz question as follows:

Virtual and face-to-face communities need not be mutually exclusive; perhaps each could enrich the sense of community of the other. In a campus environment with an established physical locale, virtual community could serve to enhance rather than detract from its overall sense of community. (p. 198)

Palloff and Pratt (1999) said that technologically mediated forms of communication themselves represent acts of building communities: “In fact, our attempts to communicate are attempts at community building …Our communities and neighborhoods are now virtual as well as actual, global as well as local” (p. 25).

The Office of Resident Life at Ohio University has historically planned its programming to involve face-to-face interactions, giving residents an opportunity to become acquainted with others, find a sense of congruence, and often become more educationally aware. Many are accustomed to thinking of campus-life programming as consisting of only face-to-face interactions, such as movie nights and pool tournaments. With the changes in today’s technology, however, and the expanded student populations of today’s colleges, it has become important for student residence life professionals to utilize the most relevant and the most effective ways of encouraging student interaction.
Discussion and Recommendations

In the Ohio University Students Computer Environment (SCE) schema, a combination of two elements (face-to-face meetings and online interactions) advances the goal of enhancing the traditional learning community there. Students themselves believed that face-to-face interaction is the main element of creating learning communities on college campuses, whereas online communication is often considered a secondary factor that serves to enhance the learning process. As mentioned in the finding Brandon, for example, said,

> It usually kind of stimulates face-to-face [communication]. …… I don’t think it really [negatively] affects how much time people spend together, usually, because there’s nothing that can really replace face-to-face social interaction. It just kind of helps to stimulate it in most cases. It gets you together quicker and easier. It helps you get things in order.

Students’ own reflections on the question suggest that OUSCE has, thus far, succeeded in enhancing, rather than replacing, direct social relations. Traditional learning communities in Ohio University’s residence halls have been fundamentally enmeshed with OUSCE, affecting both the academic and social lives of students. The technical component works as the glue that metaphorically holds this building together. Overall, the University’s implementation of the OUSCE system has helped to overcome two barriers to technological access, which Stranger and Banning (2001) have underscored:

Two major sources of exclusions operate in virtual communities: the expense of being connected to a network and the limits of technical literacy required for full
participation. Perhaps the most important of these issues on campus is the need for students to have skills in computer-mediated communication. (pp. 192-193)

Perhaps the most important challenge facing Ohio University’s learning community is that of discovering how to recreate equal access to information technology as universal access to information technology, for students as well as faculty members, offering the infrastructure and the training necessary to ensure universal campus accessibility. John, a residence advisor said,

Providing universal access! I think “universal” is too big of a word to use.

Maybe, you know, it provides access to eventually all students. But whether “access” means having the computer there physically in the room and connected to the network and that it’s actually functioning, that’s one element. Whether “access” also assumes that the person knows how to use the computer -- and I don’t think that’s an assumption that I can make about every single incoming first-year student that comes into the hall.

“Broadly defining technology will include not only ownership (possession) of the necessary hardware and software but also training on demand in its use and application as well as help desk support” (Connick, 1997, p. 11).

Peer interactions - a central feature in building learning communities

The Ohio University Residence Hall Computer Project provided a suitable environment for peer and collaborative learning to flourish. Providing every first-year student with the same package of hardware and software made it easy for them to seek help from one another. Although peer learning was shown to initially begin with
activities related to acquiring computer skills, it extended to include academic work. Furthermore, the computer environment offered first-year students (peers) an opportunity to learn together, and so promoted their adjustment to campus life. The SCE also extended student-faculty interactions beyond the time and locations of classrooms adding another element in building learning community in OU main campus. According to Shapiro and Levine (1999)

The results of several major and influential longitudinal studies of higher education have confirmed what a number of educators have intuitively recognized for a long time: that success in college is directly connected to student-faculty interaction, student involvement in cocurricular activities, and most important, peer influences and interactions. (pp. xi-xii)

Aside from expanding this important peer learning function, computer access helped students to share and suggest online resources, and to further explore course content. Students were enabled to encourage members of their classes faced with difficulties, and offer advice on understanding professors’ pedagogical approaches. As the findings reported students working collaboratively in group projects, or solve a problem. Matt for example, said, "I think computer helps everybody to interact with everybody in the floor. Like, we get together and discuss a problem and somebody can help to solve it." The computer environment supported active learning and has helped to build new ways of understanding course material. As online peer learning has become a central feature of residence hall communities, students are becoming aware of its capabilities and limitations, and are shaping the technology to meet their particular needs.
College students at Ohio University view online interactions not only as personal but also as interpersonal relations, emphasizing that they are engaged in a two-way relationship. Instead of using the verb “writing,” students refer to their online conversations with the verb “talking.” Derick characterized his online interactions by saying, “Well, I had a few people come over and talk to me. But, I mean, it’s just, like, a long conversation. But I think there are, you know, separate chat rooms and stuff where you can talk to people overseas.” “Instant Messenger is kind of like an informal conversation,” Lincoln said. “It’s almost like if you’re walking around and you bump into somebody on the street and say, hey, how are you doing?” The ongoing online textual exchanges that occur in real time between college students have introduced a new concept of interpersonal communication, which suggests that spoken communication is no longer required for interpersonal discourse to take place. As White (2000) pointed out, “interpersonal communication is not restricted to situations such as the number of people or face-to-face contacts, but is a result of a choice one makes in the online environment” (p. 4).

Online communication on college campus may also contribute to the dilemma presented earlier by John, who noticed that the positive impact of computers on students’ academic lives is coupled with their unwillingness to participate in social physical activities. In his reflections on the role that OUSCE played in the structure of the learning community, John, a residence advisor, said,
Those of us who are in Residence Life are always striving to create a community of learning. And as I said before, that’s the struggle. For us -- we try to create the community of learning from the standpoint of involving them in other activities that will get them out of their rooms. Whereas, the computer is one that ties them to their rooms….So really, the computer has created an interesting dynamic, because -- at one point, it’s a great learning tool. At another point, it’s sort of this dichotomy, really, that at one point, you know, people are learning using the computers, and the next day you know they’re researching for their papers actively. And on the other side, it’s a difficult thing getting them out to participate in public events, like for the entire hall, the complex, or even on the Green. You know, that is something else, because they just have other things to do which involve the computer. This is a big dichotomy. It’s a big struggle for us who try to do programming and try to get people out of their rooms.

However, John said he has not actually dealt with any cases of student isolation. Actually, he observed, students go from one room to another, checking on things related to computers, indicating that direct interaction between students continues as before. Still, John holds that computers can isolate students, at least from pre-organized social activities.

The impact of OUSCE on teaching and research

Faculty members, on the other hand, while they perceived the potential of emerging technologies to have a positive impact on teaching and learning, were concerned with the way students conduct their research, and worried about the fact that
many students have become entirely dependent on the Internet to gather academic information, a concern shared by an OU’s library administration. To describe the extent to which college students are using the web, Jones (2002) said, "In short, the web has become an information cornerstone for them" (p. 19).

Librarians across the US are working hard to come up with innovative ideas to accommodate students’ needs and to make libraries more useful to them. Obviously, the impact of technology on the way students perform research has become a reality that no one could ignore. Nelson of Augusta University, who considers himself a “realist librarian,” has argued that “his resources and staff are taking a greater role in the students’ lives, and that online resources are a way to reach out and deal with people who wouldn’t normally come to the library under the old system” (Carlson, 2001, ¶ 22). Another librarian, Demas, of Carleton College, has highlighted the “importance of the library as a social sphere and creating unconventional programs and attractions to draw students back: book swaps, art exhibitions, lecture programs, poetry readings, comfortable furniture, and espresso bars, to name a few” (Carlson, 2001, ¶ 32). Carlson (2001) noted one controversial attraction in a university library at Texas Christian University:

Dead ahead of the main entrance, an espresso machine hisses and sputters as students line up for Starbucks lattes and Krispy Kreme doughnuts before heading off, snacks in hand to the library’s study areas. In the main reading room, students sprawl on couches and plush chairs, as a Mozart divertimento pipes in through speakers overheads. (2001, ¶ 38)
Discussion and Recommendations

Ohio University library is responding to meet students' demands for online material. "Ohio University's faculty and students now have more than 4 million research article ready to search and retrieve, with the recent expansion of Ohio Library and information Network" ("OU's Alden," 2003). In a previous article the paper reported that Ohio University's Library has begun to offer educational videos to be viewed online. "Educational videos on topics ranging from childhood depression to Eudora Welty, … to AIDS in Africa, are now ready for viewing online by Ohio University students and faculty" ("OU to begin," 2003).

Another concern, from the perspective of faculty members in this study, was related to what Professor Green identified as “technology guiding the way to teaching,” and Professor Anderson called “a balance between technology and instruction.” Achieving this balance requires the development of an instructional technology strategy across the university’s colleges and curriculum. This strategy should provide technical training, and offer instructional design assistance to faculty members. With regard to one-on-one mentoring experiences at the College of Education at Ohio University, Ali and Elmahdi (2001) remarked,

There is a difference between availability of technology and proper integration of such technology into instructional activities. Institutions can provide the hardware and software perceived as instructional tools and aids. But when they are not incorporated for the intended use because of inability to use, it defeats the very purpose for which they have been made available. Faculty should be provided with opportunities for learning about and using technology. These opportunities
whether group workshops or simple, one-on-one mentoring, can be helpful for faculty in incorporating technology in instruction.” (p. 72)

With the lack of a clear plan for adopting technology into instructional activities, however, faculty members find themselves under pressure to expand their technological knowledge. Some faculty perceived such pressure as a factor motivating them to train themselves to incorporate technology into their teaching. Others, such as Professor Green, called for broad teaching strategy revision provided at the University level:

I guess probably in using technology, probably in trying to make it more friendly to faculty, more attractive to them, probably is just going to have to go along with revising general teaching strategies so that the faculty have more time to teach and research and balance that all out.

iv. *What are the advantages and the disadvantages—personal and academic—of having computers in the students’ rooms?*

Students in this study indicated that having networked computers in their rooms had unlimited academic and personal advantages. As Kyle said, "I guess the sky is the limit.” Danny, a first-year student, concluded our interview with an illustration of the many academic and personal advantages of the SCE at Ohio University residence halls:

In general, just the computer makes it easier -- it’s so much more than just a typing tool. It’s -- you know, general information tool that adds to your general knowledge. The social stuff, just finding out, okay, what time does the football game start? You know, stuff like that.

Danny further added,
You know, long distance social relations, especially with my friends. It’s allowed me to keep a lot more friends. You know, within school, it makes little things easier, just like, what time are we going to go eat, that kind of stuff. You know, it’s nice to be able to play video games on the computer. It’s nice to listen to music, you know? It’s real nice to be able to go online from your room and buy a bunch of new CDs or buy a bunch of new games. It is nice to download music on the computer and play it away. It’s really nice.

Danny’s remarks represent the general understanding of most students, as indicated by their reflections in the previous chapter.

On the other hand, the students in this study did not mention disadvantages that are specific to the SCE. Even problems such as computer isolation and the dependency of students on the Internet to conduct research, students in this study related them to students' own conduct and choices. As one student argued, "They choose to isolate themselves like I choose to use the computer to my benefit, when I need it." Another student pointed out that the “Internet can go either way, destructive or constructive, like a hammer can be used for pounding nails or hurting someone

v. To what extent do computer skills, gender, and socio-economic background play a role in how students use computers?

As mentioned earlier in this chapter, computer experience and attitude towards computers are intertwined. Students with considerate computer skills not only are using them more than students who have little experience, but they are also executing more programs and trying different techniques. For, example, many students created their own
web sites, others, use computer programming languages applications, or simulation programs just to name a few. Gender, however, was not a big factor in the determination of how students use computers in OU residence halls. While, men found to be using computers more than women in playing games, both men and women are equally using computers with the same intensity for academic work. Interestingly, however, men and women in this study are significantly different in their strategy to help another student using computer. While a male student who is helping another student on a computer, take control of the mouse and the keyboard, a female student would sit beside the person who needs help and offer her assistance.

Students’ family economic status clearly determines their access to computers at home. Consequently, students who have computers at home were most likely to be more experienced and have positive attitude towards computers. Most of the students interviewed in this study reported that they have computers at home. This is consistent with Jones (2002) findings, "93% of college students reported using their home computers the most when checking email" (p. 14). Students commended the SCE for being an equalizer to computer access in Ohio University main campus. Consequently they argue that students, who may not have the financial ability to bring their own computers to campus, as students coming from financially-able families do, were provided with one in their room. In other words all students in Ohio University main campus residence halls have equal access to computers, a significant achievement.

Higher education administrators talk casually about “leveling the playing field” and “eliminating the problem of haves and have-nots.” Many noted that students in
disadvantaged circumstances should not be excluded and even further disadvantaged compared to their more fortunate peers. Of course, extending access to disadvantaged students has remained a noble goal. However, students with special needs and physical handicaps continue to be forgotten, in spite of such rhetoric. Assistive technology is now widely used to aid students' with special needs in their academic work. Ohio University provided assistance to students with special needs through the Office of Institutional Equity and install a computer lab "Adaptive Technology Lab" which has been prepared specifically to serve students' with special needs.

**Recommendations for bringing technology in building learning communities**

It has been estimated that 40% of current Internet users are between the ages of 18-26 (Banning & Strange, 2001), which is the typical age range of college students. Colleges and universities should therefore be quickening efforts to integrate technology, both in and outside of classroom settings. Designing and implementing a strong residence life program, then, should incorporate ideas of how technology can be utilized to enhance a sense of a community of learners. By doing so, Residence Life at Ohio University, and elsewhere, would avoid the dichotomies that John reported when he noted “that at one point people are learning using the computers, and the next day they’re researching for their papers actively. And on the other side, it’s a difficult thing getting them out to participate in public events.”

The researcher understands the need to limit his recommendations to the scope of the findings of this study. However, the constant rapidly-expanding field of instructional technology required that educators should move and respond quickly to cover new
emergent parameters. The following ideas and recommendations for better utilization of the Ohio University SCE appeared to the researcher as important implications of this study:

Utilization of informal learning in Instructional activities

Faculty members should look into and investigate the phenomenon of informal learning which have been developed as a result of the implementation of the SCE at Ohio University's main campus residence halls. Peer-to-peer learning activities that informally took place between students in residence rooms as well as online, helped students to be independent and self-directed learners. With the unlimited access to the Internet students at Ohio University residence halls are able to join online discussions about topics covered in their classes. These new learning opportunities and styles should be considered by Ohio University's curriculum designers in particular and faculty members in general and attempt to utilize them in the learning/teaching processes. The informal learning is supporting the traditional formal learning that took place in the classrooms. Not only students continued class discussion from their own rooms in face-to-face and in online meetings, but they also carry the discussion to other Internet discussion groups. Obviously, when student come to class the next session they are more informed and knowledgeable about what took place.

Communicating Information

A crucial factor in building learning communities is the ability of communicating information to college students in an effective way. The findings in this study indicated
Discussion and Recommendations

that "word of mouth" is the most effective way to communicate information to students in the residence hall. Residence Life at OU may consider this phenomenon seriously and look for volunteers for example, in every floor in the residence halls to communicate information. Another recommendation is to encourage residence hall advisors to build a listserv for their floor members, which would allow them to easily communicate with, and send out information to, all of their residents at once. Email is also an effective tool to reach college students, since they are more likely to check their email than to pay attention to an announcement on a bulletin board.

Training students on how to conduct online research

The academic reality of the Ohio University SCE is that the first year students are beginning to conduct research from the comfort of their residence hall rooms. The remarkable diversity in scope and quality of the Internet materials available to these students has expanded the serious need for critical learning approaches to introducing these students to online research techniques. Students must be empowered with the ability to evaluate online materials, as with all scholarly materials available to them in the libraries and other sites. This important era in the history of instructional technology for higher education has both generated this study and some of its recommendations. These include:

- Since the OUSCE brings forth a new reality in which students value the convenience of conducting academic research from their residence hall rooms, the OU library, in cooperation with other relevant departments, should utilize the computer network to provide training to students on how to evaluate Internet
The findings of this study indicated that there is a pressing need for critical literacy awareness for Internet use in academic work.

- As indicated in this study, time and support are the most discouraging factors to faculty in terms of integrating technology into their instructional activities. We suggest the implementation of a "Teaching Assistant Online Program" (TAOP) to encourage faculty members to integrate technology in the classroom. The TAOP would set up online chat sessions in the evenings to answer students’ academic questions, which should help reduce the overwhelming amount of email that faculty otherwise receives from students.

- The Office of Residence Life should collaborate with Academic Affairs and Communication Network Services (CNS) to set up online tutoring programs. These programs would utilize available network connectivity to enhance students’ academic and personal lives. For example, students who need help conducting academic research could enter a web site to receive librarian assistance.

- Formal computer training for first-year students, based on a computer competency examination, should be instituted. As Professor Green told us: “I think that the problems that I ran into that kind of slowed me down during class hours were that some of the students just couldn’t seem to get a handle on figuring out blackboard. So I would have to go in and show them, you know, the actual mechanics of ‘click here,’ you know, ‘type this in.’ So maybe some computer classes to ease that from the other end of it would make it more attractive to faculty members as well.”
• Better coordination between the Office of Residence Life and the Office of Institutional Equity will assist students with disabilities, again trying to shrink the digital divide. Such assistance needs to include: reading for blind students, tape-recording readings, scanning, in addition to other computer activities. Mentors should be chosen from the students in the residence hall, preferably classmates.

These recommendations are closely tied to what was observed in the conduct of this study. The faculty members are particularly concerned that tools for critical evaluation of computer based learning materials be placed in the hands of their students in order that they have a life-long learning foundation. Indeed, the study showed some indication that students themselves were beginning to become aware of this need.

**Recommendations for Future Research**

This study was designed to examine and describe the impact of the Ohio University residence halls Computer Project on first-year students' academic work and social lives. The findings of the study and the discussion that has been generated around them strongly indicated that the Ohio University computer project has a positive impact on the academic work and the social lives of first-year students. However, in the researcher's view this study opens doors for future research to be conducted on the students' computer environment at Ohio University or at other higher education institutions with similar settings. To conclude this work, the researcher is recommending the following research topics that have emerged from this study:

i. For the reason that participants in this study were selected only from first-year students in the University College at Ohio University, the researcher
recommended another qualitative research study that investigates the impact of the computer environment on first-year students' academic work and social lives in multiple sites (i.e. select first-year students from different colleges). A study that covers a wider range of participants would provide more comprehensive results.

ii. Ohio University required their students to live in the residence halls during their freshman and sophomore years. A follow up research study with sophomores to examine and describe the cumulative impact of the SCE on their academic work and social lives would provide the second half of the story.

iii. This study concluded that an informal learning community which has been facilitated by the students' computer environment was developing in the residence halls. The researcher strongly suggested that a comprehensive investigation is needed to understand this phenomenon, and to find out how it can be utilized to aid learning and teaching in a college campus.

iv. This study interviewed only four faculty members for the purpose of triangulating students' perspectives. For a better understanding of the students' computer environment in learning and teaching, the researcher recommends a more comprehensive study with faculty members at Ohio University. The suggested study with faculty members should consider the new informal learning environment and how it impacts instructional activities.

The lesson that has been learned from this study was that computer-enriched environments in colleges and universities' campuses have a significant positive impact in
the learning process and social lives of college students. The study also argued that new styles of learning by students emerged as a result of the computer-enriched environment. Accordingly, educators at Ohio University in particular, and in similar higher education institutes may need to investigate these learning styles and consider their implications on learning and teaching processes. Another valuable message from this study was for Residence Life in Ohio University, or in similar settings to utilize the networked computers in residence halls to design their social activities. And finally, the study has opened new areas for research so that a more comprehensive understanding can be achieved.


Board of Trustees (1999, May 18). "Computer requirement" Resolution by Board of Trustees, April meeting. (Press Conference, Obtainable from the Office of the President of Ohio University, 108 Cutler Hall, Athens, OH 45701).


   *Educational Technology, 26*(1), 12-18.

   cooperative, competitive, and individualistic learning. *American Educational 

   Teacher Education, 32*(3), 3-6.

Jones, S. (2002, September 15) The Internet goes to college: How students are living in 
   September 28, 2002, from the World Wide Web: 

   Martin's Griffin.


Kizza, I., & Kizza, J. (1993). Untangling the campus computer maze: A freshman 
   experience. *Collegiate Microcomputer, X1*(2), 102-104.

   *Information technology: Innovation and application* (pp. 41-58). San Francisco: 


OU to begin offering educational videos for viewing online. (2003, October 2) *The Athens News*, p. 10.


Appendices
Web-base Questionnaire

Please note that all information will be treated confidentially and will not be identified with you as an individual. By voluntarily completing this survey you are indicating your agreement to participate in this study. If you have any questions regarding your rights as a research participant, please contact the Associate Vice President for Research, Ohio University, (740) 593-0370. Thank you!

Rate your ability to do each of the following: (circle the appropriate number, from 1 - no knowledge/ability to 5 - expert user)

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<td>Create or edit a World Wide Web site (using such programs as Dream Weaver, Page Mill, Front Page)</td>
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<td>Create and edit an image using an image editor (such as MS image editor, Photoshop)</td>
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<td>Download and install a program from the Internet</td>
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For the next stage of this project, I want to interview some enthusiastic students. If you are willing to share your story with computers in the residence halls please give me your name, phone number and your e-mail address.

Name: ____________________________ Sex: Male ○ Female ○
Phone #: ________________________
E-mail address: ______________________

E-mail: elmahdi@ohio.edu
E-mail to Students

Hello,

My name is Ismail Elmahdi. I am a doctoral student in Instructional Technology in the College of Education at Ohio University. I am conducting a research study with students in the Ohio University residence halls to examine and to understand how the Ohio University Residence Hall Computer Program impacts students’ academic work and personal lives.

This study is designed to provide directions and recommendations that would help the University understand the students’ technological needs and therefore, enhance the learning/teaching process.

Participant must be at least 18 years old and participation is voluntary. Please be informed that your acceptance or refusal in this research will not in any way affect your current status.

You may participate in this study by completing the on-line survey which is located at the following web site: http://oak.cats.ohiou.edu/~elmahdi/survey.htm The survey will take less than 5 minutes.

Thank you very much.

Ismail Elmahdi
Doctoral Student
College of Education
Ohio University
Phone 597-1511
Email: Elmahdi@ohio.edu
Interview Protocol for Students

Thank you very much for sharing with me your experience with the residence hall computer program. First, I would like to give you an idea about the purpose of this study and to let you know that your responses are of great importance to me. This study is to understand and to explain the first-year students’ experience with the residence hall computer program.

I am looking forward to learn from you about what is really going on regarding the computer project in the residence halls. I want to know what you’re seeing, even if it looks bad. That is the only way we are going to learn. Of course, I also want to know where things are going well, but where they are not going well I really need to hear that message. I am focusing on your experience in using the computer in your residence room during your first year in Ohio University.

I am taping this session so that I can study what you have said, but it goes no farther than myself. Anything you say here will be held in strict confidence; I won’t be telling people outside this room who said what. Before I start my interview I would like if you read and sign the consent form if you agree on its content.

Questions:
1. Tell me about your experience with computers.
2. What do you use computers for in relation to your schoolwork?
3. What do you use computers for in relation to your personal life?
4. Did the availability of computers in the residence halls affect your decision to join Ohio University? If yes explain?
5. Has the availability of computers in the residence halls affected your attitude towards computers? Explain?
6. Does the computer have an impact on your academic work? If yes how? If no why?
7. Does having computer in your room affect your time management? Explain?
8. Did the availability of computers in the residence halls affect your perception about using technology in teaching and learning? Explain?
9. Are there any problems that you encountered in using computers in the residence halls? If yes describe?
10. Does having computer in your room affect your study habit? If yes how?
11. Are there any academic or social advantages of having computer in your room? If yes describe?

At the end of the interview I will briefly summarize the main points of the discussion. Encourage some general agreement by saying something like: “what I have heard you saying this morning/afternoon was …summarize…. Did I summarize your thoughts correctly? Is there anything you would like to add or amend?” Do you mind if I contact you by telephone or email if want to clarify any point? -- Thank you very much
Interview Protocol for Faculty

First, I would like to thank you very much for giving me the opportunity to discuss with you this important topic. As I mentioned in our telephone conversation that I am studying the impact of the residence halls computer program on first-year students' academic work and social lives. I have already finished my interviews with the students and I would like to further expand their perspectives regarding the impact of the residence halls computers on their academic work with some faculty members. Your name actually came to my attention by some of the first-year students that you have taught in the University College. This study as I mentioned to you on the phone is for my doctoral research.

I have four main questions that I will use to guide my conversation with you and I am looking forward to learn more from you. I am taping this session so that I can study what you have said, but it goes no farther than myself.

1. What role do computer technologies play in the teaching process?
2. What strategies do faculty members use to integrate technology into their teaching?
3. How has the Ohio University Residence Hall Computer Project specifically impacted instructor’s teaching processes?
4. To what extent have faculty used the residence hall computers to transform pedagogy?
Consent Form

Title of Research: Computers as Roommates: The Ohio University Residence Hall Computer Project and the Lives of First-Year Students

Department: Educational Studies

Researcher: Ismail Elmahdi  E-mail: Elmahdi@ohio.edu

Advisor: Dr. Sandra Turner  E-mail: turners@ohio.edu

Federal and university regulations require us to obtain signed consent for participation in research involving human subjects. After reading the statements below, please indicate your consent by signing this form.

I am conducting a study to investigate students’ attitudes in relation to the use of computers. The site of my study is The First-year students’ residence halls in Ohio University. My research design involves use of qualitative approach. I will use Interviews technique to collect my data in this study.

Please be assured that participating in this research will not reveal your identity or information pertaining to you. Information and records will be private and confidential, and it is only this researcher who will have access to them. Tapes will be stored in a secure locker and only this researcher will have access to them. Tapes will be destroyed when there will be no need for their use.

While there are no expected direct benefits that would come as a result of participating in this research, It is the researcher’s hope that this study will reveal directions and recommendations that would help the University College at Ohio University in particular and the whole university in general to utilize the computer project
to enhance the education process. Consequently, and since students are the beneficiaries of the learning process the study will benefit them.

Participant must be at least 18 years old and your participation is voluntary.

Please be informed that your acceptance or refusal in this research will not in any way affect your current status. Moreover, you may discontinue your participation at any point of time without any obligations. I will appreciate it if you participate. Signing this form confirms your voluntary participation.

If you have any questions regarding your rights as a research participant, please contact the Associate Vice President for Research, Ohio University, (740) 593-0370.

Name: _______________________________  Signature: ______________
Students Rooms Setting
Students' Rooms Settings
Ohio University Residence Hall Computers’ Specifications

Each single, double and triple residence hall room at Ohio University's main campus comes equipped with a single University-provided Gateway PC and Okidata printer. Quad rooms come with two computers, two printers, and a network hub for simultaneous use of the room's Ethernet jack.

Processors range from Celeron through Pentium 4. All machines have at least 128 MB of RAM, a 6.8 GB or larger hard drive, a floppy drive, and a 15 inch or larger monitor. Some machines have a CD-ROM drive and 100 MB Zip drive; others have a CD-RW drive and no Zip drive.

Pre-Installed Software

- Windows XP operating system and Microsoft Office XP
- Acrobat Reader
- Mulberry e-mail client
- AOL Instant Messenger
- McAfee Virus Scan
- QuickTime and RealPlayer
- Netscape
- SSH Secure Shell telnet client and WS_FTP file transfer client

Network

- 10 Megabit (10BaseT) Ethernet connection
- Available 24 hours a day, 7 days a week, without tying up your phone lines
- Includes campus services like library catalogs, networked CD-ROM research databases, and on-line course materials, plus full access to the Internet
- Hubs and cables available free of charge to share connection if roommates bring their own computers

Software

- Microsoft Office 2000 Professional and Front Page
- Novell ZENworks applications manager and help-desk facilitator
- Mulberry graphical email client
- McAfee Anti-Virus

Other Ohio University-customized network applications including Acrobat Reader, FTP, RealPlayer G2, and telnet clients.

Source: http://www.ohiou.edu/admissions/frshcomput_specs.htm