THE EXPERIENCE OF FIRST YEAR COLLEGE STUDENTS USING COMPUTER TECHNOLOGY

By

Mark Rinella

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ABSTRACT

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Revolutionary changes associated with technology in higher education continue with little conclusive research that adequately explains how students experience computer technology during their first year of college. In this qualitative study, the researcher investigated the experience of first year college students using computer technology at a large land-grant research university.

Two research questions guided the research:

1. What is the experience of first year college students using computer technology?
2. What types of computer experiences do students describe as important to master in order to be successful their first year of college?

This research involved the use of anonymous questionnaires, face-to-face interviews, and focus group discussions. The data indicate that the participants in this study had a wide range of abilities and experiences related to computer technology when they arrived on campus as first year students. There was a broad continuum of experience demonstrated by those who knew how to use computer technology successfully and those who did not. The patterns that emerged from the participant responses were categorized according to four types

of interactions which have been described as: 1) Learner-Content, 2) Learner-Instructor, 3) Learner-Learner, and 4) Learner-Interface according to Michael Moore (1989) and Hillman, Hills, and Gunawardena (1994).

This study found there are many variables that determine the experience that a student has using technology prior to starting the first year of college. Some of these include racial, ethnic, gender, cultural, and religious differences that influence the experience that students report using computer technology. These differences may create obstacles for some first year college students that do not exist for others.

Participants suggested that some African-American students, specifically males, may be disadvantaged because of limited experience with computer technology. Some international students may also be at a disadvantage due to limited or negative experiences using computers. Regardless of their past experience using technology, participants in this study suggested that for first year students to be academically successful at Michigan State University, they need certain computer related knowledge and competencies.

There is a continued need for higher education to identify strategic objectives and goals regarding how students will experience technology during their first year. The results of this study contribute to the body of knowledge which will help inform decision makers, researchers, and other educators about the experiences that first year students are having with technology.

This dissertation is dedicated to Buster Brown, Marco, and Bubba

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STATEMENT OF THE PROBLEM

Introduction

An 18-year-old African American freshman feels frustrated and stressed as he receives his test score. "This is not fair!" he thinks to himself. "The teacher didn't announce that he was going to send out study tips via e-mail the day before the exam. I only check my e-mail about once a week. I probably scored lower than most of the other people in this class who know how to use e-mail better than I do. I hate these stupid computers."

In the same class, a different student from a foreign country is also concerned about the low score on her test. She has been living in the United States less than five years and English is not her first language. In the country where she grew up, the schools often did not consistently have access to electricity. Computers were a luxury that only a small percentage of the population could afford. She was not one who had that luxury. The experiences of these first year students with technology help to paint a picture of the unique needs of students arriving on college campuses today.

Computers are influencing every segment of society including the American school and home. The use of computer technology for most people living in the United States has become so assimilated into their lives that relatively little thought is given to how much their lives have changed and continue to change as a result of these innovations. A recent study reported that over 72% of Americans have some type of access to the Internet and this number continues to increase every day (Read, 2001). It is worth noting that more than half of those without Internet access at the time indicated they expected to have access within the next twelve months. Advances in technology are expected to continue to revolutionize education in the United States and the entire world.

An area in which this transformation is evident is our system of postsecondary education. "Higher Education is just beginning to feel the impact of a powerful new force – digital technology", (Newman & Scurry, 2001 p.1). Some authors assert that virtually every area of campus has been strongly influenced by technology (Flowers, Pascarella, & Pierson, 2000). In recent years, there has been a trend for colleges to require students to bring a computer with them to campus along with their books and other academic materials. The interest in this topic continues to grow (Gates, 1998).

Revolutionary changes associated with technology in higher education continue with no conclusive research that adequately explains how this computer requirement, an unstated expectation of readiness, may influence how students

experience technology their first year of college. Most successful college students have little choice but to be exposed to, or interact with, computer technology for several hours every day. Key research has emphasized the importance of the experience of the first year of college on a student's ultimate academic achievement (Barefoot, 2000; Gardner, 1989; Belcheir, 2001). Whether a student has positive or negative interactions, thoughts, and feelings about computer technology during that year may have a large influence on their educational experience.

Technology also has altered the nature of teaching and learning (Newman & Scurry, 2001). As Kleinglass (2001) notes, computer technology is not a new phenomenon, but its impact on learning and education is new. America is said to be experiencing a revolution in its postsecondary educational system (Ward, 2000). The introduction of computer technology and the development of the Internet have created a college experience that previous generations could not have experienced. Computer technology is dramatically changing what is expected from a student in order to graduate from college.

Computers are changing almost every facet of postsecondary education, including how students learn and communicate. Educators, including faculty and administrators, are being forced to reevaluate and modify how they interact with students, parents, and other constituents.

While it may be evident that computers are having a dramatic impact on how college students communicate and access information; it is less clear,

however, how first year college students describe their experience using technology. For example, college students are required to demonstrate certain proficiency levels in areas such as math, science, and English; yet few postsecondary institutions have consistent proficiency standards for using technology. While students are being required to use computers in most of their courses, each of them has had different experiences that may influence and determine their future experience with technology.

For generations, first year college students were taught by teachers who played the role of "sage on the stage", often with the focus primarily on the teacher. This perspective is changing. Today, it is believed that faculty may be more effective if they become "the guide on the side" (Boettcher, 1999). According to "The Futures Project: Policy for Higher Education in a Changing World" (Newman & Scurry, 2001), technology is a primary influence that is shifting the role of faculty from being the source of information to becoming more of a coach or guide in the learning process. Baldwin (1998) maintained this shift has caused the teacher's role in the classroom to undergo a dramatic transformation and not necessarily in a uniform fashion. This transformation of the role of the faculty no doubt has influenced the experience of first year students and their use of technology.

Pelligrino and Altman (1997) assert that the future requires professional teachers to be well prepared to incorporate technology in their own instruction to support, encourage, and improve their students' learning. Merriam and Caffarella

were somewhat ahead of the time when in 1991 they suggested that in order to function in today's society, individuals must be technologically competent in their work life, personal life, and in their community. The data seem to be unchallenged that technology will continue to have a more significant role in the lives of students.

It has become an expectation that in order for higher education to prepare students to be effective citizens in a global economy, technology should be integrated into student lives and the curriculum. It is expected that technology will continue to be more pervasive in virtually all higher education endeavors (Gatz & Hart, 2000).

Statement of the Problem

According to Roe (2000),

> Student's lives are complex collections of factors and experiences. When they arrive at college, they bring the influences of prior educational experiences, interpersonal relationships (including family and friends), and personal behaviors and traits. Many of these dynamics persist during the freshmen year, combining with the influence of college to render a variety of personal experiences and perspectives among students concerning college and success (p.54).

Students are having different experiences in the area of technology prior to and during their first year of college. While there is no uniform standard for assessing a person's skill or ability level with technology, yet students are expected to be competent in using a variety of computer programs that vary among and between institutions. Research indicates that students must be competent with computers in order to succeed in college regardless of their field of study (Gates, 1998). A study conducted by the American Council on Education (ACE) and the University of California Los Angeles (UCLA) concluded that the use of computers and the Internet have become so common among students that computer technology is now considered just another part of the educational experience (Roach, 1999).

The significance of computer competency is reflected in the growing body of research that suggests a student's ability to communicate, research, and produce printed materials using a computer has a strong influence on that student's college experience and achievement (Nonnamaker, 2000). This expectation of computer competency is evident by the escalating number of colleges and universities that are requiring incoming first year students to come to campus with a computer for their personal use. Although there is strong debate about this issue (Webb, 2003), this increase is projected to continue if colleges and universities that adopt a computer requirement continue to report such findings as: 1) enhanced learning; 2) improved retention rates; 3) increased communication among faculty and students; 4) expanded access to resources and 5) enhanced student marketability (Alexander & McKenzie, 1998).

In spite of such impressive findings, information about the experience of first year college students using technology is limited. Research to determine the impact of technology on this population has been quit sparse and has been inadequate (Van Dusen, 1997).

Purpose of the Study

The purpose of this study was to investigate how first year college students describe their experience using technology. It is important to know what attitudes, skills, and understandings students have as they experience technology during their first year of college. It is equally important to learn how students develop the necessary technology competencies to be successful.

Significance of the Study

The first semester of college is considered to have a profound impact on a student's college experience and achievement (Gardner and Upcraft, 1989). The information gathered from this study will benefit future students and educators by bringing attention to the experiences that first year students are having using computer technology.

The significance of this study is underscored by the large percentage of first year students who are using technology on a regular basis. The American Council on Education and the UCLA Higher Education Research Institute conducted a study that involved approximately 400,000 first year students entering 434 four-year colleges and universities in the fall of 2000. The study

indicated that 78% of the students had used a personal computer for some reason during the past year. This study reported that 67% of the students had used the Internet for research or homework and 65% had used e-mail to communicate with others (Olsen, 2001). These data indicate that some first year college students have not had adequate positive computer experiences necessary to be successful. Research indicates that the skills and experience that students have using technology appears to influence how well students achieve in school (Roblyer, Edwards, & Harriluk, 1997).

The information in this study is timely and meaningful. This research can assist university officials in understanding the experience of first year students and making better decisions regarding the technology needs of first year students. It will also inform researchers and other educators about the experience that first year students have using technology. The results may help to better prepare students and prospective students to be successful during the initial stage of their college career. By concentrating on processes, interpretation and meaning derived from the participants, this research will bring new knowledge and understanding to an area of study where the majority of research has been quantitative (Rudestam & Newton, 2001; Belcheir, 2001).

Research Questions

The research questions for this study are:

1. What is the experience of first year college students using computer technology?
2. What types of computer experiences do students describe as important to master in order to be successful their first year of college?

Definitions

For the purpose of this study and to facilitate understanding, the following descriptive definitions are provided:

Academic Materials: This includes papers, presentations, and other course related material created using a computer.

Electronic Mail: This is commonly referred to as "e-mail". These are electronic messages sent from a computer.

Entertainment: This includes listening to music, exploring the Internet, playing games, or similar type of diversion.

Faculty: This term refer to the instructor of a course. It includes professors, instructors, and teaching assistants.

First Year College Students: Fulltime, first year students who reside on campus in university housing. These first year students are "traditional"

college age, approximately 18 years of age, as compared to first year adult learners who are characterized as approximately 25 years of age or older.

Instant Messenger (IM): A communication software tool used via the Internet in "real time", which may involve the exchange of text, sound, and video to share information. It may also be used as a verb, such as "IM'ing."

Learner-Content Interaction: The process of students intellectually interacting with and acquiring information from the material.

Learner-Instructor Interaction: The communication, including dialogue and feedback, between the student and the teacher associated with creating a positive learning environment.

Learner-Interface Interaction: The process where the learner must interact with computer technology, and peripheral devices, in order to interact with the content, instructor, or other learners.

Learner-Learner Interaction: The communication between individuals or groups of students with or without teacher involvement.

Delimitations and Assumptions of this Study

This study investigates and documents the experiences of first year college students as reflected in the data received from anonymous printed

questionnaires, face-to-face interviews, and focus groups. The following outlines the primary delimitations and assumptions of this study.

Delimitations:

This study is delimited to traditional age first year college students who lived in a residence hall at Michigan State University during the fall and spring semesters of the 2001-02 academic year.

Assumptions of this study are:

- Universities that require students to bring a computer to campus also expect students to use the computer for some academic purposes.
- It is not the experience itself that is important, but rather how an individual interprets an experience and the meaning that the individual attaches to that experience that is of importance.
- Evaluation data can be examined for possible transferability in other situations, but not generalized as in the quantitative sense (Sando, 2000).
- According to Lincoln and Gubba (1989) the knower and the known are interdependent and somewhat inseparable. The role of the researcher as the Resident Director of the hall in which the participants live was an asset for understanding the students from the perspective of a relative insider, but it might also be seen as a source of unintentional bias.

Summary

This chapter presented and developed the rationale for this study. The purpose of this research is to investigate how first year college students describe their experience using technology.

The results of this study are a contribution to the body of knowledge which will inform decision makers, researchers, and other educators about the experiences that first year students at a large, public, land-grant research university are having with technology.

Chapter two will review the relevant literature related to technology and the experience of first year college students.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The purpose of this chapter is to provide a review of the relevant literature related to first year college students and their experience using technology. This chapter provides an introduction and foundation for a comprehensive approach to investigating the research questions:

1. What is the experience of first year college students using computer technology?
2. What types of computer experiences do students describe as important to master in order to be successful their first year of college?

Innovations created by the use of computers have influenced virtually every segment of society. Postsecondary education is no exception. Due to the dynamics associated with technology and change, postsecondary education may be facing its most challenging time in history (Burbules, 2000). Colleges and universities are struggling to provide the hardware, software, and training that faculty, staff, and students need to compete in the modern global economy. The American education system is coming under intense pressure and scrutiny to educate students utilizing current technologies that continue to change, often faster than they are being integrated.

Advances in technology have created formidable new competitors and threats to the traditional system of higher education that did not exist a decade ago (Baxter-Magolda & Terenzini, 2000). Distance Education and online learning continue to impact and shape higher education. Many students are choosing to take courses over the Internet, which adds an additional dimension for understanding how technology is influencing the experience of first year college students (Upcraft, Terenzini, & Kruger, 2000). Online courses and software offered by for-profit educational providers such as Phoenix University and Blackboard are having a financial impact on traditional colleges and universities. Distance learning, virtual universities, and other forms of electronic learning are driving changes in education.

Renowned management scholar, Peter Drucker, has predicted that large institutions of higher education will become obsolete within 30 years (Turner, 2001). The Association of Governing Boards (AGB) has estimated that one-third of the existing independent colleges and universities in the United States will close during this decade. AGB also predicts that 10% of the existing public colleges and 50% of the independent colleges will close within the next 25 years (Dunn, 2000). These predictions have been associated with the role that technology is now playing in our society and in higher education.

Some authors have asserted that advances in technology are having a greater impact on American higher education than the GI Bill or the creation of land-grant universities (Kennedy, 2001). While it may be evident that most

college students are using computers on a daily basis, it is not clear what influence technology is having on these students (Gates, 1998).

It is unknown what impact the use of technology has had on the first year experience of college students. Most of the published literature has concentrated on issues related to delivery systems and learning options as opposed to the experiences of college students using technology (Cardenas, 1998; Duderstadt, 1999; Gilbert, 1996; Katz, 1999; Palloff & Pratt, 1999). Many of these studies have relied exclusively or heavily on quantitative research (Barefoot, 2000).

According to researchers at the First Year Experience Policy Center, there is a need for additional qualitative research involving first year students (Barefoot, 2000; Gardner, 1989; Belcheir, 2001). The majority of research conducted on first year students using technology has been quantitative (Belcheir, 2001). These studies reveal that a large number of college students are spending more time using their computers every week than they are spending time in class. At the same time, studies have also shown that campus libraries are experiencing a drastic reduction in student use. This is believed to be correlated with the increased use of personal computers and the Internet, which have become the primary source for student information and communication.

Computer Technology in Postsecondary Education

While computers have been used for administrative and research tasks in postsecondary education for many years, it has only been within the last decade that computers have inundated colleges and universities around the country. Some authors suggest that virtually every area of campus has been strongly influenced by technology. Gatz and Hirt (2000) assert that computer technology has become the primary source for researching, presenting, and analyzing educational information.

James Duderstadt, president-emeritus of The University of Michigan, has characterized today's college students as members of the "digital generation" who learn primarily on their own (McCabe, 1999). He maintains these members of the digital generation are experiencing computer based learning, distance education, electronic mail, and conducting online research in even the most "low tech" courses. This is occurring while students and instructors struggle with how to balance the appropriate amount of time using computer technology with other tools for learning and communicating (Tapscott, 1998).

Computer use has been studied and documented from many perspectives; however, the requirement that all first year college students have their own computer is a new phenomenon (Brown, 1998). A review of the literature reveals limited qualitative research on the experience of first year college students using technology. There are many published studies related to

using computers in education, but there has been little evidence to suggest how this innovation influences the life of a college freshman (Ward, 2000).

There are many complex variables that influence the role that technology plays in the life of first year college students. One key variable is that access to technology is not equally available to all. Research indicates there is a wide spectrum of quality and quantity of access to current technology for first year students across the country and often within each state (Roach, 1999). Faculty members also have different levels of exposure, expertise, and experience using technology (Baldwin, 1998).

Research suggests that gender, age, socio-economic status and many other variables may influence who uses a computer and for what purposes. A Report to the President of the Unites States on the Use of Technology to Strengthen Education indicated that socio-economic status has a major influence on whether there is a computer in the home and who uses it (1997). Findings from this study indicated that even when students had access to computer technology, those in a lower socio-economic status were less likely to use the computers in school or for higher-order learning. Even if students have access to information technology, access alone does not guarantee that they have the training, ability, or motivation to use it. Studies done by Gordon (1998) found differences in computer use based upon race. Sax, Ceja, and Terenzini (1999) found that non-white students, particularly African-Americans and Latinos, used the Internet for homework/research and e-mail less frequently than Caucasian

students. Furthermore, Sax, Astin, Korn, & Mahoney (1998) found that students at public Historically Black Colleges had higher rates of computer game playing than students at private universities. Data related to college students and technology continues to generate questions and tension in an array of areas related to postsecondary education (Roach, 1999).

The use of computer technology by college students is predicted to increase as the number of colleges and universities that stipulate that students arrive on campus with at least one computer for their personal use rises steadily (Gates, 1998). The pressure and tension to incorporate more information technology into the lives of first year students has been strengthened by the results of a 1998 review of over 100 university projects that infused technology as part of the course curriculum (Alexander & McKinzie, 1998). In this study, the researchers found positive learning outcomes that included the following:

- The ability to interact with others almost anywhere in the world. This capability provides students with more global awareness and understanding and also provides additional opportunities to communicate with others connected with the university.
- An increase in quantity and quality of communication between students and faculty. The increased communication was often less formal and more friendly.
- An improved comprehension of difficult concepts through the use of computer programs. Technology seemed to have the greatest impact

when it was integrated in the curriculum to achieve clear, measurable educational objectives. First year students were able to use information technology to enhance their learning experience.

- Improvement in student achievement as measured by academic accomplishments, retention, and reported satisfaction. Students with good technology skills tended to score higher than those with little or no computer skills.

In spite of these findings, the impact of technology on the experience of first year college students remains unclear. There is a need to gain a more accurate understanding of the many ways technology is influencing the experience of first year college students. The scope and complexity of this topic for all of postsecondary education is enormous.

The First Year of College Experience

"The First Year Experience" is not a new phenomenon. In fact, the initial "first year experience" dates back to the time that Harvard University first opened its doors to freshmen in 1636. For several hundred years, most colleges and universities tended to have a "sink or swim" approach to students entering their first year of higher education. It was not until the 1980's that national attention was directed to the significance of the first year of college. In 1987, Ernest Boyer's report titled: "College: The Undergraduate Experience in America" was issued through the Carnegie Foundation. This report called for reform of undergraduate education, including reassessments of the freshmen year.

The Policy Center on the First Year of College and The National Resource Center for the First-Year Experience and Students in Transition are two examples of organizations that have focused national attention on the experience of first year college students. These organizations have provided resources and information to educators around the world to enhance the learning, success, satisfaction, retention, and graduation of college students. In addition, hundreds of colleges and universities have developed programs specifically for first year students.

Peter Ewell, Senior Associate at the National Center for Higher Education Management Systems, identified four broad categories that most First Year Experience programs are trying to improve for students (2000). These areas are suggested as a foundation to build first year college student success. These categories are introduced in this study to increase an understanding of the experiences students have with technology during the first year.

1) Foundational skills development

> This includes cognitive abilities needed for later academic success such as writing, quantitative reasoning and critical thinking. Computers have changed the way students learn, write about, and share educational materials. The ability to access and use technology will have an impact on the experience of first year college students.

2) Attributes associated with "negotiating college"

There are many aspects of college that are not directly associated with a classroom. Many of these involve the use of technology. Some examples would include course scheduling, use of the library, and other information resources. Students that are "tech savvy" may have an advantage over those that are less skilled.

3) Qualities associated with understanding "academic life"

This area refers to overall good academic practices such as study habits and how to organize an academic project. Students use computers every day to assist in accomplishing their academic goals.

4) Non-cognitive abilities

This category refers to issues such as self-confidence, respect for diversity, and teamwork. These skills increasingly are required for success and often are "practiced" while in course related activities (i.e. Blackboard, leadership initiatives, etc.) These abilities are important not just in college but also in the workplace and other societal settings.

O'Banion (1998) argues that information technology has great potential to create and enhance the first year of college experience. Based on a synthesis of

the current literature, there are multiple strategies using technology that colleges and universities could adopt to have a positive impact on the experience of first year college students (Senge, 1990; Chickering & Gamson, 1989; O'Banion, 1998). The suggested strategies include to:

1. Increase student-faculty interaction: Encourage more contact and communication between students and faculty in and out of class. Using electronic mail to communicate and schedule face-to-face meetings could encourage more student-faculty contact. This increased interaction is believed to have a positive correlation with student motivation, involvement, and achievement. Student-faculty interaction includes informal interaction as well as interaction in the classroom.
2. Encourage and facilitate more student-faculty collaboration: Collaboration between faculty and students is a key feature of a productive learning environment. The ability to send an electronic file attachment creates the ability to give input and receive feedback and is another option to enhance collaboration. Learner-centered environments encourage collaboration with others and enhance the learning experience for everyone involved. This collaboration may involve students and faculty working together to accomplish a task.
3. Encourage and facilitate more collaboration between students: Learning is not always a solitary process. Computer technology allows students to get to know one another regardless of physical proximity. It is now a realistic possibility to share biographical information including pictures and even

video. By sharing thoughts with others, all parties involved can gain a better understanding. "Learning communities" such as clustered courses and study groups are positively correlated with freshmen achievement and retention. These groups can be created and maintained through the use of computer technology.

4. Engage learners in the learning process: Students should be considered full partners, assuming primary responsibility of their own choices. Technology has made it possible for students to have access to resources on virtually any topic. Universities need to assure that first year students get actively involved in determining their learning goals.
5. Respect diverse talents and ways of learning: There is not one right way to teach or learn something. Technology has created new ways for students to learn. Learner-centered environments define the role of learning according to the needs of the learners.
6. Establish learning objectives and document them with students: Learner-centered environments provide a road map and checkpoints to keep students progressing towards their learning goals. This allows students to take the appropriate next steps to increase their learning. It is important to have some means to track and measure learning.

More research needs to be conducted in the aforementioned areas to determine whether positive experiences with technology have the potential to influence how a student experiences the first year of college.

Student Development Theory

A review of the literature suggests that Student Development Theory informs much of the scholarly research on the first year experience. Vincent Tinto (1988) suggested that the key to the success of a college student is effective academic and social integration. Tinto's research explores the process that integrates students into the institution. His work in 1993 describes stages of academic and social integration of first year students as separation, transition, incorporation, and social integration into campus life. Astin (1993) asserts that the effects of college are mediated through the interaction that students have with faculty and peers. All of these experiences are being influenced and may be enhanced by using computer technology.

Research involving the first year of college experience is also frequently associated with Arthur Chickering's Seven Vectors of Student Development. A great deal has been written about each of these vectors since Chickering's original work over 30 years ago (Chickering, 1969). The value of this theory may be inferred by the length of time that it has been referenced by student development scholars.

The revised seven vectors are summarized briefly below:

1. Developing competence: According to this theory, there are three kinds of competence that develop during the college years: (A) Intellectual; (B) Physical: (C) Interpersonal

2. Managing emotions: The college experience may bring a myriad of emotions for students. Students must learn appropriate channels for their emotions.
3. Moving through autonomy towards interdependence: College students must learn to be self-sufficient and also to work with others.
4. Developing mature interpersonal relationships: This involves appreciation and tolerance for differences and also the capacity for intimacy.
5. Establishing identity: In 1993, Chickering wrote: "Development of identity involves: A) Comfort with body and appearance; B) Comfort with gender and sexual orientation; C) Sense of self in a social, historical, and cultural context; D) Clarification of self-concept through roles and life-style; E) Self-acceptance and self-esteem; and F) Personal stability and integration.
6. Developing purpose: This entails the ability to clarify goals, make plans to attain them, and persist towards those goals
7. Developing integrity: "Developing integrity is closely related to establishing identity and clarifying purposes." It involves humanizing values, personalizing values, and developing congruence (Chickering, 1993, p.51).

The value of this theory may be inferred from the length of time that it continues to be part of human development theories. Volumes of information have been written about each of these vectors since his original work over 30 years ago.

The developmental perspective continues to be used as a model for postsecondary educators to analyze and design their responses to the needs of the drastically changing student population. This humanistic model assumes that a nurturing, challenging college environment will create an experience to help students grow in stature and substance (Chickering & Reisser, 1993).

Chickering's research has been modified to directly apply to college students during their first year. Brower (1990) tailored the original seven vectors as Seven Life Tasks for First-Year Students. The tasks include: 1) Making Friends, 2) Getting Good Grades, 3) Establishing Future Goals, 4) Managing Time, 5) Being on One's Own without Family and Friends, 6) Establishing an Identity, 7) Maintaining Physical Self. Technology is inseparable from these experiences. The way first year college students describe their experience in these areas needs to be further investigated.

Distance Education Theory

Michael Moore (1989) and Hillman, Hills, and Gunawardena (1994) have identified four types of interaction that are considered to be essential in distance education. The interaction may be synchronous or asynchronous (Cartwright, 1994). These types of interaction are: 1) Learner-Content, 2) Learner-Instructor, 3) Learner-Learner, and 4) Learner-Interface. The fourth interaction was added after distance educators acknowledged that the first three types of interaction were not possible without learners interacting with computer technology. Students are using computer technology to interact with other students, the

instructor, and the subject content. Each student is also having a unique experience interfacing with the technology. These four categories of interaction serve as the conceptual framework for the findings of this study.

Computer Technology and the First Year of College Experience

The influence of computers on the experience of college freshmen is a new area of study and there is much to learn. Students' experience during the first year has a dramatic impact on how well they do academically and whether they ultimately continue with their formal education (Gardner & Upcraft, 1989). The first year of college often involves a significant amount of personal growth and development, but the year also may be filled with conflict and crisis. Many authors acknowledge that more research needs to be done to better understand how computers are changing the college experience (Flowers, Pascarella, & Pierson, 2000).

It is clear that the use of technology among college students continues to increase every year (Baxter-Magolda & Terenzini, 2000). Research also suggests that many students are spending several hours almost every day using a computer (Burbules, 2000).

Limitations of the Current Literature

One of the major limitations of the existing literature is the inability to describe, analyze, and share data that accurately represents the current student experience with technology. Some authors assert that advances in technology

are occurring so rapidly that by the time students' experiences with technology have been documented and analyzed, significant changes in technology and/or changes in students' use of technology may have already occurred (Tapscott, 1998).

Relatively little qualitative research can be found that specifically investigate the experience of first year college students using computer technology. Many studies have identified an increasing number of hours that students are using computers, a growing percentage of classes that have mandatory computer use, and a shrinking number of students that do not have their own computers.

A review of the literature indicates that much of the published research involves faculty technology use or involves the use of specific software. Scholars suggest a need to better understand the role that technology is having on a student's first year of college experience and the need for qualitative research to describe the experiences of first year students (Barefoot, 2000; Gardner, 1989; Belcheir, 2001).

Another limitation of the current literature is the assertion that online learning associated with distance education has been considered lacking a theoretical foundation. The Handbook of Research for Educational Communications and Technology (2003) also reported that literature on this topic has been conceptually fragmented. There is a need for greater understanding of

the scope of experiences that students have communicating and learning while interfacing with computer technology.

Summary

The topic of technology has generated a great deal of interest and has raised many questions related to its role in higher education. According to Brinkman and Morgan (1995) technology will become ever more pervasive in virtually all higher education endeavors. While researchers have identified ways to assess first year experience programs and to explore the use of technology by faculty members, additional research on the experiences of first year college students using technology is warranted.

The rapid rate of advancement and change in both technology and in the developmental theory supporting the research on first year students underscores the need for ongoing research in this area. Scholars have validated the need for more qualitative research to complement the existing quantitative data in order to better understand the how technology is influencing the experience of first year college students. A better understanding of how students describe their use of technology is needed to inform policy and practice.

This chapter presented some of the published research associated with the experience of first year college students and the use of technology. Chapter three will describe the methodology and research design for this study.

CHAPTER THREE

Research Design and Methodology

Introduction

This chapter describes the methods used for this study. It includes detailed descriptions of the population, sample of participants, instruments utilized to gather the data, and other information associated with the research design.

The purpose of this study was to investigate the experience of first year college students using computer technology. The intent was to focus attention on an area of student development, retention, and success that warrants attention by postsecondary faculty, researchers, and administrators.

The literature indicates that there is a need for more and better quality research to understand the experience first year college students have using computer technology.

Research Questions

The intent of this researcher was to identify and better understand how first year college students described their experience using technology. With this goal in mind, all questions in this study were developed to generate open-ended responses to capture the experiences that individual students have. The research questions addressed were:

1. What is the experience of first year college students using computer technology?
2. What types of computer experiences do students describe as important to master in order to be successful their first year of college?

This study concentrated on processes, interpretation and meaning derived from the participants (Rudestam & Newton, 2001). Qualitative research assumes that knowledge is subjective and that the researcher learns from the subjects' experience (Rossman & Rollis, 1998).

Research Design and Procedure

This study was a triangulated qualitative study which involved the use anonymous questionnaires, face-to-face interviews, and focus group discussions. There is a growing body of research that supports the claim that qualitative research may yield more in-depth answers and analysis than quantitative methods (Krueger, 1994). Rudestam and Newton (2001) present three fundamental assumptions that this study shares with most qualitative methodologies:

1. A Holistic View: The whole is greater than the sum of its parts. The goal is to develop a more complete understanding of this phenomenon.
2. An Inductive Approach: This type of research often begins with specific observations but moves towards identifying patterns or themes.

3. Naturalistic Inquiry: There are no controlled conditions. It is more important to study phenomena as it happens naturally (p.37).

Qualitative research is a preferred method for the "expert informant" or purposive samples that were selected for this study. "Qualitative evaluation seeks to directly compare, reclassify, and create new understandings and insight" (Willis, 1978). According to Fraenkel and Wallen (2000, p. 502) qualitative research methods provide "an assessment of validity through cross-checking sources of information."

There are some basic assumptions about qualitative research that specifically relate to this study. As Creswell (1994, p. 145) cites Merriam (1988):

1. Qualitative researchers are concerned primarily with process, rather than outcomes or products.
2. Qualitative researchers are interested in meaning - how people make sense of their lives, experiences, and their structure of the world.
3. The qualitative researcher is the primary instrument for data collection and analysis. Data are mediated through this human instrument, rather than through inventories, questionnaires, or machines.
4. Qualitative research involves fieldwork. The researcher physically goes to the people, setting, site, or institution to observe or record behavior in its natural setting.

5. Qualitative research is descriptive in that the researcher is interested in process, meaning, and understanding gained through words or pictures.
6. The process of qualitative research is inductive in that the researcher builds abstractions, concepts, hypotheses, and theories from details. (p.p. 19-20)

Phenomenology has been described as the attempt to gain a better understanding of the essence of human experiences. A phenomenological study may ask, "How would you describe your experience with _____", or "What is _____ experience like?" This type of study does not attempt to provide theory with which we can explain and/or control the world. Instead, according to Van Maanen (1988), phenomenology provides information and insight that may enhance the understanding of human experience. Creswell wrote in 1994,

> One of the chief reasons for conducting a qualitative study is that the study is exploratory: not much has been written about the topic or population being studied, and the researcher seeks to listen to informants and to build a picture based on their ideas (p.21).

Moustakis suggests guidelines and characteristics of good scholarship for the researcher when using a phenomenological approach to inquiry. The guidelines when using a phenomenological approach include:

1. Seek to reveal more fully the essence of meanings of human experience
2. Seek to uncover the qualitative rather than the quantitative factors in behavior and experience
3. Engage the total self of the research participant and sustain personal and passionate involvement
4. Do not seek to predict or determine causal relationships
5. Illuminate through careful, comprehensive descriptions and vivid and accurate renderings of the experience rather than measurements, ratings, and scores (1994, p. 105).

These guidelines provided the focus for the investigator in this research.

Context of the Study

This study was conducted at Michigan State University (MSU) during the spring semester of 2002. MSU is a large, public, land-grant, research university located in the Midwestern part of the United States. The area around the campus has a population of approximately 200,000. The university is located within 100 miles of several larger cities. Publications produced by the university promote that MSU has an extremely diverse educational environment.

MSU has a co-educational student body with more than 43,000 undergraduate and graduate students. MSU has one of the largest on-campus residence hall systems in the world housing more than 17,000 students in

campus residence halls and apartment style housing. Each freshmen class consists of approximately 6,000 students from different parts of the United States and from countries all over the world. First year students are required to live on campus. The majority of students living in the residence halls are traditional age students.

Michigan State University has demonstrated a strong commitment to integrate technology into the lives of every student. Every residence hall room has been updated to provide Ethernet connection 24 hours a day, seven days a week. There are hundreds of computers in public places on campus for students to use and dozens of classrooms on campus have computers and projection equipment.

An indicator of MSU's commitment to integrating technology with students is the MSU Technology Guarantee that can be accessed via the Michigan State University home page (2003). This pledge states: "MSU students will have an intensive, quality-based technological experience during their undergraduate years, from admission to graduation." Michigan State University offers many courses online and the number is expected to continue to increase. A number of its publications and other forms of communication between the university and others are now transmitted electronically either through e-mail or postings on a website. This institutional commitment to integrate technology may be best demonstrated by the expectation, beginning with the entering class of 2001, that

every undergraduate first year student on campus must have her/his own computer.

Data Collection

There were three primary methods utilized to gather data in this qualitative study: anonymous questionnaires, face-to-face interviews, and focus group discussions. For the purpose of this study, each of these was structured using open-ended questions that were developed to generate candid responses.

The open-ended anonymous questionnaire questions were primarily based on the four skill areas identified by Ewell (2000) as important to student success: 1) Foundational Skills, 2) Development Skills associated with negotiating college, 3) Skills associated with academic practices, and 4) Non-cognitive abilities. Following a review of the questionnaire results, the survey questions were modified for use in the individual interviews.

The open-ended questioning procedure provided participants with an opportunity to openly and freely describe their experiences with technology. During the interviews and focus group discussions, follow up questions were utilized to provide high fidelity with little structure (Rudestam & Newton, 2001, p. 97). The data from the interviews helped identify and develop the themes and further refined the questions for the focus group conversations.

Anonymous Questionnaire

After receipt of approval by the University Committee on Research Involving Human Subjects (Appendix A) in February of 2002, a copy of the anonymous questionnaire "Experience with Technology 2002" was placed in the mailbox of approximately 390 first year students living in the selected residence hall; half of the students received version one (Appendix D) and the other half received version two (Appendix E).

Both versions of the questionnaire had ten questions. Five of the questions on each version were different. Twenty-three respondents returned version one. Twenty-one respondents returned version two. This is a return rate of 12% from a total of approximately 400 questionnaires that were distributed. The questions and answers from both versions were coded, documented, and clustered. The questions on the questionnaire were modified for use as the open-ended questions for the individual interviews. The coding of the anonymous questionnaires, as well as the focus group discussions, did not allow for individual comments to be directly connected to a specific person so there was no way for the researcher to follow up with respondents for clarification or elaboration on any statements that were made.

Face-to-Face Interviews

Thirteen participants were interviewed by the trained facilitator and discussed their experience using technology in a relaxed environment. Each of

the interviews was conducted according to the interview guide or list of questions designed for this study (Appendix G). This process guaranteed consistency for each of the interviews but also allowed individual experiences to emerge (Patton, 1990). This procedure permitted the researcher to challenge and probe the participants for more detailed and accurate responses to the questions being asked. Each individual interview session lasted approximately 45-60 minutes. The purpose of these individual interviews was to elicit participants' experience with technology in regards to the primary research questions.

The interviews took place in either a small conference room or an office located in a primarily freshman residence hall at Michigan State University. Prior to each interview, the researcher explained and reviewed the Statement for Informed Consent Form (Appendix B) before giving it to the participants to read and sign. Each of the interviews began with casual conversation so the interviewer and participants could establish rapport. The researcher clarified the procedure, answered any questions, and received permission before beginning the interview and turning on the tape recorder.

A tape recorder was used to capture verbatim conversations of participants. The tapes were then transcribed and coded. By relying on the technology of the tape recorder, the researcher was free to observe and note non-verbal cues and other communication that might not be observed if the researcher had to rely on note taking alone to document the interview discussion.

The researcher did however; take brief handwritten notes during each conversation.

The interpersonal skills of the researcher matched the requirements of the qualitative researcher as described by Marshall and Rossman (1999, p.85) which stated, "Qualitative interviews are more like conversations with the interviewer demonstrating the value of participants and their comments." The researcher had the necessary ability to establish rapport, demonstrate empathy, and create a trust relationship with the interviewees. Some researchers have found that a verbal response to loosely structured questions is more extensive and meaningful in a one-on-one situation. Use of this methodology allowed the researcher to seek meaning in the experience of the study participants by looking for emergent themes or categories from the written comments and verbal conversations.

A list of the questions that were asked during each interview and/or focus group is included in the appendices. Additional follow-up questions were added in each of the discussions in direct response to something a participant said to encourage a more complete response. The follow up responses were also recorded and coded. All of the information from the participants was used to identify emergent themes as a guide to understanding the experiences shared.

Following the interviews, printed versions of each of the questions asked and the individual interviewee's transcribed answers were delivered to the respective participants to review. Participants were encouraged to read and

modify, if necessary, the narrative from the transcribed interviews (Appendix L). This provided all participants an opportunity to comment or elaborate on the answer that was recorded. This was done to further enhance the objectivity of the study (Rudestam & Newton, 2001). By reviewing their own written responses to the interview questions, participants also had an opportunity to reflect and add any additional thoughts after the interview.

This step further increased the trustworthiness of the study in that their experience using technology was more accurately represented. This form of data collection offered structure for the participants beyond the face-to-face interview. Each interviewee was requested to return her/his transcribed responses within 48 hours of receiving them. Data collection for this study also included e-mailed correspondence between the participants and the researcher.

Focus Groups

A total of thirteen participants met in a relaxed environment to discuss their experience with technology. Four of the thirteen students had previously participated in an interview and nine additional students agreed to participate in a focus group discussion.

Twelve students were originally scheduled to participate in a focus group discussion. As was the case with the individual interviews, one participant arrived at the scheduled focus group with another first year student. The participant explained that they were both interested in participating in the focus group

discussion and asked if they could do so together. The other focus group participants agreed that it was all right for the additional person to participate. For this reason, a total of thirteen students participated in the two focus group meetings. There were six students in one focus group and seven in the other. These students were selected based on their written or verbal expressed interest in participating in a focus group dealing with technology. All the students that expressed interest in participating in a focus group were able to choose to participate in one of the two focus group discussions. The goal of the focus group was to solicit participants' perceptions, attitudes, and ideas about their experiences using technology (Bers, 1989).

The focus group sessions lasted 55-70 minutes and were held in a small conference room located in the residence hall where the students lived. At each of the focus group sessions light refreshments including pizza and cookies were provided. Before each group conversation, the researcher explained and reviewed the Statement for Informed Consent Form (Appendix B) before giving it to the participants to read. Participants were asked to read and sign the Consent Form and Demographic Information Sheet (Appendix C). The researcher then clarified any questions and received participant permission before turning on the tape recorder. Both focus groups sessions began with introductions and casual conversation so the participants and the discussion facilitator could establish rapport.

Participant Population and Sample

The population for this study was traditional age first year students at Michigan State University. This population was selected because the 2001 entering class was the first class to experience the institutional expectation of having to bring a computer to campus. These students were uniquely positioned to help identify the role and impact of technology on first year students.

Data for this study were derived from 70 different data sources that constituted the sample in this study. A purposive sampling design was employed to select students based on the criteria established for this study which were:

- First year undergraduate students residing on campus at Michigan State University
- Approximately equal numbers of males and female participants
- Racial demographics of the participants would be diverse
- Willingness to participate via either an anonymous questionnaire, a face-to-face interview, and/or a focus group discussion

Criterion sampling was used to identify participants who matched the selected criteria of first year students for this study. As suggested by Rudestam and Newton (2001), participants were purposively selected from a pool of volunteers in order to include a range of diverse characteristics that represented the demographics of the population of the university. The demographics intentionally selected included gender and racial/ethnic identity. This purposive or criterion

sampling enabled the researcher to better select a sample that provided the data relevant to this study (Fraenkel & Wallen, 2000).

Based on studies with a similar research design, it was projected that both the individual interviewee sample and the focus group sample would be comprised of approximately seven to twelve fulltime first-year undergraduate students. As noted by Rudestam and Newton (2001) this sample size was adequate for this type of study. By limiting the sample size, the researcher was better able to determine what the experiences meant from each participant's perspective and identify any themes. The meaning of the phenomenon was the desired data (McClelland, 1995).

The sample frame consisted of a list of names from which the sample could be drawn (Salant & Dillman, 1994). The database that was used had the names and contact information for 420 students living in a residence hall; approximately 390 of them were fulltime first year students. The only common variable among these students that distinguishes them from being randomly placed in a hall is their request to live in an environment that is alcohol-free. All 420 students were contacted through one of two versions of a printed questionnaire delivered to their student mailbox. Accompanying each questionnaire was a short form asking if the individual would be willing to participate in a face-to-face interview and/or a focus group discussion to discuss their experience using technology.

A total of forty-six questionnaires were returned to the researcher. Two of the respondents indicated they were not first year students so information from their responses is not part of this study. Of the forty-four eligible questionnaires, twenty-three were version one (Appendix D) and twenty-one were version two (Appendix E).

In addition to the returned questionnaires, ten students indicated on the separate form an interest in participating in a focus group and/or interview. An additional fourteen students personally contacted the researcher to express interest in participating. A database was created with the list of twenty-four students that responded.

All twenty-four students were contacted via e-mail to schedule an individual interview and/or participation in one of the two focus groups sessions to be scheduled after the interviews were completed. Eleven of the twenty-four students replied via e-mail. A follow up telephone call was made to each of the thirteen students that did not respond to the e-mail. The researcher either spoke with students that had expressed interest or left a detailed voice message with contact information about scheduling an interview or focus group discussion.

When the researcher contacted each of the potential participants, they were offered the opportunity to schedule either through e-mail or verbally an interview and/or a focus group discussion. The participant had the option of choosing. After the initial scheduling, fourteen students agreed to do a focus group discussion and ten agreed to participate in an interview. The researcher

contacted two of the students that indicated they would do either the interview or focus group, but not both, and scheduled their discussion as an interview.

Prior to the focus group discussions, twelve students were invited to meet individually with the interviewer for a personal conversation about computer technology. Although twelve were invited, thirteen students were interviewed. One of the participants arrived at the scheduled interview with another first year student. The participant explained this person was a close friend and requested that the interview include both of them. Their responses were transcribed from the audiotape, separated, and then coded as separate interviews. The focus group sample consisted of thirteen individuals, four who had been involved previously in individual interviews and nine additional participants.

One way a researcher can strengthen a study design and add to the trustworthiness of the research is through a method referred to as triangulation. This involves the combination and comparison of different methods used to analyze the same phenomena or programs in the study. According to Jick (1979), "the concept of triangulation is based on the assumption that any bias inherent in particular data sources, investigator, and method would be neutralized when used in conjunction with other data sources, investigators, and methods." Data in this study were gathered from forty-four respondents to the anonymous questionnaires, thirteen individual face-to-face interviews, and two focus group discussions with a total of thirteen participants.

The focus group questions were cons ns with the intent of outlined in Krueger's book, Focus Groups (1 of the research the earlier individual interviews. Modificatior v as required questions was based on a review of input re bjects individual interviews and through the writter afterwards. The researcher conducted the f and research protocol adapted from this so

Data Analysis

The data obtained were analyzed using qualitative content analysis to describe the findings in a summary fashion. This analysis was strengthened by triangulation, a technique that has been demonstrated to improve the trustworthiness of qualitative research, especially when using interviews.

The analysis of the data involved information obtained from the anonymous questionnaires, face-to-face interviews, focus group discussions, e-mail messages, the researcher's notes which included interpretation of non-verbal language, transcription of the tape recorded discussions, coding of discussions, identification of themes, additional literature research about the identified and developed themes, and finally the research findings and conclusions.

This qualitative design concentrated on processes, interpretation and meaning derived from the participants (Rudestam & Newton, 2001). The focus of

this analysis was to look for themes categories, and patterns with the intent of creating a theoretical base. The data collection and all aspects of the research followed strict professional guidelines for confidentiality and accuracy as required by Michigan State University's Council on Research Involving Human Subjects (UCRIHS) and standards for research protocol.

Summary

This chapter presented the methodology used in this study. The qualitative design included three data collection tools: anonymous questionnaires, face-to-face interviews, and focus groups. All questions were open-ended. The intent of this research was to investigate how first year students describe their experience using technology. The research was guided by ethical standards of research and confidentiality as reflected by the University Committee on Research Involving Human Subjects approval (Appendix A).

Chapter four presents the findings of the study.

CHAPTER FOUR

Findings of the Study

Introduction

The purpose of this chapter is to present and analyze the data in this study. This information was obtained from a total of seventy different data sources via two versions of an anonymous questionnaire, face-to-face interviews, and two focus groups. The following table provides additional information about the data sources.

	Anonymous Questionnaire	Face-to-Face Interviews	Focus Group One	Focus Group Two	Total
Female	N/A	8	4	5	17
Male	N/A	5	2	2	9
Students of Color	N/A	6	3	3	12
Caucasian	N/A	7	3	4	14
Total	44	13	6	7	70

Table 1 Information about Data Sources

As the table illustrates, a total of forty-four students returned an anonymous questionnaire, thirteen students participated in face-to-face interviews, and thirteen students participated in a focus group discussion. Eight of the thirteen interviews involved female participants. Seven of the thirteen interviewees identified themselves as Caucasian. The two focus groups involved thirteen different students. Seven of the thirteen students that participated in a focus group identified themselves as Caucasian.

Responses from the anonymous questionnaire and focus group discussions are summarized in Appendices D and J. The summary includes selected quotations and other information gleaned from these data sources. Appendix K provides face-to-face interviews as case stories to retain a holistic perspective of the individuals.

Anonymous Questionnaires

Approximately 400 questionnaires were distributed to the sample population. A total of 46 anonymous questionnaires were returned to the researcher. Two of the respondents indicated they were not first year students so their data were not included in any part of this study. All of the other 44 anonymous respondents indicated they were first year students. No other demographic information was requested from questionnaire participants nor reported by participants.

Focus Group Discussions

A total of 24 of the approximately 400 possible data sources indicated they were willing to participate in a focus group discussion and/or a face-to-face interview. This is approximately 6%. Two focus group discussions were scheduled with six participants in each session. The first focus group consisted of four females and two males. Three of the females reported they were either African-American or bi-racial. One of the females and both males indicated they were Caucasian.

In the second focus group, one participant brought another first year student who wanted to participate in the discussion, so a total of thirteen students participated in the focus group discussions. Demographic information provided by the participants in both focus groups confirmed that nine of the thirteen participants were female. Six of the thirteen participants indicated they were students of color.

Profiles of the Face-to-Face Interviewees

While Appendix K provides detailed information about each of the interviews, a brief profile of the students that participated in a face-to-face interview is provided here. Twelve participants were scheduled for individual interviews. One participant arrived at the interview with a friend who was also a first year student and wanted to participate in this study. Both individuals indicated they wanted to be interviewed together so a total of thirteen first year students were interviewed. In order to maintain confidentiality, pseudonyms are used for each of the participants. The grade point average, gender and other information was self-reported and considered to be accurate.

Elizabeth

Elizabeth is an 18-year-old African-American female majoring in engineering who did not list her GPA. Elizabeth indicated she started using computers in 1989 while in elementary school. She explained that she won a new computer in a contest just before school started in August of 2001. During

the interview, Elizabeth shared many positive experiences using technology. She communicated that she had a high comfort level using computers and that she believed that she was better prepared for MSU than many other first year students. Elizabeth also had long, detailed comments concerning other African-Americans that have not had the necessary training and prior positive experiences using technology to be successful during their first year of college.

Cathy

Cathy is an 18-year-old Caucasian female majoring in music who did not indicate her GPA. Cathy communicated a high level of exposure to and positive experiences using computers. She commented, "I've always used technology," and elaborated that as long as she could remember; there was a computer in her home when she was growing up. When Cathy was asked directly about her experience with computer technology, she explained, "It's kind of a love-hate relationship. I use my computer all the time." Cathy stated that she was convinced that it would not be possible to pass her courses if she did not know how to use computer technology effectively.

Dan

Dan is an 18-year-old Caucasian male who did not indicate his GPA or his intended major field of study. Dan disclosed that he did not have many positive experiences with computers before coming to MSU. He described coming to MSU and being required to use technology as a major culture shock for him. Dan

stated that his family did not like computers, and the computers he used were outdated and did not work well. Dan shared an experience about trying to get his test score from one of his professors, "If you ask them for the test results in class, they just laugh at you and tell you to check your e-mail." Dan indicated that he does not like to use the computer as often as most other male residents living in his residence hall.

Sandy

Sandy is a 19-year-old female that described herself as bi-racial. She indicated that her GPA is a 3.1 and her major is pre-medicine. She expressed that her experience at Michigan State using technology had not been very positive. Sandy indicated that prior to coming to MSU, she had some experience using computers in high school, but it was limited to researching and occasionally typing a paper for an academic class. She indicated that she now uses a computer almost every day. She expressed frustration over having to use computers as much as she does, "Sometimes it is difficult to find things and I just waste time. There are too many distractions."

Elliot

Elliot is an 18-year-old Caucasian male. He reported having a 3.7 GPA and that his major was criminal justice. Elliot offered both positive and negative feelings about his experience concerning technology as a first year college student. He indicated that he was able to learn about things that he would not

have been able to learn about if it were not for computer technology. He stated that he believed the best thing about technology is that it helped him to compete better with other people, to become more intelligent, and to learn about things that he would not have been able to learn about if it were not for computer technology. He was quick to share his concern about biotechnology and the threats brought about by the September 11, 2001, terrorists incidents.

Charles

Charles is an 18-year-old Caucasian male who did not list a major or his GPA. His experience with technology prior to coming to MSU was limited. He explained that there was a computer in his home while he was growing up, but that it was not very good. His high school had a computer lab in the school library that he could use during class. However, he estimated he used it only about two or three times a semester. Charles indicated that he feels technology has had a negative impact on the way he communicates with others. "I like being able to communicate with others online, although if they are in the building, I would rather just go and talk with them. When you e-mail or talk online, you lose the personal aspect."

James

James is an 18-year-old Native-American male majoring in journalism with a 3.0 GPA. He considered himself to be "somewhat of an expert using technology" and was pleased to be interviewed on the topic. James commented

that he was better prepared to use technology than most other students. He spoke a great deal about Instant Messaging and he explained how he used it for social and business interactions. He mentioned that one of the student government committees he is involved with also has meetings online using Instant Messenger. He felt this was a very positive aspect of using technology because students do not have to travel across campus in order to communicate and make decisions.

Monica

Monica is an 18-year-old female from China. She indicated she is still learning English. Monica's experience with technology prior to coming to MSU was quite limited. She stated, "I have been in the USA for about seven years. I did not have computer skills when I was in China. In China, there were no computers in my school." Monica mentioned that she been able to use a computer in school since arriving in the United States. However, improving her ability to communicate in English was her primary focus. Monica shared that her experience at MSU using technology has been both positive and negative. She described an interactive CD-ROM that she likes because it pronounces the words for her. She is also able to communicate with her friends in China via the computer.

Cindy

Cindy is an 18-year-old Caucasian female who reported a GPA of 3.2 and that her major was pre-medicine. When describing her experience using technology Cindy said, "I am a computer addict." Cindy stated that computers were in her home and all high school classrooms and that she was familiar with how to use them. She also was required to have two semesters of computer classes in high school.

Karen

Karen is an 18-year-old Caucasian female that did not list an academic major, but did mention that she had a 4.0 GPA. She reported that her mother owns a computer business so computers have always been a large part of her life. Karen mentioned that she spends several hours a day working with her computer spending some of her time accessing class notes online, checking out web sites, and talking with people online. She also uses computer technology to communicate with her instructors online and expressed that it saves a lot of time using e-mail to ask professors questions instead of having to visit during their office hours.

Tom

Tom is a 19-year-old Caucasian male who reported his major as turf grass management and that he had a 3.0 GPA. Tom expressed that his experience using technology has been positive and that he had a computer in his home

since I was six or seven years old. He added that he uses a computer a lot because he didn't have a job, and he did not like to play sports. He uses his computer to check his e-mail and the weather first thing in the morning. Tom admitted that he does not like to communicate using a computer. When asked about e-mail requests from faculty and other academic related e-mails, Tom said he often replies to these requests, but not always.

Carol

Carol is a 19-year-old African-American female who reported being a nursing major with a 2.5 GPA. Carol explained that she did not actually have any computer classes before she came to MSU so she had to learn everything once on campus. She said that she was "not a computer genius." There were computer labs in her high school and a computer in the classrooms, but students rarely used them. Carol indicated that as a first year college student she has had to use technology a lot. She checks her e-mail about twice a day but usually does not write people back unless it is "really important."

Lydia

Lydia is a 19-year-old Caucasian female who listed her GPA as 3.1 and her major as marketing. Lydia completed several computer classes in high school. She uses computers for e-mail, Instant Messaging, job applications, and for test feedback. She seemed very comfortable talking about her experience using computer technology.

Findings

The data obtained from this study were coded and analyzed. By separating the comments of each of the participants and then re-grouping them by their association; common themes were identified and analyzed thus creating a larger conceptual framework (Tesch, 1990). The patterns that emerged from the student responses involved their common experiences. These themes reflected how first year students use computer technology to interact with other learners, instructors, and some form of content. Themes also emerged related to how first year students experienced interacting with computer technology as an interface.

These themes closely mirror the types of interaction that Michael Moore (1989) and Hillman, Hills, and Gunawardena (1994) have identified that occur when learners are using computer technology for distance education. These four types of interaction are: 1) Learner-Content, 2) Learner-Instructor, 3) Learner-Learner, and 4) Learner-Interface. Their work serves as the conceptual framework for the findings of this study.

Learner-Content Interactions

Learner-Content Interaction refers to the process that learners use to obtain intellectual information about the material (Chen, 2001). This may involve reading, listening, watching a video, or some other content available to the learner. First year students in this study indicated they often interacted with the

content or material in the course, but did not always interact with an instructor or another student in the class.

Most of the respondents indicated that they were required to complete assignments on a computer and send homework assignments as electronic attachments or upload assignments via a course web page. Participants indicated that some courses did not have printed books and all the material was available only via a course web site.

In describing their experience using computer technology at Michigan State University, all of the respondents indicated that being competent using a computer for word-processing, e-mail, and accessing the Internet was required for success in their academic program. One student commented, "It aides learning, because I can find information faster." More than half of the data sources indicated they have also used Microsoft PowerPoint and/or Excel for academic purposes.

One of the findings of this study is that students who have not mastered the English language may be at a disadvantage when it comes to interacting with the content of a course. At a research university such as Michigan State, there may be many international students whose first language is not English. These students may have additional challenges to overcome in order to be successful using technology. One participant who identified as an international student stated, "Some of the other countries do not provide computer classes. In China, there were no computers in my school. High schools are completely different in

other countries. International students need extra help when English is not their native language. They do not have the same exposure to technology as US citizens."

It was found in this study that a student's ability to interact with the content of a course and communicate using computer technology may be influenced by socio-economic variables as well. As one participant stated, "The computer requirement is not really fair to everyone. College is already very expensive! If students have to go and buy one (a computer) and they have not had previous experience using it, they are at an even greater disadvantage."

Participants also indicated that Learner-Content interaction may be strongly influenced by previous experience. One participant reported that because of her previous experience using Microsoft Excel prior to coming to MSU, she did not have to read a thirty-five page handout or attend a training session with the instructor to learn how to interact with the content of the course. More than half of the participants reported using Blackboard, (an online course management software program) which they were required to use several times a week. They indicated that study guides and other course related material were all available only via the Internet. In addition, participants reported using CD-ROM's to help learn foreign languages.

Learner-Content interaction is not limited to academic related materials. First year students in this study indicated they completed job applications and managed their finances using computer technology. Some also mentioned using

a computer to keep track of their schedules, phone books, and other information. All but one of the participants indicated that they use a computer to play games, watch video or DVD, and/or for other forms of entertainment. Respondents also mentioned they download music from the Internet and listen to it using their computer. Students reported using their stereo less because they also listened to the radio via the Internet.

Learner-Instructor Interactions

Learner-Instructor Interactions refers to the dialog that takes place between the learner and the instructor of a course. This would include all communication regarding content, motivation, responses and feedback. To many educators, learner-instructor interaction is essential to facilitate learning for first year students. Before the "computer technology revolution", communication between the student and the teacher occurred through verbal or text-based interaction. Today, however, students indicate an increasing number of professors deliver much or all their course information via websites or e-mail.

In this study, students indicated that the ability to use e-mail has become an expectation and frequent part of the academic educational experience. Responses suggest that professors and teaching assistants use e-mail as a primary medium to communicate with students. Students reported frequent electronic communication with their instructors over the semester and little or no face-to-face communication with the instructors outside of the classroom. Participants indicated that many professors sent assignments and their exam

scores via e-mail. Many of the responses included comments that suggested that if a student wants to have a positive experience at MSU, they need to be competent and comfortable using an e-mail program to communicate.

One concern identified by more than one participant was that if a student is less comfortable, or has difficulty with this form of communication, computer technology may prove to be an obstacle to their academic success. When technical difficulties prevent a student from being able to work or access information, a student may not be able to complete required work in a timely manner. The learner-instructor interaction may be negatively influenced because a large part of that interaction is being handled electronically. Very few of the participants stated they had been to faculty member's office hours to visit with them. Instead, they indicated that they used e-mail to communicate with instructors and to ask any questions that they had.

First year students that participated in this study agreed that most instructors want papers typed on a computer and prefer students to use technology to communicate with them. The use of e-mail and being able to submit typed homework assignments implies students are able to type well enough to use the programs. Data generated by this study suggest that instructors expected students to know certain aspects of technology but students often did not receive ample or any training. As one participant said, "They just expect you to know it or find someone who does." In a focus group, one student stated that he understood why some students have problems using technology,

"Most professors assume that you know how to use the technology. I am not sure if they (faculty) care. They are not really teaching you how to use it (technology). I think they expect you to get together with other students to figure it out."

Some participants expressed that they liked being able to communicate with their instructors all times of the day and night, but not every student felt that way. During the first focus group, one student complained that some faculty use technology too much and all of the other participants nodded in agreement. A student elaborated,

> I have one professor that sends us an assignment every day. We have to read the New York Times online, and we have assignments we have to do. The New York Times assignment has questions on the test. I get the New York Times paper copy sent to me, but the problem is that if we do not read it online and keep up with the assignments, it makes it almost impossible to find the article that he is referring to on the test. You have to use the computer. You don't really have a choice.

In the other focus group, more than half of the students indicated that they did not like the electronic interactions they often have with faculty. These students expressed they have too much interaction with their professors. Some of these participants reported they knew students that did not read e-mail messages from instructors because they receive too many e-mail messages from

the faculty. This resulted in students missing information that was critical to their academic success. One student in that focus group stated,

> I think it is nice when they use PowerPoint in class, but I have one professor that sends about five messages a week, and I think it is at the point where I think most students in the class do not even read them. I think people just hit delete, because she goes overboard with it.

A different student added, "I don't even usually read the messages from my professors. I get annoyed with them. I would rather they just leave me alone." Yet another student added,

> I think it is a negative that some professors are less personal because of the computer. It is tough luck if you are not able to get some of the information. It may help to be able to e-mail them, but you may also have less personal contact.

Some participants expressed that technology was a good way to communicate with their professor and introduce themselves in a class of three hundred students. One student commented that one of the best things about computer technology is that if a student is too embarrassed to ask a question in class of 400, they can always e-mail the instructor.

During one interview, a student described a connection they made with a faculty member that would not have happened without the use of e-mail. This first

year student expressed that a line of communication was opened with that particular faculty member through e-mail, and they were going to continue to use it.

Learner-Learner Interactions

Leaner-Learner Interaction refers to the communication and exchange of information that takes place between students. For the purpose of this study, learner-learner interaction is not limited to course related interactions. Learner to learner interaction may involve conversations, e-mail messages, online discussions, or Instant Messaging in a variety of real-life settings using computer technology. Just as computer technology has influenced how students interact with their instructors; it is also influencing how students communicate with other students, friends and family.

When asked if they felt technology has influenced the way students communicate with others, participants all agreed, but in different ways. "The better technology gets, the more distant people get," one student complained. Another disagreed by sharing, "I find the exact opposite. I keep in more contact with my family and friends who do not go here." A third student insisted, "There has to be a balance between use and abuse. I think technology has caused me to meet less people on campus. If I got out of my room more often, I might meet more people."

When participants were asked if they felt technology is causing some isolation for students, there were mixed reactions. One student added, "Technology makes the world smaller. It keeps me connected to my family. I talk to my siblings on the computer because it is free. Otherwise, I would not communicate with them much." Some participants mentioned that communicating with technology can make the first year of college experience "cold and impersonal". During one conversation, a student disclosed that she does not have many friends and that she believed that technology was not helping her connect with others. She explained, "Sometimes it makes you feel kind of isolated, which is not a good thing. Some people just become stuck on the computer. They seem like they don't want to talk with you. They just e-mail you, and it lacks personal contact." A different student stated, "You lose the personal contact. It allows students to avoid face-to-face interactions with others. I don't like it sometimes."

One female participant shared some negative interactions with strangers via the computer. She indicated why she does not like chat rooms because, "Guys ask weird questions, and they want to meet me. Sometimes I get unwanted messages, and they won't go away. Sometimes I get crazy messages from people out of state that ask to meet me."

There were other concerns expressed by students related to their experience using technology. One male participant expressed that he felt he was having a different experience with technology than most of the other male

residents living in his residence hall. He stated that there are times when he wanted to do something outside, like jogging or playing baseball, but his friends on the floor only wanted to play video games. There was a feeling of frustration and disappointment as he reflected on his experience competing with technology for time with his friends, "It seems like I am different than almost everyone else. Technology is taking over society. It almost seems like it is too much sometimes. There are friends that I don't get to see much any more, and the first thing I want to do when I see them is hug them." He went on to say, "I need that personal contact".

Another student agreed, "Yeah, some people just live on their computer. If it is long distance it is understandable, but not all the time." This prompted a different focus group participant to say, "Sometimes it really gets on my nerves, because if there is someone that I want to talk with, they refuse to call me back. All they know is how to respond on the computer." Yet, another participant added, "Unless it is someone that I don't talk to very often, like my little sister or something, I don't like to use IM just to talk. I would rather just speak with them. I would rather have people come and ask me how my day was. I would rather see a bright and smiling face instead of just my computer screen."

The majority of respondents indicated they have Instant Messaging activated on their computer for several hours on most days. Participants stated that they may be watching TV, talking on the phone, or working on a computer, but they will also be sending and receiving messages. One student reported,

> I have three different screen names to log on with. I use AOL, MSN, and Yahoo. It is very addictive! It is always on. I am a social person, and technology allows me to keep in touch with others. You know, I would not call them (friends) five minutes before I leave for class, but I will IM them right before I leave for class. Sometimes I will call someone like my mom or someone to talk with them, but I usually prefer IM.

Participants mentioned using Instant Messaging to communicate with other students that live on the same residence hall floor. One of them noted, "It is so much easier than having to walk down the hall to talk to someone."

A discussion between two participants provided an example of how pervasive computer technology has become in the day-to-day experiences of college freshmen. They explained their fondness of Instant Messaging because it is "so much quicker than calling." One of them commented, "I've IM'ed (Instant Message) my roommate." The other one laughed, "So have I! Like if they are on the phone or studying, you can just IM them and you don't disturb them."

Students in one focus group expressed they felt computer technology allowed them to connect with others even in bad weather. One participant shared an alternative approach to socializing that would not be possible were it not for computer technology. He explained, "If I don't have the energy to go out, I still can go out virtually. Certainly it is not the same as sitting across the table from

someone, but it is still fun." He went on to explain that he might spend several hours hanging out with his friends online.

These statements about interacting with other learners lead to another phenomenon that barely existed in the 1990's and has since surged in popularity; playing computer games over the Internet. The students in this study reported that playing computer games has become the favorite activity of many college age students. Although these games tend to be more popular with males, research indicates that females are also using computer games as a popular source of entertainment. One participant confirmed this phenomenon by stating,

> A lot of guys on the floor play games over the network. Sometimes you have twenty people on the same floor playing the same game in different rooms over the Internet. Some of the girls in the hall also play sometimes.

Students in this study described many experiences using technology to interact with other first year students for social and academic reasons.

Learner-Interface Interactions

Learner-Interface interaction refers to the interface that occurs between the student and the technology, enabling the student to access and interact with the content, the instructor, and other learners. The experience that first year students have interfacing with technology is a critical component in determining their ultimate college experience. Participants in this research study reported that

it has become practically impossible to be a successful college student without having certain abilities using a computer.

As demonstrated by these data, computers have become integrated into the college student experience. First year students in this research concurred that owning a computer and knowing how to use it has gone from being a "nicety" to being a necessity.

The computer technology revolution has altered the educational requirements for students. In a relatively short period of time, less than ten years, it has become an almost universal expectation that students have sufficient experience using computers prior to starting college (Gates, 1998). Data from this study support these findings. One of the dominant themes that emerged from this study is that first year college students are now expected to be familiar, if not skilled, at interfacing with a computer. Most of the participants indicated they needed to begin using a computer as soon as classes started and most of them use their computer for several hours, practically every day. One student wrote, "I use technology like I eat food. It is a daily necessity." Another commented, "I don't know anyone who does not spend a few hours a day using their computer."

Each participant in this study described unique experiences with technology prior to starting college at Michigan State University. Many of them mentioned taking computer courses and having access to a computer at school and/or at home as they were growing up. Several participants described having access to and having used computers since they were young children.

Some of the participants reported experiences that were in stark contrast to the others. There were some students who described having very little exposure and/or having negative experiences using computer technology before attending college. They indicated they did not have the prior knowledge or ability to use computer technology at the level required to academically excel at MSU.

At least one participant was from another country where English was not her native language. She reported that she was one of many international students at MSU that did not have access to a computer until coming to the United States. She stated that she, and many other international students, were still learning English. She shared that e-mail is difficult for some of her friends. She stated, "Some students do not know how to delete messages or have problems using software." She also felt that international students may not have had an opportunity to use computer technology earlier in life. She expressed that some international students are going to be disadvantaged as first year college students because of their lack of previous experience using technology.

Although race was identified as a factor for consideration, the separation of who can and who cannot use technology was not solely a race related issue. A person's culture, religion, place of birth, and socio-economic status all influenced the knowledge and ability a student had using technology prior to or during their freshmen year of college. One student confided, "It upsets me, because not everyone has the money to buy a computer". There were other factors reported as well. The occupations of a student's parents, whether a computer was used in

the home, whether a computer was used at school, and the availability, success, and frequency of computer use before coming to MSU were all identified as enablers or barriers to the successful use of technology at MSU.

Responses from participants in this study indicated that first year college students have a wide range of computer skills and abilities, resulting in a broad range of experiences. Data from this study support existing research that indicate not all students are prepared to be successful using computer technology their first year of college. Students in this study reported being required to type papers, do research, and communicate using a computer. As suggested in other research, if students cannot do these things, they are at a distinct disadvantage.

It was noted that learners that require additional time to effectively interface with the technology will have less time to devote to the content, as well as less time to potentially interact with the instructor and/or other learners. One female participant that identified herself as African-American spoke at length about the importance of Learner-Interface Interaction. She stated, "It is not fair that MSU has the same expectations for Black students that have not had access to computers before coming here. Many African-Americans do not have enough computer technology in their background." She remarked that Black children often do not have role models that use computers in the home. She expressed frustration and concern that some of her friends do not know how to type. She explained,

> There are some Black kids on the floor that have just never used a computer, period. Some kids never had a computer class in high school. Detroit public schools are not inferior, although some people say so. African-Americans have kids young, and they are being brought up by their mother, and she doesn't know about computers, so how much can she do?

This student argued that African-American students experience technology differently than many other students. She explained,

> It is a smaller percentage of students of color that are interested in computers, because they just don't know. How can they be interested in something they don't know? You can count on your hands how many African-Americans are in your class. That is why you don't see as many African-Americans graduating. It is not your fault that you don't know how to use technology. Your teacher never taught you.

The findings in this study suggest that first year college students arrive on campus with different experiences using technology. Not all first year students have had ample and positive experiences using computers prior to starting college at MSU. Participants mentioned that some students need more training and experience using computers. Although all the participants said they were familiar with and somewhat comfortable using technology, they also indicated that each of them had needed to learn additional information and/or skills related

to technology during their first year of college. Most of the participants articulated some frustrating experiences due to technical problems that they did not know how to resolve.

Participants shared that they relied on other students to assist them if they had difficulty interacting with a computer. A few participants mentioned they had to pay someone to help fix their computer. One student offered a different way to seek assistance, "On my floor, sometimes someone will just scream down the hall, 'Does anyone know how to fix my computer?' and then you learn from them."

The magnitude of the Learner-Interface Interaction is apparent when respondents described the necessity to know how to access the Internet. Participants stressed that without this ability, a student's interactions with content, instructors, and other learners would be severely restricted. All of the participants indicated that their grade point average would be lower without the ability to effectively interface with computer technology. Students in this study validated that there is an expectation and need to be able to use technology in order to be successful in their first year of college. It was confirmed that students have very different skills and experiences using computer technology when they begin college. Data indicated that some beginning first year students had the skills and ability to use technology to their advantage. Other students did not.

The Learner-Interface interaction is a unique experience for every student. Two students in this study indicated that interfacing with computer technology

meant something quite different for them compared to the other participants. One participant explained that she does not like to interact with computer technology. She stated, "I am afraid of technology. Before MSU, I did not know anything about technology. My mom said it is the anti-Christ." While this student had a unique viewpoint regarding Learner-Interface with computer technology, another student expressed a somewhat skeptical view of technology by stating, "Technology can be very scary, but it may be our friend."

These statements were in contrast to one participant in particular who became very excited when she spoke about the use of technology in one of her classes, "I like the CAPA (Computer Aided Personal Approach)! It gives you immediate feedback so you don't get it wrong in your head and think you got it right. It's hard sometimes, but it is great!"

Students agreed they enjoy the convenience of being able to access information from wherever they have an Internet connection. Participants indicated they primarily used a computer in their residence hall room, although the use of computer labs was also mentioned by some. Most participants expressed positive feelings about how fast the Ethernet connection worked on campus. More than half of the participants emphasized that interacting with technology is especially appealing when the weather is bad and/or at night and they need information that could be found at the library.

Learner-Interface interaction was reported to be very time consuming and sometimes a distraction for participants. One student expressed a need to get

away from his computer, "I usually have to leave my room to do homework; because if the computer is on, it is a distraction." A different student added, "I wish I did not have to use it so much. Technology can be addictive. It can be very time consuming." This prompted another participant to say, "I spend way too much time on the computer. If I spent that much time on homework as I do messing on the computer, I would be a lot smarter." Participants reported that the interaction that takes place between the learner and technology interface influences the interaction that students have with informational content, such as course information, as well as their interaction with the instructor and other students.

Review of the Findings

This study involved anonymous questionnaires, face-to-face interviews, and focus groups with first year college students. The data that were collected indicate students are having a wide range of experiences using technology before and during their first year of college. This spectrum varied from students reporting very positive to very negative experiences. Regardless of their experience, however, there was consensus that all students had to be competent using a computer or they could not be successful during their first year at Michigan State University.

The findings indicate that the first year students in this study used technology for communication - both for academic and non-academic reasons, for research, for entertainment, and for a variety of other purposes. Michael

Moore's Theory of Transactional Distance was utilized to categorize the participant responses in the areas of Learner-Content, Learner-Instructor, Learner-Learner, and Learner-Interface.

One of the most poignant findings of this study may be the large differences that participants described in the quality and quantity of their computer use prior to their first year of college. The knowledge and ability of the students in this study to use a computer varied greatly. Participants, without exception, stated they believed most, but not all, first year students have the computer skills necessary to be successful at MSU. For many different reasons, some first year students arrived at MSU with limited positive experience using computers. Nevertheless, students believed that beginning first year students were expected to be competent using computer technology. This expectation was reinforced for them by the requirement as of fall semester 2001, that all first year students were expected to bring a computer to MSU.

Summary

The purpose of this chapter was to present the findings of this study. The results of this research are relevant for the participants that responded. Some of the findings have further implications for better understanding the experience that first year students are having with technology. Chapter five will expound upon the relevance of the findings and present conclusions, implications, recommendations, and suggestions for further research.

CHAPTER FIVE

Summary, Conclusions, Implications, and Recommendations

Introduction

This chapter summarizes the methods and findings of the study and reports conclusions and recommendations. Emergent themes were extrapolated from the data and expounded upon. Implications of this research for practitioners and for further investigation are also discussed. In addition, the researcher provides reflection on the findings of the study.

Many college students are using computer technology for several hours or more every day (Burbules, 2000). Educators and others associated with higher education are grappling to understand what students are experiencing using computers and how to best guide their learning. The purpose of this study was to investigate how first year college students describe their experience using technology. Students reported how they interacted with informational content, instructors, other students, and computer technology as an interface.

This research was conducted utilizing anonymous questionnaires, face-to-face interviews, and focus groups. The findings in this study offer implications for research, theory, and practice.

This study employed a qualitative and interpretive research design with the intent of addressing the following research questions:

1. What is the experience of first year college students using computer technology?
2. What types of computer experiences do students describe as important to master in order to be successful their first year of college?

Summary of the Findings and Significance of the Study

The access and ability to use a computer has been called an essential element for college student success (Gates, 1998). All of the participants in this study expressed that it would be impossible for students to succeed at MSU if they were not proficient using a computer. The almost daily interaction with computer technology influenced how students communicated, learned, did research, wrote, and entertained themselves.

The findings from this study indicate students are having a wide spectrum of experiences using technology during their first year at MSU. By reducing data from the questionnaires, interviews, and group discussions into categories, general themes emerged. These themes were categorized and grouped according to how first year students interacted with content/material, instructors, others, and technology as an interface.

Using Computer Technology Prior to Coming to Michigan State University

There have been some dramatic changes in the experience of college age students using technology since the mid-1990's. Beginning undergraduate students are expected to have had adequate experience using computers at home and/or school prior to starting classes at Michigan State University. As of fall semester 2001, new first year undergraduate students were expected to bring a computer to campus with the implied understanding that they could use it.

Data gathered from this research indicate that freshman students in this study had a wide range of computer skills and experience. Not all were equally or adequately prepared. Students reported vast differences using technology prior to and during their first year of college. The majority of students reported having ample prior positive experiences using technology, but there were many that did not. All of the participants indicated it was necessary for them to use computer technology in order to do well in their classes at MSU. The more computer classes and/or experience a student had using technology before coming to MSU, the more comfortable and successful they reported they were using technology at MSU.

For each participant, there were many variables reported that were associated with the quality and quantity of their experience using technology. Some of these factors included: access to a computer, prior experience using a computer, the equipment and programs used, and/or socio-economic related factors.

Using Computer Technology for Academic Purposes

Participants in this study suggested that a student's experience and ability to use a computer may strongly influence her/his academic success. They also mentioned they knew students who had difficulty completing course requirements because they did not know how to use a computer very well. As technology continues to be integrated into more and more aspects of higher education, students without ample positive experiences using computers may be at a disadvantage compared to those that are skilled using technology.

Some participants noted that the amount of time needed to complete certain academic tasks was influenced by how well a person knew how use a computer. All of the participants mentioned they knew students that did not know how to type very well. It was suggested that students' typing ability could positively or negatively influence their academic success. One student indicated she/he had a friend that rarely used e-mail because of an inability to type. Another student mentioned she knew a male student that had to pay someone to type his papers. During one interview, a participant was emphatic that "It is not fair that many black males do not know how to type. It is not their fault that no one taught them!"

Using the Computer vs. Visiting the Library to Conduct Research

When asked about using the library to access and interact with the content of a course, all of the participants indicated they spend little, if any, time at the

library. Many of the participants communicated they saw no need to go to the library because they can access the information they need from the computer in their room. Data collected from this study indicate that students prefer to conduct research from their place of residence (residence halls) via a computer as opposed to physically going to the library. They reported they rarely go to the library except to meet someone or to find a quiet place to study. A few students mentioned they spent a great deal of time looking for information in the library, but often they were not able to locate what they needed. There was agreement that it is not practical to go to the library when it is cold and/or dark outside.

This finding supports the suggestion that computer technology is having a dramatic impact on libraries across the United States. Students in this study reported they rarely visit the library because they prefer to use the Internet, CD-ROMS, DVDs, and other forms of computer technology to acquire and directly interact with the desired content.

Importance of Computer Skills for Career Development

Students in this study indicated that they have used the Internet for career exploration. Some participants mentioned that they have used the Internet to get specific job related information. A few participants indicated they have completed applications online and also submitted their resume electronically.

One has only to look at the classified ads or the Chronicle of Higher Education position postings to find evidence of the need for computer skills

throughout corporate America. Therefore, students who do not have adequate positive experience using a computer may be at a disadvantage when looking for a job. Students in this study expressed a need to have certain computer skills and abilities in order to be competitive in the job market when they graduate.

Using Computer Technology for Learner-Instructor Interactions

Most of the participants reported positive feelings about their interaction with faculty using technology. The students reported many faculty members were using technology both in and out of the classroom as a way of communicating with students. Participants stated they had expected to meet with their instructors during faculty members' office hours. Instead, they reported that faculty members are using web sites, e-mail, and in some cases Instant Messaging to communicate with their students instead of physically meeting with them. Some of their faculty members were offering "virtual office hours." In this way, students could use a computer to communicate with the instructor at a designated time without having to physically go to a specified location. Students reported they believed that faculty responses to questions, academic advising, and other brief communication is happening more frequently because of technology.

However, some students expressed a concern that students and faculty may be using technology too much and/or inappropriately. More than one participant reported choosing to rarely read e-mail messages sent by faculty. Another student discussed frustration about a professor that sent about five messages a week and suggested that most students in the class were annoyed

and did not read them. This respondent felt that students just deleted the messages because the professor sent too many, too often.

The majority of respondents indicated that technology can limit student-instructor face-to-face interactions. Technology was also reported to negatively influence the rapport and relationship between students and faculty. Some participants suggested that technology can make the interaction less personal. Others suggested that the excessive use of technology may limit the perceived need to develop skills critical to develop and maintain personal relationships with instructors and peers.

The experiences that first year students reported having with technology are happening in part because of the way MSU faculty, staff, and administrators interact with technology. This influence should continue to change as faculty, staff, and students become more comfortable and skilled with using computers.

Using Computer Technology for Communication

Computer technology clearly impacted how students communicated in this study. A communication "explosion" may be indicated by the fact that many participants in this study reported having more than one e-mail address and/or more multiple screen names for Instant Messaging.

Students reported using electronic forms of communication more than written or spoken words via the telephone. Many face-to-face or other personal forms of communication were identified as being changed, reduced, or eliminated

due to the increased use of computers as a means to communicate. The potential for over-utilization of technology was a concern of several students. Social and developmental tasks are important to the students in this study. Students cautioned that technology has the hidden risk of enabling students to stay in their room more rather than interacting face-to–face with others. One participant referred to using technology to communicate as "going out and traveling virtually instead of going out and getting my feet wet."

Technology may also be providing a positive buffer in the communication process. One participant indicated she/he knew some students that preferred using technology because they did not have good social skills, based on that participant's perception. Several of the participants commented that using IM when asking someone for a date is easier and safer than having a conversation on the phone or in person. They felt that this practice allows students to feel "safer" about the possibility of a rejection if "less of one's self is involved."

Using Computer Technology for Entertainment

Students in this study reported changes occurring in how they entertain themselves, especially since arriving at MSU. Participants noted becoming less involved in outdoor activities (exercise, visiting the library, going out to socialize, etc.). Instead of outdoor activities, they were shifting to indoor activities such as playing computer games or socializing with others while using Instant Messaging or e-mail. One participant remarked that when walking through the residence hall, "every room has people who are looking at screens. Whether it is playing a

game, surfing the web, using Instant Messaging, or watching DVD's, everyone is using a computer."

Knowledge and Skills Related to Technology that are Necessary to be Successful at Michigan State University

New students coming to Michigan State University have experienced a drastic change in what is required of them. Fall 2001 was the first semester that MSU expected every new student to bring her or his own computer.

Participants in this study were part of the entering class of 2001. When asked second semester of their freshman year what they believed was needed for college students to be successful during their first semester, all participants stressed the importance of being able to use e-mail and word processing. More than half of the participants specified that students should know the basics of how to use certain programs by name. They mentioned Microsoft Word, PowerPoint, Excel, and Access in addition to being able use e-mail and find information using the Internet.

A Summary of the Findings Reflected In This Study

- Experience Using Computer Technology Prior to Coming to Michigan State University: Computer skills and competencies shifted from being a nicety in high school, to being a necessity in college. Owning one's own computer as a first year student went from being somewhat unusual, as

reported by their friends and family members, to being required at MSU as of fall semester 2001.

- Experience Using Computer Technology for Academic Purposes: Technology has become a primary part of the learning process. Computers have evolved from complementing learning to computers being more in charge of learning.
- Library vs. Internet Research: Students reported they seldom visited the library. They expressed it was impractical and not their preferred method of research.
- Computer Skills for Career Development and Job Placement: Technology skills and experience were reported as being required or of importance whether for on campus or off campus employment. This finding supports the view that the majority of college graduates must be proficient using a computer or they will not be able to compete effectively in the job market.
- Experience Using Computer Technology for Learner-Instructor Interactions: Students reported few office visits with instructors, but frequent e-mail and/or other electronic interaction with their instructors. They also indicated that almost all of their instructors sent course content to the students via the computer.
- Experience Using Computer Technology for Communication: Students reported frequent use of computer technology to communicate with others. This included using e-mail and Instant Messaging with family, friends, and other students.

- Experience Using Computer Technology for Entertainment: Students reported being involved in fewer outdoor activities such as exercise or visiting the library, and being more involved in indoor activities using technology like computer games and web browsing since arriving at college.
- Knowledge and Skills Related to Technology are Needed to Be Successful at Michigan State University: The successful use of technology for communication with faculty and students, the use of the Internet for research, and competency with word-processing were reported as necessary for the success of first year students at MSU.

Conclusions

Institutions of higher education have a unique opportunity to provide positive computer experiences for their students every year. This is especially important for first year students whether on campus or at satellite locations. Most of the participants in this study identified the need of incoming first year students to have a minimum level of competency in certain areas related to technology. There was agreement that students need basic skills to do word processing and need to know how to use e-mail for communication. Participants also indicated that students in their first year of college must be able to find information effectively using the Internet and also need to know how to surf the Internet to conduct research.

The data generated from this study indicate that first year college students have a wide range of skills and experiences related to computer technology. There is a continuum of experience between those that know how to use technology and those that don't. There are many variables that determine the experience that a student has using technology prior to starting college. If technology is not used in the student's home due to religious, cultural, and/or economic reasons, additional challenges occur for the beginning student and the university. Likewise, bridging the gap between those first year students that know how to use technology and teaching those that do not becomes more complex if a student's competency in the English language is also limited.

This study contributes to the existing research and body of knowledge concerning how first year students are experiencing technology. There is a need for higher education to identify strategic objectives and goals regarding how students will experience technology during their first year. Colleges and universities will need to monitor the experience and success of students using technology both in and out of the classroom. Of particular interest was the suggestion by several students that "excessive" faculty interactions via e-mail were not only unwelcome, but in some cases were considered intrusive and were deleted without having been read. Special attention also should be given to how students use their discretionary non-instruction related time. This is especially important in light of the issues raised by participants who stated their concern that the overuse or inappropriate use of technology may hinder the social-developmental growth of first year college students. This study demonstrated that

parental and religious values impeded the successful experience that some students reported they were having with technology. This finding was not expected by the researcher and is an area warrants further study.

Limitations of the Study

The intent of the research was to discover and document how first year college students describe their experience using computer technology. The identified limitations of this study include:

- This research was constrained by time and context. The experiences of other first year students may be quite different than those that participated in this study. As a qualitative study, the ability to generalize to a larger population of first year students is limited.
- First year college students may have different experiences related to technology during their first semester than they do during their second semester. Being exposed to and using technology during first semester may influence the responses provided second semester.
- Subjectivity on the part of the researcher could have influenced the interpreted response from the participants. This subjectivity could have positive and/or negative consequences on the data collected. For that reason, triangulation of data sets was used to increase validity for the findings and recommendations in this research.
- Sample size and composition of the focus group may be considered a limitation of this study. Only one male student of color agreed to

participate in either a focus group and/or an interview to discuss his experience using technology.

- All of the data collected in this study were self-reported. There was no attempt to either control for or collect information regarding the socio-economic background of the participants, which could have influenced the responses and the sample itself.
- Interview methodology was dependent on the honesty and openness of the students.
- Participation in this study was totally voluntary and students knew in advance it was a study that concentrated on computer technology. Prior knowledge about the topic may have influenced who agreed to participate. Most of the students in this study reported their expertise and experience was average to above average for positive experience with technology. It is possible that those with less positive experiences did not choose to complete the initial questionnaire. Students may have chosen not to participate in the interview and/or focus group conversations if there were a "shame factor" or a feeling of being less capable or less intelligent.
- The terms "faculty", "instructor", and "professor" were used by participants to refer to those teaching their classes. At a large, land-grant research university the majority of first year classes may involve a graduate level teaching assistant or other non-tenure stream course instructor. When some of the respondents to this study indicated that "professors e-mail me right away even in a class of 300 students," there was not clarification

whether the e-mail messages were generated by a tenure-track faculty member or a teaching assistant. Future studies should clarify whom students are referring to as "faculty".

Implications

Implications for Key Constituents

This study is significant because it has the potential to improve the educational experience for first year students. The findings of this study are a reflection of the sample, but the results do have implications for educators and policy makers. The results of this study will help educators better understand the experiences of first year students in order to make better decisions.

Students indicated their most important success strategy was their ability to develop typing and word processing skills. E-mail and web surfing competencies were next in importance. While some troubleshooting and minor maintenance can be learned with experience over time, students identified a need to learn basic technical support skills. This competency could become more essential as computer support centers are reduced in size due in part to students being required to bring their own computer to campus.

Implications and Recommendations for Practice

Computer technology is part of practically every college student's life. Educators are compelled to better understand the influence of technology on

students so they can design strategies to harness the ability and power of technology to help students succeed in college.

This study has gathered and presented information that indicates there are obstacles for some students that do not exist for others. There are racial, ethnic, gender, cultural, and religious differences that influence the experience that students report using technology. Participants suggested that African-American students, specifically males, may be disadvantaged because of limited experience with technology. Some international students may also be at a disadvantage because of limited or negative experiences using computers. Some of these students may have an additional barrier--that of language-- which further limits their communicating and understanding of technology. The responses of at least one participant in this study indicated that religion might also influence how a student perceives and experiences technology. This student indicated that her/his parents had referred to technology as "The Anti-Christ" which had a strong impact on this student's experience using technology.

Regardless of their past experience using technology, this study suggests that for first year students to be academically successful at MSU, they need certain computer related knowledge and competencies. Participants of this study, all who were first year students, offered the following advice when asked what computer experiences they believe are necessary for future incoming fall semester first year students. These students suggested that first year students be strongly advised:

- To purchase their computer and be familiar with how to use it before coming to campus.
- To be prepared to use technology for academic purposes such as typing papers, preparing presentations, and researching information on the Internet.
- To understand the positive value that technology can have in their lives. They stressed that incoming students need to develop a positive attitude towards technology because they must use technology in order to be successful.

Respondents were in agreement that students must have successful experiences with technology or they will not be able to do well in classes. There was also agreement regarding how a computer improves the ability for students to communicate with other students, faculty, friends and family.

Implications for Practitioners

To minimize the risk of "social hibernation", students, staff, and faculty need to be aware of the potential for negative consequences associated with the excessive use of technology. Issues involving "self" and identity, accompanied by a strong need for peer acceptance, may provide the opportunity for first year students to hide behind technology and thus avoid social interactions. This suggested caution may be of particular concern to student affairs professionals as well as faculty as they work to assist first year students during this important transition to college.

The following are recommendations for academic and student affairs practitioners involved with first year college students:

- Develop strategies to harness the possible ability and power of technology to help students succeed in college.
- Encourage and foster the development of new educational paradigms. Administrators, educators and other decision makers have the opportunity to use technology as a tool to reduce barriers to success for first year students.
- Conduct on-going focus groups with students and faculty members to better understand how they describe their experience using technology.

Implications and Recommendations for MSU

The data identify several areas for consideration by Michigan State University faculty, academic administrators, and student affairs educators. First, the early identification of technology competencies and deficiencies is important. Summer classes or seminars should be considered for first year students who have had little experience using technology. Both beginning and advanced students requested courses and web sites designed to improve computer competency at the beginning and intermediate levels.

Residence halls provide the ideal setting for students to learn and develop their skills using technology. Using technology to create and support study groups, hall programs, success seminars, and workshops are all strategies that

should be considered. Residence Life staff, including the undergraduate Mentors and Racial Ethnic Aides, should be educated regarding the possible misuse or overuse of technology and the negative social consequences which can result. Consideration should be given to adding a Technology Aide in each residence hall building or at least placing an aide in each housing complex as well as providing training for the staff. Consideration should also be given to creating a technology floor within first year residence halls for those students who would like technology theme living/learning environment.

MSU should articulate to high school counselors, prospective students and parents the importance technology plays in the success of students in their first year at MSU. Programming during AOP (Academic Orientation Program) should better prepare students to develop a plan to begin classes ready to use technology.

There are students that can be identified who may be at a disadvantage to succeed at MSU. This would include students from other countries, students from high schools that did not use or that underutilized technology, students of color, and other students in whose home technology was undervalued or looked upon as negative, i.e. for religious reasons. Additional support and special opportunities must be identified to assist these students in their collegiate residential environment. Consideration should be given for developing opportunities for first year students to also engage in success seminars dealing

with life skills during their first year, which would include an orientation to technology skills.

MSU should identify and articulate what skills are required for all students in order to be successful members of its learning community. The current research of Chickering and Gamson (1987) and the results of this study reflect that many of the necessary success skills and competencies link to the effective use of technology. Skills identified Chickering and Gamson include: Developing independence (Competence), Developing relationships, Making friends and communicating with them, Connecting with friends and family, Navigating the university, Communicating with faculty, Conducting research, Effective time management, Exploring career options, and Learning to express themselves successfully

Based on data analyzed for this study, there is considerable information to suggest that students have different experiences and abilities related to technology. As a result of this study, some additional considerations are suggested to help first year students succeed at MSU.

Technology Recommendations:

- Offer first year students specific courses designed to improve student success with online content

- Enhance training for Peer Leaders/Residence Life staff in the residence halls including how to use technology more effectively.
- Provide opportunities and designated space for social time especially in halls that primarily house first year students
- Provide health related information including exercise equipment, instructional tapes and DVD's, as well as informal social areas for students to interact within their hall or complex
- Provide interactive recreational activities and games on a regular basis within the housing complex
- Provide computer training based on a student's level of experience from novice to advanced
- Provide technical assistance and/or training to help students set up their computers and Ethernet connection
- Provide technical assistance and/or training to help students use e-mail and search the Internet effectively
- Provide technical assistance and/or training to help students with academic related software such as MAGIC (MSU Library Software), a word processing program for typing papers, and other similar programs
- Establish technology learning centers for all students to hone their skills.

Recommendations for Future Research

- A follow-up study should be designed to explore what faculty members believe is the experience of students using technology

- Research should be designed to identify, explain, and analyze how a faculty member's technical competency may influence the quality of educational experience for students their first year of college
- Additional research should be conducted to determine how technology could be used as a tool to have a more positive influence on student academic achievement
- Students identified concerns regarding the need to balance technology in their lives. Follow up studies should be designed to explore the impact of technology on social interactions, exercise patterns, and other activities of first year college students
- A follow up study of the MSU freshmen class of 2001 should be conducted in the spring of 2005 to see how students describe their experiences using technology.
- A similar study should be conducted periodically for different entering first year classes at MSU. In designing future studies, it would be important to explore what effect the socio-economic background of students may have on the experience of students related to technology use.

The results of this study support the need for continuing research to determine how experiences with technology influence how a student describes the first year of college in the areas suggested by Art Levine in Upcraft and Gardner (1989, p. 22): 1) The acquisition of skills and knowledge needed to live in our world, 2) The development of a feeling of efficacy by the student, 3) The

feeling of hope as opposed to hopelessness, and 4) The development of a sense of responsibility

Reflections

The story of MSU first year undergraduate students using technology reveals the individual differences and needs of the students studied. The experience of these students enhances the literature regarding the use of technology by first year college students. The reflections of these students have added to the information that characterizes the first entering class required to bring a computer to MSU. While the number of voices was few, their messages were profound.

It is my hope the results of this research will be used to help future students to accomplish their dreams both now and in the future. I wish them success!

APPENDICES

APPENDIX A

University Committee on Research Involving Human Subjects Approval

MICHIGAN STATE
UNIVERSITY

February 8, 2002

TO: John DIRKX
408 Erickson Hall
MSU

RE: **IRB# 01-874** CATEGORY: EXPEDITED 2-F
APPROVAL DATE: February 8, 2002

TITLE: THE EXPERIENCE OF FIRST YEAR COLLEGE STUDENTS USING

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete and I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the **UCRIHS approved this project.**

RENEWALS: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Projects continuing beyond one year must be renewed with the green renewal form. A maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for a complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB# and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/CHANGES: Should either of the following arise during the course of the work, notify UCRIHS promptly: 1) problems (unexpected side effects, complaints, etc.) involving human subjects or 2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of further assistance, please contact us at (517) 355-2180 or via email: UCRIHS@msu.edu. Please note that all UCRIHS forms are located on the web: http://www.msu.edu/user/ucrihs

Sincerely,

Ashir Kumar, M.D.
UCRIHS Chair

AK:
cc: bd

Mark Rinella
A101 Rather Hall

OFFICE OF
RESEARCH AND GRADUATE STUDIES
University Committee on Research Involving Human Subjects
Michigan State University
246 Administration Building
East Lansing, Michigan
48824-1046
517/355-2180
FAX: 517/353-2976
Web: www.msu.edu/user/ucrihs
E-Mail: ucrihs@msu.edu

APPENDIX B

Statement for Informed Consent

APPENDIX B

Statement for Informed Consent

What is the study about?
This study explores the role of technology on the experience of first year college students. The research consists of individual personal interviews with approximately 7-12 students and the opportunity for participation in a focus group meeting. These discussions include questions about how the participants use technology, the influence it has had on their first year as a college student, and how they perceive technology impacting other first year students this year and next year. After the individual interviews have been conducted and analyzed, participants will be asked to participate in a focus group discussion about issues that emerged from the individual interviews. The intent of the research is to provide a forum for college students to candidly share their thoughts and experiences relating to the role and impact of technology in the experiences of first year college students.

What is my role as a participant?
As a participant, you are the most important contributor to the study. Your time and your candid responses are all that are necessary. Your decision to participate in the study is completely up to you. You may choose not to participate at all. You may choose not to participate in the interview or the focus group. You can refuse to answer any question you do not want to answer, and you may decide to discontinue your participation at any time, for any reason.

How much of my time will participating in this study take?
As a participant in this study you may be asked to participate in an individual interview (approximately 60 minutes) and/or a follow up focus group (up to 90 minutes). Your time for one or both of these activities will not exceed three hours.

What about the results of the study?
All results (interviews and focus groups) will be kept strictly confidential and participants will remain anonymous in any report of the research findings. Upon request, a copy of the official report of findings will be made available after the completion of the study.

What if I have any questions or concerns about the study?
If you have questions or concerns about the study, the researcher or anything related to your participation, you may contact either individual listed below:

Mark Rinella
Researcher/Doctoral Candidate
355-4447 office
355-4453 home
rinella1@msu.edu

Dr. John Dirkx
Faculty Supervisor
Educational Administration
353-8927 office
dirkx @msu.edu

APPENDIX C

Consent Form and Demographic Information Sheet

APPENDIX C:

Consent Form and Demographic Information Sheet

Thank you for agreeing to be part of my dissertation study. I value your willingness to participate and the time you are volunteering. Please let me know if you have any questions or concerns about your participation. I look forward to working with you.

Please complete the following information form so we can begin.

INFORMED CONSENT

I have read the researcher's statement regarding my voluntary role in the study. I agree to participate voluntarily. I understand that I may choose not to participate in any portion of the study at any time.

Signature _____ Date_____

Address _____
Number and street city state zip

Phone _____ E-mail _____

The following information is for demographic purposes and is optional. It will be kept strictly confidential.

A. Name _____ B. Age _____

C. Gender _____ D. Ethnic/racial background _____

G. Major(s) _____H. Cumulative grade point average _____

Interviews
An interview time will be set up at your convenience. Weekend and evening times are available. What day(s) and time(s) are most convenient for you to participate in an interview?

Please return this form in the enclosed envelope to the Rather Hall front desk for Mark Rinella.

If you have questions regarding your role and rights as a subject of research, you may contact the Institutional Review Board (IRB): David E. Wright, Ph.D. Chair, University Committee on Research Involving Human Subjects (517) 355-2180

APPENDIX D

Technology Questionnaire Version One

APPENDIX D

Technology Questionnaire Version One

Hi,
My name is Mark Rinella. I am a doctoral candidate in the MSU College of Education. I am conducting a study to learn about: "The Experience of First Year College Students Using Technology". Would you please take a few minutes to answer the following questions? The information that you provide will contribute to my dissertation and other research studies.
Participation in this survey is entirely voluntary and the results will be treated in a confidential and professional way. For this reason please do not put your name or any identifying information on the survey.

Thank you.

1. How would you describe your experience using technology BEFORE coming to MSU?
2. How would you describe your experience using technology during your first year of college?
3. How would you describe the impact that technology is having on other MSU first year students?
4. What computer skills and competencies do you perceive as important to master in order to be successful during your first year at MSU?
5. How would you describe your competence or skill level using technology?
6. How do you feel about technology?
7. How are you using technology related to your classes and academic work?
8. What are some other ways that you are using technology?
9. If you could tell MSU President Peter McPherson one thing related to technology, what would it be?
10. Are you a first year college year college student?

Would you be willing to participate in an individual interview and/or a Focus Group with approximately 5 other first year students to discuss "The Role of Technology in the Experience of First Year College Students"? If you are selected, each session is expected to take between 45-90 minutes.

If so, please provide:

Your name: _____ e-mail address: _____ Phone number: _____

Please return this form on or before Wednesday February 13
To: Mark Rinella A101 Rather Hall
The information that you provide will contribute to my dissertation and other research studies. Participation in an individual interview and/or a focus group discussion is entirely voluntary and the results will be treated in a confidential and professional way.

APPENDIX E

Technology Questionnaire Version Two

APPENDIX E

Technology Questionnaire Version Two

Hi,

My name is Mark Rinella. I am a doctoral candidate in the MSU College of Education. I am conducting a study to learn about: "The Experience of First Year College Students Using Technology". Would you please take a few minutes to answer the following questions? The information that you provide will contribute to my dissertation and other research studies.

Participation in this survey is entirely voluntary and the results will be treated in a confidential and professional way. For this reason please do not put your name or any identifying information on the survey.

Thank you.

1. How would you describe your experience using technology BEFORE coming to MSU?
2. How would you describe your experience using technology during your first year of college?
3. What computer skills and competencies do you perceive as important to master in order to be successful during your first year at MSU?
4. What do you wish you had more experience with using technology?
5. What do you like best and what do you like least about technology?
6. How would you describe your experience using technology related to your classes and academic work at MSU?
7. How would you describe the way that technology has influenced your grades at MSU?
8. What would you like to tell the faculty and administration about your experience with technology?
9. If you could tell MSU President Peter McPherson one thing related to technology, what would it be?
10. Are you a first year college student?

Would you be willing to participate in an individual interview and/or a Focus Group with approximately 5 other first year students to discuss "The Role of Technology in the Experience of First Year College Students"? If you are selected, each session is expected to take between 45-90 minutes.

If so, please provide:

Your name: _____ e-mail address: _____ Phone number: _____

Please return this form on or before Wednesday February 13
To: Mark Rinella A101 Rather Hall

The information that you provide will contribute to my dissertation and other research studies. Participation in an individual interview and/or a focus group discussion is entirely voluntary and the results will be treated in a confidential and professional way.

APPENDIX F

Interest Form for Interview and/or Focus Group Participation

APPENDIX F

Interest Form for Interview and/or Focus Group Participation

Would you be willing to participate in a face-to-face interview and/or a Focus Group with approximately five other first year students to discuss "The Experience of First Year Students Using Technology"?

If you are selected, each session is expected to take between 45-90 minutes. If so, please provide:

Your name: _____ e-mail address: _____ Phone number: _____

Please return this form on or before Wednesday February 13
To: Mark Rinella A101 Rather Hall

The information that you provide will contribute to my dissertation and other research studies.
Participation in an individual interview and/or a focus group discussion is entirely voluntary and the results will be treated in a confidential and professional way.

APPENDIX G

Face-to-Face Interview Questions

APPENDIX G

Face-to-Face Interview Questions

1. How would you describe your experience using technology prior to starting college at MSU?

2. Describe a typical day.... Tell me about what you do that involves the use of computer technology.

3. Describe your experience using technology this first year of college?

4. In what ways are you using technology related to your classes and academic work?

5. How are you using technology in other areas?

6. How would you describe your competence or skill level using technology?

7. When you think about your use of technology, what stands out as either significant or important to you?

8. What has been the best thing about technology for you?

9. What do you think are the "positive" aspects related to technology?

10. What do you think are the "negative" aspects related to technology?

11. How do you feel about technology?

12. What has surprised you most about technology?

13. What knowledge and skills related to technology do you believe are necessary to be successful at Michigan State University

14. If you could tell MSU President, Peter McPherson, one thing related to technology, what would it be?

APPENDIX H

Letter of Invitation to Focus Group Participants

APPENDIX H

Letter of Invitation to Focus Group Participants

Mark Rinella
A101 Rather Hall
355-4447
rinella1@msu.edu

Name and address of participant

Dear (_____)

Thank you for accepting the invitation to attend the discussion about "The Experience of First Year College Students Using Technology". We will be meeting on Sunday in the Rather Hall Conference Room that is located across from the Rather front desk. Our discussion will begin at 6:00 p.m. and conclude by 7:30 p.m. There will be pizza, soda pop, and some other snacks for you to enjoy while we are talking.

Our discussion is limited to only a small number of participants. The discussion you will be attending will have approximately five other first year students. The success and quality of our discussion is based on the participation and cooperation of those who attend. We appreciate your acceptance of the invitation and we anticipate your attendance and participation. Your input will help make this research project a success.

We will be discussing your experiences, attitudes, and beliefs about technology. This is strictly a research project, and no sales or solicitation will be made.

If for some reason you are not able to attend, please call or e-mail me to let me know as soon as possible.

Thanks again and I look forward to speaking with you more on Sunday.

Sincerely,
Mark Rinella
Discussion Moderator

APPENDIX I

Focus Group Questions

APPENDIX I

Focus Group Questions

Process	Questions	Purpose
Opening Question	Would you please tell us your name and something about yourself?	An opener and ice breaker
Introductory Question	How would you describe your experience using computer technology prior to starting college at MSU?	To help participants to connect with the topic to be discussed
Transition Question	Think about your experience with computers this year. How would you describe your experience?	To move the conversation toward key questions
Key Question	How are you using computer technology related to your classes and academic work?	To identify how students are using computers for academic reasons
Key Question	How important do you think computer skills are for first year students?	To identify the importance of the topic
Key Question	Has anything surprised you about computer technology this year?	To identify new experiences
Key Question	What do you like best and what do you like least about computer technology?	To identify issues of confidence and possible concern related to using computers
Key Question	Think about your experience with technology this year. What advice, about technology, would you give to first year college students starting in the fall of 2002?	To identify what computer-related experiences are considered to be important
All Things Considered Question	What knowledge and skills related to computers are necessary to be successful at Michigan State University?	To identify the technology skills they perceived they needed this year
Key Question	What do you think are some of the most important aspects related to computers and first year students?	To identify other aspects not previously mentioned
Summary Question	I would like to give a short summary of our discussion. I would then like you to tell me if this is an accurate summary.	To bring closure and increase accuracy of understanding of information received
Final Question	Have we missed anything?	To be certain the questioning route is logical and complete

Appendix J

Summary of Anonymous Questionnaires

Appendix J

Summary of Anonymous Questionnaires

Note: Some students chose not to answer every question

1. How would you describe your experience using technology before coming to MSU?
    A. I was not used to using technology: I just did everything by hand
    B. More for entertainment
    C. I did not use technology that much
    D. I took a few computer classes back in high school and I enjoyed them
    E. I encounter technology as apart of several classes and it felt very comfortable with Microsoft Word, Excel and PowerPoint as well as surfing the web. I never really had a problem with it.
    F. Basically just taking required computer classes in high school and using the Internet at home.
    G. I did not have as much knowledge about how computers work.
    H. I used it a lot before I came to MSU
    I. Relatively good
    J. I rarely use it
    K. Very high tech. I was very familiar with technology
    L. Technology was a big part of my every day life before coming to MSU
    M. I used the computer to type papers. I use the Internet to find information for reports and sometimes for directions.
    N. Before MSU, I did not know technology. My mom said it was the Anti-Christ.
    O. I had to use several programs such as Word and Excel (Senior)
    P. I definitely didn't use it as much as I do here.
    Q. Not very good, the one computer we had was extremely slow and slow with the Internet connection.
    R. Worked on computer a lot of times during the week
    S. I was familiar with all of the things that I use at MSU prior to coming here.
    T. My experience with technology before MSU was not strong. My high school had many technological resources but I never took advantage of them.
    U. I had pretty good experience using technology before coming to MSU
    V. I have had extremely high experience before coming to MSU
    W. I have always used computers
    X. In school sometimes, but they didn't work so good
    Y. OK

Z. My brothers use the computer more than I did. They always were playing games so I couldn't use it.

AA. We had computers in all of our classrooms, but some teachers never used them.

BB. I love computers

CC. The one we had was very old and did not work all the time. They (parents) bought a new one after I left for college.

DD. I do not like to use computers very much.

EE. OK, maybe pretty good

FF. My parents use the computer to run the business, so we did not get to use the one at home very much.

GG. Good

HH. I did to type papers for school. That is about it.

II. I did not start using computers until about two years ago

2. How would you describe your experience using technology your first year of college?
    A. It is much easier and faster to use technology
    B. Overwhelming, I even know a little about computer too
    C. I use technology like I eat food, it's a necessity
    D. I use a computer to check e-mail every day in order for me to get informed
    E. Several of my classes have a website were they post the syllabus and other course information. Some of them have been useful while others are less navigator-friendly. Some have been a pain because at times they aren't available for several days and the only place to get information is the Internet because they don't had out written copies of the syllabus
    F. Having cable Internet has been great. It's so much better than dial up.
    G. I learned how to use technology through asking questions and trial and error.
    H. Amazing
    I. Relatively good
    J. I use my computer about 12 hours a day
    K. I use a computer and Internet every day several hours every day.
    L. I use technology a lot more in now that I am in college and it has been helpful to me.
    M. I use my computer and the Internet a LOT. Most of my classes have a site on line to use to post assignments or else just to give practice tests. I have to e-mail my profs and my friends. I also find out what is going on around MSU by e-mail.
    N. I am afraid of the technology. It has to be a sin for information to travel as fast as it does on the Internet.
    O. I had to use the computer labs which are sub par (Senior)
    P. I use it a lot. I use my computer every day for e-mail and to type papers. I'm also in CSE class and it basically all technology.
    Q. G reat, pilot was very easy to access, my connection was great, and IM was good for chatting with people.
    R. Same as before I came to college, just use it a little more for classes and downloading music
    S. I like technology- I like being connected to anything via the Internet- It helps keep me informed
    T. It was a bit overwhelming how it was easy to learn.
    U. I use technology more that I am at MSU
    V. Still the same, did not better myself
    W. OK
    X. It is harder than what I expected
    Y. My computer keeps crashing. I am frustrated with technology

Z. I use it all the time. It is great. I love being able to communicate with my family and friends

AA. The Ethernet is great. At home, it takes forever to surf the web

BB. Great

CC. I like it.

DD. It is very addictive. I wish I did not have to use it as much as I do.

EE. Some things are not fair. Why do teachers have to make us use computers so much?

FF. This is way better than at home. The Internet is great.

GG. It is not very personable

HH. I would say good, but I still have a lot to learn

3. How would you describe the impact that technology is having on other first year students?
    A. They are not sure of themselves when they come across with hands on work
    B. As a necessity to do well in my classes
    C. It's major
    D. They use a computer a lot for them to keep in touch with their friends
    E. I believe technology is affecting them in a positive way helping them organize certain aspects of their lives better.
    F. It is much easier to find information and contact other people.
    G. It gives them better access to Internet resources, more ways to communicate with students. It also is hard to keep off the computer since we can download music, etc.
    H. Incredible
    I. I use my computer more, but besides that I don't my knowledge of technology has improved.
    J. They use computers a lot more
    K. ?? (no answer)
    L. I thing it has been helpful for all students to communicate with other students and professors and obtain important information.
    M. It is helping students connect with each other and their profs as well as getting them involved with activities.
    N. They seem to enjoy the alleged convenience of it but as I said before, I am afraid. I do not partake often.
    O. I'm not sure (Senior)
    P. I think it's a huge impact because it makes students actually have to use computers
    Q. It has made accessing info and communicating with others a lot easier
    R. Depends on who it is
    S. I think that overall it has a positive effect.
    T. For the most part, I believe that everyone has had a technological impact.
    U. Technology has impacted us all
    V. Probably helping others especially coming in on student loans for low income families

4. What computer skills and competencies do you perceive as important to master in order to be successful your first year at MSU?
    A. You should know how to use Internet and Microsoft Word
    B. Knowing how to operate all applications: Excel, Word, PowerPoint, and settings on your computer.
    C. None, Learn e-mail
    D. Some type of word processing skills such as Word and to be able to use an e-mail system and online resources.
    E. I think they should just know how to navigate through programs such as Word and Netscape. If there are ever problems most of the time a help option can solve it.
    F. So far, I have only really used my computer to type papers and do psych experiments. So basically being able to use Microsoft applications and the Internet.
    G. General skills such as typing, how to start and shut down a computer, how to use the web to find information.
    H. Organization on disks
    I. Microsoft Word, Some knowledge of PowerPoint, pilot e-mail
    J. Using Word and PowerPoint and using the Internet
    K. Able to search the Internet, familiar with Word program, and able to use e-mail
    L. Being able to connect your computer to the Internet (Ethernet) with the proper accessories
    M. Being able to typed- navigate the Internet and being able to hook up the Ethernet
    N. Checking e-mail and the ability to operate a word processor or similar program.
    O. You at least have to know how to use Microsoft Word (Senior)
    P. Word processing skills and constructing web pages
    Q. One should know basic workings, installing and uninstalling software, being able to control which programs are running, how to locate files on their computer, and of course know how to surf the web.
    R. How to use the Internet well
    S. Being a fast and efficient typist and have a general knowledge of computers, along with a more specific knowledge of the one you own
    T. All applications of e-mail, Word, Internet, spreadsheets, AFS space, PowerPoint, and magic system
    U. How to access your AFS space on your computer
    V. Word processing, Internet knowledge and e-mail
    W. Know how to set up your computer
    X. Typing papers and e-mail
    Y. How to connect to the Internet. You have to have a special plug.
    Z. Business and communication skills

AA. Know how to install new programs
BB. Have a fast computer with Microsoft Office
CC. Most students already know how to use a computer so it shouldn't be anything new.
DD. I had problems connecting to the Ethernet.
EE. Same as you used in high school
FF. E-mail and typing and Instant Messaging your friends
GG. The more you know, the better
HH. Everything

5. How would you describe your competence or skill level using technology?
    A. Good
    B. Scale of 1-10 I am a 5 or 6
    C. My skill level increases everyday
    D. I learned how to use PowerPoint, a few word processing programs, database and visual basic in high school.
    E. I would say it is above average. I can help people solve some computer problems but there are others I do not understand.
    F. I think I am relatively competent but could still learn more. I think I know enough though to compete in necessary class work.
    G. Higher than before I arrived at MSU but still need some more work.
    H. Very high
    I. Good
    J. Low (on a scale of 1-10 a 5)
    K. Very good, excellent
    L. Average (below average before I came here)
    M. About average – I can use everything and get done what I need to, but not anything beyond that.
    N. My competence level is pretty high (Senior)
    O. It's OK, I mean I'm not a genius but I'm pretty good with computers.
    P. This is my first time with a computer of my own so I've learned a lot about how to use a computer.
    Q. Pretty good
    R. High
    S. After taking CSE 101, my competence in technology is very strong
    T. Between 1 and 10 I'd say 8
    U. Very high skill level

6. How do you feel about technology?
    A. Confident
    B. Love it
    C. I love it
    D. It's very useful, and it helps us to keep up with modern technology
    E. I feel technology can be very useful and aid in learning if used the correct way.
    F. I like it. It's nice to have such a fast Internet connection and have access to so many resources on the Internet.
    G. I feel it is wonderful to have access to the Internet at high speeds and I love the e-mail system.
    H. It is a very amazing world of technology.
    I. I think it is a good thing when not used in excess.
    J. It is useful!
    K. I love it! I always need to newest and fastest items
    L. I have become pretty comfortable using technology
    M. It's very helpful and useful, but can also be frustrating when it doesn't work the way I want.
    N. It is the work of the devil. I am not a fan. Technological advances are ruining the world by making everyone very impatient. No one wants to wait anymore.
    O. Technology is a good advantage. It allows for quick, easy access to all sorts of information (Senior)
    P. I love it
    Q. I think it is a great convenience for everyone it is great for staying connected to everyone.
    R. Good
    S. I like it
    T. It is a great tool and has many things to offer, however, I think people try to substitute for other tings that shouldn't be used for technology (people rely on it too much)
    U. It's cool
    V. I wish I did not have to use it. Seems that it is not possible to live without it though I choose to know as much as possible.

7. How are you using technology related to your classes and academic work?
    A. I use technology much
    B. Uploading homework
    C. I type papers and look up stuff on the Internet
    D. Doing research online and communicate with teachers through e-mails
    E. Several courses have had me type assignments. E-mail assignments, learn Excel, Learn Math lab (?) and check for information on the web.
    F. Basically just for typing papers, looking up information, and doing psychology experiments.
    G. I do not frequently use. I use websites for improvement in some of my classes, I e-mail professors.
    H. Calculators and computers
    I. I use Word regularly and e-mail constantly.
    J. It is helpful when researching and communicating with professors
    K. E-mail professors, Word to write papers
    L. Many of my professors have websites or use course campus test scores are sent via e-mail. I use the Internet to find information and type all of my papers.
    M. I have one class which posts assignments online and you can post ideas. For another class, there are practice test online and another has quizzes online.
    N. Only when I have to but I haven't any classes that are using anything other than a book or course pack. In regards to class, only for reading e-mail from the profs.
    O. I check my pilot e-mail regularly and use word often (Senior)
    P. By typing papers and constructing web pages that deal with my classes
    Q. I use Blackboard online for my IAH class and I get notes for other classes online.
    R. Some courses use it to transfer homework
    S. Typing papers, looking up information
    T. I use Word, e-mail, Internet, magic, AFS, spreadsheets, web site creation, PowerPoint, AOL and contact professors
    U. Using computers to access e-mail for test grades and printable handouts on Blackboard
    V. E-mail, word processing, Internet research, Excel

8. What are some other ways that you are using technology?
    A. Doing internship
    B. New technology is always coming out in the field I am majoring in so I am always learning about new stuff.
    C. Phones and faxes
    D. Use software on the computer to complete certain assignments for some classes
    E. To search for music, to buy things or find information about things, to talk with people to make projects look nicer, to program micro controllers, and to play games.
    F. Keep in touch with friends and family: download music and make CD's: build a website
    G. I talk to other people, download music, read e-mail.
    H. Computers, cell phones, etc.
    I. AOL Instant Messenger
    J. Electronic homework, quizzes (CAPA)
    K. Downloading music and talking to friends on IM
    L. To communicate with friends and family and to download music
    M. I use to keep in tough with my old friends. I use it to download music and make CD's.
    N. Riding in automobiles and buses, scanning my ID for anything.
    O. I use America Online, Palm Pilot, cell phone (Senior)
    P. By using cell phones and digital cameras
    Q. I use Instant Messenger online for my IAH class and I get notes from other classes online.
    R. Downloading music, movies, e-mailing
    S. ? no answer
    T. Downloading music, AOL
    U. Currently I am working on a web page
    V. Entertainment, transportation, communication, and health related

9. If you could tell MSU President Peter McPherson one thing related to computer technology, what would it be?
    A. Provide each room with at least computer
    B. Providing us with access to computer technology is essential for our academic success.
    C. I would say teachers with websites used as a syllabus should still be required to give a hard copy of the syllabus.
    D. Probably just that I really like having such a fast Internet connection.
    E. To make more resources for academics available on the Internet. Mari easier to find people info, etc.
    F. That technology is an amazing reality to the future.
    G. S ome students need more of a background in using technology.
    H. All students need to know how to use computers
    I. ? (Could not read answer)
    J. I think it was really good idea to require freshmen to have computers (although I did not really at first)
    K. Nothing to say at this time
    L. Technology is truly the work of the devil and is only here to corrupt society.
    M. To update the computer labs because they are always stuck or frozen (Senior)
    N. I like the pilot e-mail system at MSU
    O. N othing
    P. Computers should be in the lounges
    Q. T he computer requirement is a good idea
    R. CSE 101 should be a requirement for everyone
    S. Thanks
    T. Make the teachers speak English. I cannot understand my math teacher.
    U. Provide us with more outlets for lighting in the rooms
    V. Students should get free computers
    W. Nothing, really
    X. Why don't teachers respond to e-mail? They should be required to.
    Y. Go Green
    Z. The university should provide more training for students. Some of us have not used computers that much.
    AA. I like the computer technology, but it can be too much sometimes
    BB. Not everyone knows how to use computers very good
    CC. There should be free computer help for students

10. Are you a first year college year college student?

All documented responses were from self-reported first year students. Any questionnaires that indicated the student was not a first year college student were not included in this study.

11. What do wish you had more experience with using computer technology?

A. PowerPoint
B. No, I think I am fine
C. Excel
D. Of course, I have a lot of experience, but everyone should want to learn more
E. Typing
F. Finding information on the Internet
G. E diting Programs
H. Sound and Video
I. Everything
J. Fixing problems with my computer
K. Creating web pages
L. I am OK, but I could use more training
M. Microsoft programs
N. I want to learn how to create a web page
O. E -mail
P. PowerPoint and Excel
Q. Typing papers
R. Troubleshooting and installing hardware
S. Downloading music and video
T. Nothing
U. How to create a web page for MSU

12. What do like best and what do like least about technology?
    A. I have access to it, but it fails easily
    B. How easy it made it to make independent films: Least, still hard for me
    C. Best: It's usually fast, easy, and full of information and Least: It's frustrating when something goes wrong
    D. It is free, but I had to buy a new computer
    E. It takes too much time
    F. Everything
    G. I like being able to talk with my sister using the computer
    H. I got a virus and my computer still does not work the same
    I. I love it
    J. I think it is too much some times
    K. I hate when my roommate uses my computer and I cannot use it
    L. I think we should get free computers as part of our tuition
    M. I like everything about computer technology, well not so much homework
    N. It is great
    O. T he best is efficiency and speed and the worst is too many distractions

13. How would you describe your experience using computer technology related to your classes and academic work?
    A. I like the speed
    B. It makes me lazy, but I guess I don't mind that
    C. Makes things easier
    D. We have to be more accountable with e-mail tracking
    E. I think Blackboard is great
    F. I think it is too much sometimes
    G. I have to type all my papers. I also have to send it via Blackboard.
    H. We have to use it all the time
    I. I do not like it
    J. Fine
    K. Some teachers use it too much
    L. Mandatory
    M. I like it a lot, but I know some students do not
    N. No comment
    O. W e can't live without it

14. How would you describe the way technology has influenced your grades at MSU?
    A. Directly correlated
    B. I have to use a computer to do the work
    C. I don't have to use it that much except for Word and e-mail
    D. Critical
    E. I don't know
    F. Hasn't really influenced my grades
    G. It hasn't, I don't think
    H. Very little
    I. My grades might be lower if I didn't have a PC
    J. Hand in hand
    K. You can't graduate from college without knowing computers
    L. It is a necessity
    M. Not sure, maybe some
    N. Mandatory, you can't pass your classes without a computer

15. What would you like to tell the faculty and administrators about your experience with technology?
    A. Nothing really
    B. They're all very beautiful people
    C. There should be a back up plan if technology falls through
    D. Nothing really
    E. I think the classes and grades should be available on line
    F. It is needed
    G. That technology is an important tool in every day life
    H. Pilot is slower and the Telnet schedule thing needs to be updated, but the Ethernet is nice
    I. Don't use technology so much
    J. I don't have anything to say
    K. Some students need more help using technology
    L. All teachers should have to speak English
    M. It is not fair
    N. I love it
    O. There should be computers in more classrooms
    P. It is very efficient
    Q. Some classes use it too much

Appendix K

Summary of Face-to-Face Interviews

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Summary of Face-to-Face Interviews

Face-to-Face Interviews

This section introduces each of the individuals that participated in face-to-face interviews. It provides a summary of the responses and selected quotes related to the primary research questions. In order to maintain confidentiality, pseudonyms are used for each of the participants. The grade point average, gender and other information was self-reported and considered to be accurate.

Elizabeth

Elizabeth is an 18-year-old African-American female majoring in engineering. She did not list her GPA. Elizabeth indicated that in 1989 she started using computers in elementary school. "We had the orange and amber screens," she laughed. She smiled and explained that she won a new computer in a contest just before school started in August of 2001. Elizabeth stated,

> But we did not get a computer in our home until 2000. My uncle had one though so I would always go over and use his. I went to a vocational school that was for graphic arts. I did automotive layouts, business cards, and stuff like that so I was prepared for technology at MSU.

Since arriving at MSU, Elizabeth indicated that her use and knowledge of the computer had increased, "I check my e-mail several times a day. I check the engineering web page everyday for my course stuff and I have a Black Planet web page that I visit everyday." Elizabeth explained that she also uses her computer for other reasons as well. "I also check my financial aid, deposit money and do other banking online, too. I also have a cell phone."

As a first year student, she is required to be competent using a computer to pass at least one of her classes. She stated, "We do not have any books in one of my classes. All our readings and assignments are on the computer. I have to use Blackboard for ISS (Integrative Social Science). I check my course web page everyday for relevant information."

Elizabeth stated she has had positive experiences communicating with faculty members via the computer. She also indicated that her instructors,

> Sometimes answer a student's question via e-mail similar to how they would if the students were in class. All of my professors use e-mail to answer questions. Sometimes they post the question that you ask them for everyone else to see with the answer.

When the conversation focused on using technology for communicating with others, Elizabeth said,

> My computer is on 24 hours a day. I talk with my brother or my friends in the dorm via the computer, because I do not want to go

upstairs. I use IM (Instant Messaging) all the time! I use IM more than e-mail because it is a communication thing. I can be talking to a friend in Armstrong or anywhere, and I can always get a comment. I 'IM' people right on the floor all the time because we are so tired and even though they are right down the hall, it is so much easier.

When asked about her experience using technology to learn, Elizabeth stated, "Technology is a world of everything new. You can learn about anything. Germany, Brazil, anywhere. It is the super highway to anywhere."

During the interview, one of the questions related to describing any negative aspects of technology that Elizabeth may have experienced. This question seemed to catch her off guard, because she sat back in her chair and took time to quietly think for over fifteen seconds before she replied, "Technology is making people lazy. My grandmother used to pick cotton and now you have technology doing that. Society is becoming more and more lazy because of technology." Elizabeth continued,

> Assembly lines are replacing people with technology. You don't have to milk your own cows now. TV and technology make you lazy. It relaxes you. It makes you a dummy. My grandmother can read a book and it amuses her, but I could not sit and read a book for five or six hours. She could not watch TV for five hours. The new generation is lacking that IQ. My grandmother can tell a story

just like that," she stated as she snapped her fingers." She continued, "If you ask someone in class, they have to think about it. Technology is making you dumber. Technology is making society dumber and too lazy. You have remote control now. You used to have to get up to change the channel. I think technology helps you, but it is also hurting us. My father can work on the line all day and that is a day's work; but my brother would faint if he even tried. It makes you lazy. Everything is handed to you. You don't have to work any more. Do we really need technology? I do not think so. Everything we are doing with technology, we have been doing for years. It is a good source, but I do not think we should use it every day. I need that eye to eye contact," she said with certainty and passion.

During the interview, Elizabeth was asked if she believed her experience with technology was similar to that of most other first year students. She stated, "It is not fair that MSU has the same expectations for Black students that have not had access to computers before coming here. African-Americans do not have enough computer technology in their background." She remarked that Black children do not have role models that use computers in the home and she also expressed frustration and concern that some of her friends do not know how to type. She explained,

> There are some kids on the floor that have just never used a computer, period. It is the parents' fault. Some kids don't push themselves. Some kids never had a computer class in high school. Detroit public schools are not inferior, although some people say so. African-Americans have kids young, and they are being brought up by their mother, and she doesn't know about computers, so how much can she do? Some kids don't know how to type, and they would rather just talk.

Elizabeth spoke louder and with some sadness when she described how she believed African-American students experience technology differently than many other students. "It is a smaller percentage of students of color that are interested in computers, because they just don't know. How can they be interested in something they don't know? You can count on your hands how many African Americans are in your class," she explained.

Elizabeth sat up straight and stated emphatically, "Students have to know how to use technology or they can't be successful here." There was passion in her voice as she spoke continued,

> Some students that come to MSU do not know enough about technology. Some of my friends from Saginaw don't have any experience with technology. That is why you don't see as many African Americans graduating, because they don't have the strong

family background. It is not your fault that you don't know how to use technology. Your teacher never taught you.

Dan

Dan is an 18-year-old Caucasian male. He did not indicate his GPA or his intended major field of study. Dan disclosed that he did not have many positive experiences with computers before coming to MSU. He stated, "The computers in elementary school were really old and crappy. There was one in every classroom, but it was never on." He went on to explain, "My family has never been big on computers. They may call me and leave a voice mail."

Coming to MSU and being required to use technology has been a culture shock to Dan. "Every one of my classes sends test scores via e-mail so you are forced to use e-mail to get your test scores. If you ask them for the results in class, they just laugh at you and tell you to check your e-mail." There was tension in Dan's voice as he spoke.

Dan expressed that he felt he was having a different experience with technology than most of the other male residents living in his residence hall.

When my friends want to play video games and I don't want to do that, I want to go out and do something or go jogging, they just want to play video games and I don't have time for that. I want to go out and do something.

There was a feeling of frustration and disappointment as Dan reflected on his experience competing with technology for time with his friends. "It seems like I am different than almost everyone else," he said. When he was asked to describe his feelings about technology, he paused before he commented, "Technology is taking over society. It almost seems like it is too much sometimes."

All of the participants were asked if there was something that they would like to share with MSU President Peter McPherson concerning technology. Dan's response directly related to his experience with technology, "It upsets me some because not everyone has the money to buy a computer. I think it is necessary, but I don't think professors care if you know how to use it."

Although most of Dan's answers reflected negative experiences with technology, he did have some positive things to share about using computers at MSU. "I have e-mailed some professors with a question that I would have been too embarrassed to ask them. Even in a class of 400, they get back to you quickly with an answer," he commented. He then described another connection with a faculty member that would not have happened without the use of e-mail. Dan smiled as he spoke about exchanging several positive e-mails with one of his instructors. He expressed that a line of communication was opened with that particular faculty member through e-mail, and he was going to continue to use it.

Cathy

Cathy is an 18-year-old Caucasian female. When she entered the interview room, she immediately extended her hand and introduced herself. Cathy seemed very comfortable and in a happy mood. She smiled and talked for several minutes about her busy day before we started the interview. She leaned back in the chair as she described her experience with technology before she came to MSU. She chuckled and said, "I've always used technology," and then elaborated about how as long as she could remember; there was a computer in her home while she was growing up.

As the questions became more specific, Cathy provided more detail about her experience using technology. "Before I came to MSU, I had e-mail, but I did not check it often, maybe once a month. I now have a thing called IM which I use everyday." She continued, "I never had electronic homework before I came to MSU. In high school we had computers in the lab, but I only used it five or six times a year. In high school we were required to have a computer class, but that just taught us how to type and use Microsoft Word for typing up a letter. We also learned how to use Excel and PowerPoint, but just the basics. We had a computer at home, but my brother used it all the time so I hardly got to use it. I used to consider myself computer illiterate, but my brother was a geek. This semester I have improved a lot."

Cathy shared that one of her experiences with technology involved using the Internet.

> They did not teach us in high school how to use the Internet. I had to learn about it after I came to MSU. When I used to look up information that would take me an hour, now it only takes me a half hour. My first homework assignment fall semester took me about four hours and I had to call someone to look up something for me.

Cathy explained that during her first semester as a college student, she has had mostly positive experiences using technology.

> I start my day using technology. I have an electronic alarm clock that sings me awake. That's a form of computer technology. The next form of technology that I use is that I turn on my computer to check my e-mail. Then I usually ride a bus to class, and buses would be form of computer technology because they did not have those in the Stone Age.

When Cathy was asked directly about her experience with computer technology since she came to Michigan State University, she chuckled again and explained,

> It's a kind of a love-hate relationship. I usually check my e-mail about five or six times a day. I am always sending and receiving e-mail messages. Overnight I had eight messages and that was just for a few hours. At a minimum I get about twenty messages a day, but up to thirty is not uncommon.

She described how technology is an integral part of her academic experience.

> Last semester I mainly used it for writing papers. My classes did not really require us to use it much for research. Now I use some form of technology in the majority of my classes whether it is electronic homework, taking notes, or e-mailing.

Cathy stated that the classes she was taking required students to effectively use technology or it was not possible to pass the class.

> This semester I have an ISP (Interdisciplinary Studies Program) class which is CAPA (Computer Assisted Personalized Approach) and it is hard. I go to the CAPA program at least three or four times a week for several hours each time. I also use Blackboard and the teacher puts class notes online. I also get at least five e-mails a week from her just about the class. She uses the computer a lot. The only time we use paper is for tests. All the papers and quizzes are electronic.

Cathy had a big smile on her face when she added, "Because I knew how to use Excel, I did not have to read the thirty-five page handout the teacher gave us that explained how to use it."

She boasted that she had a lot of experience using technology for academic and personal reasons. Cathy explained that she does not have to go to

the bank as often because she does most of her banking electronically. "Technology makes the world smaller." She also explained the ways she uses her computer to communicate with others.

> Technology keeps me connected to my family. I talk to my siblings on the computer because it is free. Otherwise, I would not communicate with them much. I also keep in touch with a friend who went to Iowa, and I know I would not be able to keep in touch as much without computer technology. I am also on the sunshine committee on my floor, so I make birthday signs and cards for people on the floor and I send electronic Valentine and birthday cards to others.

Cathy felt strongly that she believed first year students had to be comfortable using technology if they were going to be successful at MSU. "You have to know how to use computers or you are not going to make it," she said. When she was asked to describe her experience using new technology for class related purposes, her response was, "I am not sure if they (faculty) care. They are not really teaching you how to use it (technology), but they expect you to figure it out. I think they expect you to get together with other students to figure it out."

Cathy's verbal and nonverbal communication indicated that she was having a very positive experience using technology as a first year college student.

Sandy

Sandy is a 19-year-old female that described herself as bi-racial. She indicated that her GPA is a 3.1 and her major is pre-medicine. Sandy indicated that prior to coming to MSU, she had some experience using computers in high school, but it was limited to researching and occasionally typing a paper for an academic class. "I had a computer class in my senior year in high school. In middle school I used it (the computer) for math. In high school we used it to surf the web."

Sandy spoke in a soft voice and provided short answers to many of the questions. There was no excitement or energy in her voice as she spoke about using technology. She expressed that her experience at Michigan State using technology had not been very positive. Sandy expressed frustration over having to use computers as much as she does. "Sometimes it is difficult to find things and I just waste time. There are too many distractions." She went on to explain,

> One of the worse things is that it distracts you. I should be working, but instead I am Instant Messaging. Another negative thing is when it (the computer) doesn't work. It takes a lot of time to make it right, and sometimes I make it worse. I did not think I would have so many problems with my computer.

Sandy described other personal experiences using technology as not positive. During the conversation she disclosed that she felt she does not have

many friends and that she believed that technology was not helping her connect with others.

> Sometimes it makes you feel kind of isolated which is not a good thing. Some people just become stuck on the computer. They seem like they don't want to talk with you. They just e-mail you, and it lacks personal contact.

She also expressed negative feelings about interacting with strangers on the computer and stated,

> I don't like chat rooms sometimes because there is some weird stuff sometimes. Guys ask weird questions, and they want to meet me. Sometimes you get unwanted messages, and they won't go away. Sometimes I get a crazy message from people out of state that ask to meet me. Sometimes I get pornography, both males and females. One time I was online with a lady who said she was 43, and she lived on a farm, and she wanted to get together with me. Another time someone said, 'I hate you' and some other things that were not very nice. I almost reported them, but I hit the wrong button and then just disconnected.

Sandy emphasized the importance of students checking their campus e-mail everyday. She indicated that she often receives academic information via

her student e-mail account. Sandy also re-enforced the importance of having virus-scanning software on a computer by saying,

> I don't know if I have ever been infected. I got a message from someone and I did not know who they were, and when I opened it, my computer started acting funny so I guess it could have been a virus.

When Sandy described her experience using technology related to her classes, she said, "All the professors send their exam scores and many of them e-mail you. All of them give us their e-mail addresses and so do the TA's (teaching assistants). They all want papers typed on a computer."

Sandy provided several examples of how she uses technology in her classes. She said,

> One of my classes has a CD-ROM to learn Spanish. I don't use it often, but it is interesting. I also signed up on a Spanish web site to help me do better. My other classes use e-mail to send test scores and other information. I use the computer to find information. Sometimes I go looking for information, but I can't always find what I am looking for.

When Sandy was asked what has surprised her most related to technology, she again expressed frustration, "Sometimes it is difficult to find things. I also did not think I would keep having problems with my computer." When asked about using the computer for non-academic purposes, she

mentioned "watching video on CNN.com or some other sites like weather.com." She then added, "I also use it to go in chat rooms."

Elliot

Elliot is an 18-year-old Caucasian male. He reported having a 3.7 GPA and that his major was Criminal Justice. He was well dressed and groomed. "As long as I can remember, I always used computers, probably since fifth or sixth grade," he shared with pride.

During the interview, Elliot offered positive and negative feelings about his experience concerning technology as a first year college student. "The best thing about technology is that it helped me become more intelligent. I have been able to learn about things that I would not have been able to learn about. It helped me utilize my intelligence more. It helped me compete better with other people." He chuckled when he spoke about communicating with his mother via e-mail. "She just told me that she is bringing my coat the next time she comes to visit. I also share photos with her and others."

Elliot also shared that he has some serious concerns about some possible negative outcomes of computer technology. "Biotechnology has been on my mind lately, especially since September 11th. It is scary," he said with some unease. "The whole genetically altered area of science is coming very fast and it is scary. The wind could carry genes to other crops and influence the crops. You can't put up gates to stop all the wind." Elliot also expressed concern about

economic problems that have resulted from computer technology. He revealed that as a young adult, he is concerned about the economy and the influence that technology is having on the stability of the economy and his future.

When Elliot was asked what surprised him about technology, he replied, "One little thing can make the whole thing fall apart. There is a virus called 'my party' that caused all types of problems and the virus checker did not catch it. I lost all my data." He went on to describe an incident that involved a hacker causing millions of dollars worth of damage to a company and how he is concerned that could happen on a larger scale for the whole economy.

As Elliot further described his experience using technology at MSU, he said,

> I use it for Blackboard, for the message board, getting my grades, and sharing information. I like it because there is a communication tab and our grades can go up if we use it more. We get to share ideas and thoughts with each other. I like that the grades are online so we can always check it. There are six or seven TA's (teaching assistants), and we have to turn in our papers by section, and then we get our grades by section. The teacher can check to see if we went on Blackboard or not. The professors are pretty good about sending e-mail reminders and messages. There are also math help sites with information about the class. It allows us to keep in touch

with other students. Teachers are pretty good about responding. They don't let a message sit for a week without a reply.

When asked what technology related skills he thought first year students needed in order to survive at MSU, Elliot mentioned that students need "basic word processing and must know how to use e-mail for communication. They also need to know how to surf the Internet to find information."

Charles

Charles is an 18-year-old Caucasian male who did not provide his GPA. His experience with technology prior to coming to MSU was limited. He explained,

> I tried to use it, but not very much. The computer I had at home was not very good. I did not use it very often. They (his parents) bought a new computer for my sister after I left. In high school we had computer labs in our school library and we could search during class. I got down there enough, probably about two or three times a semester.

When asked to describe his feelings about technology, Charles said,

> It is pretty good for society, but I think there is a lot of vanity with it. People hop on their cell phones as soon as they get out of class. I don't understand what they need to talk about right away. Overall

though, I like it. I like being able to communicate with others online although if they are in the building, I would rather just go and talk with them.

During the interview, Charles did not express many positive thoughts about technology. He stated,

> I have learned that technology is not always a good thing. It helps the human position and technology helps us to be able to gain knowledge, but I have a genetics class and we are learning how this is not always a good thing.

He indicated that he feels technology has had a negative impact on the way he communicates with others. "It also makes things impersonal," he explained. "When you e-mail or talk online, you lose the personal aspect. There are friends that I don't get to see much any more, and the first thing I want to do when I see them is hug them." He went on to say, "I need that personal contact."

Charles suggested that first year students need to learn how to send e-mail messages and electronic files early in fall semester. He also said that AOP (Academic Orientation Program) should include some technology training.

> Some students do not even know how to use e-mail. AOP shows you how to use MAGIC (a MSU library reference tool), but you don't need to know how to use MAGIC your first week here. Students need to know how to use e-mail if they want to pass

some classes. They also need to know how to install programs for themselves.

When asked if there was anything he would like to say to the president of the university related to technology, he expressed having positive experiences using the Ethernet connection in his residence hall room. "I have friends at other schools and they don't have access to Ethernet in their rooms. My dad doesn't have it at work either," he explained. Charles also indicated the president should make sure that students buy their own computer, and that they know how to set it up when they arrive on campus.

When I asked Charles what was the best thing for him related to technology, there was a long silence. For over thirty seconds, Charles sat and looked down at the floor. He appeared to be thinking of an answer. When he finally spoke, he stated that the best thing that technology has done for him was that it allowed him to go on a cruise last summer. "The technology allowed the boat to go through the water and get us to where we wanted to go. We also used technology to record the trip on video," he added.

James

James is an 18-year-old Native-American male. He reported his GPA as 3.0 and his major as Journalism. During the interview, James smiled, seemed relaxed, and leaned back in the chair often. He mentioned that he was "somewhat of an expert using technology" and was pleased to be interviewed on

the topic. His answers during the interview were long and somewhat complex. This interview was the longest by more than ten minutes.

James reported that he has been using computers for several years and considers himself to be computer savvy. He indicated that,

> Middle school is when I started to learn. My family got me a computer when I was in 8th grade. By my senior year in high school I had to take a computer course, but it was mainly a refresher course. We had computers in most of the classrooms and we used them for checking textbooks in and out as well.

When James arrived at MSU, he brought a computer that he had recently purchased. He was confident that he was better prepared to use technology than most of his floor mates. "I would help the other guys out and I even helped some of my professors," he expressed with pride. James seemed energized when speaking about his experience with technology. He spoke rapidly and smiled as he spoke, "First thing I do everyday is to check my e-mail. I also check out online newspapers. I like to stay informed. It is convenient and cuts down on paper."

James stated that he uses his computer for leisure activities by searching the Internet for possible career information and for music files to download. He also uses a personal data assistant (PDA) to keep track of his schedule, phone book, and other information. James was the only interviewee that commented that computer technology includes his radio, CD player, and television set. He

also added that he considers his telephones to be a form of computer technology.

One of the topics on which James elaborated was how students are connecting, communicating, and interacting with others. During the interview, he spoke a great deal about Instant Messaging. He explained how he uses it for social and business interactions. He mentioned that one of the student government committees he is involved with also has meetings online using Instant Messenger. In this way, students do not have to travel across campus in order to communicate and make decisions.

James shared an alternative approach to social activity that would not be possible were it not for computer technology. He explained, "I do think some people may be isolated at times; but if I don't have the energy to go out, I still can go out virtually. Certainly it is not the same as sitting across the table from someone, but it is still fun." He went on to explain that he might spend several hours hanging out with his friends online.

His statements about social activity lead to another phenomenon that barely existed a few years ago and has since surged in popularity, playing computer games over the Internet. Data continues to mount indicating that playing computer games has become the favorite activity of many college age students. Although these games tend to be more popular with males, research indicates that females are also using computer games as a popular source of entertainment. James confirmed this phenomenon,

A lot of guys on the floor play games over the network. Sometimes you have twenty people on the same floor playing the same game in different rooms over the Internet. Some of the girls in the hall also play sometimes.

When James was asked what type of computer technology experience he thought was necessary for incoming first year students, he paused and reflected before he responded, "The computer requirement is not really fair to everyone. College is already very expensive! If students have to go and buy one (a computer) and they have not had previous experience using it, they are at an even greater disadvantage."

During our conversation, James shared that he was surprised how "intense" the technology environment is at MSU. He stated that he understood why some students have problems using technology. "Most professors assume that you know how to use the technology. If not, professors just expect you should be able to figure it out," he elaborated.

Overall, James expressed positive feelings about using technology as a first year college student. When asked if he had anything say to the president of the university about technology, he replied, "Technology is wonderful. It has made the campus smaller. It has been a great way to communicate. It saves people a great deal of time and work trying to get an answer."

Monica

Monica is an 18-year-old female from China. During the interview, she spoke very softly and her answers were very short. Throughout the interview she sat towards the front of her chair with her hands folded in front of her. She often looked down during the interview and had the least amount of eye contact with the interviewer compared to other participants.

Monica's experience with technology prior to coming to MSU was quite limited. During the interview, she spoke with a heavy accent and stated, "I have been in the USA for about seven years. I did not have computer skills when I was in China. In China, there were no computers in my school." Monica mentioned that she been able to use a computer in school since arriving in the United States. However, improving her ability to communicate in English was her primary focus.

During our conversation, Monica indicated that her experience at MSU using technology has been both positive and negative. She emphasized that she had to learn a lot about computers since she arrived on campus a few months prior to the interview. She explained, "I would like training about how to use the library. I go there about twice a week, but I am not familiar with MAGIC. MSU should offer computer training online." She also mentioned that one of the things she likes best about technology is that it is helping her to learn English and French. Monica described an interactive CD-ROM that she likes because it pronounces the words for her. She is also able to communicate with her friends

in China via the computer. "I check my e-mail at least ten times a day," she said with enthusiasm.

Monica indicated that most of her classes involve the use of computer technology. She stated,

> For some of my lectures, some of my professors use PowerPoint. When teachers use PowerPoint and they give handouts so we can take notes, it helps a lot. Some of my professors use e-mail, but not all of them. For ATL (American Thought and Language) class I use Microsoft Word because I usually send a paper copy. A few of my classes have Web pages, also.

Monica was asked how she perceived other international students experiencing computer technology. Her answer was poignant,

> They are international students. Some of them do not speak English very well. Some of the other countries do not provide computer classes. In China, there were no computers in my school. High schools are completely different in other countries. International students need extra help when English is not their native language. They do not have the same exposure to technology as US citizens.

Monica indicated that in order for students to succeed at Michigan State University, they must be able to use a computer. She shared that e-mail is

difficult for some of her friends. She stated, "Some students do not know how to delete messages or have problems using software." She also felt that international students may not have had an opportunity to use computer technology earlier in life. She acknowledged that some international students are going to be disadvantaged as first year college students because of their lack of previous experience using technology. When asked to summarize her feelings about technology, Monica provided a very positive review and said, "It is easy to communicate and it saves time. I like it. I actually love it."

Cindy

Cindy is an 18-year-old Caucasian female. She reported a GPA of 3.2 and that her major was pre-medicine. When describing her experience using technology Cindy said, "I am a computer addict." She had a computer in her home since she was a child and she attended a private high school before coming to MSU. Cindy stated that computers were in all high school classrooms and that she was familiar with how to use them. "We had to have two semesters of computer classes. We learned the programs in Microsoft Office and how to use the web. I know how to use Access, PowerPoint, Publisher, Word, and Excel," she added with pride. Cindy mentioned that she purchased a new computer just before she came to MSU in the fall of 2001.

Cindy described having multiple e-mail addresses in order to keep her personal e-mail separate from her academic related e-mail. She told me she had not yet been to faculty members' office hours to speak with them. Instead, she

indicated that she uses e-mail to communicate with faculty and to ask any questions that she may have.

In reviewing her transcribed taped responses, at least one of her responses could be interpreted in more than one way. An example is her statement that, "I use the computer everyday, but I think that can be a bad thing sometimes, because you lose some of the personal contact." She also stated, "I don't like e-mail because it is not a conversation and it is not very personal, but I do e-mail my mom everyday." Cindy communicated a limited perception of the term "technology." When asked what other types of technology she used, she replied, "I don't really use any other type of technology other than an alarm clock."

Later in the interview, when asked if she had any negative experience using technology, she quickly added,

> I can't stand cell phones. Some people answer the phones in class and talk on the phone in class. One of my professors told everyone to turn off their cell phones, because they kept ringing. I only use cell phones for an emergency or quick interaction.

Several times during the interview, Cindy mentioned, "I use Instant Messenger a lot, a lot more than the phone." She also shared,

> It is very addictive! It is always on. I am a social person, and technology allows me to keep in touch with others. You know, I

> would not call them five minutes before I leave for class, but I will IM them right before I leave for class. Sometimes I will call someone like my mom or someone to talk with them, but I usually prefer IM.

When asked whom she is usually talking with via the computer, Cindy stated that some people are local and others are farther away, "I talk online to other girls down the hall or friends elsewhere in the state."

In response to the question regarding her experience using technology as a first year student, Cindy replied, "This semester I have not had to type many papers, but chemistry is all online. CAPA is all online. I have to submit all answers online. I use e-mail with my professors." Cindy also she said with a sense of frustration,

> I have one professor that sends us an assignment every day. We have to read the New York Times online, and we have assignments we have to do. The New York Times assignment has questions on the test. I get the New York Times paper copy sent to me, but the problem is that if we do not read it online and keep up with the assignments, it makes it almost impossible to find the article that he is referring to on the test. You have to use the computer. You don't really have a choice.

Cindy also communicated that she uses technology for recreational and non-academic purposes. She explained, "I play games on the computer a lot--Madden 2002, Tetris, and other games. I also surf the web a lot. I know a lot about computers."

When she was asked what it takes to have positive experiences with technology as a first year student, Cindy replied,

> I think in general, students my age know how to use computers. There is a difference though between those that have more technical expertise and those that just use it for papers and e-mails. Students need to know the basics, especially because professors require so much.

When asked to elaborate about this point, she continued,

> I suppose there a lot of people that don't know what they need to know related to technology. It depends of what you were taught in high school. I think students should buy the computer before they come to MSU so they are not getting used to a new computer as soon as they get up here. I would suggest that students buy Microsoft Office so students know how to use the programs. I also think there should be a computer class requirement so that students can learn more.

Cindy expressed dismay that some students who live on her floor purposely not use e-mail. She stressed that reading and responding to e-mail on a daily basis should be expected of students. She explained,

> There is a girl down the hall who does not check her e-mail for five days, and then she is surprised when she has a test coming up! All the Profs send e-mails reminding you about tests and what to study. I think most of the students check their e-mails a couple times a day. One of the differences is that our freshmen class was expected to bring our own computer and so there is more of an expectation that we will be using it every day.

At the time of the interview, March of 2002, Cindy reported that she had been to the MSU library only one time. She explained, "I have not been to the library yet, well I went there once to meet someone there, but that was the only reason I went there."

Karen

Karen is an 18-year-old Caucasian female that did not indicate her major, but did mention that she had a 4.0 GPA. In the beginning of the interview Karen stated, "My mom ran a computer related business so computers have always been a part of my life, probably since I was like five years old." She reported that computers have continued to be a large part of her life.

Karen mentioned that she probably spends several hours a day working with her computer. She indicated that she spends some of her time "accessing class notes online, checking out web sites, and talking with people online." When asked about communicating with her faculty online, Karen said, "I use e-mail to ask professors questions, because it is easier than having to go to their office hours. The professors I have e-mailed have replied back right away."

Karen stated that she uses computer technology as a primary way of communication. She mentioned using e-mail, chat rooms, and Instant Messaging to communicate with others. She added,

> As far as IM'ing, I like and dislike IM at the same time. I like talking with people who I would not normally be able to see. I talk with my little sister on it. I don't like it, because it distracts me from other things. When I want to talk to someone I want it to be because we have something to say. I don't like small talk. I have a few good friends in Colorado so I talk with them through it. I primarily use IM to talk with people who do not go to State.

Karen also mentioned a wave of technology that faculty and students continue to grapple with-- cellular telephones. She was a bit emotional as she proclaimed, "I hate cell phones. They go off in class just about every day. It is annoying," Karen said with disgust,

> I do not think cell phones are necessary. They are dumb. I am the only person I know that does not have a cell phone. I would like one for emergency purposes, but I do not like when others have one and it goes off while I am talking with them.

When asked what type of experiences new students need to be successful with technology at MSU, Karen replied, "Students have to know what they are doing. None of the classes here at State offered training. If they are going to require you to do something, they should provide training for how to do it, but they don't."

Tom

Tom is a 19-year-old Caucasian male who reported his major as turf grass management and that he had a 3.0 GPA. "I've had a computer in my home since I was six or seven years old," he stated. He added that he used the computer a lot because he didn't have a job, and he did not like to play sports. According to Tom, his experience at MSU involving technology has been positive. He uses his computer to check his e-mail and the weather first thing in the morning. He admitted that he often does not reply to messages, "I am terrible at e-mailing people, but I check it at least twice a day, but as far as me sending something back, maybe a couple times a week." When asked about e-mail requests from faculty and other academic related e-mails, Tom said he often replies to these requests, but not always. "Depending on what they want, if there is some stuff

like a page that we have to fill out and then we send it back to them, I will do that," he explained.

When asked if any of his classes used Blackboard, Tom said,

> I have used Blackboard, but it was extremely confusing to me. All of the homework we did for a class last semester we had to upload to a web site the professor set up. I think it was the professor's fault because he was nervous using it, and it was just a mess. That is the only professor that used it.

Tom shared that the academic program he is in requires him to be competent using computer technology. He stated,

> In class, it is not even an option. They force us to use PowerPoint and Excel. We have to use Excel a lot to formulate budgets and graph profits and losses and stuff like that. We also have to give presentations and write up papers and stuff like that. This year we did three PowerPoint presentations, but next year they are countless.

Tom expressed some dissonance between his field of study, which involves work outdoors, and his enthusiasm for computer technology. He stated with a smile,

> Everything I do involves technology. It just sucks you in. I like it, but sometimes I wish I didn't like it so much. I would rather be outdoors hiking or mountain biking or something like that, but not working on the computer. I don't mind it though.

When asked what is important for first year students to know related to technology, Tom did not hesitate, "Technology can make you look a lot better than you really are. I can create charts and graphs. It can simplify a lot of stuff. You can cut out a lot of work and time by using technology."

When the topic shifted to using technology as a means to communicate with others, Tom's posture stiffened, he sat up in the chair and replied,

> IM'ing, I cannot stand that! Sometimes there are people in the same building or on the same floor and they just want to keep talking via the computer if you let them. I use it as little as possible! I would rather just go and talk with them. I just use it to communicate with my parents back home and people that are long distance, because it is cheaper. I communicate with my whole family using technology, my cousins, uncles, and family. As opposed to (using IM for) people that are in the same city, I would rather just go meet them somewhere and talk with them.

Although Tom has his own computer in his residence hall room, he indicated that he was not always able to use it. He stated,

> Everyone should have their own computer. I had a roommate who did not have a computer, and it was really frustrating because he was always using my computer. That made me mad. I wanted to use my computer and I couldn't. MSU should have a deal with Dell or Gateway to help students be able to afford their own computer.

Carol and Lydia

Both of these students were interested in participating in an interview and asked if they could interview together. They stated the reason they wanted a joint interview was that they were leaving for a four-day weekend the next day and wanted to get the interview completed before that time. They reasoned that they were good friends and felt comfortable discussing their individual experience using technology in the presence of each other.

Carol

Carol is a 19-year-old African-American female who reported being a nursing major with a 2.5 GPA. Carol explained her experience using technology,

> I did not actually have any computer classes before I came to MSU so I had to learn everything once I got here. I am not a computer

genius. We had labs in high school, and we also had a computer in the rooms, but we did not really use them.

Carol indicated that since high school, she has had to use technology a lot. "I check my e-mail about twice a day. I do not usually write people back though unless it is really important," she explained. Some of her classes used Blackboard, which she said she had to use several times a week. She also mentioned that all of her math study guides were on the math web page.

Lydia

Lydia is a 19-year-old Caucasian female. She listed her GPA as 3.1 and her major as marketing. Lydia completed several computer classes in high school before she started at MSU. She stated,

> I took a bunch of computer classes before I got here, so I knew a lot! Except when I got here, I had to call a guy at my dad's office to help me set it up when I got here.

She smiled as she talked about using her computer, "Actually, I check my e-mail a lot because of my test feedback. I also do my job applications via e-mail

and so I check it pretty often, because I get a lot of messages." When asked about using e-mail related to her classes, Lydia said, "We mostly have TA's (teaching assistants) so they understand how important it is to e-mail us back."

The interview with Carol and Lydia provided the best example of how pervasive computer technology has become in the day-to-day experiences of college freshmen. They explained their fondness of and popularity with Instant Messaging because it is "so much quicker than calling." Lydia explained, "We use IM all day, every day. We IM people all over-- friends, family, people in other dorms, everywhere!" "I've IM'ed my roommate," giggled Carol. Lydia laughed, "So have I! Like if they are on the phone or studying, you can just IM them and you don't disturb them."

When discussing the topic of advice for next year's freshmen class, Carol and Lydia had conflicting perspectives about using technology to communicate with faculty members. Lydia stated, "Technology is a good way to communicate with your professor and introduce yourself in a class of three hundred students. Carol replied,

> I think it is a negative that some professors are less personal because of the computer. It is tough luck if you are not able to get some of the information. It may help to be able to e-mail them, but you may also have less personal contact, because it does not force you to go and meet them.

When discussing the library on campus, Carol said, "I went a lot last semester, but to study, not to find stuff. Except when some of my professors gave us library assignments, then we had to find some things at the library." Lydia added, "The library is so big and confusing and sometimes the book is not there. I have to follow little red lines to find where I am going and I still get lost. There are too many distractions there."

Both students felt that first year students need to be able to use Microsoft Word and the Internet. They also felt that future first year students will need to have additional computer skills to be successful in college. The interviewees agreed with each other that technology has changed the experience of the college student. Lydia shared part of a conversation that she recently had with her father about the changes occurring in college life, "Yeah, my dad said when he was in college; he had to wait in line for everything. Now, everything is on the computer. You can find scholarships, schedule your classes, and check your grades, everything."

The data collected from the interviews helped identify, develop, and refine the themes and questions for the focus group conversations.

Appendix L

Letter to Participants to Review Transcribed Interviews

Appendix L

Letter to Participants to Review Transcribed Interviews

Hello,
Thank you again for the time you recently spent with me discussing your experience using technology. As a first year student, the perspective you provided is valuable and appreciated.
Please review the notes from our conversation that I transcribed from the audiocassette tape. I may only use a small percentage of the direct comments collected and they will all be anonymous.
I have already inserted pseudonyms in my research notes to maintain confidentiality.
If you have additional thoughts about your experience using technology after you review these notes and would like to send them to me, feel free to do so within 48 hours of receiving this letter. I will incorporate any modified or additional responses into my research notes.
Sincerely,

Mark Rinella
Doctoral Candidate
College of Education

Appendix M

Summary of Focus Group Discussions

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Summary of Focus Group Discussions

Focus Group #1

The first focus group consisted of four females and two males. Three of the females reported they were either African-American or bi-racial. One of the females and both males indicated they were Caucasian. Participant responses are summarized for each of the research questions of this study. Direct quotations are used to support these summaries.

In discussing their experience using technology, the students first described their use of technology prior to starting college. The participants in this group expressed a great deal of confidence and reported positive experiences using computers. "We grew up with technology," one participant said, while the others nodded in agreement. All six participants stated they had their own computer in their home before coming to MSU. All participants also indicated there were computers in their high school for them to use as well. All of the participants reported experiences using a computer lab and some had used computers in the classroom. In high school, each of the participants was required to take classes to learn how to use computers.

Participants in the first focus group were in agreement when one student stated that all first year students knew "how to use e-mail and the basic functions of a computer." These basic functions were later identified as word processing and accessing the Internet.

When the participants were asked specific questions about their individual experience with technology since coming to MSU, their answers differed from the collective answer that was communicated at the beginning of the session. There were comments such as, "I am pretty good with computers, but I don't think you can make a general statement that everyone is good with computers, because I know some people that are not." Another student commented, "When I have problems with my computer, sometimes I end up causing more problems than it had before." A different student laughed and added, "If you are patient with it though, sometimes it can be fun. Like when you can mess with someone else's computer and not your own in case something goes wrong."

Although all the participants said they were familiar with and comfortable using technology, they also indicated that each of them had needed to learn additional information and/or skills related to technology during their first year of college. "I had to set up my own computer so I had to learn a lot," stated one participant. Other individuals made similar comments including the student who stated, "I went on the Internet and learned how to get rid of programs on the computer and how to install and uninstall programs." One participant shared, "I had a virus so I had to learn a lot!" A few students nodded their heads as if to indicate they understood from personal experience. One of the female participants said, "On the floor, sometimes someone will just scream down the hall, 'Does anyone know how to fix my computer?' and then you learn from them."

When asked if there were things associated with technology they did not like, there were several different comments. One of the males said, "I think it is pretty bad that computers have become such a big part of our lives. I think it is pathetic that technology has become such a big of a part of my life!" Another participant stated, "I think IM is stupid. If people can't talk face to face, that is ridiculous." This prompted a different student to add, "People in my hall have been using IM to freeze each other's computer. They keep sending these huge files and it clogs the system." After reflecting and listening to others, a different student spoke, "I heard a kid talking about spending a few hours a day updating his profile for all the people that he wants to give a shout out to (slang for communicating a greeting), That is ridiculous." Another student agreed, "Yeah, some people just live on their computer." The conversation continued, "If it is long distance it is understandable, but not all the time." This prompted a student to say, "Sometimes it really gets on my nerves, because if there is someone that I want to talk with, they refuse to call me back. All they know is how to respond on the computer." A different student stated, "Unless it is someone that I don't talk to very often, like my little sister or something, I don't like to use IM just to talk. I would rather just speak with them."

When asked if they felt technology is causing some isolation for students, there were mixed reactions. One of the students said, "You have to create a balance. The computer doesn't make you do something." Someone else stated, "I usually have to leave my room to do homework; because if the computer is on, it is a distraction." A different student added, "Technology makes the world

smaller. It keeps me connected to my family. I talk to my siblings on the computer because it is free. Otherwise, I would not communicate with them much." A different student added, "I have three different screen names to log on with. I use AOL, MSN, and Yahoo." Another stated, "I spend way too much time on the computer. If I spent that much time on homework as I do messing on the computer, I would be a lot smarter." The group laughed and all nodded in agreement when one student said, "Yeah, we all moan and groan about IM, but we all use it." Again the group laughed after which one of the students said,

> I think the best use of IM is to keep in touch with people long distance. I would rather have people come and ask me how my day was. I would rather see a bright and smiling face instead of just my computer screen.

They all nodded and stated their strong agreement.

In responding to the question regarding what types of computer experiences they feel are important to master in order to be successful their first year of college, the participants in the first focus group communicated that they believe almost all students coming to MSU already have the computer skills necessary to have positive experiences using technology as a college student. They reiterated that some skills were more important such as using e-mail and word processing. More than half of the participants expressed that a new student should know the basics of how to use certain programs. Most participants named Microsoft Word, PowerPoint, Excel, and Access as needed tools for first year success.

One participant became very excited when she spoke about the use of technology in one of her classes, "I like the CAPA (Computer Aided Personal Approach)! It gives you immediate feedback so you don't get it wrong in your head and think you got it right." Most of the students had a puzzled look on their face when she said this. One of the other participants asked what she was talking about. She explained, "CAPA is electronic homework. It stands for Computer Assisted something, but it is great." She continued to explain, "For each student it is different. You submit answers, and it tells you right away if you got it right or wrong. It's hard sometimes, but it is great!"

All of the participants stated they use their computer practically every day. One participant commented, "I don't know anyone who does not spend a few hours a day using their computer." When asked if they felt technology has impacted the way first year students communicate with others, they all agreed, but in different ways. "The better technology gets, the more distant people get," one student complained.

Another group member strongly disagreed by sharing, "I find the exact opposite. I keep in more contact with my family and friends who do not go here." A third student insisted, "There has to be a balance between use and abuse. I think technology has caused me to meet less people on campus. If I got out of my room more often, I might go and meet more people."

One student commented, "I like being connected with my faculty." Yet another student disagreed by stating, "Not me, I don't even usually read the

messages from my professors. I get annoyed with them. I would rather they just leave me alone." A different student agreed,

> I think it is nice to when they use PowerPoint, but I have one professor that sends about five messages a week, and I think it is at the point where I think most students in the class do not even read them. I think people just delete it because she goes overboard with it.

One student complained that some faculty use technology too much and they all nodded in agreement.

Focus Group #2

The second focus group consisted of five females and two males. Three of the females indicated they were African-American or bi-racial, the other two females and two males stated they were Caucasian. Participant responses are summarized for each of the research questions of this study. Direct quotations are used to support these summaries.

The students who spoke in answer to the question to describe their experience using technology prior to their first year of college indicated that they have used computers for years, even before high school. All other participants nodded in agreement. A few of the participants indicated they had computers in their home since they were children. Other participants did not contribute much at

this time other than to indicate that they had received sufficient enough computer training before they started their first year at MSU.

Data from the second focus group indicate that participants had differences of opinion concerning their experience using technology during their first year of college. Some participants that did not have much to say about their prior experience with computers offered information about their current experience. While most of the responses to this question were positive, there were some different viewpoints expressed.

Some of the positive responses about technology from participants included: "I love it", "It is awesome", and "I can't imagine doing without it." One of the students stated, "The first thing I do is turn on my computer in the morning and the last thing I do at night is turn it off." Several of the other participants nodded as if to indicate they did the same thing. Several students commented about how they like the speed of the Ethernet connection to the Internet. In referring to Ethernet, one student added, "It aides learning, because I can find information faster."

When asked about any negative aspects related to technology, there was much lively discussion. Many of their comments and responses were to agree with what someone else had said. One student explained, "I wish I did not have to use it so much." A different student commented, "Technology can be addictive. It can be very time consuming." Another participant stated, "I think people try to

substitute technology for things that it shouldn't be used for. People rely on it too much." The group nodded in agreement.

One participant spoke during the pause in conversation to add, "I got in trouble with e-bay spending too much. I spent way too much money." A different student stated, "Another negative aspect of technology is that I have had lots of problems with my computer." The entire group laughed and agreed by adding comments such as, "Welcome to the Club" and "Ya, who doesn't?"

There was much agreement in this focus group for many of the responses that participants offered. Most of the students nodded in agreement when others discussed both positive and negative aspects associated with technology as if to indicate that they, too, had experienced similar situations, both positive and negative.

When asked what computer experiences are important to master in order to be successful during the first year of college, all participants in this focus group responded that first year students know how to use e-mail and computers before they come to college. They also reported that all of them had to take classes to learn how to use computers in high school. Some of their responses included, "Students already know how to use computers" and "We grew up with computers."

When discussing what advice these participants would have for next year's freshmen student concerning technology, the majority of the responses

were unanimous. All of the students stressed the importance of knowing how to effectively use e-mail, word processing, and the ability to do Internet searching. Each of the participants confirmed that all of their classes used technology in some form whether it was e-mail, PowerPoint and/or Blackboard. Six of the seven participants reported using Blackboard in their classes.

In response to the question about their use of the library during their first year of college, they chuckled and made the following comments, "I never go to the library" and "The only reason I go to the library is because a course requires us to go there." All of the participants indicated they spend little, if any, time at the library. One student commented, "I can find more on the Internet than I can at the library," while another added, "The library is not practical when it is cold and dark outside and I can get the information right off my computer."

Many of the participants suggested that new students needed to have some experience troubleshooting computers. Most of the participants shared some frustrating experiences due to technical problems that they did not know how to resolve. There were several students that mentioned they had to pay someone to help fix their computer.

When the conversation focused on the topic of Instant Messaging, all participants indicated they use IM at least two or three hours a day. One of the participants clarified that he does other things while he is using IM at the same time. They all nodded in agreement and another person added, "Yeah, like I will be watching TV or talking on the phone, and I will also be sending messages."

Other comments included: "It is awesome," "I can't imagine doing without it," and "It is so much more powerful than e-mail. There is no limit with the size of attachment you can send and you can have several people connected at one time."

The other participants nodded in agreement with one of the participants who stated that he likes the fact that IM lets him stay connected with others even in bad weather. Accordingly, each agreed that they like being able to communicate with family and/or friends via the computer. Only one of the participants expressed that she uses her telephone more than her computer when communicating with her family.

All of the participants indicated that they use their computer for entertainment purposes. "I use it to listen to music. I don't really listen to my stereo but I do listen to the radio on my computer." The participants indicated that they all download music from the Internet. Some indicated they used their computer to play games, watch video or DVD, and/or for other forms of entertainment.

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