

IMPACT ON STUDENT SATISFACTION OF
THE VARYING DEGREES AND TYPES OF TECHNOLOGY
IN COLLEGE-BASED ADULT BASIC EDUCATION PROGRAMS

A DISSERTATION

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To the Dean of the Graduate School:

I am submitting herewith a dissertation written by Marlene A. Riddle entitled "Impact of Technology on Satisfaction of the Varying Degrees and Types of Technology on College-based Adult Basic Literacy Students." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Reading.

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DEDICATION

I dedicate this modest work
to my Lord and Maker,
Who has showered me
with miraculous experiences
and infinite blessings
since my first breath
on this Earth!

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ABSTRACT

MARLENE A. RIDDLE

IMPACT ON STUDENT SATISFACTION OF THE VARYING DEGREES AND TYPES OF TECHNOLOGY IN COLLEGE-BASED ABE PROGRAMS

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This study focuses upon the use of technology by a group of 106 college-based adult basic education (ABE) students from different areas of the country. Statistical analyses of a Likert style questionnaire offered online investigates the impact of technology on student satisfaction with the ABE program. The data presented suggest that there is substantial support to the fact that high use of technology leads to a high level of student satisfaction with the ABE program. ABE participants also report that their greatest satisfaction stems from “making improvement” and that the most important reason computers are used in their program is to “improve reading skills.”

Although there are many forms of illiteracy plaguing the US, community colleges, comprising 15% of adult literacy providers, continue to find innovative means and strategies to improve adult literacy. The National Adult Literacy Survey has defined a literate person as one who uses “printed and written information to function in society, to achieve one’s goals, and to develop one’s knowledge and potential” (U.S. Congress, 1993, pp. 3-4). ABE assists students whose skills are below the 8th-grade level and

includes those who missed the opportunity to learn the basic reading, writing, or math skills.

This study presents several views on how adults learn. Malcolm Knowles, the “father of andragogy” (Merriam, 2001), which is the art or science of helping adults learn, says that learning happens when it is learner-centered, when students realize their own potential, and when students are allowed control over the learning process (Merriam, 1993). The data presented in this study propose that technology supports and promotes these requisites. Innovative ABE programs, through computer-assisted learning, enhance student-centered instruction, with learners and teachers becoming partners in the learning process. This research implies that adult literacy programs can prepare participants for success in a society increasingly dependent upon technology.

ABE is far from being able to retain learners long enough to make significant changes in their literacy levels. However, technology has been successful in that direction, promoting motivation and satisfaction, drawing learners into programs, and holding their interest.

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CHAPTER I

INTRODUCTION

Adult basic education is a rapidly growing field, presenting a host of new challenges to the traditional ways of educating adults. The National Adult Literacy Survey reveals that the adult education and literacy system of the United States has around 4,000 programs in 50 states, serving some 3.5 million adults annually (Sticht, 2001). Sixty-eight percent of these programs are administered by local education agencies, 17% by community colleges, and the remainder by community-based or volunteer organizations, vocational or technical schools, regional services agencies, and consortia of school districts (Venezky & Wagner, 1996).

Adult Basic Education (ABE) programs are those that offer the basic skills (reading, writing, math) at different levels. Level I roughly corresponds to K-6; Level II is considered equivalent to grades 7-9; Level III is similar to grades 10-12 and requires the completion of 36 high school credits in basic reading, writing, and math

classes in order for the students to graduate (Adult Basic Education, 2003). This study encompasses all three levels. Some programs include the use of computers, CD-ROMS, videos, tapes, and calculators, which usually also serve as instruments in students' learning of basic skills. Still other programs offer basic training in workplace skills, such as filing, interpreting manuals, faxing, answering the phone properly, and finding information in newspapers, phone books, and maps. ABE differs from developmental educational programs in that the latter is a "course of instruction that prepares students for success in college-level courses. Students' mean age is 31 with a range of 19 to 69" (Allen, Dirkx, Kielbaso, & Min, 1998, p. 6).

ABE programs may be classified as more innovative or more traditional. Innovative ABE programs are characterized by a student-centered position where learning is relevant and useful, the program schedule is flexible, and students have control over their learning. The instructors are responsive to students' needs and assist them in the process of locating resources. The participants contribute in the assessment of their own progress and in the

evaluation of instructional activities. The teachers consider adults' prior knowledge and experience before teaching (Merriam & Caffarella, 1999).

Traditional ABE programs, on the other hand, are characterized by a teacher-centered position where the instructor is the authority and the decision maker, determining what will be taught, how, and when. This makes the instruction less individualized, less flexible, and less personalized when compared to innovative programs. The interactions between teacher and students follow a more behavioristic and authoritative method. The curriculum is usually specific and pre-determined, based on the results of a job-task analysis. This traditional method requires that the students respond almost solely to the teacher's lead (Yellin, 1996).

One of the problems in educating adults has to deal with retention, that is, motivating learners to complete their education programs. Quigley (1995) points out that the low levels of retention in adult learning programs continue to hold the attention of adult educators in every type of program. He stresses that participants' reasons for

leaving may vary, and strategies for keeping them may differ, but the goal of retention is the same: to keep learners in a program until it is completed.

State and federal statistics report that students withdraw from ABE at rates as high as 60-70%. Reasons for dropping out are linked to factors such as family problems, lack of child care, job demands, educational and practical concerns, past school experiences, a gap between learners' expectations and reality, and social integration (Quigley, 1995).

A case study at the Instructional and Performance Technology Department (Chyung, Fenner, & Winieki, 1998) at Boise State University, Idaho, discussed the problems of adult dropouts. From the cause analysis it was concluded that 42% of the students who dropped out presented as reasons: 1) dissatisfaction with the learning environment; 2) a discrepancy between professional or personal interests; and 3) course structure. In another study, 73% of reluctant learners who dropped out after the first few weeks reported they would go back under different conditions related to the program (Quigley, 1995).

The present study assumes that student satisfaction with the program leads to retention. Seiler and Nwakeze (1993) categorize the reasons for students leaving the program as situational deterrents (work, health, childcare, family, transportation, or other external factors), and institutional deterrents (uninteresting or inappropriate programs). Although situational deterrents are beyond institutional control, educators can significantly improve program satisfaction.

Literacy (ABE) programs have developed innovative responses to retention issues, including more flexible program scheduling. Access to technology is also an important retention strategy due to the high levels of satisfaction, interest, and motivation of adult learners seeking computer skills (Clayton, 1999; Jaffee, 2001; Nelson, 1999; Oxford et al., 1998). Responsiveness to students' needs is, therefore, one of the strongest ways to improve retention (The New York City Adult Literacy Initiative, Final Report, 1997-1998). Learning with computers, for example, "can be like starting fresh for those who have associated traditional classrooms or

textbooks with their past school failures" (Eveland, 1992, p. 164). Students treasure the confidentiality provided by computers, especially when they are embarrassed by their slow progress and frustrating prior experiences. Moreover, "computers have infinite patience, never complaining when they make the same mistake 100 times" (Bulkeley, 1992, p. B1).

Retention requires flexible structures and processes, convenient scheduling, and frequent contact with faculty, including e-mail, to help motivate and sustain student commitment (Hagedorn, 1993; Tracy-Mumford, Baker, Bristo, Companiony, Marshall, & Mathers, 1994). Some traditional ABE programs used none or very little technology, such as tapes and calculators. As they became more innovative, that is, student-centered, flexible scheduling, student control over their learning, and so on, they also began incorporating more technology, such as TVs and videos, overhead projectors, computers with diverse programs, Internet access, and even fax machines. This is more likely to happen, however, when programs receive funds from private or governmental agencies, allowing them to purchase

such expensive equipment. Quigley (1995) asserts that limited funding is a most critical issue, restricting everything else that happens in adult literacy programs.

Examples of flexible structures are asynchronous settings and self-directed learning, both of which characterize technology-based programs. In the fall of 2000, the Learndirect network in England opened more than 900 learning centers across the country, offering a variety of adult learning opportunities. Of the 36,000 students enrolled, only 55% completed a course. Learndirect is now aiming for a 75% retention rate by 2005 using a digital technology and allowing for more student-centered learning (Learndirect Network in England, 2002).

The theoretical stance of innovative adult literacy programs is primarily learner-centered and follows the assumptions of adult education. According to Chaney (1994) these assumptions are:

1. Experience and background of the learner are included in the learning process;
2. Representatives of the learners participate in the planning, implementation, and evaluation

of the program;

3. Learners and teachers are equal partners in the learning process;
4. Learners evaluate their own progress;
5. Teachers serve as content resources;
6. Teachers use a variety of instructional techniques;
7. Teachers create a classroom where students work collectively;
8. Teachers provide evaluative criteria to the learners;
9. Instruction builds on life experiences;
10. Instruction focuses on issues that have meaning for the learner;
11. Learners assess their own needs and objectives;
12. Learners participate in evaluation of instructional activities (p. 32).

Many adult educators (Caffarella, 1994; Daley, 1998; Knowles, 1980; MacKeracher, 1996) strongly assert the significance of taking into account adults' prior knowledge

and experience as integral to the learning process. ABE instructors have the task of helping adults connect current experience to their prior knowledge (Merriam & Caffarella, 1999). Another relevant aspect of adults' cognitive style is how they receive and process information. Some are "analytical information processors," perceiving information in a concrete and subjective manner, while others are "global learners," perceiving information more in an abstract and objective form (Joughin, 1992). Research shows that it is beneficial for ABE programs to identify the learning style of their students and address their needs accordingly.

The art and science of helping adults learn - andragogy - became famous through the work of Knowles (1980), who has been referred to as the "father of the adult learning theory" (Merriam, 1993, p. 5). Andragogy supports the idea that adult learning happens when it is learner-centered, when the students realize their own potential, and when they are allowed control over the learning process. Adults move from a state of dependency to being self-directed in learning. They want some control

over their learning process, integrating knowledge from a variety of modalities and sources (Paris & Parecki, 1995). This permits the needs and experience of the adult learner to take precedence over the expertise of the instructor (Pratt, 1993). However, building on learners' needs and experience should be part of the instructor's expertise.

The role of ABE educators is to prepare themselves adequately in order to provide assistance to program participants in locating resources and mastering alternative learning strategies, such as the use of technology. Technology should serve to stimulate and accelerate learning (Venezky & Wagner, 1996). Adult literacy programs can prepare participants for success in a society increasingly dependent upon, even driven by, technology. As the students acquire basic skills through the use of technology, they are concomitantly becoming knowledgeable in the use of these instruments.

How can technology prove to be effective and meet the needs of adult learners? The students want learning to be relevant and useful, and this can be realized when technology is used in literacy programs to do real life

tasks. Some of these tasks are searching for health information on the Internet, making a household budget using a spreadsheet, or writing a résumé on a word processor (Cowles, 1997). A pilot program in Brattleboro, Vermont, revealed that providing instruction in computer use and using computers for instruction helped attract and retain learners: "...we did not imagine that students would respond as they did: becoming self-starters, taking over their own progress, and expanding their uses of computers into academic and other interest areas" (Silva & Wallace, 1998, p. 13).

Sticht (1998) argues that trends and innovations in the early part of the 21st century may have a great impact on adult education. Technological changes such as communications and computer science may affect how adults seek information and education. Sticht adds that, for the last few years, the Internet and associated World Wide Web pages have been the explosive growth phenomenon in telecommunications and information technologies, affecting the way adult education occurs. Increased dimensions in multimedia presentations will increase the attractiveness

of computers in the field of instruction. According to Sticht, adult educators are taking to the new technologies by the thousands. This study considers "innovative ABE programs" those that are adopting these new technologies and trends. Although we know that technology is increasing in ABE programs, there is still a need of statistics to show the difference in student satisfaction between programs that use technology and those that do not.

The present study explored the relationship between technology and student satisfaction in traditional and innovative ABE programs based in colleges. Although ABE programs are also offered by workplace and community groups, college-based programs offer easier access to students, are better defined, and include more accountability, thus contributing to more reliable and available data.

Purpose of the Study

The purpose of this study was to examine the relationship between technology and student satisfaction in college-based adult literacy programs. It attempted to identify a relationship between the use of technology and

students' level of satisfaction.

Research Questions

The following questions provided direction to the proposed research study: 1. What is the relationship between student satisfaction and varying degrees and types of technology in college-based ABE programs? 2. What levels of satisfaction do students report with their ABE programs? 3. How do students report that technology is used in their ABE programs?

Significance of the Study

To answer these questions the study conducted a survey dealing with students of ABE programs. The rationale for selecting this design was that this research problem incorporates the need to "both understand the relationship among variables and explore the topic in further depth" (Creswell, 2003, p.76).

This study is of relevance to all people involved in creating, directing, supervising, and teaching adult literacy programs. The issues raised on the research questions are of specific interest to members of the adult educational community - researchers, designers, and

practitioners - as well as instructional designers and evaluators who are involved in technology projects.

Definition of Terms

ABE Program--Adult Basic Education program is one that offers the basic skills (reading, writing, math) at different levels to adult students.

Adult Literacy--an individual's ability to read, write, and speak English, and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one's goals, and develop one's knowledge and potential (National Literacy Act, 1991).

Adult Literacy Instruction--services or instruction below the college level for adults who lack sufficient mastery of basic education skills to enable them to function effectively in society, and whose lack of mastery of basic skills results in an inability to speak, read, or write the English language (National Literacy Act, 1991).

Andragogy--the art and science of helping adults learn, which offers a set of guidelines for designing instruction with learners who are more self-directed than teacher-directed (Knowles, 1980).

Functional Literacy--the application of those basic skills to one's social, community, and working environment.

Literate Person--one who uses printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential (U.S. Congress, 1993).

Multimedia--the integration of media such as text, sound, graphics, animation, video, and images in a computer system (Jonassen & Reeves, 1996).

Satisfaction--a sense of fulfillment and enjoyment

Self-directed Learning (SDL)--a theory in adult education which supports that adults become more independent and self-directed as they mature, being able to have control over their own learning.

Technology--the use of the mechanical and applied sciences or the subjects collectively, which increases the speed of learning, allows training to be conducted anywhere and any time, and changes the role of trainers (Marquardt & Kearsley, 1998).

Workplace Literacy--"all of the physical surroundings, psychological or emotional conditions, and social or

cultural influences affecting the growth and development of an adult engaged in an educational enterprise" (Hiemstra, 1991, p.8).

Limitations and Delimitations

A potential limitation of the study was that the design called for participants' self-report, which could result in students relating only what they perceived to be socially acceptable and concealing the underlying reason for their lack of satisfaction with the program.

Another limitation was that the researcher needed to rely on instructors to provide the program participants the hyperlinks to the survey. Furthermore, the instructor needed to be available to assist the students with possible questions about the computer commands, how to start, how to change an answer, or how to interpret a question.

A delimitation was that the purposive sampling (college-based programs) would decrease the generalizability of findings. Although many different types of programs exist, the present study focuses on those based in colleges, which represent only 17% of the total number of programs.

Assumption

The assumption of this study is that satisfaction is linked to retention in adult basic education programs. There is a tension between ABE program goals and student goals, and this study assumes that retention is a valid program goal. Students who stay in the program are more likely to develop basic and computer skills, therefore achieving their personal as well as program goals.

Chapter II will review the literature existent in the field of technology in adult literacy programs. It will discuss the state of adult literacy in this country, reasons why students enroll and withdraw from ABE programs, demographics of the students, and theories of adult education. Chapter III will describe the methodology used in the present research, the areas and mode of inquiry, the pilot study, the actual online survey, data analysis, and a summary. Chapter IV will discuss the findings using treatment of the data and inferential statistics. A summary of the findings, answers to the three research questions, implications and recommendations for classroom practice and future research will be presented in Chapter V.

CHAPTER II

REVIEW OF LITERATURE

This study explored the relationship between student satisfaction and varying degrees and types of technology used in college-based ABE programs. It also addressed what levels of satisfaction students report with their ABE programs. Thirdly, it examined how students report that technology is used in their ABE programs. In order to respond to these questions, several concerns were addressed in this chapter. First, it was relevant to discuss the state of adult literacy in this country, this is, its present program evaluation and assessment. In addition, the study provided information on the reasons students enroll and withdraw from ABE programs as well as demographics of ABE students.

The literature review also incorporated theories of adult education and different styles of learning, such as self-directed learning, to shed some light on factors leading to student satisfaction. Andragogy, the art and

science of helping adults learn, lead the research in that direction.

The topic of student satisfaction and retention, in its many facets, was studied next. Results of previous studies were considered in traditional and innovative programs, for a possible correlation between student satisfaction and the use of technology. Finally, in a much broader scope, this review of literature explored educational technology, its promises and obstacles, teacher preparation and resources, virtual education, and particularly how technology relates to retention in ABE programs.

State of Adult Education in the United States

The National Adult Literacy Survey has defined a literate person as one who uses "printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential" (U.S. Congress, 1993, pp. 3-4). The Office of Technological Assessment (OTA) of the US Congress (1993) states that there is no absolute threshold of skill or competency above which people can be certified as literate and below which

they can be said to have a literacy problem. The implementation of Title II of the Workforce Investment Act, also known as the Adult Education and Family Literacy Act (1998), affected adult literacy programs. The three main objectives of this act are:

1. To help adults become literate and gain the skills needed for employment and self-sufficiency;
2. To assist parents in obtaining skills in order to be active participants in their children's educational development; and
3. To help adults complete a secondary education (Jaffee, 2001).

To accomplish these objectives, many literacy services have already been established. For example, Adult Basic Education Programs assist students who are below a ninth grade reading and writing level. General Education Development (GED) programs are available to those who are at the high school level of reading and writing and want to obtain a high school equivalency diploma. English as a Second Language (ESL) programs work with students who have limited English proficiency in reading, writing, and

speaking. Other programs that have also become very popular in the United States are: family literacy, providing learning for both parents and children by reading and learning together; workforce literacy, offering occupational skills to current and potential employees who seek to improve their job skills and their knowledge of technology; and literacy programs for prison inmates and individuals with physical and/or learning disabilities (Gomez, 1999).

ABE programs generally involve the following organizations: local agencies (60%), community colleges (15%), community-based organizations (14%), public and private non-profits (7%), and correctional facilities (4%) (Johnson & Hartman, 1998). Federal and state governments subsidize 80 to 90% of the programs (Smith, 1998). For example, total public funding for ABE non-profit programs in Texas for 2001 was \$49.9 million; federal funds covered \$40.9 million; and the remaining came from state funds. About 107,000 adults were served by ABE programs in Texas in 2001, but Texas is still at the lowest levels of literacy (Texas Education Agency, 2002).

Another critical fact is that most literacy instruction is provided by part-time or volunteer teachers. Very restricted funds are available for training adult education personnel (U.S. Congress, 1993). Only about a third of the paid professionals and even fewer of the volunteers are certified to teach adult education (Venezky & Wagner, 1996). Certification, which is available but not required, is offered by the colleges and school districts where the programs are located. The purpose of certification is to recognize the knowledge and expertise of experienced ABE practitioners (Second Interim Report on Development of ABE Certificate, 2000). It is impressive how the efforts of thousands of dedicated adult literacy volunteers persist in the face of all sorts of limitations, but new approaches and solutions are needed. (Quigley, 1993).

A study of student retention in a community college basic skills program revealed that the staff expressed a desire for more professional development as a means of meeting the needs of students. The instructors felt that a lack of professional development would inhibit their

ability to understand instructional issues (Allen, Dirkx, Kielbaso, & Min, 1998). All these facts can be of great relevance to this study's research questions. Instructors with less than adequate training could decrease the level of satisfaction students report with their ABE program. The situation is even more pertinent when the instructors lack preparation in the use of computers and other types of technology.

Issues

Issues in adult literacy are among the least investigated and most compelling in education. As many as 90 million adults in the United States are functionally illiterate, meaning they read at or below the 6th-grade level (Grant, 1997). Adult literacy programs have been a particularly vulnerable institution, continually dominated by the more general attitudes and beliefs of society. In other words, adult literacy has suffered from being "other" rather than "inner" directed (Freire, 1985; Shannon, 1993; Venezky, 1982). Due to the extreme diversity of the United States needs, the adult literacy programs should move from a critical heterogeneity to a cohesive system (Jaffee,

2001).

ABE programs in early 21st century continue to be hindered by assessment measures, staffing, funding, and a reliance on school-based models of effectiveness, including grade-level equivalents or standardized tests. Beder (1998) reviewed a great number of studies and found insufficient data to validate that participants in ABE programs actually made gains in basic skills. A program's complete success is not always measured by the outcomes usually accepted as ideal, but by the learner's personal literacy goals.

Assessment and Evaluation

ABE programs need multiple measures of effectiveness, incorporating performance-based assessments. A recurrent topic in literacy programs is the absence of an evaluation system which is systematic and consistent (Beder, 1991). Slow economic growth in adult literacy software has contributed to a current lack of assessment and evaluation. These are usually done through computer-based software such as "Compass," an untimed test that attempts to measure adult learners' literacy ability (Allen et al., 1998). As

K-12 schools provide a larger market and command higher profits, more time, attention, and funds have been provided to these groups (U.S. Congress, 1993).

Participation

The literacy goals for participants who enter programs voluntarily are quite different from those who must be served. Federal and state legislation requires certain groups of learners to attend literacy programs - generally welfare recipients and inmates meeting certain educational criteria (Quigley, 1995).

Statistics on ABE reveal a bleak and vexing issue. Only 8% of all people eligible to participate in government-funded basic education and literacy programs (reading and writing skills below 9th-grade) actually do so. Of those who do participate, 74% leave the program within the first year (Imel, 1999). The programs must adapt themselves to serve effectively two quite diverse populations: those who want to attend and those who are required by law, such as welfare recipients and inmates. Between 15 and 20% of all students who go through the intake process never actually receive any instruction. Only

about 12.5% of all students who begin classes are still attending them after 40 weeks, which is the duration of a typical program (Morgan, 1993).

Funds

An issue of great import is that technology is very expensive, involving considerable costs. Funding for ABE courses is limited, unstable, multiple-source, and short-term. This affects many decisions about services, staffing, instructional methods, and purchase of materials. Tight budgets and limited planning capabilities especially affect the ability to make technology a central part of instruction or program management (Quigley, 1995).

Programs, therefore, need to know whether funding for technology will become available. Federal grant resources such as the Preparing Tomorrow's Teachers to Use Technology (PT3) program provide funds for hardware, software, and instructors' training, so they can expand technology integration into their instruction. Consequently, program directors want to see results of this massive technology effort toward today's adult basic education (Sarkozi, 2002).

Initiatives

A string of federal initiatives, as well as countless state and local efforts, have presented literacy as a problem that can be solved if those in need sign up to attend programs, and others volunteer time and assistance (Quigley, 1995). Some notable efforts have been the 1969 "Right to Read Initiative," the 1980 "Adult Literacy Initiative," the 1996 "America Reads Challenge," and the private sector's "Project Literacy US" (PLUS) (Quigley, 1995). Despite all these efforts, the United States does not have a coherent infrastructure for adult education. Adult education has no regional or national organization that provides a reliable communication system, professional advancement, and data collection, as it happens with K-12 students (Venezky & Wagner, 1996).

In retrospect, these are the compelling issues in adult basic education which need careful but prompt consideration, vigorous investigation, and immediate action: recruitment and retention; governed by its own attitudes and beliefs; availability of funds; appropriate student assessment and evaluation; consideration of

learners' personal literacy goals; professional preparation and advancement. These are vexing and somber issues which require government and local attention if adult basic education is to fulfill its powerful and challenging mission.

Reasons for Enrollment and Withdrawal

Current ABE programs attract only 8% of 90 million adults lacking in literacy skills (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993). Participants in ABE programs sometimes leave when they feel their goals have been attained. Thus, the raw numbers of "dropouts" are alarming. Studies indicated the average attrition rate to be from 40-50%, but going as high as 60-70% (Quigley, 1995). Relevant to the current study is the value of including materials and instruments that are challenging to adults, considering the dependency of modern life on technology (Kerka, 1995).

Research revealed the following reasons for enrollment in ABE programs: improving oneself, being better able to help one's children with their schoolwork, being able to get a better job or enter job training, improving reading and writing skills. Reasons for withdrawing included

personal reasons, such as low self-esteem, no demonstrable progress, daily pressures from work and home schedules, childcare, transportation, and lack of family support. Program factors included lack of materials and lack of opportunity to achieve success (Brod, 1995).

A study about students in a rural college in the upper Midwest presented the following reasons for enrolling in a basic literacy program: job displacement, career enhancement, and career changes (Allan, Dirkx, Kielbaso, & Min, 1998). Many of the students were returning to school after a long hiatus. They had dropped out from high school, had children, had struggled with odd jobs, and then had decided to try for a new career. Their reasons for leaving were, among others, personal illness, family concerns, and financial considerations. Some mentioned that they were not succeeding, so they decided to work full time.

A second study indicated very similar results (Kerka, 1995). Reasons for enrolling were to improve job prospects, obtain a GED certificate, increase their reading, writing, and math skills, and to help their children with their homework. Reasons for withdrawing were disappointment with

the program, making no progress, lack of motivation, inconvenient location and hours, family problems, job demands, incompetent teachers, and a gap between learners' expectations and reality.

Could satisfaction with the program have an impact on the completion of educational goals, despite all these drawbacks? Many ABE students are no longer 18-22 years old, but adult learners managing family, work, and school requirements (Sarkozi, 2002). When one understands the needs of adult students, and how they learn, one will be able to apply this knowledge in ABE programs and see how this plays out in improving retention in ABE programs.

Demographics

Based on demographic information, some studies have attempted to determine how students who drop out differ from those who persist to complete personal or program goals. Literature indicates that minority students are less likely to succeed and more likely to attend adult basic skills programs. Remedial enrollment rates for blacks and Hispanics are consistently one and one-half to two times that of white students. Attrition is a particular problem

for black, Hispanic, and Native American students (McKinney, 1997). Bushnell (1991) said that public schools fail to teach minority students how to take care of their own learning. Campbell & Blakey (1996) reported that age, ethnicity, and the intent to seek a degree were indicators of success.

Another study (Allen et al., 1998) analyzed 1,381 students participating in an adult basic education program. The mean age was about 31, with a range of 19 to 69. Students in the age range of 19-30 years had significantly higher exit scores in math and writing than those in the 31-69 years range; there was no significant difference in reading. Twenty-six percent of the students were male, a ratio of three times more females than males. Females scored higher on writing tests and male on the math tests. As for attrition, a study of the literature reveals that women are more likely to withdraw than men, and that reasons for leaving are more social than academic (Allen et al., 1998). These studies will be analyzed in more depth in Chapter IV with the survey findings.

Theories of Adult Education

Knowing how adults learn could shed some light on the reasons why they leave their programs. Does technology, and especially the use of computers, address their personal needs of adult-centered learning, control over the curriculum, privacy, and advancing at their own pace? For the past 80 years, scholars and practitioners have been interested in the question of how adults learn and still have not produced a theory or model that explains all that they should know about adult learners. Merriam (2001) comments that there are new approaches to understand learning, but that andragogy and self-directed learning are the "pillars" or foundational theories of adult learning. Instruction should not only be learner-centered but also experiential, leading to immediate application and participation (Barkley & Bianco, 2001).

Andragogy

The previous chapter discussed ABE programs in that they can be more traditional or more innovative. Innovative programs offer more technology, but this is not the only feature that characterizes them or that produces more

motivation and satisfaction in the students. Elements of andragogy also play a prominent role in the learning process and, when interwoven with technology, has the ability to address the adult learners' most distinct needs. There are a few assumptions underlying andragogy: the adult learner is self-directing, needing less assistance from a teacher; the adult learner brings a great volume of experience to the classroom, which supports further learning; the adult students are interested in learning what their adult roles in real life require of them, so they become problem- and task-centered; and, finally, the adult learner may be motivated by external motivators, such as computers and technology in general. However, the more powerful motivators are internal, such as self-esteem, recognition, greater quality of life, and greater self-confidence (Rachal, 2002).

The validity of andragogy as a theory of adult learning resulted in much controversy, discussion, philosophical debate, and critical analysis in the 1970s and early 1980s (Rachal, 2002). Could andragogy be considered a "theory" of adult learning? Knowles (1970)

explained andragogy as the art and science of helping adults learn, stating that the genuinely skillful teachers of adults perceive the locus of responsibility for learning to be in the learner, helping their students learn for themselves what they want to learn.

Although there are a number of studies on the subject of andragogy, a general problem exists. Studies cannot be compared due to the great disagreement in what researchers mean by andragogy and how they put it into practice. In addition, there are design issues, such as mixing adults and non-adults, absence of learner control, and paper-pencil tests of achievement (Rachal, 2002).

Three examples of studies with multiple customization, contexts, designs, and means of implementation are: Cartor (1991) compared lecture-style training (pedagogy) to participative style learning (andragogy); Saxe (1987) compared three groups of volunteers learning to read a document using high, moderate, and low levels of peer interaction; and White (1989) examined the effectiveness of lecture versus small group discussion in a mandated recertification program (Rachal, 2002). The studies

represent steps toward validity as well as direction toward more clarifying research. These studies are relevant to the present research in that they present examples of different teaching and learning styles, with a learner-centered stance. A variety of teaching methods could enhance the ABE program and possibly bring satisfaction to their participants.

Self-directed Learning

Another model that appeared almost at the same time as andragogy and was introduced to North American adult educators was self-directed learning (SDL). Computers seem to offer the adult learner this self-direction and control of the learning process, possibly leading to retention and satisfaction. SDL is one of the most studied areas in adult education and continues to receive sustained and systematic attention by scholars in the field (Brockett, 2002).

Knowles (1975) wrote a book about this new model, helping define adult learners as different from children. He also explained the concept of SDL and outlined how to implement it through learning contracts. However, it was Tough (1967, 1971) who offered the first comprehensive description of

the new model as a form of study. Tough conducted a study with 66 Canadians, examining and describing their self-planned learning projects, which were systematic but did not depend on an instructor or a classroom. The outcomes of this study, favoring self-directed learning, resulted in great advancement in the field of adult education (Merriam, 2001).

The Staged Self-Directed Learning (SSDL) model, created by Grow (1991, 1994), presents a matrix whereby students can place themselves based on their preparedness for being self-directed and their level of comfort. Instructors can then match that stage with adequate instructional strategies and address students' different learning styles. For example, a student who prefers preparatory materials, lecture, and prompt correction will be placed differently than a student who enjoys working independently on projects, discussions, and research.

Two other scales of self-directedness have been used in numerous studies. One measures readiness for self-directedness (Guglielmino, 1997), and the other measures personal characteristics (Oddi, 1986). Candi (1991)

comments that orientation, support, and guidance may all be required in the first stages of a learning project, even when the project relies on SDL.

Implications

What are the implications of andragogy and SDL for the present research inquiry? When the instructor helps participants learn for themselves what they want to learn, in their own learning style, and in a setting that promotes "adulthood," it is likely that students will feel the inherent pleasure or satisfaction of participating in learning activities. "The measurement of satisfaction is critical to the andragogy researcher. Satisfaction should be measured in all settings" (Rachal, 2002, p. 221).

A research study was conducted with adult basic education students about aligning student learning styles with instructor teaching styles (Spoon & Schell, 1998). One of the implications of the results focused on educating teachers on the importance of developing and using multiple teaching styles depending on the learning styles of students. A second implication was that multiple techniques for adapting instructional practice to learners' particular

stages of development, age, and gender are required. The final implication was that additional levels of academic achievement may be possible when learning and teaching styles are congruent.

Retention

The low retention rates in adult literacy programs have always been the number one concern of adult educators in every type of program (Imel, 1999). Seventy-four percent of participants leave the program within the first year (Quigley, 1995). ABE providers want to know how they can promote student retention, thus increasing the likelihood of participants attaining their academic goals.

Retention of ABE participants, which rates range from 30% to 50%, is measured by student persistence over one to three years in most studies. However, not all researchers agree with this criterion. Some believe that the goal of retention is to keep learners in programs until they achieve their goals (Tracy-Mumford, Baker, Bristo, Companiony, Marshall, & Mathers, 1994). This standard is not always ideal, as learners' goals could be very narrow and restricted. Successful course completion, mostly in

college-based literacy programs, is a final grade C or better (Allen et al., 1998). Researchers debate that program instructors need to develop practices that help adult learners persist, such as pre-enrollment counseling to establish expectations (Cullen, 1994), opportunities for students to succeed in every class meeting (Mumford et al., 1994), and a flexible, convenient schedule, with frequent contact with faculty (Hagedorn, 1993).

Retention is linked to factors such as a match between learners' expectations and reality. Also, past school and home experiences, educational and practical concerns, and social integration could greatly impair the adult learner's decision to stay in the program. Being married increases the probability of a participant to leave the program by 83%, and being single is more predictive of persistence (Kerka, 1995).

Learning takes place satisfactorily only when basic needs are being addressed. Adult learners cannot concentrate on their long-term goals when they have constant problems with health, finances, and emotional stability. Satisfaction with the program could be increased

if community organizations provided counseling and relief for some of these obstacles (Pauly, Long, & Martinson, 1992).

Two studies demonstrate factors that can improve retention. One was conducted with literacy students in a community college setting (Allen et al., 1998). The purpose of the study was to provide faculty and staff with information they could use to improve retention in their basic skills courses. The researchers collected both qualitative and quantitative data in order to reach a deeper understanding of why students withdraw from such courses before completing their goals.

In this study (Allen et al., 1998), the courses in reading and writing were offered through a lab experience conducive to independent study. The lab was equipped with textbooks, computers, the Internet, videos, and supplemental materials. It was open all day Monday through Thursday, Friday mornings, and evening hours during the week. The research showed a strong correlation between lab attendance and course completion.

A very successful remedial reading program in the

state of Texas - the Learning Center at South Plains College - had the highest retention rate among the state's seven community colleges (Pratt, 1993). In addition to a dynamic, dedicated, and talented faculty, it had a very strong instructional support, which included technology, facilities, materials, and supplies.

Significance

These studies are relevant to the present research in that retention can be somewhat increased when students are offered meaningful programs, well equipped classrooms, well informed instructors, and a dynamic, dedicated staff. This could promote satisfaction among the students and, consequently, be an incentive to stay in the program and attain their program goals.

Technology

Research has shown that literacy development of children and adolescents has been most successful when teachers are willing to adopt methods and materials that are relevant to the learner, abandoning the traditional ones, such as teacher-centered classrooms, curriculum irrelevant to the students, worksheets, lack of hands-on

activities, and low levels of technology (Foster, 1990). However, some educators continue assuming that the best preparation for adult literacy instructors consists of traditional teacher training.

Technology may help adult educators focus on appropriate methods and materials. A project undertaken to increase retention in an educational telecourse was delivered via four media: cable television, print, on-campus meetings, and a course World Wide Web page. The results included a higher retention rate for telecourse students using the Internet for course support, and increased self-responsibility for learner-centered instruction (Nelson, 1999). Gibbons and Wentworth (2001) discussed methods that are necessary for instructors to effectively teach online courses, in contrast with traditional classes. They assessed what online learners really needed and proposed that andragogy is more appropriate for nontraditional learners, based on self-directed learning theory. In a different study assessing the effect of computer-based instruction on adult learners' attitudes and academic achievement of adult learners,

results showed statistically greater gains for students in a computer-based, rather than a traditional class, as well as positive student attitudes toward using computers in instruction (Oxford, Proctor, & Slate, 1998).

A recently released report offers strategic plans for improving adult literacy in the United States (Tuijnman, 2001). It identifies several targets and tools, such as to promote access to information and communication technologies. The report was written after a summit meeting in February 2000 of 150 leaders in literacy and related fields and 25 follow-up meetings around the United States. The report recommended three important factors: student involvement, communication, and technology. Adult basic education teachers are excited about the potential that technology offers for improving students' learning and expanding their worlds (Cromley, 2000).

An ABE program at the Colorado Department of Corrections uses technology extensively, incorporating a local and networking system and 11 workstations. All the students who can read are using computers. The award winning instructor reports that students' satisfaction with

the program is very high, they are making real gains, and their self-esteem has soared (Clayton, 1999).

To contend with competing priorities, adults need schedules in ABE programs that are very flexible. Many online programs are asynchronous by nature which, when combined with their accessibility from home or work, are undeniable assets to adult students (Bjorner, 1993). Programs that adjust scheduling to accommodate participants' needs are boosting retention (Quigley, 1995).

Many adult learners link technology with tomorrow's skills, not with yesterday's failures. For instance, when they say, "I am learning computers," they are actually saying, "I am learning with computers" (Eveland, 1992, p. 164). Adult learners know that this a technologically-based world and that developing skills with technology is just as important as learning to read, write, and calculate more successfully. In addition, participants cherish the privacy offered by computers and headphones. Computers can be powerful vehicles for attracting learners, drawing them into programs, and retaining them (Stone, 1992).

Summary

Research shows that traditional ABE programs generally are unable to retain the recruited adult learners long enough to make significant changes in their literacy levels. Sixty-four percent of those who leave their programs discontinue because of work, health, childcare, family, and transportation, whereas 11% withdraw because of uninteresting or inappropriate programs. Others say they are tired of school or are not accomplishing goals. However, technology has been successful in drawing learners into programs and holding their interest.

Technology-based programs offer great promise as tools for reducing some of the other reasons presented by the students, this is, uninteresting programs, lack of motivation, expectations not being met. Technology in adult literacy programs allows the learner to develop new literacy skills and could contribute to greater advancement in learning, as well as significant increase in enrollment and retention (Jaffee, 2001). The next chapter will describe the methodology of the current research, the areas and mode of inquiry, the pilot study, data analysis, and a summary of the main issues.

CHAPTER III

METHODOLOGY

The purpose of this study was to examine the impact on student satisfaction of the varying degrees and types of technology in college-based ABE programs. It attempted to determine whether a higher degree in the use of technology increased the students' level of satisfaction. In addition, the study tried to determine the levels of satisfaction students report with their ABE program. A third area of inquiry was to know how students report that technology is used in their ABE program. The nature of the questions guiding this study suggested a quantitative method, with specific focus on the survey mode of inquiry. When a quantitative approach is used, the reader can better recognize the theory-base for the study as it distinctly isolates the theory from the other parts of the process (Creswell, 2003). A quantitative approach is best when the problem is identifying factors that influence an outcome, or understanding the best predictors of outcomes.

Surveys gather data using predetermined instruments that yield statistical data. The purpose of survey research is to generalize from a sample to a population so that inferences can be made about some characteristic, attitude, or behavior of this population (Babbie, 1990). In the present study, it is assumed that the degree of satisfaction of participants in ABE courses will determine their behavior, this is, deciding to proceed or withdraw from the program. Surveys offer some advantages, such as the economy of the design and the rapid turnaround in data collection, not to mention the benefit of identifying attributes of a large population from a small group of individuals (Creswell, 2003).

Pilot Study

Arguments for a pilot study are compelling. Researchers want to have some certainty that they will achieve their objectives before investing their full resources (Babbie, 1990). Pilot testing is also important to establish content validity, the assurance that the items are really measuring what they were intended to measure (Creswell, 2003). Moreover, a pilot test helps the

researcher design a reliable and valid survey, one that provides consistent, accurate information (Fink & Kosecoff, 1998).

Setting and Subject Selection

The study was conducted in one of Texas' 27 community college ABE programs, recruiting 10 students who were attending an eight-week session during the summer of 2003. This group had 27 students, one instructor or lead teacher, and three assistants. A visit to the college classroom and instructor revealed that the only technology present were an overhead projector, a tape recorder, and a few calculators, although these students had access to the college's Learning Assistance Lab, the software programs Plato and Skills Bank, and the Internet. The students spent an hour (20%) of their daily class time at the lab, doing assignments and homework.

Considering that the researcher did not have access to names in the population and could not sample the respondents directly, a multi-stage (clustering) procedure was in order (Babbie, 2001). The participants' selection process was random sampling, giving each individual in the

population an equal probability of being selected and creating a systematic or probabilistic sample (Babbie, 1990). Taking into consideration that all participants were invited to take part in the survey, there was no stratification of the population and a random numbers table was not necessary. The characteristics sought out in the sample were gender, age, race, education, and work, so the study would be able to control these variables. The students expressed their perceptions about the program, the use of technology, and their degree of motivation and satisfaction.

Instrument

The survey, a Likert style instrument, measured items using continuous scales ("great satisfaction" to "no difference," "very important" to "not important"); and categorical scales (rank from highest to lowest importance). The instrument included attitudinal, behavioral, and factual items, in addition to demographics.

The Likert style instrument provides a greater uniformity of responses, which are more easily processed

and can be transferred directly into a computer format (Babbie, 2001; Nesbary, 2000). Once designed, the questionnaire approach is quick to administer, generates a wealth of information, provides anonymity, reduces researcher bias, allows for sensitive information to be collected, and keeps costs to a minimum (Grinnell, 2001). Closed-ended questions also have shortcomings, such as the researcher's structuring of responses. The wording of questions has a strong impact on the answers returned. However, if the questionnaire items are unequivocal and explicit, and the answers are reciprocally excepting, there is no reason for concern (Babbie, 2001). The questionnaire should also be kept as short as will suffice to elicit the necessary information, permitting the analysis of primary research concerns (Nesbary, 2000). All of these parameters guided the construction of the pilot survey.

The Likert style instrument used in the pilot was offered online through a hyperlink sent to the directors and instructors. The participants answered the questions and pressed the SUBMIT button. The survey then coded the data received. Web surveys combine the accuracy of a

written survey with the flexibility of an interview, power of database entry and analysis, saving a tremendous amount of time and effort on the part of the survey administrator (Nesbary, 2000).

In addition to demographics, the survey requested that the students answer eight questions intended to identify program's use of technology, their own satisfaction, and degree of motivation toward the program. In order to minimize the problem of students giving socially desirable responses, the survey informed participants that no personal identification would be necessary, that they would remain in anonymity, and that the information provided would be analyzed only in conjunction with the responses given by other participants. In addition, the questions were written in a manner that would not elicit feelings of inferiority or social inadequacy from the respondents.

Variables

The dependent and independent variables were measured separately to strengthen the logic of cause and effect (Creswell, 2003). The independent variable, technology, was

defined as the use of the mechanical arts, whereas the dependent variable, satisfaction, was defined generally as the participants' sense of fulfillment and enjoyment while attending ABE programs.

Data Collection

The program instructor guided the participants ahead of time on the steps necessary for them to answer the survey, making sure they pressed the button "SUBMIT" when finished. The answers were immediately transmitted electronically to the primary investigator, allowing the participants to remain anonymous and their responses to be confidential.

Survey Responses from Instructor

The instructor reported that the program had a retention rate of 70%, with lack of motivation being the primary reason for students leaving the program. The instructor further reported that students seemed motivated and satisfied with the use of technology and that the program would be improved if it were better equipped with technology.

Data Analysis

The socialization factor, so crucial among teenagers and young adults, did not seem to be of great import to the students' overall satisfaction with the program. The study shows that 80% of the group was comprised of young adults (ages 18 to 22). However, the relationship with the instructor was one receiving the highest score. The majority of the participants also agreed that the ideal amount of time the class should devote to technology was 25%, and that it would be unlikely that they would leave the program just because there was insufficient technology.

The highest concentration of responses to the question "How could computers be helpful to you?" was "to find a better job." It seems that the apparent discrepancy between "to find a better job" (40 points) and "to do better in my job" (24 points) can be explained by the fact that 90% of the respondents were not employed.

The most popular answers to "how technology has been helping me?" were "to develop and enrich my vocabulary" and "to read more, on my own and in class." As to reasons that

could lead the students to leave the program, most of them selected "family problems." This is very surprising, considering the young age of the respondents - 70% between 18 and 22 years old.

The purpose of the pilot test is to help produce a survey that is usable and that will provide the information the researcher needs. It is a tryout that makes the survey run smoothly, eliminating severe potential sources of difficulty. Fink and Kosecoff (1998) explain that the pilot's numbers cannot guarantee legitimacy, so the study is not able to produce noteworthy conclusions.

Actual Survey

Setting and Participants

The actual study surveyed 106 subjects from college based ABE programs from different parts of the country, so the results would be more generalizable. Stakeholders of 50 ABE programs in various regions were invited to participate in the survey. Each program was assumed to have a lead teacher and assistants, depending on class size.

Using LINKSearch for "Search Literacy Information,"

updated Sept. 2003, it was possible to obtain committee lists of special interest groups and state leadership collaboratives of the National Adult Education Professional Development Consortium, divided into geographic regions (LINKSearch, 2003). ABE programs from 50 states were randomly selected to participate in the present study. Search Literacy Information provided the names, complete addresses, telephone numbers, and e-mail addresses of the directors of ABE programs in each state. The directors were contacted by e-mail and invited to participate in the survey, randomly selecting one or more ABE programs in their state. The local directors of these programs were in turn contacted online and, if in agreement, provided the name and e-mail addresses of the instructors.

Instrument

The research instrument administered in this final survey (see Appendix K) was similar to the one used in the pilot study. The Likert Style questionnaire to the students underwent a few modifications, based on questions that emerged from the pilot administration and analysis. For example, there was a change to the purpose and scope of the

research where the word "retention" was substituted by 'satisfaction" on the study's title. The rationale for this modification was due to the almost impossible task for the researcher to obtain accurate data on students' attendance and retention. Participants enroll and leave ABE programs at will and the attrition rate is close to 75% during the first year (Quigley, 1995; Imel, 1999). It is a daunting task for adult basic education programs to keep precise attendance records when the situation is so volatile.

There was a change to data sources as well, where the questionnaire to the instructor was eliminated. This decision was made on the grounds that the researcher was focusing on student report alone. Lastly, a modification to the students' questions was found appropriate. In the section "Demographics" of the students' survey, the age category was changed from a range to the actual number of years, in order to provide for more accurate information and to refine the analysis. A new category was also added, "Language," so the survey could determine whether this factor had an impact on satisfaction with the program.

The cover letter addressed to the students (Appendix

D) informed them that they were permitted to ask the instructor for help if they did not understand any of the questions. In the pilot study, the instructor reported that three students had asked if they could type a ranking number more than once. As a result, the actual survey informed that they should write each number just once.

Data Collection

Recruiting participants for the survey was a wearisome, painstaking task, which lasted an entire month, ten hours a day. At the end of September 2003, letters were sent online to state directors of ABE programs (See Appendix G). Considering that surveys have a response rate of 33%, and that the study was projecting a minimum of 100 responses, the researcher decided to contact program directors in all states. In a few days, responses from directors in six states arrived, saying that their state's ABE programs were based in local school districts, rather than being college-based, so they were eliminated. The directors of 10 college-based programs who responded were cooperative and interested on the survey, asking for details and even offering words of praise and

encouragement. They said they would randomly choose an ABE college program in their state and forward the investigator's letter to its director. A few days later the researcher received the name of the colleges as well as the name and e-mail address of the directors.

Not all letters sent electronically, however, reached their destination. Although the list provided by "Search Literacy Information" had been updated in September of 2003, several changes had occurred. Eight letters failed to reach the recipient for several reasons: the recipient name was not recognized, the e-mail address was incorrect or unroutable, the director had been replaced, and so on, whereas 26 received the letter but did not reply. The same letter was forwarded to them again with a few additional words, mentioning how important the survey was for the field of adult literacy. Three responded at this time and others received a third and final request. The letters were sent a week apart, in the event the directors were traveling or involved with meetings and conventions. Two responded after the third letter, apologizing for the delay. A total of 15 directors replied and 21 of them never

responded.

The original list of 50 prospective participants, which included all states, was now reduced to 15. The next step was to send the ABE college directors a letter (Appendix H) explaining the study and survey. All fifteen of these individuals immediately offered their cooperation. They wrote a letter to the TWU Institutional Review Board, giving consent and approval for the survey to be conducted in their campus. In addition, they provided the name and e-mail address of their instructor or lead teacher, so the hyperlink to the survey could be forwarded to them. Some college directors asked many questions; others requested for a copy of the completed survey. Four of them even asked for the hyperlink, saying that they would forward it to the instructors themselves.

A different letter was immediately sent to the instructors (Appendix G) explaining the study and giving guidelines on how to prepare the students to take the survey. Two of those instructors never submitted the results, one because she had to leave the program, and the other because the survey arrived too late to meet the

deadline for completion. A total of 112 surveys from 13 colleges were received. The next chapter will discuss the findings, treatment of the data, and inferential . statistics.

CHAPTER IV

FINDINGS

The present study examined the relationship between technology and student satisfaction of college-based literacy programs, specifically to determine whether a higher use of technology increased the students' level of satisfaction with the programs. Analyses of the survey data provide information about participants' demographics, satisfaction ratings, and any possible significant impact of participants' demographics on satisfaction ratings.

Participants

One hundred and six Adult Basic Education (ABE) students who were enrolled in technical and community colleges across the United States participated in the study. Participants were chosen using a multi-stage clustering procedure in a random sampling of United States colleges and technical schools registered with the National Adult Education Professional Development Consortium. Fifty ABE programs from different regions nationwide were

randomly selected to participate in the study, of which 15 replied. A hyperlink to the survey was sent electronically to all fifteen colleges and two did not submit the responses on time. The thirteen colleges participating generated 112 survey responses, of which six were completely blank and therefore excluded from the analyses; thus, the final sample included 106 students.

Treatment of the Data

There were 106 useable responses in the survey and 57 of them had some missing data. The researcher included these surveys in the sample, but coded the missing responses as "missing" in the statistical analyses. Prior to running these analyses, data were edited and coded. The purpose for editing is to "clean" the questionnaire, that is, to eliminate "outliers," obviously erroneous responses that make no sense at all, which result in odd, inaccurate findings and increase the risk of measurement error. To "clean" also means to make sure that the answers tell a consistent story (Salant & Dillman, 1994). In the present study, data were also screened for skewness and kurtosis. The data curve followed a Gaussian distribution (normal

bell curve), so parametric statistical analyses were performed.

Demographics of the Survey Participants

As shown in Table 1, the average age of participants was 26 years with a range of 16 - 59. The majority of participants were Caucasian (50%), Hispanic (20.8%), and African American (14.2%). Most of the subjects were male (n = 60). Of the 98 participants who reported their education level, most had completed at least some high school (70.7%) with the 9th-grade as the average grade completed. Almost half of the students reported that they did not work (49.1%), while 29.2% said they worked full-time. The majority of participants reported that English was their primary language (68.9%).

Table 1

Demographic Characteristics of Participants (N = 106)

	Frequency	%
Ethnicity		
White/Caucasian	53	50.0
Hispanic	22	20.8
African American	15	14.2
Asian	8	7.5
American Indian	5	4.7
"Other"	3	2.8
Gender		
Female	46	43.4
Male	60	56.6
Education		
Some elementary school	6	5.7
6 th grade	3	2.8
7 th grade	1	.9
8 th grade	13	12.3
9 th grade	17	16.0
10 th grade	20	18.9
11 th grade	38	35.8
No response	8	7.6
Work Status		
Full-time	31	29.2
Part-time	19	17.9
Does not work	52	49.1
No response	4	3.8
Primary Language		
Non-English	33	31.1
English	73	68.9
Age	Mean = 26.46	SD = 9.89
		Range = 16 - 59

The literature review does not support the demographics in this study when it states that minority students are more likely to attend adult basic skills programs than Caucasians (McKinney, 1997). In the present research, half of the students were Caucasian whereas the other half was comprised of Hispanic, African American, Asian, American Indian, and "other" groups. McKinney also reports that the remedial enrollment rates for African American and Hispanic are consistently one and one-half to two times that of white students. Nevertheless, the current study shows that the enrollment for Caucasians was over three and one-half times that of African American students, and a little less than two and one half times more than Hispanic participants. As for gender, studies indicate that more females enroll in literacy programs than males, sometimes at a ratio of three to one (Allen et al., 1998). However, although women are more likely to withdraw than men, the present study had 14% more women.

Overall, the enrollment of participants in this research increases as they reach higher levels of literacy, with the highest number (36%) in the 11th-grade. The

literature points to the fact that one of the reasons students enroll in ABE programs is to obtain a GED certificate (Kerka, 1995). Over half of the participants in the present research were in 10th and 11th-grade levels, very close to obtaining a GED, which could explain their larger numbers. Half of these subjects did not work and may have been using all their time and resources to prepare themselves to enter the job market.

Summary of Survey Responses

When asked how computers were used in their ABE program, most participants said that computers were used to improve reading skills (60.4%). Students reported that computers were also used to improve writing (42.5%), math skills (46.2%), learn more about computers (46.2%), and to find information on the Internet (39.6%). Only 20.8% said that computers were used in their program to improve communication skills (e-mail) (See Table 2). These findings answer the current study's third research question, which asks how students report that technology is used in their program. Brod (1995) remarked that one of the reasons students enroll in literacy programs is to improve their

Table 2

Frequency of Survey Responses

Survey Question No. 3	Frequency	%
Types of Technology Used* (N = 106)		
Computers	81	76.4
Calculators	70	66.0
CD Players	6	5.7
Cassette Player/Recorder	16	15.1
Videos	24	22.6
Overhead Projectors	15	14.2
Time Devoted to Technology (N = 104)		
10%	49	46.2
25%	25	23.6
50%	12	11.3
75%	18	17.0
How Computers are Used* (N = 106)		
Improve Reading Skills	64	60.4
Improve Writing Skills	45	42.5
Improve Math Skills	49	46.2
Improve Communication Skills	22	20.8
Find Information on Internet	42	39.6
Learn More about Computers	49	46.2
Level of Technology Experience (N = 106)		
Beginner	41	38.7
Intermediate	55	51.9
Advanced	10	9.4
Comfort Level (N = 102)		
Low	21	19.8
Medium	56	52.8
High	25	23.6
Ideal Technology Time (N = 103)		
10%	19	17.9
25%	33	31.1
50%	26	24.5
75%	23	21.7

Note: *Because more than one answer was possible by each participant, frequencies and percentages are equal to the number of participants who reported "yes".

reading and writing skills. These facts suggest that ABE programs are somehow meeting their students' needs, which could ultimately lead to retention and satisfaction.

As shown in Table 2, the majority of participants reported that computers (76.4%) and calculators (66.0%) were used in their ABE program. Many participants reported that videos (22.6%) were also used, while technology such as CD players (5.7%), cassette players/recorders (15.1%), and overhead projectors (14.2%) were not commonly used. When we consider the appreciable higher numbers in the use of computers when compared to other types of technology, it may well be that the term "technology" is being used interchangeably with "computers." Reasons for the decreasing use of the other types of technology should merit future studies, which will be discussed in Chapter V. The term "technology" is in general being used interchangeably with "computers." Forty-six percent of survey participants reported that technology was only emphasized 10% of their program time, while 50% thought that the ideal amount of time the program should devote to technology should be at least 50%. This discrepancy could

indicate that some students are not totally satisfied with this aspect of the program.

More than half of the participants estimated that they had an intermediate level of technology experience (51.9%). Only 9.4% of students appraised their level of technology experience as being advanced. In addition, more than half thought that their comfort level with technology was medium (52.8%), while only 23.6% of the participants felt that they were very comfortable with technology (See Table 2). This prompts the researcher to infer that students do not need to possess a high level of technology knowledge to experience a medium to high comfort level.

As shown in the top half of Table 3, when asked to rank, from strongest to weakest, the reasons that computers helped them learn, the majority of participants said that the strongest reasons were that computers "make learning more interesting" and that computers "give them more privacy." Participants treasure the confidentiality offered by computers and headphones (Bulkeley, 1992) and the way computers serve to make learning more attractive and stimulating (Venezky & Wagner, 1996). "Lets me work

independently" and "lets me work at my own pace" were weaker reasons for computers helping the ABE students to learn.

When participants were asked to rank, from strongest to weakest, how using computers helped them achieve their goals, "helps me find a better job," "helps me do better in my job," and "helps me earn credits or GED" were the most popular answers. "Helps me with schoolwork" was rated as a weak reason for how computers helped students reach their goals (See Table 3). Surprisingly, only 70% of the participants answered these questions correctly or completely. Although the instructions to the questions alerted the respondents to write each ranking only once, a great number of participants wrote the same ranking two or three times, or did not reply altogether.

Participants were asked to rate their satisfaction with various aspects of the ABE program on a scale from "not satisfied" to "very satisfied". As shown in Table 4, participants reported overall that "making improvement," "support from instructors," and "variety of teaching methods" made them "very" satisfied. Participants were also

Table 3

ABE Program Participants' Rankings of Computer Aid
(N = 74*)

Survey Question	Frequency of Rankings (%)			
	1	2	3	4
<hr/>				
Aid in Learning				
Lets me work at my own pace	20 (27.0)	23 (31.1)	20 (27.0)	11 (14.9)
Makes learning more interesting	23 (31.1)	27 (36.5)	16 (21.6)	8 (10.8)
Lets me work independently	8 (10.8)	12 (16.2)	17 (23.0)	37 (50.0)
Gives me more privacy	23 (31.1)	12 (16.2)	21 (28.4)	18 (24.3)
Aid in Goal Achievement				
Helps me earn credits or GED	21 (28.4)	7 (9.5)	23 (31.1)	23 (31.1)
Helps me with schoolwork	6 (8.1)	25 (33.8)	25 (33.8)	18 (24.3)
Helps me do better in my job	22 (29.7)	30 (40.5)	16 (21.6)	6 (8.1)
Helps me find a better job	25 (33.8)	12 (16.2)	10 (13.5)	27 (36.5)

Note: *Only 74 participants answered these questions correctly or completely.

satisfied with the presence of technology and friendliness of their colleagues. These responses answer the present study's second research question: "What levels of satisfaction do students report with their ABE programs?" Particularly pertinent to the study is the participants' level of satisfaction with the presence of technology in their program, which was high ($M = 2.48$) in a scale of 0 to 3. In fact, students' satisfaction was surprisingly high with every aspect of the program.

Table 4

Participants' Perceived Level of Satisfaction with Aspects of ABE Program

Survey Question	N	Mean	SD
Technology in ABE Program	89	2.48	.64
Support from Instructors	101	2.83	.40
Variety of Teaching Methods	101	2.63	.64
Presence of Technology	96	2.54	.71
Friendly Colleagues	97	2.81	.39
Making Improvement	102	2.73	.51

Note: Satisfaction was measured on a scale of 0 (no satisfaction) to 3 (very satisfied).

Satisfaction and Technology

To determine the overall relationship between program satisfaction and the types of technology used, as well as the ways computers are used in the ABE program, it was necessary to add to the calculations the types of technology used in the program as related by each participant and a total technology use score for each student (See Table 5). A total computer use score was estimated by adding the number of ways each participant said computers were used in their ABE program. Pearson's Product Moment Correlations revealed significant positive relationships of technology satisfaction with both the number of technology types ($r = .250, p < .05$) and the number of computer uses ($r = .282, p < .05$). Therefore, participants who reported higher numbers of technology types in their ABE program reported that technology gave them greater satisfaction. Additionally, participants who reported higher numbers of ways computers helped them reported that technology gave them greater satisfaction. No significant relationships were found between the other various satisfaction scores and the number of technology

types or computer uses.

These findings are of extreme relevance to the present study as it answers the first research question, that is, the impact on student satisfaction of the varying degrees and types of technology in college-based ABE programs. Although students experienced high levels of satisfaction with all aspects of their ABE program, only technology satisfaction presents a significant relationship with the number of technology types or computer uses.

Table 5

Pearson's Product Moment Correlations Between Satisfaction and Number of Technology Types or Computer Uses

Satisfaction	Technology Types	Computer Uses
Technology in ABE Program	.250*	.282**
Support from Instructors	.117	-.013
Variety of Teaching Methods	.165	.076
Presence of Technology	.144	.175
Friendly Colleagues	.064	.150
Making Improvement	.099	-.034

Note: * $p < .05$, ** $p < .01$

Nonparametric Chi-Square tests revealed several significant relationships between the types of technology or computer uses participants reported in their ABE programs and their satisfaction with various aspects of the program. Participants who reported using computers in their ABE program also reported greater satisfaction with technology than the ones not using them ($p < .01$), and were more satisfied with the support from their instructors ($p < .05$) than participants who did not report using computers. Participants who said that computers were used to improve their reading skills were more satisfied with technology ($p < .01$) in their ABE program than those students who did not. They also reported greater satisfaction with the friendliness of their colleagues ($p < .05$). Additionally, students who used computers to improve their writing skills reported higher satisfaction with technology ($p < .05$) and with the presence of technology in their program ($p < .05$) than those who did not say computers were used to improve their writing skills.

Participants who said they used computers to improve their computer skills were also more satisfied with the

presence of technology in their ABE program ($p < .05$) than those who did not use computers to improve their computer skills. As verified earlier in the study, most participants concurred that computers in their programs were used to improve reading skills (60%), leading to more satisfaction with technology in their program. Writing skills and computer skills, used in a moderately smaller scale, also lead to student satisfaction with technology in this study.

Time Spent on Technology

Pearson's Product Moment Correlations also showed significant positive relationships between the number of technology types used in the ABE program and time spent on technology. Participants who reported a higher number of technology types used in their program reported a higher percentage of technology allotted time in their program $r = .234$) and ideally wanted even higher amounts of technology time ($r = .215$).

Similar relationships were found between technology time and the number of ways computers are used in their program. Students who reported a higher number of ways computers were used in their program reported more allotted

technology time ($r = .494$) and wanted more time devoted to technology in their program ($r = .331$). Therefore, programs that use more types of technology allot more time to technology use and their students desire even more time. In addition, when the ways computers are used by students increase, more time is allotted to technology use and more technology time is requested by students. The more students are exposed to various types of technology and their uses, the more they want to spend time using technology.

Age

Linear regressions were performed to determine if age significantly predicted the various satisfaction scores. As shown in Table 6, age significantly predicts technology satisfaction ($F = 3.721$, $p = .05$), marginally predicts satisfaction with support from their instructors ($F = 3.300$, $p = .07$), and marginally predicts satisfaction with the presence of technology ($F = 3.721$, $p = .05$).

Table 6

Linear Regressions of Age on Satisfaction Scores

	B	SE	Beta	t	p
Technology in ABE Program	.015	.007	.230	2.200	.030
Support from Instructors	.007	.004	.180	1.817	.072
Variety of Teaching Methods	.009	.006	.135	1.353	.179
Presence of Technology	.015	.008	.195	1.929	.057
Friendly Colleagues	.000	.004	.013	.122	.903
Making Improvement	.004	.005	.070	.707	.481

As shown in Figure 1, as a student's age increases, satisfaction with technology increases. Also when age increases, there is a marginal increase in satisfaction with instructor support, as well as a marginal increase in satisfaction with the presence of technology. The present study surveyed students within the age range of 16 to 59. A possible explanation for the findings is that some of the older students are already competing in real life for better jobs or positions and computer skills could grant them such aspirations.

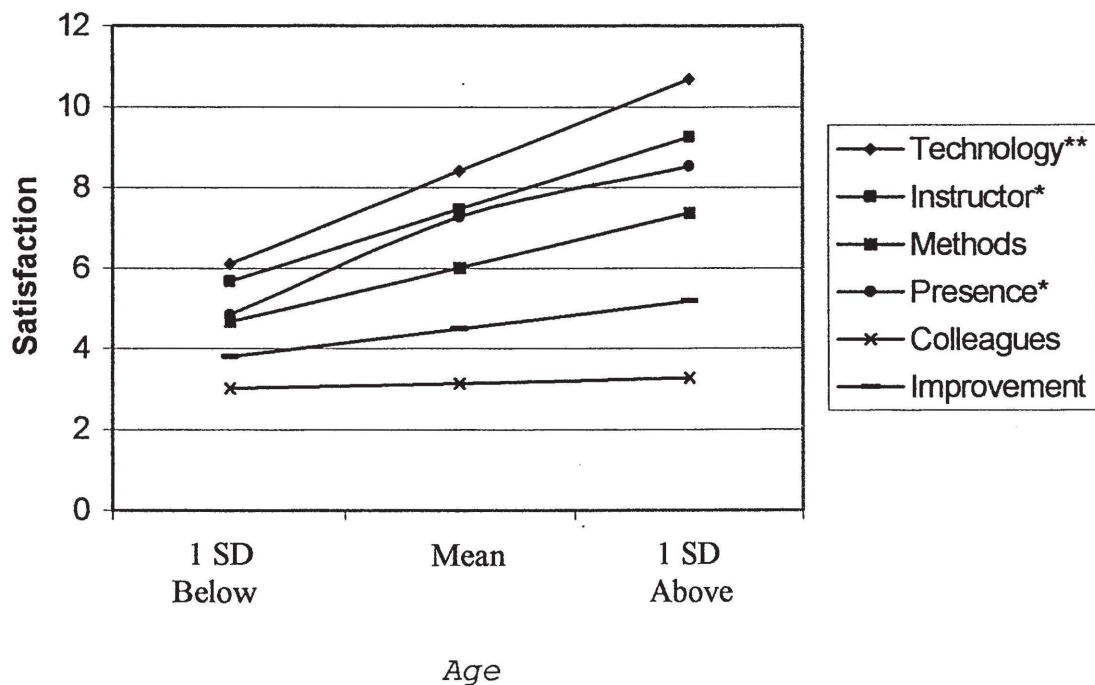


Figure 1. Linear regressions of "Age" on "Satisfaction" scores

Note. ** $p < .05$, * $p < .10$

Ethnicity

As shown in Table 7, one-way analyses of variance (ANOVAs) revealed a significant difference between ethnic groups on participants' satisfaction with the presence of technology and a marginally significant difference of

satisfaction with the friendliness of their colleagues. Tukey's post hoc test revealed that African Americans were significantly less satisfied with the presence of technology in their ABE program than Hispanics, Caucasians, or other ethnic groups ($p < .01$).

Additionally, African Americans and other ethnic groups had marginally lower satisfaction with the friendliness of their colleagues than Hispanics or Caucasians ($p = .075$). From these findings it can be deduced that frustrations about race might exist in basic skills education. Computerized learning would likely be more effective if it was made efficient for different ethnic groups (King, 2003).

Gender

As shown in Table 8, one-way analyses of variance of gender on the various satisfaction scores revealed no significant differences between males and females (all Fs, ns). Males and females were equally satisfied with various aspects of the program.

Table 7

Average Satisfaction Scores by Ethnicity

	F	p	N	Mean	SD
Technology in ABE Program	1.819	.150			
Hispanic			20	2.70	.47
African American			12	2.17	.72
Caucasian			43	2.49	.67
Other			14	2.43	.65
Support from Instructors	1.255	.294			
Hispanic			22	2.95	.21
African American			13	2.69	.63
Caucasian			51	2.82	.39
Other			15	2.80	.41
Variety of Teaching Methods	.037	.941			
Hispanic			22	2.64	.73
African American			12	2.67	.49
Caucasian			52	2.62	.66
Other			15	2.67	.62
Presence of Technology	4.201	.008			
Hispanic			20	2.65 ^a	.59
African American			13	1.92 ^b	.86
Caucasian			50	2.64 ^a	.69
Other			13	2.62 ^a	.51
Friendly Colleagues	2.373	.075			
Hispanic			20	2.85	.37
African American			11	2.64	.50
Caucasian			52	2.88	.32
Other			14	2.64	.50
Making Improvement	.304	.823			
Hispanic			22	2.73	.71
African American			13	2.62	.51
Caucasian			52	2.73	.45
Other			15	2.80	.41

Note. Means with different superscripts were significantly different by Tukey's test ($p < .05$).

Table 8

Average Satisfaction Scores by Gender

	F	p	N	Mean	SD
Technology in ABE Program	.071	.790			
Female			41	2.46	.64
Male			48	2.50	.65
Support from Instructors	.081	.776			
Female			45	2.84	.37
Male			56	2.82	.43
Variety of Teaching Methods	2.59	.110			
Female			46	2.52	.69
Male			55	2.73	.59
Presence of Technology	.410	.524			
Female			41	2.49	.78
Male			55	2.58	.66
Friendly Colleagues	.188	.665			
Female			44	2.80	.41
Male			53	2.83	.38
Making Improvement	.400	.528			
Female			46	2.76	.57
Male			56	2.70	.46

Research has indicated gender differences in the use of computers (Colley, Hill, & Jones, 1995), suggesting that female students, when compared to male, are in an inferior position concerning their image of control of technologies, thus not reaching their full potential. Despite these findings, the present study indicates the possibility that both genders can derive satisfaction from technology in adult basic literacy programs.

Education

Linear regressions were performed to determine if the last grade completed by the students significantly predicted the various satisfaction scores. As shown in Table 9, education level significantly predicted satisfaction with the presence of technology ($F = 4.593$, $p < .05$). Figure 2 indicates that, as the last grade completed by the student increases, satisfaction with the presence of technology increases. All other linear regressions of education level with the other satisfaction scores were not significant.

Table 9

Linear Regressions of Last Grade Completed on Satisfaction Scores

	B	SE	Beta	t	p
Technology in ABE Program	-.006	.042	-.017	-.151	.880
Support from Instructors	-.014	.025	-.057	-.550	.583
Variety of Teaching Methods	.009	.039	.024	.231	.818
Presence of Technology	-.094	.044	-.224	-2.14	.035
Friendly Colleagues	.000	.024	.003	.028	.978
Making Improvement	-.023	.031	-.079	-.767	.445

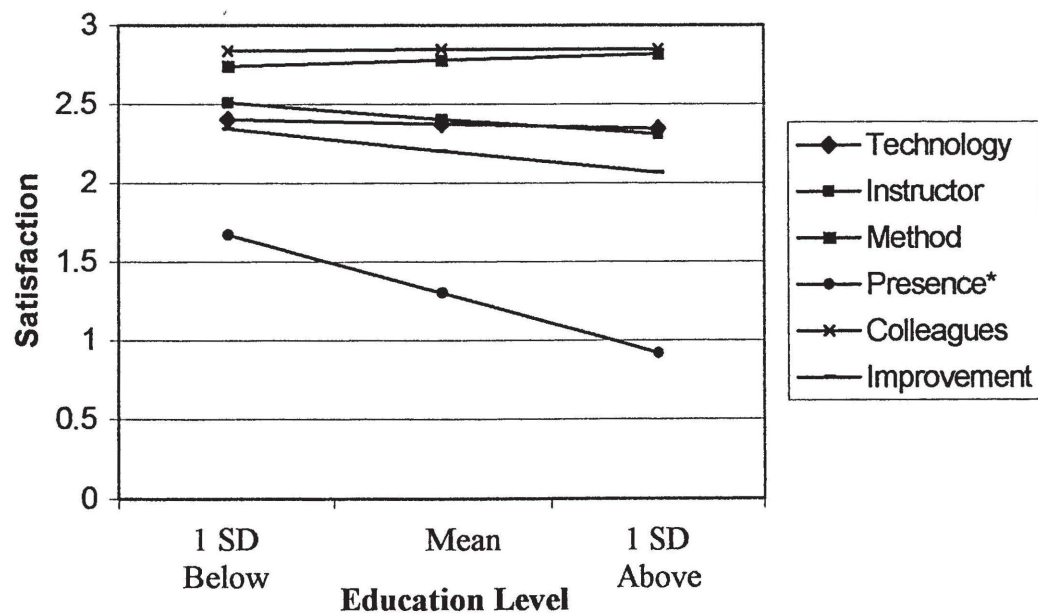


Figure 2. Linear regressions of Education Level on Satisfaction scores

Note: * $p < .05$.

Work Status

One-way analyses of variance of work status on the various satisfaction scores revealed no significant differences between individuals who worked full-time, part-time, or not at all, for any of the satisfaction scores (all *F*s, *ns*). Therefore, participants were equally satisfied with various aspects of the ABE program, such as technology, instructor support, variety of teaching methods, the presence of technology, colleague friendliness, and making improvement, regardless of work status (See Table 10).

It was indicated in Chapter II that some of the reasons students enrolled in ABE programs were for "career enhancement" and "career changes" (Allen et al., 1998). A possible explanation for the presence of satisfaction in students who work and those who do not is that both could be motivated and pleased with the expectation of either enhancing their present career or securing a good job when they leave the program.

Table 10

Average Satisfaction Scores by Work Status

	F	p	N	Mean	SD
Technology in ABE Program	1.674	.193			
Full-time			28	2.64	.62
Part-time			17	2.29	.69
Not Working			44	2.45	.63
Support from Instructors	1.433	.244			
Full-time			31	2.87	.34
Part-time			19	2.68	.58
Not Working			47	2.85	.36
Variety of Teaching Methods	.060	.942			
Full-time			31	2.65	.49
Part-time			19	2.58	.61
Not Working			47	2.62	.77
Presence of Technology	.066	.936			
Full-time			29	2.55	.57
Part-time			19	2.47	.90
Not Working			44	2.52	.73
Friendly Colleagues	.623	.539			
Full-time			29	2.86	.35
Part-time			18	2.83	.38
Not Working			46	2.76	.43
Making Improvement	.124	.883			
Full-time			31	2.74	.44
Part-time			19	2.74	.45
Not Working			48	2.69	.59

Language

As shown in Table 11, one-way analyses of variance (ANOVAs) revealed a significant difference between students who said English was their primary language and those who said English was not their primary language, with technology satisfaction ($F = 4.641, p < .05$). However, in running the preliminary ANOVA, Levene's F test for homogeneity of variance showed that there were not equal variances among the groups ($p < .05$). To control for the violation of homogeneity of variance, a nonparametric Mann Whitney U test was run and revealed that there was still a significant difference between English and non-English speaking students on satisfaction with technology in the ABE program. A comparison of the means showed that students whose primary language was not English ($M = 2.69$) reported that technology gave them greater satisfaction than students whose primary language was English ($M = 2.38$). There were no other significant differences between English and non-English students on any of the other satisfaction measures. Research has speculated that more resources are required to satisfy English speaking students when it comes

to technology than non-English speaking participants, who appear to require a more narrow set of resources (Tsarenko & Mavondo, 2001).

Table 11

Average Satisfaction Scores by English or Non-English as Primary Language

	F	p	N	Mean	SD
Technology in ABE Program*	4.641	.034			
English			60	2.38	.67
Non English			29	2.69	.54
Support from Instructors	1.624	.206			
English			69	2.80	.44
Non English			32	2.91	.30
Variety of Teaching Methods	.179	.674			
English			69	2.65	.61
Non English			32	2.59	.71
Presence of Technology	1.064	.305			
English			67	2.49	.77
Non English			29	2.66	.55
Friendly Colleagues	.059	.809			
English			67	2.82	.37
Non English			30	2.80	.41
Making Improvement	.554	.458			
English			70	2.70	.46
Non English			32	2.78	.61

Experience

Linear regressions were also performed to determine if experience with using technology significantly predicted the various satisfaction scores. As shown in Table 12, level of experience significantly predicted satisfaction with presence of technology ($F = 1.395$, $p < .05$). Figure 3 reveals that, as the students' experience level increases, satisfaction with the presence of technology decreases. All other linear regressions of experience level with the other satisfaction scores were not significant. It is possible that familiarity with technology and good computer skills decrease the students' motivation and satisfaction, as they no longer depend on them to enhance their career goals or find a better job.

Table 12

Linear Regressions of Technology Experience Level on Satisfaction Scores

	B	SE	Beta	t	p
Technology in ABE Program	.125	.106	.126	1.181	.241
Support from Instructors	-.031	.064	-.048	-.481	.632
Variety of Teaching Methods	-.073	.101	-.072	-.723	.471
Presence of Technology	-.263	.112	-.235	-2.339	.021
Friendly Colleagues	.030	.063	.049	.479	.633
Making Improvement	-.079	.080	-.098	-.988	.326

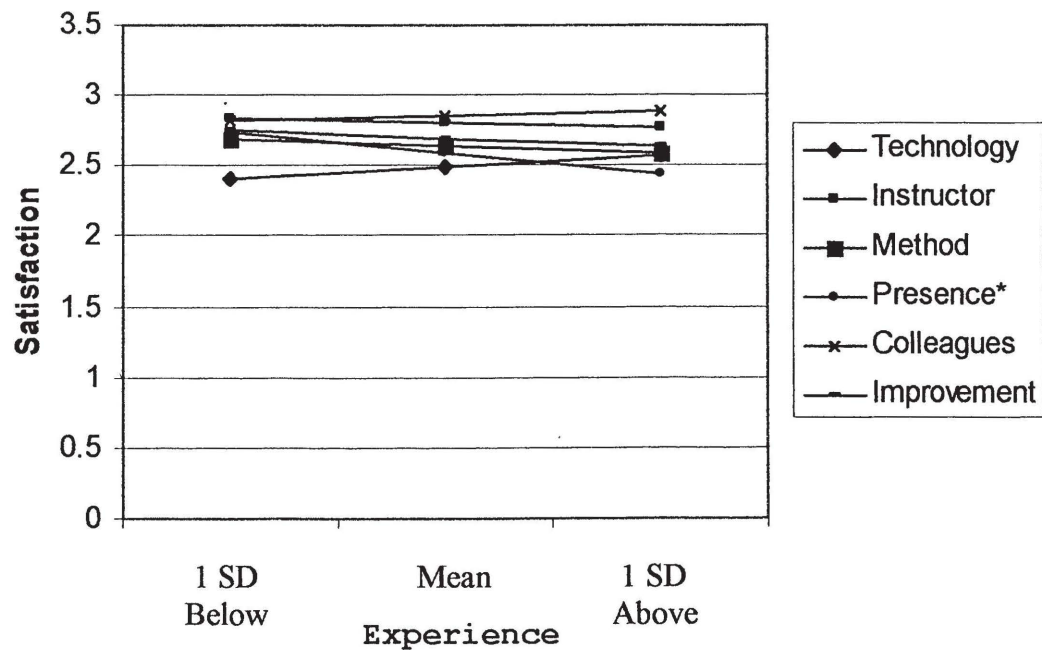


Figure 3. Linear regressions of Experience on Satisfaction scores

Note: * $p < .05$

Comfort

Linear regressions were also performed to determine if a participant's comfort level significantly predicts the various satisfaction scores. As shown in Table 13, comfort level marginally predicted satisfaction with the presence of technology in their ABE program ($F = 2.847$, $p = .09$). Figure 4 indicates that, as a student's comfort level increases, satisfaction with the presence of technology in their ABE program decreases. Comfort level stems from experience and, with the acquisition of higher computer skills, technology may no longer become a challenge.

Table 13

Linear Regressions of Comfort on Satisfaction Scores

	B	SE	Beta	t	p
Technology in ABE Program	.103	.088	.125	1.177	.243
Support from Instructors	.022	.052	.043	.425	.672
Variety of Teaching Methods	.069	.083	.083	.829	.409
Presence of Technology	-.163	.097	-.171	-1.687	.095
Friendly Colleagues	.048	.051	.09	.937	.351
Making Improvement	-.022	.065	-.002	-.024	.981

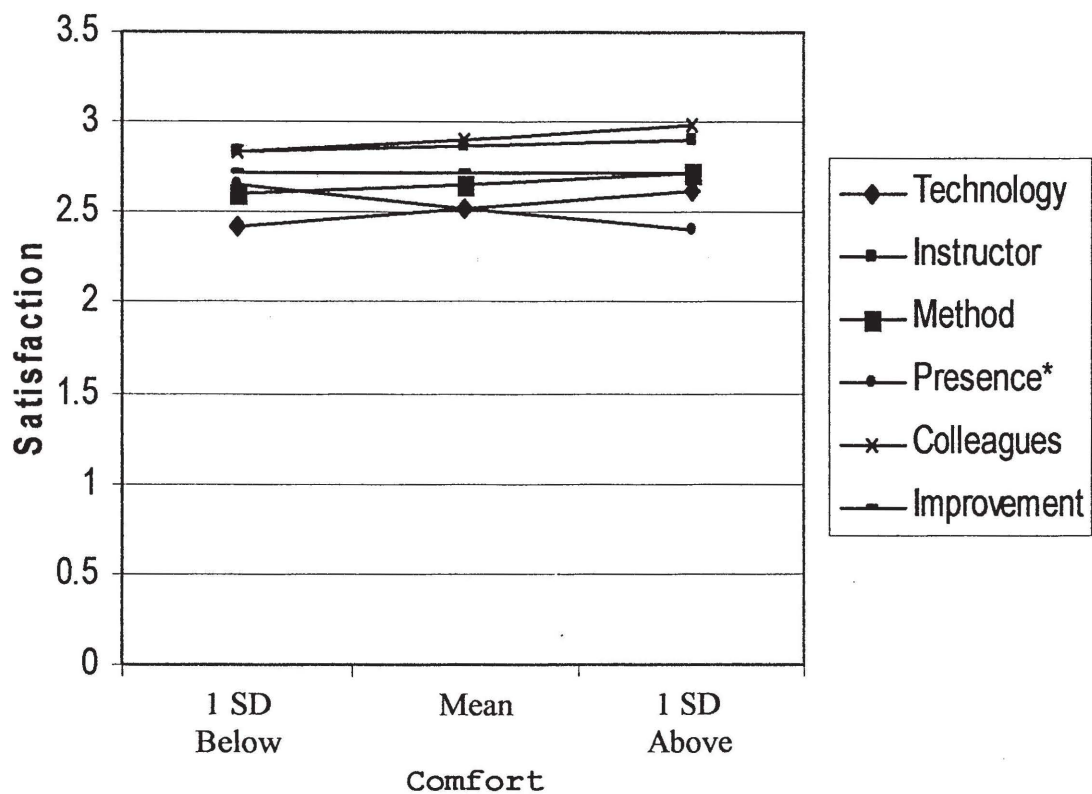


Figure 4. Linear regressions of Comfort on Satisfaction scores.

Note: * $p < .05$.

Summary

This chapter reveals critical findings concerning the impact of technology on satisfaction in college-based ABE students. Participants reported that higher numbers of technology types in their programs gave them significantly

greater satisfaction than programs with smaller numbers. Similarly, students with higher numbers of computer uses in their programs indicated greater satisfaction as well, significantly higher than with other aspects of the program. These two elements of the program were the only ones showing significance when compared to other components.

Although students reported high levels of satisfaction with all aspects of the ABE program, improvement of reading and writing skills, as well as computer skills, greatly contributed to their satisfaction with the presence of technology. Programs with a high number of technology uses allocated more time to technology, and students aspired for even more time. As students' age increased, satisfaction with technology was also enhanced.

African Americans were significantly less satisfied with the presence of technology in their program than other ethnic groups. Males and females were equally pleased with the various aspects of technology. Students with more years of education reported a higher level of satisfaction with the program than those with less time. The fact of having

or not a job did not impact the students' level of satisfaction with technology in their program. Students who were non-English speakers exhibited more satisfaction with technology than those whose primary language was English. Both experience and comfort level with the use of technology had a reverse effect on the students' level of satisfaction: as the former increased, the latter became less noteworthy.

CHAPTER V
SUMMARY, DISCUSSION, IMPLICATIONS,
AND RECOMMENDATIONS

"...if we teach today's students as we taught
yesterday's, we rob them of tomorrow."

(John Dewey)

The purpose of this study was to examine the relationship between technology and student satisfaction in college-based adult literacy programs. It attempted to determine whether a higher degree in the use of technology increased the students' level of satisfaction. Using a quantitative research paradigm, this study observed how students reported that technology was used in their ABE program, their level of satisfaction with the program, and how the various degrees and types of technology impacted their satisfaction.

The review of literature revealed that andragogy and

self-directed learning (SDL) are the mainstay or foundational theories of adult learning (Merriam, 2001). Andragogy is the art and science of helping adults learn (Knowles, 1970) whereas self-directed learning, one of the most studied areas within adult education (Brockett, 2002), is a theory that supports that adults become more independent and self-directed as they mature, being able to have control over their own learning (Knowles, 1975). The implications of andragogy and SDL for the current research inquiry are that, when combined with technology, they have the ability to address the adult learners' most distinct needs (Rachal, 2002). Computers and other types of technology seem to offer the adult learner this self-direction and control of the learning process, possibly leading to retention and satisfaction. "The measurement of satisfaction is critical to the andragogy researcher" (Rachal, 2002, p. 190).

The goal of retention is to keep learners in programs until it is completed (Allen et al., 1998). Successful course completion is a final grade C or better. Statistics shows greater gains for students in a computer-based rather

than a traditional class, as well as positive student attitudes toward using computers in instruction (Oxford et al., 1998). Adult basic education teachers are excited about the potential that technology offers for improving students' learning and expanding their worlds (Cromley, 2000). Technology in ABE programs could contribute to higher levels of satisfaction, advancement in learning, as well as significant increase in enrollment and retention (Jaffee, 2001).

Findings

Research Question 1

"What is the relationship between student satisfaction and varying degrees and types of technology in college-based ABE programs?"

Statistical data analyses of the present study, administered online to 106 college-based ABE students across the country, revealed significant positive relationships between technology satisfaction and both the number of technology types and number of computer uses. Thus, higher degrees of technology types and computer uses are associated with the students' level of satisfaction.

Participants who reported using computers in their ABE program also reported greater satisfaction with technology than the ones not using them. Additionally, participants who reported higher numbers of ways computers helped them related that technology gave them greater satisfaction.

Research Question 2

"What levels of satisfaction do students report with their ABE program?"

When asked to rate their satisfaction with various aspects of the ABE program on a scale from "not satisfied" to "very satisfied," participants reported that "making improvement," "support from instructors," and "variety of teaching methods" made them very satisfied. Also considerably satisfied, although in a slightly smaller scale, were "technology in ABE program," "friendly colleagues," and "presence of technology." This signifies that the participants were strongly pleased with all aspects of their ABE program.

Research Question 3

"How do students report that technology is used in their ABE program?"

The majority of participants reported that computers were used to improve reading skills and, in a moderately smaller scale, to develop writing, math, computer skills, and to find information on the Internet. Communication skills (e-mail) were only used in 20% of the programs. Computers and calculators were widely utilized, whereas videos, cassette players/recorders, and overhead projectors were moderately put into practice. Half of the students informed that technology was applied in their programs 10% of class time; the other half indicated using it 25% to 75% of the time, 25% being also their ideal amount of time to be devoted to technology.

Discussion

The major finding of this study -- the significant impact of technology on satisfaction of college-based ABE students -- has been revealed in the work of other theorists and researchers (e.g., Clayton, 1999; Jaffee, 2001; Nelson, 1999; Oxford et al., 1998) who have previously documented the high levels of satisfaction, interest, and motivation of adult learners seeking computer skills. They concurred that access to technology is an important retention

strategy as well.

Retention has been ambiguously defined throughout the literature, with some researchers considering the goal of retention "to stay in the program until it is completed" (Imel, 1999; Quigley, 1995) and others referring to it as "to stay in the program until the students' goals are achieved" (Tracy-Mumford et al., 1994). This criterion, however, is not always ideal, as learners' goals could be very narrow and restricted (Allen et al., 1998). Satisfaction does not always warrant that the students stay in the program; however, when they have a positive emotional reaction connected to technology they are more inclined to persist. The present study supports the fact that students are more satisfied when the program meets their needs, such as to improve their basic and computer skills and help them obtain a GED.

Attitudes of ABE students toward information and communication technology are of vital importance when assessing their level of satisfaction with learning, control of the learning process, and study motivation (Katz, 2002). The present research, however, depicted a

different image in relation to independence in learning. When asked to rank from 1 to 4 how computers helped them learn, "lets me work independently" came in last, with only 10% of the students giving it the highest rank. Of greater importance were "gives me more privacy," "makes learning more interesting," and "makes me work at my own pace." Motivation and satisfaction with the use of computers were high across groups, but the literature shows that there appears to be no appreciable difference in the rate of course completion related to computer use (Computer Assisted Reading Instruction Project, 1998). The same project also indicated no significant differences in reading performance between students receiving computer-assisted instruction and those receiving conventional methods of instruction.

Over half of the students in the current research did not work and could have been investing all their time and resources to prepare themselves for the workforce. Some may have already had jobs, just to realize that they would not be able to survive in this competitive world without adequate preparation. Others could belong to disadvantaged

and under-represented groups, sometimes depriving themselves of a much needed income in order to acquire basic and computer skills and secure a better future for themselves and for their families. However, without an income, they are unlikely to complete their programs. The farther they are from a GED or other type of credential the more likely they will withdraw from the program.

There are limitations in self-reporting surveys, that is, discrepancies between real test results and participants' self-assessment. An explanation for this is that there is a normal human tendency to answer with socially acceptable responses and a reluctance to say unfavorable things in a program evaluation (Beder, 1998). The current research, done online, made provisions to control for such tendencies by assuring participants that their responses were absolutely confidential, that they would remain anonymous, and that their answers would be erased from the computer and automatically forwarded to the researcher as soon as they pressed the button "SUBMIT." Despite all these precautions and preventive measures, many questions in the survey were left unanswered.

Some activities performed by the students in adult education courses do not necessarily have as their objective the command of some content or acquirement of a skill, but rather the implicit pleasure of participating in a learning activity. In such circumstances, it is crucial for the andragogy researcher to measure the participants' satisfaction (Rachal, 2002). Although achievement is not the predominant objective, satisfaction with the experience is vital and should be measured in all settings (Rachal, 2002). The National Learner Satisfaction Survey commissioned by the Learning and Skills Council confirmed very high levels of satisfaction in adult learning courses (National Institute of Continuing Education, 2004). Approximately 75% of students who in the past had negative attitudes in education say it now gives them enthusiasm and satisfaction.

Implications and Recommendations for Classroom

Practice and Future Research

- Very few studies on technology have concentrated on adult learners; rigorous research studies on this

subject are extremely limited. Those that do appear tend to be program evaluations with little generalizability. The following are some implications and recommendations for classroom practice and future research, based on the current study's findings:

Technology-assisted instruction should be used strategically with every student. What merits further study is not only whether technology is useful in adult instructional settings, but how it can be better utilized, conforming to the instructional techniques that work best with adult learners. Participants want learning to be interesting, relevant and useful, and this can be achieved when technology is used to do real life tasks. When asked how computers aided them in their program, the most popular answer given by the current research participants was "make learning more interesting." Real life activities could be: writing and editing a letter, searching for health information on the Internet, writing a resume on a word processor, or sending an e-mail message.

- Pre-enrollment advising, addressing the role of

technology in the program, and an assessment of participants' feelings and attitudes toward technology should be an intrinsic part of the registration process. There is a possible mismatch between student goals and academic goals in ABE programs. Some participants enroll with the purpose of attaining their personal goals only, and once achieved, they withdraw from the program. However, the goal of retention is to keep learners until the program is completed (Quigley, 1995); leading them to a GED or other type of credential, which may vary from state to state. Programs and students should have the same goals, based on students' needs, expectations, and plans for their future. If their goal is to obtain a GED, then they will need to comply with the curriculum, following the prescribed program. However, if their goal is simply to improve their basic and computer skills, a different path should be pursued. Thus there is a critical need for participants to receive pre-enrollment counseling when they would have the opportunity to relate their expectations and

goals. The counselor, in turn, would guide and educate students on the advantages and benefits of staying in the program, becoming computer literate, preparing themselves to enter the workforce market, and assisting them to write a short and long - term plan. However, the decision and final word should come from the students themselves. This could avoid the gap between learners' expectations and reality (Quigley 1995). Eighty-eight percent of all ABE students leave the program sometime during its nine-month duration (Kerka, 1995). Pre-enrollment counseling could help reverse this trend.

- ABE programs should provide a good variety of technology types and uses, as well as a wide selection of teaching methods. The current study revealed that ABE programs had or made use of considerable greater numbers of computers and calculators than other types of technology: videos, cassette players and recorders, overhead projectors, and CD players. It also indicated that programs with more technology produced more satisfaction in the students. If this is true, it is

surprising that the uses of other types of technology are so limited, when compared to computers. Television has already shown evidence, more than any other medium, of its ability to reach out to people who rarely figure in the national surveys of adult learning (Yarnit, 2004). When respondents of the current survey were asked which aspects of the ABE program gave them more satisfaction, "variety of teaching methods" received almost the same result as the most popular answer, that is, "making improvement" (Table 4). Different technology types would be able to provide in the classroom the variety the students so much desire. These facts, such as ABE programs using computers and calculators almost exclusively in their classrooms, when students strongly wish for a variety of technology uses, can provide some insights and directions for future research, shedding some light on the reasons why computers in the classroom so radically eclipsed the use of other types of technology.

- Researchers, state and college directors, as well as

individuals in high positions in the national adult literacy domain, should combine their expertise and devise a master plan to recruit and retain in the program students in the lowest levels of literacy. Most of the participants in the current study (71%) were in 9th, 10th, and 11th-grade, and as they approached higher levels of literacy, their enrollment increased. These participants are much closer to obtaining a GED or other credential, which could explain their greater numbers. However, students with only some elementary and junior high school experience are those in most need of basic literacy and computer skills, in order to survive in this competitive world.

- Computerized learning in ABE programs should be made more efficient for different ethnic groups (King, 2003). Furthermore, instructors, assistants, front-line staff, and directors should have a positive attitude toward diversity. The present study revealed that African American participants were significantly less satisfied with the presence of technology in their ABE program than other ethnic groups.

Additionally, African Americans and "other" ethnic groups (2.8%) displayed a marginally lower satisfaction with the friendliness of their colleagues than Hispanics or Caucasians. From these findings it is easy to perceive that some discontentment about race might exist in basic skills education.

- Two additional matters of relevance seem befitting to be recommended for future investigation: first, the replication of the present study with considerably more subjects and encompassing more than 13 states, so that a higher degree of validity may be achieved; and second, the assessment of students' satisfaction with their program and the presence of technology in other types of adult basic education programs, such as local education agencies, vocational and technical schools, regional services agencies, and consortia of school districts. College-based ABE programs encompass only 17% of these providers. Research could offer important contribution concerning the future development of technology as a teaching and learning tool.

The introduction of technology into classrooms is

a significant trend in education today. Adult educators and researchers need to consider the ways in which adult literacy and new technologies can be interwoven and can support each other. The use of technology provides multimedia environments that support learning in ABE classrooms, connecting them with the information resources of the world at large.

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APPENDICES

APPENDIX A

Letter to Instructor - Pilot Study

LETTER TO INSTRUCTOR

Pilot Study

I am very appreciative of all your efforts in assisting me conduct my research survey. Your cooperation is invaluable to my study.

I am a doctoral student at Texas Woman's University in Denton, Department of Reading, and am presently working on my dissertation. The purpose of my study is to examine the relationship between -based literacy programs. The study consists of randomly selecting about 100 students in adult basic education (ABE) programs from different areas of the country to answer a questionnaire online.

I will need about 10 students from your class to answer the questionnaire. It is important that they participate voluntarily. They may withdraw from the study at any time without penalty. Please, advise that they will not need to write their names and that the information they give will not be shared with classmates or instructors.

You may decide as to the best day and time for the students to reply. Of course, we do not want to interfere with instruction. If the students have any questions as to

the computer's commands, how to start, how to change an answer, or how to interpret a question, please assist them or ask one of your aides. However, the students will need privacy when selecting their answers. It is vital that they press the command "SUBMIT" when they finish.

Best wishes and again, many thanks.

Marlene Riddle

APPENDIX B

Survey to Instructor - Pilot Study

SURVEY TO INSTRUCTOR

Pilot Study

The return of your completed questionnaire constitutes your informed consent to act as a participant in this research.

1. What is the length of each session in your ABE program? ____
2. What is the average number of students in each session? ____
3. What was the retention rate in your program last session? ____
4. What do you see as the primary reason participants leave the program? ____
5. Do you believe that the presence of technology increases student retention? ____
6. Does your ABE classroom have computers? _____ How many? _____
7. Does it have a VCR? _____ overhead projector? _____ tape recorder? _____ calculators? _____

8. What percentage of your daily class is devoted to computers and video lessons?

10%	_____
25%	_____
50%	_____
80%	_____
Other	_____

9. My students display motivation and satisfaction toward the use of technology in the classroom..

Strongly agree	_____
Agree	_____
Disagree	_____
Strongly disagree	_____

10. My program would be more successful if it was better equipped with technology.

Strongly agree	_____
Agree	_____
Disagree	_____
Strongly disagree	_____

APPENDIX C

Survey Responses from Instructor - Pilot Study

SURVEY RESPONSES FROM INSTRUCTOR

Pilot Study

The return of your completed questionnaire constitutes your informed consent to act as a participant in this research.

1. What is the length of each session in your ABE program? ____ 6 weeks
2. What is the average number of students in each session? ____ 60
3. What was the retention rate in your program last session? ____ 70%
4. What do you see as the primary reason participants leave the program? ____ Lack of motivation
5. Do you believe that the presence of technology increases student retention? ____ Yes
6. Does your ABE classroom have computers? ____ No

If so how many? _____

7. Does it have a VCR? _____ No

Overhead projector? _____ Yes

Tape recorder? _____ Yes

Calculators? _____ Yes

8. What percentage of your daily class is devoted to
computers and video lessons?

10% _____

25% X

50% _____

80% _____

Other _____

9. My students display motivation and satisfaction toward
the use of technology in the classroom.

Strongly agree _____

Agree X

Disagree _____

Strongly disagree _____

10. My program would be more successful if it was better
equipped with technology.

Strongly agree _____

Agree _____X_____

Disagree _____

Strongly disagree _____

SUBMIT

APPENDIX D

Letter to Students - Pilot Study

LETTER TO STUDENTS

Pilot Study

Students of the ABE Program at _____ Community College

Hello! I am a doctoral student with the Reading Department at Texas Woman's University in Denton and I am preparing my dissertation. One of the requirements for this study is that I conduct a survey with students attending a college-based ABE program. This step is of extreme importance to the success of my research.

The purpose of my study is to examine the relationship between technology and retention in college-based ABE programs. You and other students from your class will voluntarily answer a short questionnaire expressing your ideas and feelings about the role of technology in adult basic education classes. It should not take more than 20 minutes. You will not be asked to give your name; you will remain anonymous.

Your participation is strictly voluntary. Also, you may withdraw from the study at any time without penalty. If you have any difficulty with the computer's commands, please

ask your instructor for assistance. If you want to change an answer and do not know how, I am sure your instructor will be happy to be of help.

Thank you for agreeing to participate in this research. I hope together we will be able to make a difference in assisting future adult students to accomplish their goals!

Marlene Riddle

APPENDIX E

Survey to Students - Pilot Study

SURVEY TO STUDENTS

Pilot Study

The return of your completed questionnaire constitutes your informed consent to act as a participant in this research.

QUESTIONNAIRE

(Self-administered)

Please, mark your answers with an X

GENDER

Male ☐

Female ☐

AGE

Under 18 ☐

18 - 22 ☐

23 - 27 ☐

28 - 32 ☐

Over 32 ☐

RACE

White	_____
American Indian	_____
Hispanic	_____
African American	_____
Other	_____

EDUCATION

Highest grade completed

Elementary School	_____
6 th -grade	_____
7 th -grade	_____
8 th -grade	_____
9 th -grade	_____
10 th -grade	_____
11 th -grade	_____

WORK

Full Time	_____
Part Time	_____
Do not work	_____

1. What is most important in the course you are taking?

Number these answers from 1 to 4, 1 being the most important.

My teacher encourages me to be successful. _____

My teacher uses many different books and materials. _____

I can use many different kinds of technology. _____

My classmates are friendly and helpful. _____

2. Technology (computers, video lessons, CD players, cassette recorders, calculators) in your course gives you

Great satisfaction _____

Some satisfaction _____

Doesn't matter _____

3. How much time should your class spend on technology?

(computers, video lessons, etc.)

10% _____

25% _____

50% _____

75% _____

None _____

4. How could computers be helpful to you? (number from 1 to 5, one being the strongest reason)

Help me find a better job	_____
Help me do better in my job	_____
Exchange e-mail messages	_____
Find important information on the Internet	_____
Help me write better	_____

5. Technology has been helping me (number from 1 to 5, 1 being the most true)

Read better/ faster	_____
Develop/ enrich my vocabulary	_____
Read more, on my own and in class	_____
Discuss what I read, in class and to others	_____
Write my ideas and experiences	_____

6. How important is each of the following in your course:

My teacher supports me

Very important _____
Somewhat important _____
Not important _____

My privacy is respected

Very important _____
Somewhat important _____
Not important _____

My skills are improving

Very important _____
Somewhat important _____
Not important _____

My teacher praises me

Very important _____
Somewhat important _____
Not important _____

My teacher gives me certificates, notes, or
rewards

Very important _____
Somewhat important _____

Not important _____

My course provides technology

Very important _____

Somewhat important _____

Not important _____

My course includes fun activities

Very important _____

Somewhat important _____

Not important _____

7. What would make you stay in the program until it is completed, 1 being the strongest reason:

I am improving in many areas _____

My classmates are friendly and supportive _____

My teacher encourages me _____

My course teaches me how to use technology _____

I don't feel intimidated or out of place in my classroom _____

7. Which reasons would make you not stay in the program

(mark all that apply):

Not making improvement	_____
Not fulfilling my needs	_____
Family problems	_____
Economic situation	_____
Lack of or insufficient technology	_____

9. How many months, in total, have you attended adult basic education courses?

1 - 2	_____
3 - 4	_____
5 - 6	_____
7 - 8	_____
9 - 10	_____
More than 10	_____
Just starting	_____

10. A program with a high concentration on computer technology makes you feel

Completely satisfied	_____
Very satisfied	_____

Somewhat satisfied _____

Not satisfied _____

No difference _____

SUBMIT

Thank you for your participation!

APPENDIX F

Survey Responses from Students - Pilot Study

SURVEY RESPONSES FROM STUDENTS

Pilot Study

Combined Responses for All 10 Participants

The return of your completed questionnaire constitutes your informed consent to act as a participant in this research.

QUESTIONNAIRE

(Self-administered)

Please, mark your answers with an X

GENDER

Male 4

Female 6

AGE

Under 18 0

18 - 22 5

23 - 27 2

28 - 32 0

33 - 37	<u> 1 </u>
38 - 42	<u> 1 </u>
43 - 47	<u> 0 </u>
Over 47	<u> 1 </u>

RACE

White	<u> 9 </u>
American Indian	<u> 0 </u>
Hispanic	<u> 1 </u>
African American	<u> 0 </u>
Other	<u> 0 </u>

EDUCATION

Highest grade completed

Elementary School	<u> 0 </u>
6 th -grade	<u> 0 </u>
7 th -grade	<u> 0 </u>
8 th -grade	<u> 3 </u>
9 th -grade	<u> 2 </u>
10 th -grade	<u> 3 </u>
11 th -grade	<u> 2 </u>

WORK

Full Time 1

Part Time 0

Do not work 9

1. What is most important in the course you are taking?

Number these answers from 1 to 4, 1 being the most important.

My teacher encourages me to be successful. 25

My teacher uses many different books and materials. 24

I can use many different kinds of technology. 24

My classmates are friendly and helpful. 11

2. Technology (computers, video lessons, CD players, cassette recorders, calculators) in your course gives you

Great satisfaction 6

Some satisfaction 2

Doesn't matter 2

3. How much time should your class spend on technology?

(computers, video lessons, etc.)

10%	<u> 2 </u>
25%	<u> 5 </u>
50%	<u> 2 </u>
75%	<u> 1 </u>
None	<u> 0 </u>

4. How could computers be helpful to you? (number from 1 to 5, one being the strongest reason)

Help me find a better job	<u> 40 </u>
Help me do better in my job	<u> 24 </u>
Exchange e-mail messages	<u> 19 </u>
Find important information on the Internet	<u> 35 </u>
Help me write better	<u> 20 </u>

5. Technology has been helping me (number from 1 to 5, 1 being the most true)

Read better/ faster	<u> 19 </u>
Develop/ enrich my vocabulary	<u> 32 </u>
Read more, on my own and in class	<u> 28 </u>
Discuss what I read, in class and	

to others 18

Write my ideas and experiences 22

6. How important is each of the following in your course:

My teacher supports me

Very important 8

Somewhat important 1

Not important 1

My privacy is respected

Very important 1

Somewhat important 9

Not important 0

My skills are improving

Very important 7

Somewhat important 3

Not important 0

My teacher praises me

Very important __4__

Somewhat important __6__

Not important __0__

My teacher gives me certificates, notes, or
rewards

Very important __4__

Somewhat important __6__

Not important __0__

My course provides technology

Very important __6__

Somewhat important __3__

Not important __1__

My course includes fun activities

Very important __3__

Somewhat important __4__

Not important __3__

7. What would make you stay in the program until it is
completed, 1 being the strongest reason:

I am improving in many areas	_24_
My classmates are friendly and supportive	_24_
My teacher encourages me	_38_
My course teaches me how to use technology	_24_
I don't feel intimidated or out of place in my classroom	_22_

7. Which reasons would make you not stay in the program
(mark all that apply):

Not making improvement	_4_
Not fulfilling my needs	_3_
Family problems	_6_
Economic situation	_3_
Lack of or insufficient technology	_2_

Note: The total did not equal 10 because students could
choose more than one answer.

8. How many months, in total, have you attended adult
basic education courses?

1 - 2	_1_
3 - 4	_0_
5 - 6	_3_

7 - 8 __2__

9 - 10 __2__

More than 10 __1__

Just starting __1__

9. A program with a high concentration on computer technology makes you feel

Completely satisfied __3__

Very satisfied __4__

Somewhat satisfied __2__

Not satisfied __0__

No difference __1__

SUBMIT

Thank you for your participation!

APPENDIX G

Letter to State Directors

LETTER TO STATE DIRECTORS

I am a doctoral student at Texas Woman's University and I am working on my dissertation to obtain a degree in Reading Education. My study is about the impact of technology on student satisfaction in college/university based ABE programs. For this purpose, I am conducting a survey online with several programs in different parts of the country. Your area was one of the sites chosen. I would be very grateful if you could select one of your college-based ABE programs to be a part of this study. The survey consists of asking about 10 students to voluntarily and anonymously respond to a very short questionnaire offered online. The students will need to click on their selected answers. This should not take more than 15-20 minutes.

Please, feel free to forward this message to the director of the program you select. I will need his/her name and e-mail address in order to provide additional information.

Thank you immensely for your cooperation and support.

Regards,

Marlene Riddle

APPENDIX H

Letter to College Directors

LETTER TO COLLEGE DIRECTORS

I am a doctoral student at Texas Woman's University and am working on my dissertation to obtain a degree in Reading Education. I am conducting a survey online with several programs from different parts of the country. Your state was one of the sites chosen. The purpose of my study is to explore the impact of technology on student satisfaction in college-based ABE programs.

The procedure is relatively simple: the instructor will select about 10 students to voluntarily and anonymously answer a short questionnaire online, by clicking on their choices. I will need the instructor's name and e-mail address in order to provide additional information.

The TWU Institutional Review Board requires that you write them a letter of consent, stating that you approve the survey being conducted in your program. The letter should be addressed to the I.R.B. but mailed to me, so I can include all of the letters with my application. Here are the addresses:

Dr. Linda Rubin
Chair, Institutional Review Board
Office of Research and Sponsored Programs
P.O. Box 425619
Denton, Texas 76204-5619

Please, mail the letter to:

Marlene Riddle
801 Hebron Pkwy 5309
Lewisville, TX 75057

My great appreciation for your invaluable support and
cooperation.

Regards,

Marlene Riddle

APPENDIX I

Letter to Students - Actual Study

LETTER TO STUDENTS

Actual Study

Students of the ABE Program at _____ Community College

Hello! I am a doctoral student with the Reading Department at Texas Woman's University in Denton and I am preparing my dissertation. One of the requirements for this study is that I conduct a survey with students attending a college-based ABE program. This step is of extremely importance to the success of my research.

The purpose of my study is to examine the relationship between technology and student satisfaction in college-based literacy programs. The students in your class will be asked to voluntarily answer a short questionnaire, expressing their ideas and feelings about the role of technology in adult basic education classes. It should not take more than 20 minutes. You will not be asked to give your name; you will remain anonymous.

You will receive online the hyperlink to the survey, which will ask questions about your gender, age, race,

education, work, and native language, in addition to ten questions about your views on the role of technology in your program. All you have to do is to click on your choices, or number the answers according to what you perceive to be the most true or important in your life. When you finish, you will simply click on the word "SUBMIT." You will be granted complete privacy while giving your answers. This survey will be offered online to at least 100 ABE students from several parts of the country.

Your participation is strictly voluntary. Also, you may withdraw from the study at any time without penalty. If you have any difficulty with the computer's commands, please ask your instructor for assistance. If you want to change an answer and don't know how, I am sure your instructor or teacher assistant will be happy to be of help.

Thank you for agreeing to participate in this research. I hope together we will be able to make a difference in assisting future adult students to accomplish their goals!

Marlene A. Riddle