

BASIC COMPUTER LITERACY TRAINING  
TO INCREASE COMFORT LEVELS WITH COMPUTERS  
AND IMPROVE BEHAVIORS OF TECHNOLOGICAL INTEGRATION

A Thesis by

Brandi L. Biggs

Bachelor of Science, Kansas State University, 1995

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I have examined the final copy of the Thesis for form and content and recommend that it be accepted in partial fulfillment of the requirement for the degree of Master of Education with a major in Curriculum and Instruction.

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Kay Gibson, Committee Chair

We have read this Thesis  
and recommend its acceptance:

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Catherine Yeotis, Committee Member

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Glyn Rimmington, Committee Member

## ABSTRACT

This study researched the effect of a basic computer course on the comfort level with computers and Internet on 17 Spanish-speaking, non-computer literate adults. It also identified any increase of the participants' integration of computers and Internet into employment related activities. Five male and twelve female Hispanic adults completed a four-day basic computer literacy training course. Data collected through pre and post content exams; pre, post, and follow-up comfort and use surveys, and attendance records at the training center showed positive results. The short-term training course was effective in reducing participants' fears about using a computer. The training course also proved effective in stimulating the participants to utilize computers and Internet for personal and/or professional benefit.

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## CHAPTER 1

As the 21<sup>st</sup> century unfolds, computers and technology continue to increase baseline skill requirements needed to compete in the workforce. The Partnership for 21<sup>st</sup> Century Skills (2002) report *Learning for the 21<sup>st</sup> Century* notes that in the 21<sup>st</sup> century environment, the need for technologically literate citizens and workers increases every year. People need to understand how to use information and communication technology tools to be competitive in today's workforce. Examples of these tools include computers and networking technology; plus audio, video, and other multimedia tools which enable people to perform effectively at work and in their daily lives. Rader (2003) observes that it is becoming increasingly apparent that technology will continue to be successfully integrated into nearly every aspect of both the social and working world. A growing need for information skills in professional, personal and even entertainment activities translates into a need for a better-trained workforce (Wilhelm, 2004).

The Partnership for 21<sup>st</sup> Century Skills (2002) noted that a combination of economic, technological, informational, demographic, and political forces have altered the way people work and live. The rate of this change will undoubtedly continue to accelerate; therefore, businesses, workers, schools, communities, and families, must adapt to changing conditions in order to survive and flourish. Accelerating changes in technology, accumulating knowledge, global competition, and elevated workforce demands around the world make 21<sup>st</sup> century skills essential (Partnership for 21<sup>st</sup> Skills, 2002). The workforce will also continue to change and one can assume that the level of technological integration will become more complex with time.

Wilhelm (2004) emphasizes that in order to compete in the current and future job market, people must recognize that learning to utilize technology has become necessary or they will not be prepared to overcome the digital divide. In June 2002, the National Policy Association's Digital

Economic Opportunity Committee referred to this growing trend as a digital workforce crisis and noted that the United States must confront the Information Technology (IT) skills gap by training its workers or risk losing competitiveness in the global market. Leonardi (2003) identifies a need to refocus current thinking and pay more attention to cultural communication practices of people who use new communication technology and identify certain cultural elements that may affect perceptions and attitudes toward technology.

The Hispanic population is of particular interest when considering the topic of the digital divide due to the statistical separation from Whites and other minorities accessing the Internet or using technology. Leonardi (2003) points out that Hispanics tend to integrate certain elements of U.S. culture while maintaining almost all of their own culture. When speaking of generational patterns of behavior, he notes that the first two generations of Hispanics maintain strong ties to the original culture. It is the third generation that begins to resemble the more typical U.S. culture. Tornatzky, Macias, and Jones (2002) identify a distinction regarding the Latino digital divide. They note that English language literacy is a major determining factor of the degree to which Latinos can access the vast amount of information on the web.

### *Hypotheses*

The purpose of the research was to determine the effectiveness of providing a basic introduction to computers and Internet to Hispanic adults. The first hypothesis assumed that a basic introduction to computers would increase participants' comfort level with computers and Internet. The second hypothesis assumed the training would encourage and increase the use of computers and Internet in the job search process and in job-related activities such as creating a resume or Internet job searches.

## *Definitions*

The research focused on changes in participants' attitudes toward technology after a basic introductory course to computers. The following terms used throughout the study can be interpreted as indicated here:

*Computer anxiety* refers to a state of uneasiness, apprehension, or fear with regard to computers and/or technology.

*Computer literacy* is the “knowledge and ability a person has to use computers and technology efficiently” (Wikipedia, n.d.). In this paper, computer literacy denotes an understanding of the concepts, terminology, and operations that relate to the most basic level of computer use.

*Digital divide* refers to that space or gap between people who do and who do not have access to information technology (Kirschenbaum & Kunamneni, 2001).

*Employability* refers to employable skills and the knowledge, skills, and attitudes that are critical in order to compete in the 21<sup>st</sup> century workplace (Overtoom, 2000).

*Information technology (IT) or Information and Communication(s) Technology (ICT)* refers to technology that is required for information processing (Wikipedia, n.d.). In this paper, IT or ICT represent the skills and knowledge needed to utilize computers and technology in the workforce.

*SER Corporation* (Service, Employment, and Redevelopment) is a Hispanic based non-profit organization that receives major funding from the United States Department of Labor to provide educational, employment, and support services to otherwise underserved populations.

*Technology*, broadly defined, is the process by which humans modify nature to meet their needs and wants. For the purposes of this study, technology refers to the concept of technology as it pertains to computers and the Internet.

*21<sup>st</sup> century skills* refer to an ability to use digital technology and communication tools to access, manage, integrate and evaluate information, construct new knowledge, and communicate with others in order to participate effectively in society (Partnership, 2002).

### *Summary*

Computer literacy and the digital divide are topics that will continue as critical issues in the United States. The setting of the research was a community technology center located in a predominately Hispanic neighborhood. The NPA's second report by the DEOC (April, 2002), identified several major obstacles for Hispanic entry into the IT workforce. These obstacles included a lack of exposure to personal computer technology and a language barrier. This research project utilized a Spanish speaking instructor and Spanish language curriculum to introduce Hispanic adults to basic computer literacy. The objective was to modify participants' attitudes and behaviors with regard to computers and Internet so that the participants would be more willing to utilize these tools to improve their employment status and future opportunities.

## CHAPTER 2

### LITERATURE REVIEW

#### *Digital divide*

The U.S. Department of Commerce began tracking the digital divide in 1994 and coined the term to refer to the gap between the *haves* and the *have-nots* of access to technology (Moloney & Marshall, 2003). The term more accurately describes the growing separation between people who benefit from the use of Internet and other information technology, and those people who do not. The gap exists between people with ready access to information and communication, and the knowledge it provides them, and those people without such access, knowledge, or skills. It is a division along economic, racial and ethnic, and educational lines (AECF, 2002). In her study, *Addressing the Digital Divide*, Cullen (2001) examined the issue of digital divide at the national level in four countries; the United States, United Kingdom, Canada, and New Zealand. She assessed factors that have contributed to the issue and evaluated methods to reduce it. She noted that inaccessibility may be due to physical disabilities, socio-economic status, geographical, educational, attitudinal, or generational factors.

Kirschenbaum and Kunamneni (2001) examined creative approaches to bridging the digital divide. They presented ideas and practices that can be used by community based and non-profit organizations to help build information technology capacity. Their report suggested that society needs to limit treating the digital divide solely as an issue of access in order to open up possibilities for using IT as a tool to strengthen low-income communities. They note that strengthening these communities will improve the quality of life by empowering people to cross into other industries and earn higher wages.

In 2001, The National Policy Association (NPA) formed a workforce development project called *Crossing the Digital Divide to Digital Economic Opportunity*. The project intended to define and examine the issue of the digital divide and identify ways to increase technical skills of the workforce. The NPA formed the Digital Economic Opportunity Committee (DEOC), a fifteen-member group representing the business, labor, and education sectors. The NPA published their findings as a series of three reports. In the second NPA report, (April, 2002) the DEOC reported that the issue of empowerment is especially true for those groups of people underrepresented in IT fields, for example: low income and rural communities, minorities, Native Americans, women, and older workers. The committee identified various barriers that have hindered and discouraged these underrepresented populations. These barriers include social and physical isolation, stereotypes about certain populations, lack of computer access, irrelevant Internet content, lack of English language skills, disabilities, and insufficient information about IT jobs and training opportunities. The committee also noted that many women and girls see the IT field as male dominated and not as something that reflects their interests.

Wilhelm (2004) recognized the fact that most of the people creating the accessible information for on-line transactions do not take into account those users that may differ in their language, literacy level, disability, or cultural needs. In their first NPA report, (November , 2001) the DEOC highlighted that increasing participation in IT skills training of underrepresented groups requires increased outreach and encouragement for these groups to seek technical education and develop support networks.

Kirschenbaum and Kunamneni (2001) point out many past policies and resources dedicated to bridging the digital divide have failed to accomplish their entire goal. Programs and policies initiated by government and philanthropic organizations have been a key component in the

creation of a robust network of community technology centers. In their report, Pearson and Young (2002), reflect on the results of a two-year study conducted by the Committee on Technological Literacy. The National Academy of Engineering and the Center for Education, part of the National Research Council, formed the committee to define technological literacy and explain its importance to the American society. They observed that access to a personal computer is the key component to whether or not a person uses the Internet. People in higher socio-economic situations are more likely to have a computer in the home and people with more education are also more likely to access the Internet, regardless of income. In their report, *Falling Through the Net: Toward Digital Inclusion*, Rhode and Shapiro (2000) pointed out that although Americans at every level of income and education have begun to increase their use of computers and Internet, a digital divide remains and has even expanded in some cases.

### *21st century workforce*

American competitiveness and worker prosperity are linked to the education and skill achievements of the workforce. Wilhelm (2004) observes that computer skills are rapidly becoming baseline requirements for many jobs. He says that as employers seek these skills, the next generation of workers will be seriously disadvantaged if they are not experienced IT users. In the first committee meeting, NPA's DEOC (2001) warned that if left unattended, this digital divide in technical skills will become an impenetrable barrier, not only to quality jobs but also to educational opportunities and to information that all Americans will need to be successful in the workplace. Pearson and Young (2002) suggest a campaign to increase awareness of the importance of technological literacy and encourage more students to pursue a degree in the IT fields. They note that such a campaign could improve the image associated with these positions

and motivate more students to pursue IT careers, thus decreasing our dependence on foreign workers brought from other countries to work in IT jobs.

The era of digital globalization will affect many aspects of the workforce. Creation and loss of jobs, content, quality, location, and organization of work and employment contracts, as well as the overall functioning and effectiveness of work and employer organizations will be affected by the presence of technological integration (NPA, 2001). The report, *21<sup>st</sup> Century Skills for 21<sup>st</sup> Century Jobs*, prepared by Stuart and Dahm (1999), was a compilation of data from several sectors related to workforce issues. The report focused on changes that have occurred in employee education and training programs that have had a positive influence on workforce development. The report also recognized the changes in education requirements needed for the 21<sup>st</sup> century workforce. American businesses are aware that the need for skilled workers increases every day. Fifty-six percent of businesses report that restructuring and the introduction of new technology has increased the skill requirements for non-managerial employees (Stuart & Dahm, 1999). Currently, the U.S. does not produce enough technically skilled workers to support certain sectors of its high-tech economy, thus, we must depend on foreign workers to fill these needed positions (Pearson & Young, 2002). The report by the Partnership for 21<sup>st</sup> Century Skills (2002) indicated that the issue of current budget constraints that will eventually subside but the long-term need for 21<sup>st</sup> century learning will not.

### *Employability*

The Bureau of Labor Statistics (2002) summary of the workforce in 2001 found that 72.3 million persons, approximately 53.5 percent of total employment, connected to Internet or email; but only about 19.6 million, or 9.2 percent of the civilian population, ages 16 and above reported using the Internet to search for a job. Kusmin (2002) analyzed differences in wage distribution,

and skill content between metro and non-metro locations. She gave statistics that indicated, on average, people with computer skills experience higher earnings and enhanced employability. She pointed out that more highly educated workers are more likely to use computers on the job. She also notes that general skills and computer skills can substitute for each other in certain situations. A worker with a given level of general skills may qualify for a higher paying job if that worker also possesses computer skills.

Hecker (2001) reported in the Bureau of Labor Statistics (BLS) Employment Outlook for 2000-2010 that the seven fastest-growing occupations are computer-related and the demand for computer-related occupations will continue to increase. This increase is a result of the rapid advances in computer technology as well as the continuing demand for new computer applications. Occupations requiring postsecondary vocational awards or academic degrees, which accounted for 29 percent of all jobs in 2000, will account for 42 percent of total job growth by 2010. Computer and mathematical occupations are projected to add the most jobs and grow the fastest among the eight professional and related occupation subgroups (Hecker, 2001). These occupations include computer specialists such as programmers and systems analysts, computer software engineers, support specialists, database administrators, and network administrators and analysts. The Partnership for 21<sup>st</sup> Century Skills (2002) notes that successful businesses are looking for employees who can adapt to changing needs, manage multiple responsibilities, and make independent decisions. In his remarks at the U.S. Department of Labor National Skills Summit, the Federal Reserve Board Chairman, Alan Greenspan (2000), commented that the speed in which many innovations are happening has created a need for workers to strengthen their cognitive skills. He notes that basic credentials and technical know-how are not enough to guarantee success in the workplace. Workers must have the ability to

interact with others, create, analyze, and transform information, and make learning a lifelong activity (Greenspan, 2000).

Wilhelm (2004) points out that the telecommunications and media sector is one-sixth of the nation's economy and will drive future growth. He recognizes that while continued post-graduate education increases earning potential, becoming computer and Internet literate also yields a wage premium. The Partnership for 21<sup>st</sup> Century Skills (2002) observed that technology helps prepare students for the workforce when they learn to utilize applications employed in the world of work, thus, workforce skills are mastered with technology use.

According to Miller (1997), adult students re-entering the workforce face a vast array of concerns. One major concern is a lack of basic computer skills and inability to compete in today's workforce. Computer literacy is only part of the overall technology literacy needed in today's progressive society. Low computer anxiety, high adaptability, and flexibility are also critical to employment success. Wilhelm (2004) recognized that the U.S. economy demands highly skilled, well-educated workers and technology is critical to finding success across sectors and economies. Americans must have the necessary skills to be employable in a society that increasingly relies on computers and the Internet to deliver information and enhance communication. Ensuring that workers have access to digital technology is critical to produce a technology-literate labor force that will enable the U.S. to continue to lead in the global economy (Wilhelm, 2004).

Changes in society have created diverse challenges such as competing in a world market and constant advancements in technology. This progression of change has redesigned the workplace into an innovative work environment known as the "high-performance workplace" (Overtoom, 2000). Wilhelm (2004) notes that the technical requirements of the information economy

increase at such a rapid pace, that the skills learned in school or on the job quickly become obsolete.

The International Labour Conference (2000) pointed out that in industrialized economies; the introduction of new technologies has reduced the demand for unskilled labor and raised the value of advanced skills and competencies. The most effective way to reduce the disparity in levels of digital aptitude is to improve the education and training of the existing workforce. Because of the acute need for skilled workers, people who were previously overlooked are being trained to be IT workers (NPA, 2001).

### *Hispanics and technology*

Marshall and Moloney (2003) reviewed a study of the racial divide within the field of information technology that examined data from two specific positions in the IT field. The study found that the number of minority men or women employed in the technology or IT industry is extremely low. A comparison of Whites to African Americans resulted in a 10 to 1 ratio, and the ratio of Whites to Hispanics was 25 to 1. They also found that minorities who are employed in the information industry tend have jobs that require less education, have a lower status, and receive lower wages than the industry average.

In 1999, The President's Information Technology Advisory Committee (PITAC) of the National Coordination Office for Computing, Information, and Communications held a conference to explore the issue of access to information for underserved communities. Their report published in 2000 accentuated the lack of women and minorities represented in the information sciences and points out that African Americans, Hispanics, and Native Americans collectively comprise about 6.7 percent of the U.S. computer and information science labor force. Statistics continue to show that minorities, especially Hispanics, are less likely to be

utilizing technology as a resource in their job search or as a job skill (Tornatzky, Macias, & Jones, 2002). The NPA's DEOC report (April, 2002) observed that many low-income and recently migrated Hispanics are not familiar with U.S. workforce expectations and often lack adequate education and training with computers and Internet. Leonardi (2003) conducted a study with 78 first generation Latino immigrants living in the United States. His study sought to determine if the working class immigrants made a distinction between cell phones, computer, and Internet. He points out that many Hispanics in the U.S. fail to distinguish between computers and Internet because they do not see the Internet as a communication medium. Thus, Hispanics do not find the Internet as a necessity, but rather a convenience with regard to finding information that could otherwise be found somewhere else (Leonardi 2003). The first NPA report (2001) warned that if people are not able to navigate on the Internet, the information gap will continue to grow and new gaps of unequal opportunities will further divide an already alienated world.

Tornatzky, Macias, and Jones (2002) explained that the problem of Hispanic preparation and participation in the rapidly growing IT sector is inseparable from the larger, chronic issues of education and training. A central part of the problems that have hindered Hispanic economic and social advancement are within the traditional family relationships and an underdeveloped network of IT role models. They also point out that the issue is not only about access to hardware and software, but also about the educational, cultural, creative, and business needs of Hispanic users. The digital divide is about the construction of knowledge, both by individuals and by communities, and the applications of technology in meeting diverse needs and goals. Community access to technology and information skills is essential as economic opportunities increasingly require digital literacy. The sooner communities become familiar to a technology

driven culture, the sooner technology becomes embedded in the culture itself (Tornatzky, Macias, & Jones, 2002).

### *Attitudes toward technology*

In their report, *Who Goes There?*; Chow, Ellis, Mark, and Wise (2000) conducted longitudinal case studies that investigated how community technology centers affect peoples' lives over a period of time. The report was the third in a series of studies that investigated the impact of these centers on the quality of life and learning opportunities of the users. The results from the studies indicated that community technology centers had a positive impact in several areas of people's lives. Examples of these areas are: job skills and access to employment opportunities, civic participation, education, and outlook on learning, reaching personal goals, and enhanced social connections.

Wilhelm (2004), in his book *Digital Nation*, explores many aspects of increasing peoples' participation and inclusion in the benefits that technology and the Internet offers. Although some people may express a general fear or apprehension about integrating technology in their lives, anyone who uses an automatic teller machine to get cash, watches a movie on videotape or DVD, or scans the want ads to see what skills employers are seeking, is aware that technology has permeated the way people live and work. Many of the paper-based transactions, to which people have been accustomed, are moving online. Applying for college, submitting a resume, finding government benefits, filing your taxes and tax-free shopping have become normal online behavior for many people around the world.

Kerka (1994) notes that the degree of literacy a person needs depends on different life and work roles. She notes that both training and education are necessary in order to increase flexibility and adjust attitudes of people with regard to technological change. Cullen (2001)

mentioned that one significant reason why some groups; for example certain cultural or ethnic groups, choose not to access the Internet is because the content is not perceived as relevant or interesting to them. She points out that this can apply to specific groups like the elderly or women but more accurately applies to cultural or ethnic groups outside of the Western dominated Internet culture. The PITAC report (2000) suggested that underrepresented groups must begin to transform belief systems in order to adopt and use technology to attain a higher level of economic stability and begin to help solve community problems. These groups must strive to use technology tools to preserve and further define their cultures and also to increase communication among themselves.

In their study *21<sup>st</sup> Century Skills for 21<sup>st</sup> Century Jobs*, Stuart and Dahm (1999) refer to trends in business and technology that place a competitive premium on education and training. They note that both employers and workers experience benefits from training. Employers acknowledge that a more skilled and educated workforce performs better. Workers who continue to increase their skill level become more desirable employees and have access to increased wages and job security. Active partnerships between employers, educators, trainers, workers, and the government are critical to ensuring that all American workers have affordable and convenient access to acquiring skills for the 21<sup>st</sup> century economy (Stuart & Dahm, 1999).

### *Summary*

The digital divide is a subject that encompasses many aspects and an issue that affects both employers and workers. In the third NPA report (June, 2002), the DEOC reported that there is a skills shortage, not a worker shortage; therefore, by increasing the skill levels of those populations traditionally left out of the IT workforce, the economy can gain the skilled workers it needs to be productive and efficient.

Cullen (2001) analyzed four critical barriers to the use of the Internet. She identified these barriers as physical access to ICT, skill and support concerning ICT, attitudes concerning IT and the Internet, and content within the Internet and noted that more research is needed on this subject to succeed in bridging the digital divide. Rhode and Shapiro (2000) note that income and education account for about one-half of the differences between Blacks and Hispanics accessing the Internet. Access to information technology tools and applications can provide opportunities that rise above barriers of income, location, race, gender, age, and disability (PITAC ,2000).

The Partnership for 21<sup>st</sup> Century Skills (2002) reported that in the year 2000, 17 percent of all public school students were Hispanic and by the year 2025, almost one in four school age children will be Hispanic. Since many of these Hispanic students will have English as their second language, it is necessary that web and technology developers begin to design relevant content for diverse users. Cullen (2001) points out that the potential for use must be demonstrated to certain cultural groups, and that the advantages must outweigh the disadvantages.

Kirschenbaum and Kunamneni (2001) point out that IT is a powerful tool that can be used to promote equity and strengthen community institutions and infrastructure. Having access to word processors and the Internet improves the chances of finding employment. People who use technology centers to develop, practice, and upgrade their technical knowledge and skills automatically improve their employability. (Chow, Ellis, Walker & Wise, 2000). Wilhelm (2004) observed that people who lack these skills not only miss out on career opportunities, but also fail to share in the economic benefits that the Internet offers, such as lower prices, little or no taxation, and more diverse choices. Rader (2003) suggested that citizens who are information and technologically literate in the information age of the 21<sup>st</sup> century will be the necessary

foundation to build a society with economic growth potential. She also notes that those people who are technologically literate will simultaneously create an equitable presence in the workforce. The NPA's DEOC (April, 2002) recognizes that education is a key factor in decreasing the digital divide. Many times the teaching approaches as well as the content that are used in technology and computer training can act as a barrier to learning. The goal must be to design and implement training that is relevant and accessible to those populations who are currently underrepresented in the IT field.

## CHAPTER 3

### METHOD

#### *Participants*

Forty-three people took the pre-course survey and exam during the four and half month data collection period. Seventeen of the forty-three completed the training course and took the post-course survey and exam. All 17 participants identified themselves as Hispanic. The participants were five male and twelve female adults, ranging from 18 to 60-plus years of age. Five of the female participants identified themselves as 18-30 years, three were 31-45 years, and the remaining four were 46-60 years old. Two male participants were in the 31-45 year range, two were 46-60 years, and one identified himself as being over 60 years of age.

#### *Instruments*

Four instruments collected both qualitative and quantitative data. Pre and post-course surveys (Appendixes A and B) determined changes in the participants' attitudes and/or comfort level with regard to computer use while the pre and post-exams (Appendix C) revealed prior knowledge and retention of basic computer knowledge. A follow-up survey (Appendix D) evaluated changes in behavior and/or attitude with regard to using computers and technology. Sign-in attendance records (Appendix E) located at the training center recorded daily attendance and asked each visitor to indicate why they were using the computers.

#### *Pre/Post Course Survey*

The pre-course survey (Appendix A) gathered data related to participants' feelings about their ability and comfort level with a computer, and established if the participant thought the class would impact their use of technology in the workplace. The pre-course survey consisted of seventeen questions; two of which pertained to demographics. One demographic question asked

the participants to identify their age range and the other question asked the participants to select one of six categories of ethnicity. Six questions asked participants to answer using on a five-point Likert scale. Six questions were simply “yes” or “no”, and two others asked participants to identify behaviors such as how they look for jobs. Two questions asked participants to select one or more responses from a list of several possible options. Question 1 asked the participants for the reason they wanted to learn the computer and offered seven choices. Question 11 asked participants how they look for jobs and offered five possible responses.

The post-course survey (Appendix B) was similar to the pre-course survey (Appendix A). The similarity between the two instruments made it possible to compare data and note changes in participant comfort level, perceived usefulness of the class, as well as their future plans for utilizing technology. The participants completed the post-course survey at the end of the training course.

The post-course survey consisted of thirteen questions that assessed general feelings regarding technology and any anticipated integration of computers and the Internet. The survey attempted to identify changes in participants’ comfort level using a computer and their ability to perform specific functions. Ten questions asked the participants to respond using a five-point Likert scale. Two questions asked participants to answer using a qualitative response that indicated behavior with regard to weekly use. The choices ranged from zero to seven days on a five-point scale. One question asked the participants to select how they planned to use computers in the future and their choice were: “create a resume”, “send and receive email”, “look for jobs online”, “play games”, and “other”. The participants could select as many as applied.

### *Pre/Post Exam*

At the same time the participants took the pre-course survey (Appendix A), they also completed a thirty-one-question exam (Appendix C) that determined prior knowledge and retention, respectively; on computer terms and definitions related to computer hardware, software (Microsoft Word), and the Internet. Participants completed the pre-course survey and exam at the SER office or at the computer-training site. The participants completed the post-course survey and exam immediately following the training course at the learning center.

### *Follow-up survey*

The instructor administered a follow-up survey, by phone, two to four weeks post-course. The thirteen-question follow-up survey asked questions similar to those asked in both the pre and post course surveys. It evaluated changes in behavior and/or attitude with regard to computer use and also inquired about technology integration into real life situations on the job and at home. The follow-up survey contained seven questions that asked participants to answer using a five-point Likert scale with responses ranging from “yes” to “no”; identical to the responses in both the pre and post surveys. Four questions asked for a simple “yes” or “no” answer, and two other questions asked the participants to indicate how many days per week they were using a computer or Internet; similar to the questions in both the pre and post-surveys. If the participants made comments during the follow-up survey, the instructor recorded their comments on the survey itself.

### *Sign-in attendance records*

Bilingual daily sign-in sheets asked each user to indicate the date, time and reason for using the computer center. The researcher entered the attendance data into an excel spreadsheet for grant tracking purposes and utilized the activity log as a way to monitor past participants' use

of the center and assess the reason they had come. All visitors choose one of the five following selections: A) to attend training class, B) to practice on the computer, C) to use software programs, D) to use the Internet, and E) other.

### *Background*

SER Corporation received a technology grant for computer equipment and Internet access and opened a community technology center located in a predominately Hispanic neighborhood. The SER education coordinator designed a bilingual computer curriculum to be used at the technology center. The education coordinator edited existing curriculum and developed a short introductory computer literacy course for beginners. The computer training classes were provided at the technology center for approximately five months prior to the research study. The curriculum was used prior to this research project and has continued to be used at the center.

The location of the training center is inside a small shopping center located in the city and heavily patronized by the Hispanic community. The training center is a co-operated facility that offers several adult education programs. The computer literacy classes offer a basic introduction to computers and Internet to Spanish-speaking adults. The classes are free and the books are also available to use for free, however, the students can purchase the books to keep.

The instructor for the training course is a monolingual Hispanic male; therefore, the promotion and marketing for the training course were in Spanish. The marketing and promotion were not limited to Hispanics; however, the majority of the promotion was in local elementary schools and Hispanic businesses in the surrounding community. All information and promotional materials were bilingual and directed persons interested in taking the computer literacy training course to the SER Corporation office for more information or to register for the class.

Prior to designing the study, the researcher asked the instructor to invite all the past training attendee's to participate in focus groups to discuss and evaluate the training classes. All persons who had completed the training prior to the data collection period were invited to return to the training center to participate in an informal discussion on why the classes were important for them and their thoughts about the training in general. Of the fifty-four past training recipients, nineteen people returned for the focus groups. The objective of the focus groups was to gain an insight on the motivation and reasons for taking the class. The researcher hoped to learn if past attendees thought the classes were beneficial or if they had suggestions to improve the training method. The instructor scheduled group discussions as one-hour sessions with four to five people. The final schedule included eight group sessions held over four days and at the conclusion of the focus group session, all attendees completed a course evaluation. A bilingual third party observer recorded all individual responses from the group discussions directly into the researcher's computer. At the conclusion of the sessions, the researcher input the discussion and evaluation results, anonymously, into a spreadsheet.

Many participants of the discussion groups were parents who expressed concern about children using the Internet. They felt they needed to understand what their children are doing on the Internet and learn how to become more proactive in their supervision. Many others identified a need to get over the fear associated with computers.

### *Procedure*

The basis of the research project supposed that acquisition of better computer skills would increase employability in two ways. First, the researcher assumed that a basic computer literacy training course would decrease the general anxiety related to computers and its application in the

workforce. Second, the training would encourage technological integration in work-related activities, such as creating a resume and using the Internet for job searches.

Potential participants interested in taking a basic computer course came to the SER office to enroll in the course and complete preliminary paperwork for the class. Potential participants read a description of the research, decided to accept or decline the opportunity to participate, and signed the consent form at the time they completed the pre-course survey and exam. All staff were notified of specific research details to ensure full participant acknowledgment and understanding of the project.

The participants completed the pre-course survey and exam (Appendices A and C) prior to the course. The time between the pre-course survey/exam to the actual training varied between three to ten days. The classes were approximately three hours per day and met for four days, Monday through Thursday of one week. If the participant did not feel comfortable taking the post-test at the conclusion of one week, the instructor allowed the participant to return the following week or to another class session to revisit an activity or topic that was difficult for them. Participants completed the post-course survey and exam at the completion of the course. The instructor completed the follow-up survey approximately two to four weeks after the participants completed the post-course survey and exam.

The curriculum for the course consisted of an edited version of the material “This is the ON Button”, originally developed by West Virginia Adult Basic Education. The original curriculum is an extensive computer course using Windows 98. The researcher edited the Windows 98 material into Windows XP and focused on using Microsoft Word and the Internet to facilitate the job search process.

Participants followed a student handbook and completed twelve in-class activities from a

workbook that supplements the handbook. The participants completed approximately three activities during each class session. Each activity focused on the vocabulary and functionality of components within Windows, Microsoft Word, and the Internet. At the conclusion of the course, the participants completed a post-course survey (Appendix B) and post-exam (Appendix C). The post-course survey noted changes in comfort level as well as evaluated the participants' perceived usefulness of the class and their future plans for utilizing technology. The post-course exam was identical to the pre-course exam and, therefore, gave a comparative evaluation of participant comprehension and/or retention of the course material.

Following the course, the instructor completed a follow-up assessment, by phone, approximately two to four weeks post-course to further evaluate changes in comfort level, incorporation of technology into their job or job search, as well as any changes in participants' behavior regarding computer use. The researcher entered and saved all results from the pre-and post-exams, the three survey assessments, and the attendance in a password-protected Excel spreadsheet. All entries were specific to individual participants in order to track progress and changes in behavior or comfort level, yet the participants' identity remained confidential.

## CHAPTER 4

### RESULTS

The objective of the research was to improve participants' comfort level with computers and identify an increased integration of computers and Internet, especially in employment related activities. The quantitative data from the exams, surveys, and attendance records used descriptive statistics to reveal central tendencies as well as variability (Mills, 1999). Using data from the pre and post-exams as well as data from pre, post, and follow-up surveys, it was possible to compare and track changes in participant feelings and/or behaviors with regard to computers and Internet.

The first hypothesis assumed the training course would increase participant comfort level with computers and Internet. In turn, this increased comfort level would reduce fear often associated with computers and help participants understand the importance of computers in the 21<sup>st</sup> century workplace. The pre and post course surveys recorded participants' comfort level and behavior with regard to computers, prior to and immediately following the course. The results from these surveys were subsequently charted in an excel spreadsheet and graphed for interpretation.

The second hypothesis assumed that a basic introduction to computers would encourage the use of computers and Internet in the job search process. The follow-up survey and sign in attendance records at the center helped monitor and record such behavior. Graphs of the follow-up survey results illustrate many changes within participants' attitudes and behaviors.

#### *Pre-course survey results*

The pre-course survey (Appendix A) consisted of seventeen questions that assessed participants' comfort level and use of computers and Internet. The survey determined if the

participants were using a computer and/or Internet prior to the course, their comfort level with both, and inquired if computers would benefit participants' employment status or job-search effort. The results showed a general feeling of discomfort about using computers but also reflected the participants' recognition of the importance of computers in the workplace.

Question 1 asked participants to indicate the reason or motivation for learning the computer. Participants had seven possible responses and could choose all that applied. As Figure 1 shows, of the 7 participants that indicated an interest in learning the Internet, 2 participants thought learning computer would help at

their current job, while another 3 of those 7 participants also wanted to get a job. Four participants wanted to learn the computer in order to find a job; 2

of the 4 also indicated the Internet as an interest. Six

participants reported "yes" when asked if they had a computer in the home at the time of the pre-course survey.

Five questions on the pre-course survey asked participants to respond using a five-point Likert scale. The answers provided were: "yes", "somewhat", "neutral", "not really", and "no". Two questions with the Likert-scale format asked participants to report on comfort level using computers and Internet. Question 3 asked participants if they were comfortable using a computer (see Figure 2). Prior to the course, almost half (8) of the participants reported that they were comfortable with a computer. None of the participants reported that they were not

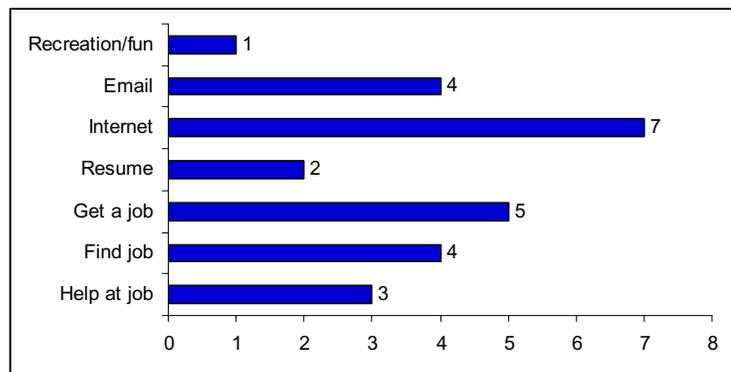


Figure 1. Pre-course reasons to learn the computer.

comfortable and 2 participants did not answer the question. Question 5 asked participants to report on their comfort level using the Internet. While only 1 participant reported “no”, 8 participants recorded no answer to the question (see Figure 2). Two questions

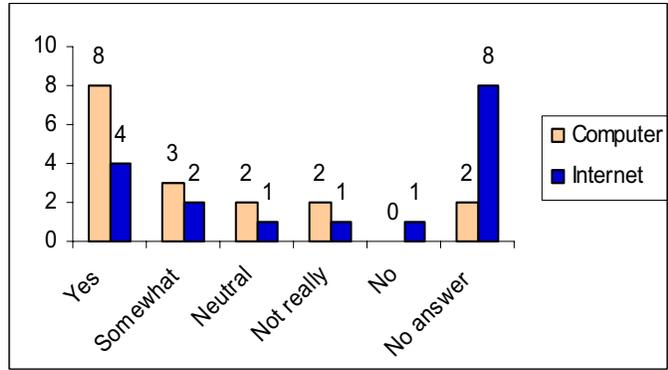


Figure 2. Pre-course comfort with computers and Internet.

asked participants to indicate the frequency they were using computers and Internet prior to the course and gave them five options to indicate the number of times per week: “0 days”, “1-2 days”, “3-4 days”, “5-6 days”, or “7 days”. Question 4 asked participants to report on weekly computer use prior to the course. Nine participants reported they did not use a computer and 4 participants reported using a computer at least one day per week. Two participants did not respond to the question. Question 6 asked participants to indicate the number of days per week they were using the Internet and yielded similar results to the question regarding computer use. Nine participants were not using Internet at the time of the pre-course survey; 5 participants reported using the Internet at least one day per week and 3 participants did not respond (see Figure 3).

Question 7 asked if participants could read and send email. Two participants answered “yes”, and 11 participants reported they did not know how to read or

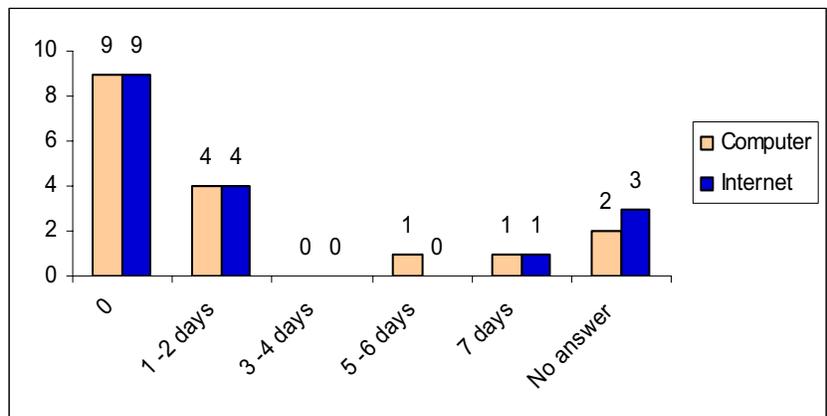


Figure 3. Pre-course use of computer and Internet, reported in days per week.

send email. The next question asked participants to report employment status and gave them four options: “yes”, “yes, but looking”, “no, but looking”, and “no”. Seven participants indicated they were employed, 9 participants were not employed, and 1 participant was not employed, but looking. Four of the 7 participants who reported employment answered “yes” when asked if learning how to use a computer would help them at their current job; and 15 participants thought learning a computer would help them to find a higher paying job.

Question 12 asked participants how they look for jobs. The participants selected all that applied from the following categories: newspaper, friends, help wanted signs, walk-in, or Internet. None of the 17 participants reported using the Internet as one of their job-search tools. Fifteen participants reported “no” when asked if they had ever used the Internet to look for jobs; the other 2 participants reported “not really”.

Question 13 inquired whether participants had a resume. One participant indicated that she did, 13 participants reported they did not, and 3 participants did not respond to the question. The next question asked if participants knew how to use Microsoft Word to create a resume; 14 participants answered “no” to the question. One participant answered that she knew how to use Microsoft Word to create a resume although she did not report having one at the time. Two participants did not respond to the question.

#### *Post-course survey results*

The post-course survey (Appendix B) was similar in format to the pre-course survey (Appendix A). It assessed participants’ comfort level and anticipated continued use of computers and Internet as a result of the course. Eight questions asked participants

to report on their comfort and ability with computers and Internet. The remaining five questions asked participants to speculate on future behavior based on the information they had learned during the training course. The results indicated an increased

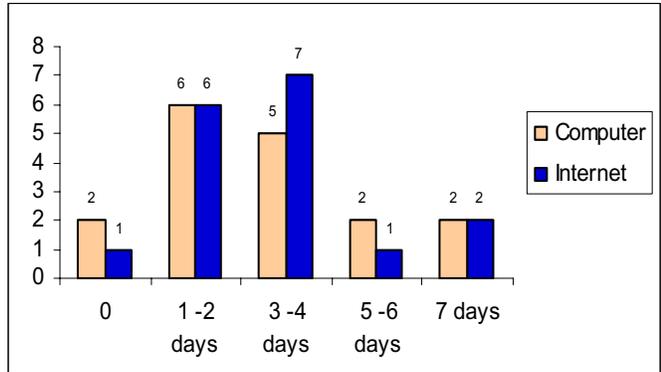


Figure 4. Post-course plans to use computer and Internet.

willingness to integrate computers and Internet as well as an increased comfort level with both.

All 17 participants reported the class was beneficial and agreed it is important to know how to use a computer. Fourteen participants reported “yes” when asked if they were comfortable using a computer and 15 participants said they felt comfortable using the Internet. Thirteen participants said they felt comfortable using Microsoft Word as a result of the course and 12 of the 13 participants thought they could create a resume using the program. Figure 4 shows participants’ intended use of computers and Internet. When asked about intended or planned use of computers, 15 participants planned to use a computer at least one to two days per week. Sixteen participants intended to use the Internet a minimum of one to two days per week and 16 participants reported “yes” when asked if they would use the Internet to look for jobs. Fourteen participants reported that they could read and send email at the completion of the course. Sixteen participants said they intended to use the technology center and when asked how they planned to use the center, 14 participants intended to create a resume, 15 participants planned to use email, and 14 participants wanted to use the center to look for jobs (see Figure 5).

*Follow-up survey results*

The results of the follow-up survey (Appendix D) reflected a two to four week period in which the participants had time to integrate technology into their lives. The instructor conducted the follow-up interviews by phone and recorded participants' comments. The format of the follow-up survey was

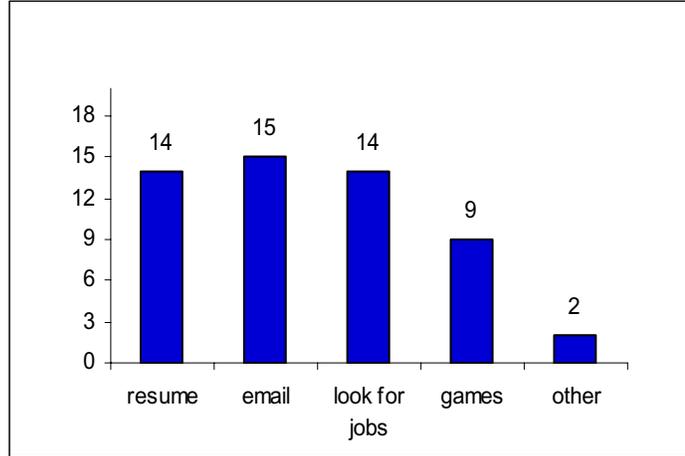


Figure 5. Post-course plans for using technology center.

similar to both the pre-course survey (Appendix A) and post-course survey (Appendix B).

At the time of follow-up, 8 participants had a computer at home. Fifteen participants reported they were comfortable using a computer and 16 participants agreed the class helped them feel more comfortable with computers. When asked about weekly use of computer and Internet, 15 participants were using a computer and/or Internet at least one day per week (see Figure 6).

Question 4 asked participants to report on employment status. Eight participants indicated that they were employed, 7 participants were looking for employment, and 2 participants were not employed. Four of the 7

participants who were not employed indicated they had used the Internet to look for jobs.

Miller (1997) reported that after completing a basic computer

class, adult students had lower

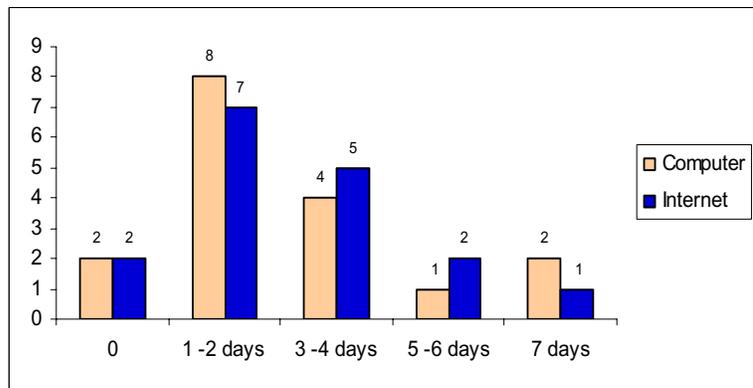


Figure 6. Follow-up survey results of weekly computer and Internet use, reported in days per week.

rates of anxiety and higher success rates in obtaining employment. Seven of 17 participants reported they had used the Internet to search for jobs since completing the training.

Thirteen participants reported having a resume and 14 participants reported they had used an email account to send

and receive email. All 17 participants expressed an interest in learning more about computers.

#### *Pre and Post Exams*

Fifteen of the 17 participants showed a marked increase in test scores between the pre-course and the post-course exams (see Figure 7). The average score for the pre-course exam was 9.35 out of 31 possible points with a standard deviation of 7.47 points. The average score for the post-course exam was 29.59 points with a standard deviation of 1.62 points. Two participants scored above 80 percent on the pre-course exam so there was not a marked change on the post-test score, however, the average change between pre-course and post-course exam scores was 20.24 points with a standard deviation of 7.63 points. The statistical difference was less than .01 percent.

#### *Attendance records*

The sign-in attendance sheets (Appendix E) monitored who used the technology center and the reason attendees were using the computers. In the follow-up survey, 10 participants reported they had used the technology center following completion of the training course. After

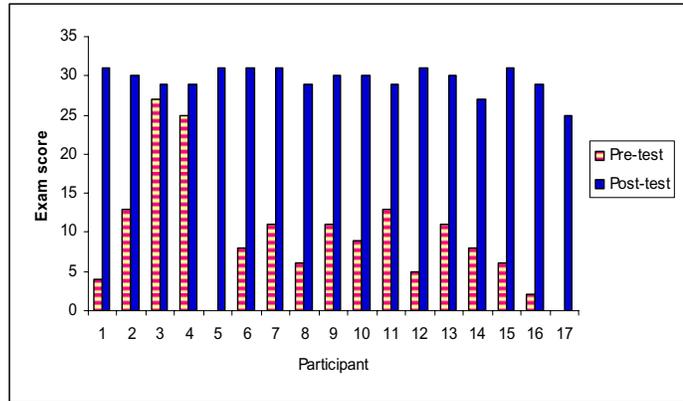


Figure 7. Comparison chart of pre and post-course exam scores.

reviewing the attendance records during the data collection period, the researcher confirmed that ten participants had visited the center, primarily to use the Internet.

## CHAPTER 5

### DISCUSSION

The research sought to determine if a basic introduction to computers and Internet would increase participants' comfort with computers and motivate the participants to further implement technology into their employment situation or job search tactics. Results from the exams and surveys indicated that the short training course had a positive impact on the participants' concept of computers and technology and agreed with the first hypothesis identified for the research project. Results from the follow-up survey and attendance records reflected increased integration of both computers and Internet for job-related activities which agreed with the second hypothesis of the research.

#### *Discussion of the instruments*

As the researcher, I assumed the Likert -scale format would be more effective in eliciting a greater response from the Hispanic participants. Past experience with Hispanic populations, and evaluation administration specifically, had shown that a graduated scale of responses would make the participants feel more comfortable in their answers. As the research unfolded, the data analysis began to reveal ambiguity with regard to specific questions. As a result, the instructor contacted ten participants in order to obtain a definitive "yes" or "no" to two questions on the follow-up survey (Appendix D). Question 10 asked participants if they had used the Internet to look for jobs. Four participants originally answered in the "somewhat" to "not really" range. Upon further contact, 3 of the 4 participants answered "no", while one woman indicated that she had looked for jobs on the Internet. Similarly, Question 12 asked participants if they had used the technology center since the class. Seven participants' first response was in the mid-range,

but upon further contact, 6 of the 7 participants answered “no”, while one man reported he had used the center.

*Discussion of the results*

The results of the post-course surveys reflected an overall improvement in participants’ comfort level with technology as well as an increased willingness to integrate computers and Internet into their job search activity. The results of the follow up survey, although short-term, confirmed an increase in both participant comfort and integration of computers and Internet.

Tornatzky, Macias, and Jones (2002) reported that the primary point of Internet access for Hispanics is at home. At the time of the pre-course survey, 6 participants reported they had a computer at home while 8 participants reported they had a computer in the home at follow-up. Both participants who reported a change were female.

The results regarding employment status reflected a change in participant motivation to look for employment. Tornatzky, Macias, and Jones (2002) also reported that while Hispanic males have the highest participation rate in all U.S. industries by race and gender, Hispanic women

have the lowest. Conversely, in the pre-course survey, 4 of the 7 employed participants were female.

Figure 8 illustrates the change in employment status from the time of the pre-survey to the time of the follow-up survey. The most notable change is the number of

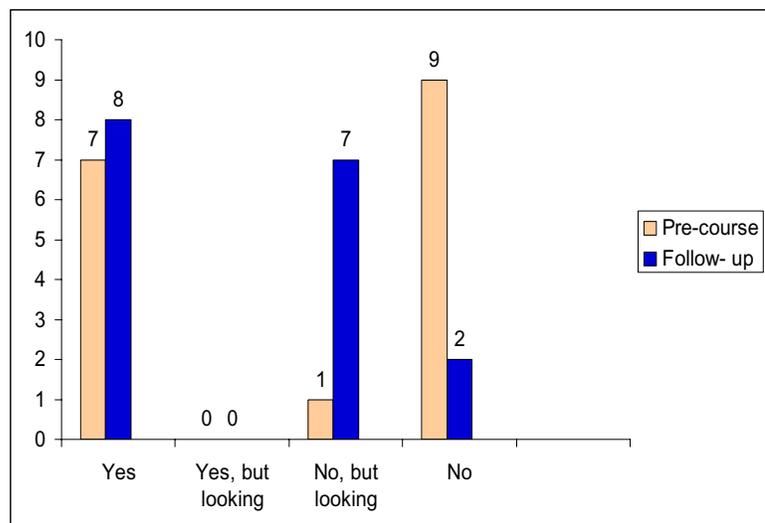


Figure 8. Comparison of participants' report on employment status.

participants who began looking for work between the time of the pre-course survey and the follow-up. During the follow-up survey, 7 participants indicated they were looking for employment; compared to only 2 participants that were looking for employment prior to the course.

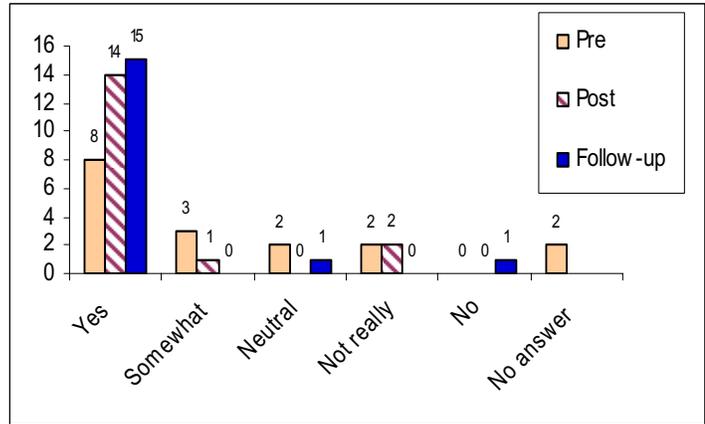


Figure 9. Comparison chart of pre, post, and follow-up comfort using computers.

Furthermore, 5 of the 7 participants that indicated a change from unemployed to looking for employment were female. This change reflects an increase of job seeking activity between the pre-course and follow-up surveys. It appeared the short introduction to the computers was also effective in motivating the participants to utilize both computers and Internet for the job search activity.

A comparison of pre-course survey results to follow-up survey results reflected a marked increase in participant comfort level and utilization of computers and Internet. Eight participants reported they were comfortable using a

computer at the time of the pre-course survey, 14 participants were comfortable in the post-course survey, and 15 in the follow-up (see Figure 9).

Figure 10 demonstrates similar results by showing the comparison of participant comfort using the Internet

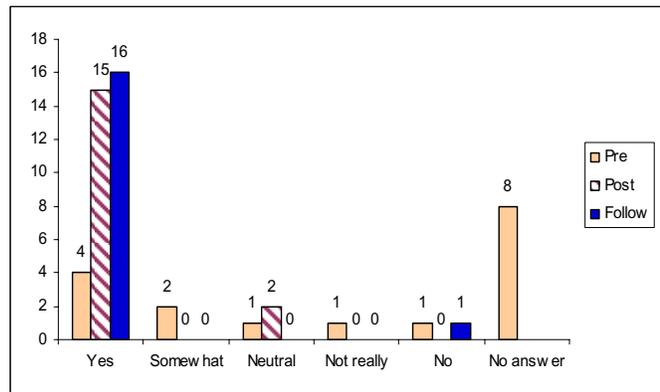


Figure 10. Comparison chart of participant comfort using Internet.

between pre-course, post-course, and follow-up survey results. Survey results of participant behavior with regard to computer and Internet use indicated an improvement in technology integration. At the time of the pre-course survey, 9 participants

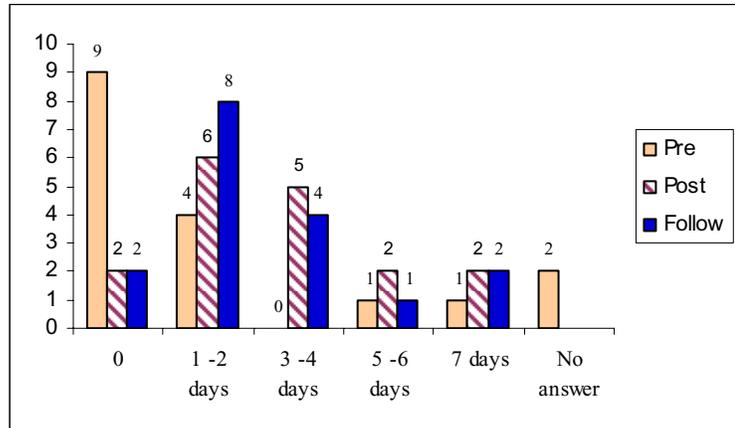


Figure 11. Comparison chart of computer use, reported in days per week.

reported that they did not use a computer or the Internet. During the post-course survey, 15 participants thought they would use a computer at least one day per week and 16 participants thought they would utilize the Internet a minimum of one day per week (see Figure 11). When asked about computer and Internet use at the time of follow-up survey, 15 participants reported they were using a computer and Internet at least one day per week. Two participants were not using a computer or Internet at the time of the follow up survey.

Thirteen participants said they felt comfortable using Microsoft Word as a result of the course. One participant reported to have a resume at the time of pre-survey while 13 participants reported to have one at follow-up. All 13 participants reported they had used Microsoft Word to create a resume. Leonardi (2003) identified that an important aspect of understanding technology is the comprehension of its function in relation to other modes of communication. At the time of the pre-course survey, none of the participants reported they had used the Internet to look for a job. In the post-course survey, 16 participants reported that they intended to use the Internet to look for jobs and 8 of the 16 participants reported they had done so at the time of the

follow-up survey. Ten of 16 participants who intended to use the technology center reported they had done so in the follow-up.

Based on the comparative results of the pre-, post-, and follow-up surveys, the research showed that the short training course was effective in motivating a small behavioral change for many of the participants. By increasing the comfort level, the willingness to use a computer more regularly also increased. The willingness to practice or incorporate computers and Internet also stimulated an increase in job search activity.

### *Limitations*

One limitation to the project was the relatively short time frame of the class, which may have limited comprehension and/or retention. Comprehension and/or retention are dependent upon many factors: age, previous computer experience, the instructor, physical or mental distractions, and personal issues unrelated to the class. The qualitative measure of the pre-and post-exams indicated prior knowledge about computers and Microsoft Word, but may not have accurately indicated how much they had actually used a computer. For example, it was possible that the participants had used the Internet, and thus would have been more inclined to manipulate the mouse and keyboard, yet have very little knowledge of Microsoft Word. It was also possible that some participants found the exam material to be a review, thus skewing the examination scores slightly.

Another limitation may have been in the delivery of the curriculum. Often, with minority populations, it can be more difficult to convey relevance of the content and how it can be applied to their lives (NPA, April 2002). The Spanish speaking instructor for the project was of Hispanic origin and therefore understood the differences in culture and was able to add emphasis where needed. The instructor was from Central America whereas most of the participants were of

Mexican origin, thus, one could assume there may be slight cultural differences. I did not anticipate that these cultural differences would have a significant impact on student interpretation.

Although forty-three people took the pre-course survey and exam during the data collection period, only seventeen completed the training. The low completion rate could have been due to many factors. The time period included the holiday season and many Hispanics utilize the holidays to return to Mexico or their native country and visit family. Another consideration could have been a lack of family support. During the focus groups prior to the research, many women expressed a lack of support from their spouses or boyfriends to further their education.

The limitation of the instruments also leaves many questions to be further investigated. Pearson and Young (2002) discuss other studies on self-reporting and point out that no one make an effort to determine if the self-assessments were correct. Similar questions remain within this research project and personal interviews could have provided a more clear definition of the participants' feelings of comfort and/or ability with regard to computers and Internet.

### *Delimitations*

The scope of the curriculum was limited to a basic introduction to the computer. The objective was to make participants feel more comfortable exploring and practicing with the computer and therefore be more inclined to begin the process of integrating technology into their concept of acceptable and desirable skills needed to compete in the 21<sup>st</sup> century workforce. The curriculum, beyond terminology and physical introduction to the computer, was limited to topics that apply to using a computer in the job search process, for example, Microsoft Word, the Internet, and online employment resources.

## CHAPTER 6

### CONCLUSION

Some people have a certain fear of computers and Internet and, therefore, never attempt to learn how to use them. Kerka (1994) found that it is this fear and anxiety, related to lack of knowledge and understanding, which exacerbates the digital divide. These issues make community technology centers and free access to technology education important factors for people who want to become proactive in their attempt to be competitive in the modern workforce.

In his study, Leonardi (2003) commented that the communication goals of a particular group play a critical part of that group's uses and perceptions of technology. He notes that technology must not be implemented with the goal that it will improve communication practices for everyone. Instead, technology should enhance qualities of good communication for specific groups.

This research study examined the effects of a basic computer course on the comfort level and behaviors of Hispanic adults. The overall objective was to increase participants' familiarity with computers and Internet and thus stimulate them to further develop technology related skills. The hypotheses were based on the idea that when the participants increase their comfort and skills with technology and computers, they improve their level of employability in the modern workforce. The purpose was not to provide an in-depth course on computers, but rather to allow otherwise non-users to experience the simplicity of operation of computers and Internet in a non-threatening learning environment.

The results from the research revealed a desire within the Hispanic participants to learn about computers and begin integration. The data collected through pre and post exams; pre, post and

follow-up comfort and use assessment surveys; and sign-in attendance sheets showed that the short-term training course was effective in reducing participants' fears about using a computer. The training course proved effective in stimulating the participants to utilize computers and Internet for personal and/or professional benefit.

## LIST OF REFERENCES

## REFERENCES

- Annie E Casey Foundation. (2002). *Sustaining technology in low-income neighborhoods*. Baltimore: Author. (ERIC Document Reproduction Service No. ED474827)
- Bureau of Labor Statistics. (2002). *Computer and internet use at work in 2001*. Retrieved January 21, 2005 from <http://www.bls.gov/news.release/>
- Chow, C., Ellis, J., Walker G., & Wise, B. (2000). *Who goes there? Longitudinal case studies of twelve users of community technology centers*. CTCNet Research and Evaluation Team.
- Cullen, R. (2001, August). Addressing the digital divide. Libraries and Librarians: Making a difference in the Knowledge Age. *Council and General Conference*, Boston, 67. (ERIC Document Reproduction Service No. ED459714)
- Greenspan, A. (2000, April). *The evolving demand for skills*. U.S. Department of Labor National Skills Summit, Washington D.C. Retrieved October 10, 2005 from <http://www.federalreserve.gov/boarddocs/speeches/2000/20000411.htm>
- Hecker, D. (2001). *Occupational employment projections to 2010*. Monthly Labor Review. Bureau of Labor Statistics.
- International Labour Organization. (2000, June). *Training for employment: Social inclusion, productivity, and youth employment* (International Labour Conference, Report V, Chapter I). Retrieved February 28, 2005 from <http://www.ilo.org/public/english/standards/relm/ilc/ilc88/rep-v.htm>
- Kerka, S. (1994). *Life and work in a technological society* (ERIC digest No. 147). Eric Development Team. (ERIC Document Reproduction Service No. ED368892)
- Kirschenbaum, J., & Kunamneni, R. (2001, Fall). *Bridging the organizational divide: Toward a comprehensive approach to the digital divide*. Oakland, CA: A PolicyLink report. (ERIC Document Reproduction Service No.ED476577)
- Kusmin, L.D. (2002). *Wage premiums for on-the-job computer use: A metro and nonmetro analysis*. Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Rural Development Research Report No. 95. (ERIC Document Reproduction Service No. ED 472713)
- Leonardi, P.M. (2003, June). Problematizing "New Media": Culturally based perceptions of cell phones, computers, and the Internet among United States Latinos. *Critical Studies in Media Communication*, 20, ( 2), 160-179.
- Miller, L. (1997). A research project presented to Dr. Angie Parker, Gonzaga University. Retrieved January 24, 2005 from <http://www.lmillercc.com/edeu/manuscri.html>

- Miller, L.M. (2001). *This is the ON button*. West Virginia Adult Basic Education. Retrieved January 29, 2005 from <http://wvabe.org/on-button.htm>
- Mills, G.E. (2000). *Action research: A guide for the teacher researcher*. Upper Saddle River, New Jersey: Merrill Prentice Hall.
- Moloney, M., & Marshall, V.W. (2003). *Minorities in the information technology workforce: Aging issues*. Report prepared for the Center on Minority Aging, Institute on Aging, and University of North Carolina at Chapel Hill.
- National Coordination Office for Information Technology Research and Development. (2000, February). *Resolving the digital divide: Information, access, and opportunity*. Arlington, VA: President's Information Technology Advisory Committee (PITAC). (ERIC Document Reproduction Service No. ED462973)
- National Policy Association. (2001, November). *Building a digital workforce. Part 1: Raising technological skills* (NPA Report No. 303). (ERIC Document Reproduction Service No. ED475687)
- National Policy Association. (2002, April). *Building a digital workforce. Part 2: Reaching out to underserved communities*. (NPA Report No. 304) (ERIC Document Reproduction Service No. ED475688)
- National Policy Association. (2002, June). *Building a digital workforce: Confronting the crisis*. (NPA Report No. 305). (ERIC Document Reproduction Service No. ED469905).
- Overtom, C. (2000). *Employability skills: An update*. Retrieved January 21, 2005 from ERIC Clearinghouse on Adult, Career, and Vocational Education Eric Digest No. 220.
- Partnership for 21<sup>st</sup> Century Skills. (2002). *Learning for the 21<sup>st</sup> century. A report and mile guide for 21<sup>st</sup> century skills*. Washington, D.C. Retrieved October 2, 2005 from <http://www.21stcenturykills.org>
- Pearson, G., & Young, G. T. (Eds.). (2002). *Technically speaking: Why all Americans need to know more about technology*. Washington, DC: National Academy Press.
- Rader, H. (2003). Information literacy-a global perspective. In A. Martin & H. Rader (Eds.), *Information and IT literacy. Enabling learning in the 21<sup>st</sup> century* (pp. 24-42). London: Facet Publishing.
- Rhode, G.L. & Shapiro, R.J.(October 2000). *Falling through the net: Toward digital Inclusion*. U.S. Department of Commerce, Economics and Statistics Administration, and National Telecommunications and Information Administration. Retrieved January 25, 2006 from <http://www.ntia.doc.gov/ntiahome/fttn00/Falling.htm>

Stuart, L. & Dahm, E. (1999). *21<sup>st</sup> century skills for 21<sup>st</sup> century jobs*. A report of the U.S. Department of Commerce, U.S. Department of Education, U.S. Department of Labor, National Institute of Literacy, and the Small Business Administration. Retrieved April 4, 2005 from <http://www.vpskills Summit.org>

Tornatzky, L.G., Macias, E.E., & Jones, S. (2002, February). *Latinos and information technology: The promise and the challenge*. Claremont, CA: The Tomás Rivera Policy Institute.

Virtual Bill. (n.d.). Virtual Bill's computer literacy world headquarters. Retrieved June 23, 2005 from <http://www.virtualbill.net/index.html>

Wilhelm, A.G. (2004). *Digital nation*. Cambridge, MA: The MIT Press.

Wikipedia. (n.d.). Retrieved October 8, 2005 from <http://en.wikipedia.org/wiki/>

## APPENDICES

## APPENDIX A

### PRE-COURSE ASSESSMENT SURVEY

1. **Why do you want to learn how to use a computer? (Circle all that apply)**  
Help at current job      Help find a job      Help get a job      Create a resume  
Use the internet      Use Email      Recreation/fun
2. **Do you have a computer at home?**  
Yes      No
3. **Do you feel comfortable using a computer?**  
Yes      Somewhat      Neutral      Not really      No
4. **How many times per week do you use the computer?**  
0 days      1-2 days      3-4 days      5-6 days      7 days
5. **Do you feel comfortable using the Internet?**  
Yes      Somewhat      Neutral      Not really      No
6. **Currently, how many times per week do you use the Internet?**  
0 days      1-2 days      3-4 days      5-6 days      7 days
7. **Do you know how to send and read email?**  
Yes      Somewhat      Neutral      Not really      No
8. **a. Are you currently employed?**  
Yes      Yes, but looking      No, but looking      No
- b. If you are employed, do you use a computer for your current job?**  
Yes      No
9. **Will learning how to use a computer help you in your current job?**  
Yes      Somewhat      Neutral      Not really      No
10. **Will learning how to use a computer help you get a higher paying job?**  
Yes      Somewhat      Neutral      Not really      No
11. **How do you look currently for jobs?**  
Newspaper      Friends      Help Wanted signs      Walk-in      Internet
12. **Have you ever used the internet to look for jobs?**  
Yes      Somewhat      Neutral      Not really      No
- a. Did you read on-line job ads or search on-line job listings?**      Yes      No
- b. Did you research information about potential employers?**      Yes      No
13. **Do you have a resume?**      Yes      No
14. **Do you know how to create a resume in Microsoft Word?**      Yes      No

What is your age range?

- 18-30     46-60  
 31-45     60+

How would you describe your ethnicity?

- White       Hispanic       Indian  
 Black       Asian       Other\_\_\_\_\_



## APPENDIX B

### POST-COURSE ASSESSMENT SURVEY

1. Do you feel comfortable using a computer?  
Yes      Somewhat      Neutral      Not really      No
2. How many times *per week* do you plan or think you will use a computer?  
0 days      1-2 days      3-4 days      5-6 days      7 days
3. As a result of this class, do you feel comfortable using Microsoft Word?  
Yes      Somewhat      Neutral      Not really      No
4. Do you feel as if you can create a resume?  
Yes      Somewhat      Neutral      Not really      No
5. Do you feel comfortable using the internet?  
Yes      Somewhat      Neutral      Not really      No
6. How many times *per week* do you plan to use the Internet?  
0 days      1-2 days      3-4 days      5-6 days      7 days
7. a. Do you know how to send and read email?  
Yes      Somewhat      Neutral      Not really      No  
  
b. What is your email address? \_\_\_\_\_
8. Will what you learned from the class help you at your current job?  
Yes      Somewhat      Neutral      Not really      No
9. As a result of this class, do you think you will use the Internet to look for jobs?  
Yes      Somewhat      Neutral      Not really      No
10. Do you think it is important to know how to use a computer?  
Yes      Somewhat      Neutral      Not really      No
11. How do you plan to use technology/computers in the future? (check all that apply)  
 Create a resume  
 Send and receive email  
 Look for jobs online  
 Play games  
 Other(s) \_\_\_\_\_
12. Do you feel this class was beneficial to you?  
Yes      Somewhat      Neutral      Not really      No
13. Do you plan to use the technology center in the future?  
Yes      Somewhat      Neutral      Not really      No

## APPENDIX B

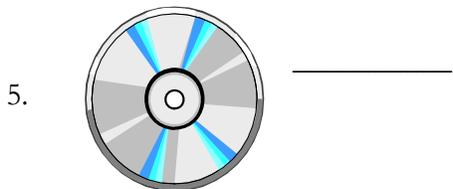
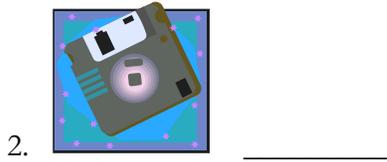
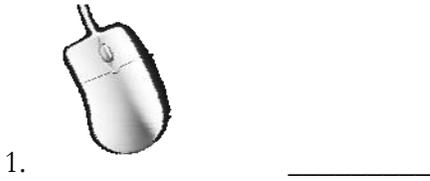
### EVALUACION POSTERIOR

13. ¿Te sientes cómodo cuando usas una computadora?  
Sí      Un poco   Algo      Casi no      No
14. ¿ Con qué frecuencia crees o planeas usar la computadora? (por semana)  
0 días      1-2 días      3-4 días      5-6 días      7 días
15. ¿Cómo resultado de esta clase, te sientes cómodo cuando usas Microsoft Word?  
Sí      Un poco   Algo      Casi no      No
16. ¿Sientes que puedes crear un resumen?  
Sí      Un poco   Algo      Casi no      No
17. ¿Te sientes cómodo cuando usando el Internet?  
Sí      Un poco   Algo      Casi no      No
18. ¿Con qué frecuencia planeas usar el Internet? (por semana)  
0 días      1-2 días      3-4 días      5-6 días      7 días
19. a. ¿Sabes cómo mandar y leer mensajes mediante el correo electrónico?  
Sí      Un poco   Algo      Casi no      No
- b. ¿Que es su correo electrónico? \_\_\_\_\_
20. ¿Crees lo que aprendiste sobre la computadora te ayudara en tu trabajo?  
Sí      Un poco   Algo      Casi no      No
21. ¿Cómo resultado de esta clase, piensas que usaras el Internet para buscar trabajos?  
Sí      Un poco   Algo      Casi no      No
22. ¿Crees que es importante saber como usar la computadora?  
Sí      Un poco   Algo      Casi no      No
23. ¿Cómo tu planeas usar la tecnología/computadora en el futuro?(marque todos que aplicar)  
 Crear un resumen  
 Enviar y recibir email  
 Buscar trabajos online  
 Juegos  
 Otro(s) \_\_\_\_\_
12. ¿Crees que esta clase fue beneficiosa para usted?  
Sí      Un poco   Algo      Casi no      No
13. ¿Planea usar el centro de tecnología en el futuro?  
Sí      Un poco   Algo      Casi no      No

APPENDIX C

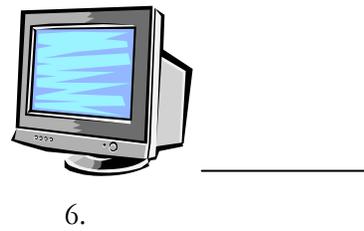
Computer Training Pre/Post Exam

A. Choose a word from the word bank that best describes each picture.  
(Not all words will be used)



**Word bank**

- a. Computer
- b. Copier
- c. Floppy Disk
- d. Keyboard
- e. Laptop
- f. Mouse
- g. Fax machine
- h. Calculator
- i. CD
- j. Printer
- k. Monitor



## APPENDIX C

### Match the following terms with their definitions

- |                      |            |              |
|----------------------|------------|--------------|
| A. Hardware          | E. Printer | I. Stand –by |
| B. Software          | F. Drag    | J. Click     |
| C. Notebook computer | G. Tab key | K. Browser   |
| D. Icon              | H. Virus   | L. Shift key |

1. \_\_\_\_\_ Clicking on an object and holding down the left button as you move the mouse (and the object) to a new location.
2. \_\_\_\_\_ A set of instructions that tells the computer how to perform a task.
3. \_\_\_\_\_ Moving the pointer to an object and pressing and releasing the left mouse button one time.
4. \_\_\_\_\_ The equipment that makes up the computer system
5. \_\_\_\_\_ A computer that is small and portable, also called a laptop.
6. \_\_\_\_\_ Holding this key down while you press a letter key creates a capital letter.
7. \_\_\_\_\_ Moves the cursor several spaces (usually five) to the right -- If the cursor is positioned in front of text, the text also moves.
8. \_\_\_\_\_ Name of the mode when the computer is in a low energy state.
9. \_\_\_\_\_ Graphic representation of an application, file, etc.
10. \_\_\_\_\_ Any program that can destroy your computer's hard drive.
11. \_\_\_\_\_ Program that guides you through the internet
12. \_\_\_\_\_ The equipment that makes a paper copy of a document.

APPENDIX C

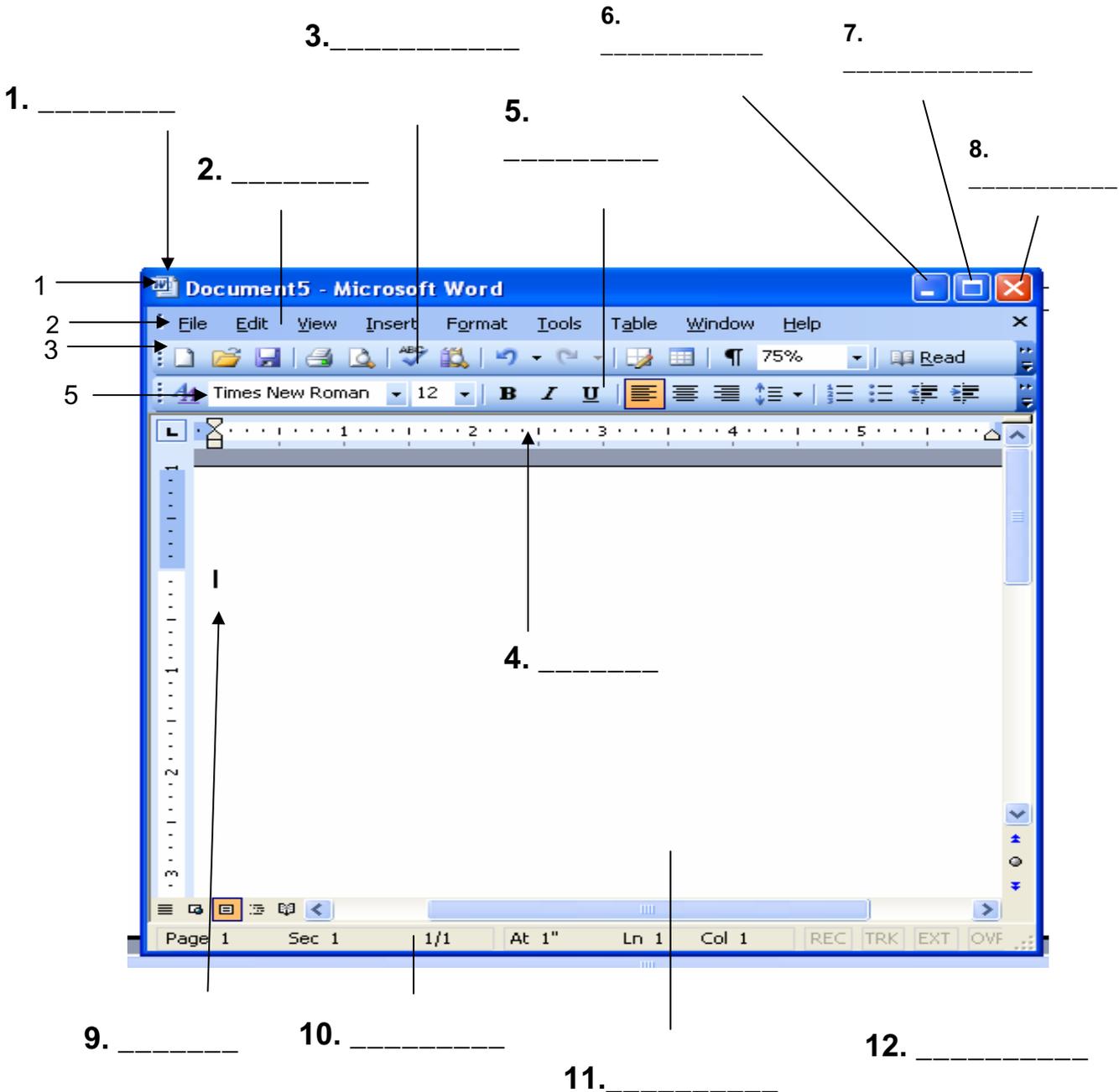
Word Window

Use the following terms to label the window.

- A. Scroll Bars
- B. Minimize
- C. Format Toolbar
- D. Standard Toolbar

- E. Maximize
- F. Title Bar
- G. Workspace
- H. Cursor

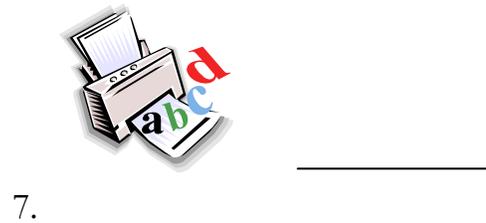
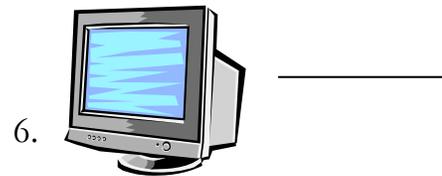
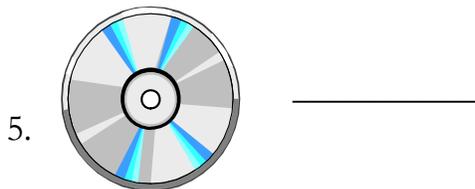
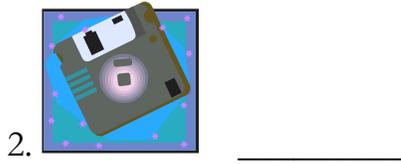
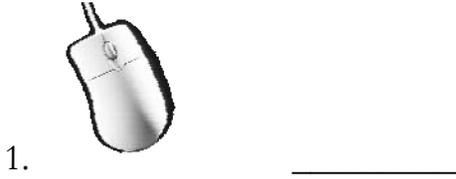
- I. Status Bar
- J. Close
- K. Menu Bar
- L. Ruler



## APPENDIX C

### Examinación de la computadora

B. Escoja una de las palabras en la caja que represente cada de las fotos.  
(No todas las palabras serán usadas)



#### Banco de palabras

- a. Computadora
- b. Copiadora
- c. Disco
- d. Teclado
- e. Laptop
- f. Mouse
- g. Facsímile
- h. Calculador
- i. CD
- j. Impresora
- k. Monitor

## APPENDIX C

**Relaciona los siguientes términos con sus correspondientes definiciones.**

- |                         |              |                |
|-------------------------|--------------|----------------|
| A. Hardware             | E. Impresora | I. Stand –by   |
| B. Software             | F. Arrastre  | J. Clic        |
| C. Computadora Notebook | G. Tecla Tab | K. Browser     |
| D. Icono                | H. Virus     | L. Tecla Shift |

1. \_\_\_\_ Hacer clic en un objeto y mantener oprimido el botón izquierdo al mover el Mouse (y el objeto) a una nueva ubicación.
2. \_\_\_\_ Conjunto de instrucciones que la indica a la computadora cómo realizar una tarea.
3. \_\_\_\_ Mover el puntero a un objeto y luego apretar y soltar una vez el botón izquierdo del Mouse.
4. \_\_\_\_ Equipo que constituye el sistema de la computadora.
5. \_\_\_\_ Una computadora que es pequeño y portátil; también se llama un laptop.
6. \_\_\_\_ Si está oprimida esta tecla al escribir una letra, ésta aparece en mayúscula.
7. \_\_\_\_ Mueve el cursor various espacios (suelen ser cinco) a la derecha. Si el cursor está delante del texto, el texto se mueve también.
8. \_\_\_\_ Estado en el que su computadora consume menos energía eléctrica mientras esta inactiva.
9. \_\_\_\_ Representación grafica de una aplicación, archivo, etc.
10. \_\_\_\_ Programa que puede destruir la fuerza del “hard drive” de su computadora.
11. \_\_\_\_ Programa eso guías usted a través del Internet.
12. \_\_\_\_ Equipo que produce una copia en papel de su trabajo.

APPENDIX C

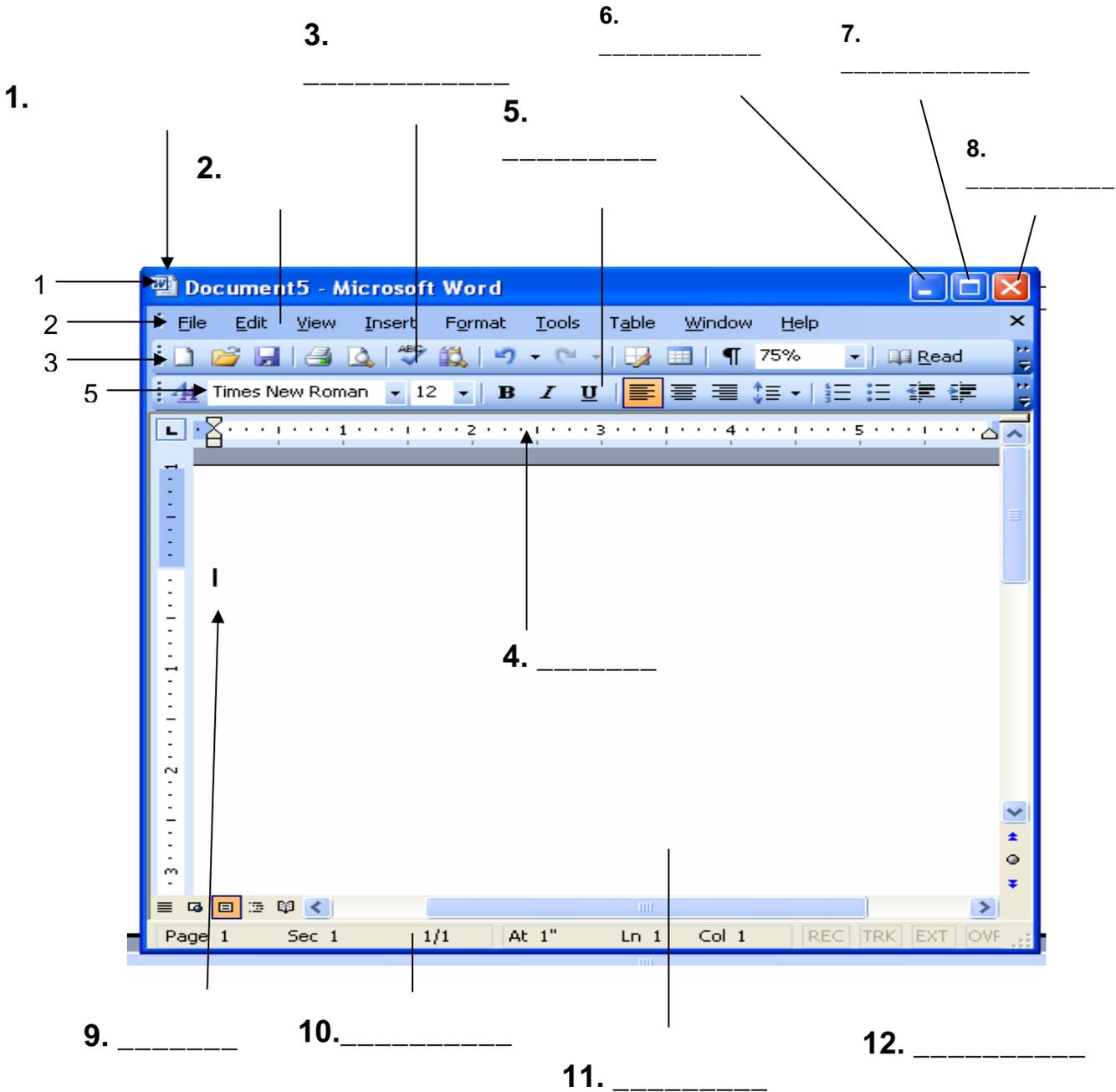
# Ventana de Microsoft Word

Etiqueta la ventana con estos términos.

- A. Barras de desplazamiento
- B. Minimizar
- C. Barra de formato
- D. Barra de estándar

- E. Maximizar
- F. Barra de título
- G. Área de trabajo
- H. Cursor

- I. Barra de estado
- J. Cerrar
- K. Barra de menú
- L. Regla



## APPENDIX D

### FOLLOW-UP ASSESSMENT

Please check the response given by the student and indicate any comments.

11. Do you have a computer at home?

- Yes       No

12. Do you feel comfortable using a computer?

- Yes       Somewhat       Neutral       Not Really       No

13. Do you think the class helped you feel more comfortable with computers?

- Yes       Somewhat       Neutral       Not Really       No

14. a. Are you currently employed?

- Yes       Yes, but looking       No, but looking       No

b. If you are employed, do you use a computer at work?

- Yes       No

15. How many days per week do you use a computer?

- 0       1-2       3-4       5-6       7

16. Do you have a resume?

- Yes       No

17. Did you use Microsoft Word to create a resume?

- Yes       No

18. Do you feel comfortable using the Internet?

- Yes       Somewhat       Neutral       Not Really       No

19. How many days per week do you use the Internet?

- 0       1-2       3-4       5-6       7

20. Have you used the internet to look for a job?

- Yes       Somewhat       Neutral       Not Really       No

21. Have you used an email account to send and receive email?

- Yes       Somewhat       Neutral       Not Really       No

22. Have you used the computer center at Plaza Mexico?

- Yes       Somewhat       Neutral       Not Really       No

23. Are you interested in learning more about the computer?

- Yes       Somewhat       Neutral       Not Really       No

Comments:

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## APPENDIX D

### EVALUACION DE REPASO

Marque la repuesta dada por el estudiante y anota sus comentarios.

1. ¿Tienes una computadora en tu casa?  
 Sí     No
2. ¿Te sientes confortable cuando usas una computadora?  
 Sí     Un poco    Algo    Casi no    No
3. ¿Cree que la clase te ha ayudado a sentirte más confortable con la computadora?  
 Sí     Un poco    Algo    Casi no    No
4. a. ¿Está usted actualmente empleado?  
 Sí     Sí, pero estoy buscando    No, pero estoy buscando    No
- b. ¿Si está empleado, usas una computadora en tu trabajo?  
 Sí     No
5. ¿Cuántos días de la semana usas la computadora?  
 0     1-2     3-4     5-6     7
6. ¿Tienes un resumen?  
 Sí     No
7. ¿Usas Microsoft Word para escribir el resumen?  
 Sí     No
8. ¿Te sientes confortable cuando usas el Internet?  
 Sí     Un poco    Algo    Casi no    No
9. ¿Cuántos días por semana usas el Internet?  
 0     1-2     3-4     5-6     7
10. ¿Usas el Internet para buscar trabajos?  
 Sí     Un poco    Algo    Casi no    No
11. ¿Usas el correo electrónico para enviar y recibir correo electrónico?  
 Sí     No
12. ¿Usas el centro de tecnología en Plaza México?  
 Sí     Un poco    Algo    Casi no    No
13. ¿Te interesa aprender más sobre la computadora?  
 Sí     Un poco    Algo    Casi no    No

Comentarios:

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