AN EXPLORATION OF INTERNET USE BY SALVADORAN IMMIGRANTS

by

EMUEL LONNIE ALDRIDGE

(Under the Direction of Sharan B. Merriam)

ABSTRACT

The recent influx of Latin American immigrants into the U.S. poses challenges for both the immigrants, who must adapt to a different society and language, and for the U.S., which faces the development of a new underclass if this challenge goes unmet. The Internet offers unprecedented access to informational resources for addressing this mutual problem, but there is little evidence of studies that examine potential benefits, or how Latino immigrants can access and learn to use this resource. The purpose of this study was to address this knowledge deficit by examining how one group of Latino immigrants, Salvadorans, gained familiarity with and became competent users of the Internet.

This study integrated a participatory approach into a descriptive qualitative design. Instructional sessions were held with participants in their homes, public library, and computer lab. Data were collected through observations and semi-structured interviews and analyzed using the constant comparative method of data analysis. The study's sample consisted of twelve Salvadoran men and women from age 19 to 48 living in or near the same Southeastern U.S. city. Analysis of the six research questions that guided this study yielded the following findings: (1) Children provided the clearest motivation for acquiring Internet access. (2) Barriers to Internet use included lack of home access, computer inexperience, lack of facilitation and time, and rural origin. (3) Participants' conceptions of the Internet were both functional and systemic. (4) The Internet was used for communication, information, learning English and entertainment. (5) The process of gaining familiarity and competence consists of awareness, assisted interaction, foraging, and focused exploration. (6) Internet use impacts participants' adaptation to this country by removing informational barriers, strengthening the home country connection, and providing information in Spanish.

These findings led to four conclusions: (1) This study's participants shared similar barriers to Internet use as other Latino immigrants, and (2) they acquired competence through a process common to most novices. (3) For regular Internet use to occur both

access and interest must be present. (4) The Internet is both a facilitator and a barrier to adaptation. Implications for practice and suggestions for future research are presented.

INDEX WORDS: Internet, Immigrant, Participatory Research, Adaptation, Acculturation, Latino, Hispanic, Adult Education, World Wide Web, El Salvador, Salvadoran, Technology.

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DEDICATION

This dissertation is dedicated to my wife, Juana Gnecco, whose encouragement, assistance, and understanding were instrumental in its completion.

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CHAPTER ONE

INTRODUCTION

Background of the Problem

Throughout its history the United States has attracted and absorbed large numbers of immigrants. Most of this immigration has occurred in waves, during periods when pressures that favored emigration from other countries coincided with a receptive political and economic climate in the U.S. At present, the U.S. is once again experiencing intense immigration. According to the United States Census Bureau, as of 2000, 28 million members of the U.S. population were foreign born, a higher level (10.4%) than in any year prior to World War II, and much higher than the low of 4.8% recorded in 1970. Although the relative percentage of foreign-born was greater in each of the first four decades of this century than in 1994, the actual number of people residing in the U.S. who were born in another country has never been higher.

Over half (51%) of these foreign-born residents come from the region that the Census Bureau defines as Latin America, which includes Mexico, Central America, South America, and the Caribbean. Burgeoning populations, along with political and economic instability, have led millions of people from these countries to migrate to the large, relatively wealthy, neighboring country to the north.

Like other immigrants in the past, many of the people who move to the U.S. from this region speak a language other than English, have to contend with a culture, political system, and economy that differs from the one they left, and often have relatively low levels of formal education (Day & Curry, 1996; Hansen &Bachu, 1995;

Pinal, 1995). Just how prevalent these educational problems are, is indicated by a 1990 report from the National Counsel of La Raza, that 56% of all Hispanic residents in the U.S., both immigrants and native-born, lack functional literacy in English (Stewart, 1993). An additional cause for concern is that many immigrants from this region enter the U.S. illegally and, along with the obvious liability of their illegal status, are likely to be less skilled and less educated than legal immigrants (Stewart, 1993). These language and educational deficits add extra difficulty to the already arduous task of adapting to a new social and economic system, and impede access to critical information about issues such as health care, employment, and legal matters.

The liabilities that result from this lack of knowledge and education are not limited to the immigrants, but also extend to the social and economic system to which they are trying to adapt. As immigrant igroups move into this country, they and their descendants become part of it, and begin to influence its character and shape. The degree to which millions of new residents are able to function and fully participate in this society and economy obviously has a direct impact on the degree and nature of their contributions. Once it is acknowledged that "they," are here to stay and in the process of becoming "us," the argument for supporting immigrants' efforts to adapt becomes quite persuasive.

Although both parties ultimately may benefit when immigrants adapt successfully to the host society, there has long been a wide range of opinion about how and to what degree adaptation should occur, and to what end. For example, the relatively extreme assimilationist perspective is associated with the term Americanization, with its implied goal of converting immigrants into homogeneous citizens with the greatest possible degree of adherence to the prevailing culture and language. At the other extreme, cultural

pluralists envisage a smoothly functioning, national collage of ethnicities, in which extra-national identities, cultures, and languages are retained by disparate groups that cooperate with each other through "common institutions." Between these extremes lie other, more moderate positions. The familiar metaphor of the cultural melting pot typifies one such position, implying that mutual adaptation between immigrants and the host society is both inevitable and desirable, and that immigrant cultures will be absorbed into, and eventually form part of a broader and more diverse national culture (Bouvier, 1992).

Among these various perspectives, the assimilationist position is the only one that has ever enjoyed near unanimous national support. Higham (1955) recounts how the onset of World War One and wartime concerns about the patriotism of immigrants catalyzed a relatively small Americanization movement "into a great national crusade" (p. 242) that ultimately provided the institutional foundation of modern adult education. During this period, a combination of business, governmental, and civic organizations pursued a variety of efforts aimed at turning immigrants into loyal and homogenous English speaking citizens. Some of the efforts targeted at adults included night schools in factories, evening classes in public schools, and public meetings with immigrants in their neighborhoods. The Americanization movement did not end with the cessation of the war in 1918. Because of fears that immigrants were especially vulnerable to subversive influences emanating from the revolution that was taking place in Russia, Americanization education continued to enjoy broad national support for approximately two more years. In 1924, the passage of the restrictive Johnson Reed Act drastically reduced the supply of immigrants to be Americanized, and the movement soon faded into history. According to Higham, the most lasting institutional impact of the

Americanization movement was "to give a powerful stimulus to all phases of adult education" (p. 260) as agencies that had supervised immigrant education during the Americanization era evolved into "departments or divisions of adult education" (p. 260).

Although adult education is widespread in the U.S., the education of immigrants is no longer its primary focus. The public school has historically served as the prominent means for assimilating immigrant children (Camarillo, 1989; Higham, 1981) but no comparable institution for adult immigrants has exhibited similar durability. At present, even though more immigrants reside in this country than ever before, there is little evidence of coordinated policy to meet the educational needs of this group. This lack of commitment to immigrant education is especially apparent in the situation faced by the large numbers of undocumented immigrants who wish to enroll in community colleges or state universities in degree or English as a Second Language (ESL) programs. Most of these institutions charge undocumented students much higher, non-resident tuition rates even when they are graduates of high schools in the same state (Badger & Yale-Loehr, 2002). Furthermore, undocumented students are not eligible for federal aid and most types of state financial aid even when they have begun the process of updating their immigration status (Szelýnyi & Chang, 2002).

Stewart (1994) criticizes The Immigration and Nationality Act of 1965 as well-intentioned but poorly considered legislation that, within a few years of its enactment, spurred a massive and ongoing influx of immigrants with specialized educational needs, without providing the U.S. educational system with additional resources for meeting those needs. Almost 30 years after the act was passed, Stewart (p. 557) reports near unanimous agreement among public school administrators and teachers that "the need to

provide specialized services to immigrant students" has depleted the resources available for serving native-born students and that "adult literacy programs are also being severely strained" by adult immigrants' needs for ESL training. Stewart's account of this apparent failure to provide a level of resources commensurate with the scale of immigration echoes Espenshade's earlier complaint in the 1980's (1986, pp. 35-36) that "the U.S. has an immigration policy but it lacks an immigrant policy" and that "policies and programs to ease the adjustment of immigrants to their surroundings are a missing component in the current debate over U.S. immigration reform."

Regardless of the policies, institutions, and programs that are in place at any particular time, whenever immigrants enter this country they also enter into an inevitable process of acculturation through which they come to terms with the demands of the environment. A classical definition of acculturation put forth by Redfield, Linton and Herskovits (1936, p. 149) states that "acculturation comprehends those phenomena which result when two groups of individuals having different cultures come into continuous firsthand contact, with subsequent changes in the original culture patterns of either or both groups." Viewed from the perspective of acculturation, policies, institutions, and programs that affect immigrants become components of a much larger process of intercultural contact and accommodation.

Berry (1997) has proposed a framework for understanding how the process of acculturation takes place. This framework separates variables that impact the process into those that pertain to the group and those that pertain to individuals, and further distinguishes between variables that predate the acculturation process and those that occur during the process. For example, the political and economic contexts of the society

of origin are group variables that predate acculturation. Ethnic attitudes and social support systems within the society of settlement are group variables that become significant during acculturation. In another example, each individual who enters the acculturation process does so with some level of pre-existing "cultural distance" that has to be negotiated in order to function effectively in the new environment. This negotiation is accomplished by utilizing coping strategies and other resources during the acculturation process.

The actual process of acculturation is placed at the center of this model and separated into group-level acculturation, and psychological acculturation phenomena. Group-level acculturation refers to the spectrum of changes that may result as widely shared cultural influences from the society of origin interact with equally widespread cultural influences within the society of settlement. These group-level changes may span a diverse range that includes dietary changes, community disruption, linguistic differences, and increased urbanization. Psychological acculturation is described as a "highly variable" process (Berry, 1997, p. 17) influenced by numerous moderating factors that affect the shape of its principal features. These principal features include the actual (and inevitable) experience of intercultural contact, the individual's appraisal of this experience, coping strategies, and the immediate effects of the process such as stress and physiological reactions.

The end result of the acculturation process is adaptation, which Berry defines as "the relatively stable changes that take place in an individual or group in response to environmental demands" (1997, p. 20). In Berry's view, adaptation has no inherent valence, either positive or negative and its total scope encompasses well-adapted

individuals or groups who function effectively in the new setting, poorly adapted ones who don't function at all, and all variations between these extremes. Berry advocates mutual accommodation as the acculturation strategy most likely to lead to successful adaptation. In this strategy, the dominant society is willing to make necessary changes in essential areas such as school curricula and health care, while the acculturating group must exhibit a similar willingness to give up aspects of their culture that interfere with successful adaptations.

Technology and Adaptation

The challenges that present-day immigrants who come to the U.S. must overcome in order to adapt successfully are, in many respects, the same as those encountered by earlier immigrants at the beginning of the previous century. Cultural differences must still be negotiated, employment acquired, and English is still the prevailing language. At the same time, the development and proliferation of new technologies during this century has led to many specific challenges that an immigrant in 1900 would not have encountered. For example, automobiles are ubiquitous and public transportation is not, which means that many immigrants today must acquire a driver's license, and buy and maintain an automobile. Telephones have also evolved into a near necessity, and the proliferation and aggressive marketing tactics of telephone companies forces a series of confusing decisions about which long distance carrier to select and how long to maintain the relationship.

Another notable feature of the United States at the intersection of the twentieth and twenty first century that immigrants must contend with is the growing predominance of information technology. During this present era, often referred to as "The Information

Age," an exponential expansion in the capacity and use of personal computers is taking place, and digital media are becoming increasingly prominent means for communication, education, commerce, and entertainment. In this new age, hundreds of thousands of pages of text can be stored on one small Compact Disc (CD-ROM) weighing less than an ounce, and a rapidly expanding universe of information is available through the Internet for anyone with the ability to access it. People who lack familiarity with the basic tools of this information age are denied access to many types of employment and to valuable informational and educational resources.

For Latino immigrants who, as a group, have relatively low levels of formal education and come from regions that are less advanced technologically, these developments offer both peril and promise. Perhaps the greatest threat is that in a society that seems on the path to becoming increasingly stratified in terms of educational attainment and technological literacy, they lack the skills and cultural platform needed to fully participate in the social and economic life of this country. Like immigrants in the past, the most viable source of employment for many Latino immigrants comes from jobs that do not require high levels of education or advanced technical skills. As jobs of this type become scarcer and devalued in a technological society where they are increasingly performed by machines, this source of employment will become less tenable. However, the very same information technologies that threaten the social mobility and economic well being of marginalized groups such as immigrants have the potential to address these problems.

One of the most promising developments for meeting the informational and educational needs of this group is offered by the ever growing capacity of the World

Wide Web (WWW) as a tool for self-directed learning and for educational efforts targeted at widely dispersed audiences. Through the development of multimedia tools such as Macromedia Flash, the WWW now has the capacity to easily support “spoken word” websites for users who can’t read, as well as advanced educational efforts that can be used to provide ESL and other instruction. The need for alternative sources of ESL instruction seems especially urgent in light of a report by the President's Advisory Commission on Educational Excellence for Hispanic Americans (1996, p. 40) that "10s of thousands" of Hispanic adults are on waiting lists for ESL classes in Los Angeles and other cities.

At present there is a massive and growing body of information on the WWW for both immigrants and for Spanish-speakers. One example of a potentially valuable website is NOAH (http://www.noah-health.org/), which is sponsored by The March of Dimes, and provides comprehensive information in both English and Spanish about a large variety of health related issues. Another website, the Internet TESL Journal (http://iteslj.org), maintains an extensive selection of online resources, including grammar and vocabulary quizzes and games, for ESL learners at multiple levels of English proficiency. The Immigration and Naturalization Service (INS) has an extremely comprehensive website in English, and also provides a number of documents that are translated into Spanish and other languages. Commercial websites in Spanish are also abundant and range from United States based sites organizations such as Yahoo and CNN, to online newspapers and radio stations from all over the world.

Statement of the Problem

Approximately seventeen million Latino immigrants now live in the U.S. (U.S. Census Bureau, 2002) and many more are likely to join them. By moving to this country, these immigrants automatically enter a process of acculturation through which they come to terms with aspects of their new environment that differ from the setting they left. This acculturation process is not unilateral and as millions of people go through it, the larger society they are entering is inevitably affected as well. As they and their offspring continue to form an increasingly large component of this country's population, it clearly represents the best interests of both the immigrants and this society to look for ways to facilitate successful adaptation during the acculturation process.

One of the most prominent features of contemporary U.S. life, the ever-expansive role of the Internet, presents numerous adaptive challenges of its own, but simultaneously offers considerable promise for facilitating adaptation. As the distinctions between computers and household appliances such as televisions continue to blur, and the Internet becomes ever more ubiquitous, access to this digital medium should increasingly extend to a broader spectrum of society. As Internet access approaches a comparable level of acceptance as cable television and telephone service, it can be expected to impact the lives of immigrants and will also offer a potential new means for addressing informational and educational deficits that impede immigrants' adaptation to this society.

Although Internet use is increasingly spreading to marginalized sectors of society the latest census indicates that Internet use among Latino immigrants is still relatively low. At present, Internet use is almost twice as high in the Asian and White population as in the Hispanic population and, as of 2001, only “14.1 percent of Hispanics who lived

in households where Spanish was the only language spoken used the Internet" (U.S. Department of Commerce, 2002, p. 22). By definition, any benefits that the Internet may offer Latino immigrants are inaccessible until they gain access to and learn to use the Internet. At this point, no studies have been found that specifically examine how Latino immigrants go about gaining access to the Internet, and little seems to be known about the special challenges that members of this group will have to overcome before they can utilize this technological resource, or the benefits they may ultimately derive from its use.

Purpose of The Study

The purpose of this study is to determine ways in which one group of Latino immigrants, Salvadorans, gain familiarity with and become competent users of the Internet. The following questions will guide this research.

1. What motivates participants to access and to learn to use the Internet?
2. What are the barriers (cultural, financial, linguistic, and otherwise) that prevent participants from making use of the Internet, or make it more difficult for them to become competent users?
3. What are participants' conceptions of the Internet?
4. Which opportunities will participants consider most valuable and choose to utilize?
5. What is the process by which participants gain familiarity with and become competent users of the Internet?
6. In what ways does gaining access to and learning to use the Internet, facilitate participants' adaptation to life in this country?

Significance of the Study

The aim of this study is to address a gap in both knowledge and education, by sharing the benefits of an emergent and promising technology with a marginalized social group. The informational and educational needs of Spanish-speaking immigrants are acute and, because of the size of this group, have negative implications that extend to the country as a whole. As a consequence, any progress made in meeting these needs potentially benefits the members of the linguistic and cultural minority being studied, and the larger society that they are becoming a part of. This study is also intended to directly benefit its participants by increasing their technological literacy and understanding of information technologies that impact their lives, and by introducing them to educational resources that they would not encounter otherwise. Given the transnational nature of both the study group and the electronic medium being explored, it is also possible that some level of impact from this study will extend to the participants' communities of origin as well.

A secondary contribution of this study will come from the addition it makes to the literature base of adult education and instructional technology. Research of this sort can increase adult educators' awareness of the issues involved in using emergent technologies to meet the educational needs of learners from other cultures and languages. This study may also be of interest to educators from the field of instructional technology for any insights it provides about the appropriate use or design of computer assisted instruction or educational software for members of language minority groups.

CHAPTER TWO

REVIEW OF THE LITERATURE

This literature review is broadly divided into two sections. The first section addresses the literature about acculturation and adaptation that provides the theoretical perspective of this study. It begins with an extensive review of John Berry's acculturation framework that provides the theoretical framework of this study. Next, there is a brief general summary of the kinds of studies that have been done on immigrant adaptation and demographic issues related to the rapid growth of the Latino population in the United States are addressed. Also examined in depth, are a number of studies that illuminate the special challenges and problems faced by members of this diverse group as they adapt to life in this country.

The second broad section of the chapter offers an overview of broad educational and social issues related to the rapid development and increasing utilization of communications technology. This section also reviews writings about the use of educational technology and distance education in adult education, and looks at the limited literature about the use of information technology by non-English speaking immigrants. The final part of this section explores the literature about computer interfaces.

Theoretical Perspective: Acculturation and Adaptation

As stated in the previous chapter, the purpose of this study is to determine ways in Salvadoran immigrants gain familiarity with and become competent users of the Internet. Although this statement correctly implies an interest in both Latino immigrants and modern communications technology, the issue of immigrant adaptation is of primary

concern, and the true focus of this study is on mining the contribution that technology can make to their adaptation. As a consequence, the theoretical perspective of this study is drawn from the literature about immigrant acculturation and adaptation.

John Berry's "Framework for Acculturation Research" (1997, p. 15) was chosen specifically to provide this study's theoretical framework for three reasons: the stature of its author as a leading theorist in acculturation research, the comprehensiveness of the model, and its clarity. This model is examined extensively below, although, due to its size and complexity, some of its finer details are omitted in this examination. After the model is presented, three articles that critique it are briefly reviewed, as well as additional work that addresses theoretical issues of acculturation and adaptation. These supplementary writings provide additional perspectives. They also serve to illustrate the scope of Berry's model since the concepts and ideas that they present can be related to various parts of his model

Berry focuses on the question of "how individuals who have developed in one cultural context manage to adapt to new contexts that result from migration" (1997, p. 6). He provides an acculturation framework that he describes as a synthesis of concepts and findings from the acculturation literature. True to its title, this framework serves as the underlying structure for an extensive discussion of the process that immigrants go through as they adapt to a new cultural setting.

In Berry's view, acculturation is the complex and inevitable process that takes place when individuals from distinct cultures come into sustained contact. Adaptation is defined as "the relatively stable changes that take place in an individual or a group" as they respond to the "environmental demands" of the acculturation process (p. 20).

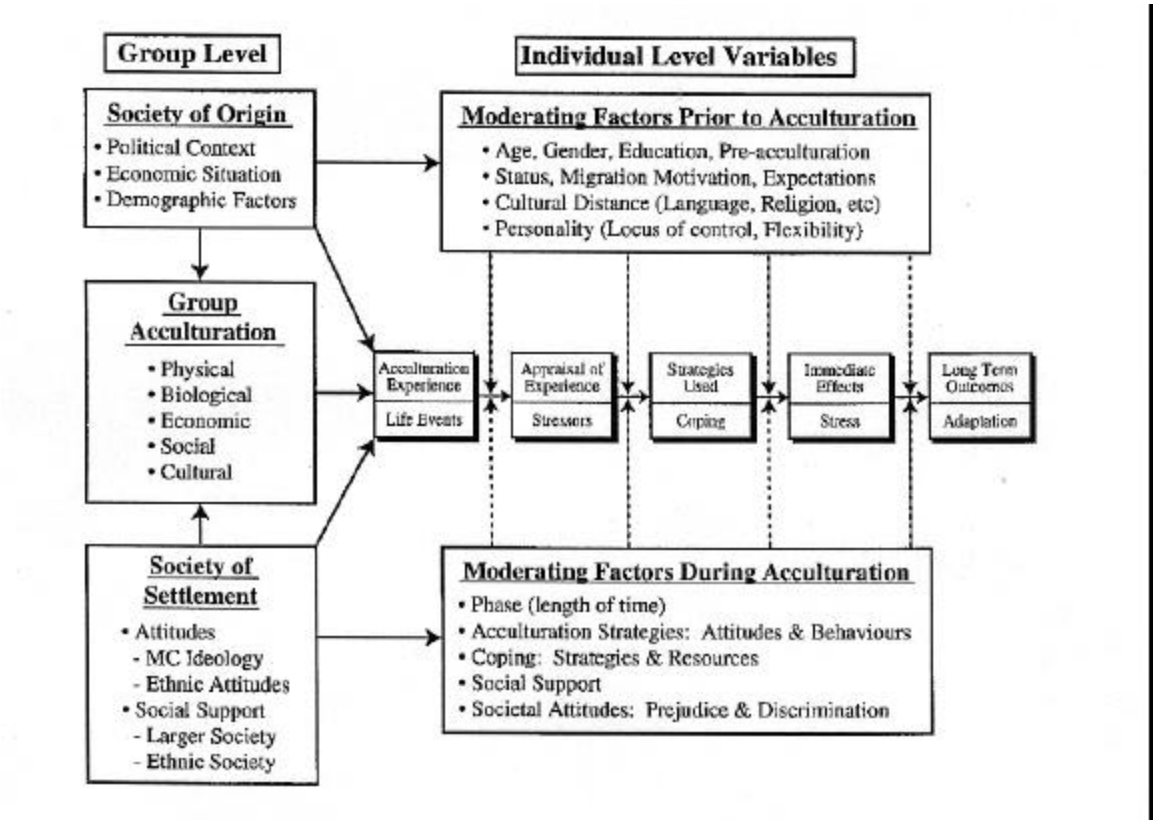

Figure 1. Berry's Framework for Acculturation Research

As Figure 1 demonstrates, his framework lists numerous factors, both individual and group, that contribute to the acculturation process. The model also includes a temporal distinction between variables that predate the acculturation process and those that occur during the process. At the center of the model is the actual process of acculturation, which proceeds through a series of non-discrete stages to the eventual adaptation of the individual.

As can be seen under the "Group Level" factors in Figure 1 of Berry's model, the immigrants' society of origin and the society of settlement that receives them, are both important sources of group-level phenomena that impact the acculturation process. The

socioeconomic and political background of the society of origin often determine whether immigration was undertaken voluntarily in response to "pull factors" such as a desire for economic betterment, or because of "push factors" such as political or religious persecution. The degree to which the decision to immigrate was voluntary, in turn colors the individual's perception of the migration experience and may positively or negatively affect the motivation to adapt. The culture and language of the society of origin also impacts the amount of cultural distance that an individual or group of immigrants must negotiate in order to adapt to the society of settlement.

Because immigrant groups are usually less numerous and less powerful than the society they are entering, widely held attitudes that they encounter within the society of settlement are especially significant. Societies with an overall positive attitude toward individuals and groups from different cultures are more likely to provide support mechanisms such as culturally appropriate health care and education. They are also less likely to produce policies and practices that tend to marginalize immigrant groups, such as aggressive assimilation programs or restrictive hiring or housing practices.

The intersection of these two sets of group-level phenomena from the society of origin and the society of settlement results in broad changes that affect most members of the immigrant group. These changes, referred to as group acculturation, are found at the left center of Berry's model and may be physical, biological, economic, or social in nature, and either positive or negative. They span a diverse range that includes dietary changes, community disruption, language shifts, increased urbanization, and economic betterment or loss.

Although members of an immigrant group may collectively share many of the same experiences during acculturation, each individual brings a distinctive personality and a unique set of resources to the process. Berry's framework divides the individual experience of acculturation into five non-discrete steps which (shown from left to right in center of his model) terminate in the final step of individual adaptation. At each step the individual experience is subject to the influence of moderating variables. These moderating variables are classified into two separate sets: one set pre-dates acculturation (shown at the top of the model) and includes the personality, resources and cultural background of the individual; the other (at the bottom of the model) occurs during acculturation and includes variables such as phase (temporal duration of acculturation), coping strategies, social support networks, and attitudes toward immigrants in the larger society.

Individual acculturation begins with the intercultural contact that is caused by immigration. Next, in step two, the individual evaluates the acculturation experiences that stem from the necessity of dealing with two cultures. The individual's evaluation of these experiences is usually a reliable indicator of the amount of conflict that must be overcome for successful adaptation to occur. Acculturation experiences that are judged to present little or no problem, or considered to be opportunities, usually require relatively benign "behavioral shifts" (p. 18). When a small amount of conflict does exist, the acculturating individual usually resolves it by assimilating to the norms of the dominant society. Experiences that are judged to be more problematic lead to acculturative stress and are coped with more slowly and with greater difficulty. In

extreme cases, acculturation experiences may be overwhelming to the individual and lead to pathological adaptations such as psychological withdrawal or social marginalisation.

In the third step, individuals use coping strategies to deal with problematic experiences. Coping strategies vary according to the experience that requires them and are subject to the moderating variables mentioned earlier. In addition, coping strategies are frequently associated with one of four broader acculturation strategies that provide a philosophical stance for assessing and dealing with specific acculturative experiences. In the assimilation strategy of acculturation, the individual allows his or her original cultural identity to be subsumed by the culture of the host society. The integration strategy seeks to maintain the original culture of the individual while still participating in the larger society. The separation strategy stresses cultural maintenance by avoiding external interaction. The least attractive strategy, marginalisation, may result when, due to a combination of "enforced cultural loss" and exclusion "there is little possibility or interest in cultural maintenance and little interest in having relations with others" (p. 9).

Step four consists of the more immediate effects of acculturative experiences, "including physiological and emotional reactions" (p. 19). The strength and valence of these reactions varies with the level of difficulty and nature of the experience.

The last of the five steps is long-term adaptation. "The relatively stable changes" (p. 20) that make up adaptation are not always positive and do not necessarily imply that individuals are better fitted to their environments. Although adaptive outcomes may be positive, they are not inherently so. Some individuals are well adapted and able to manage their lives effectively in their adopted setting, while others are poorly adapted and function inadequately or not at all.

As mentioned earlier, acculturation is shaped by numerous variables that occur during and after the inception of the process. Prominent moderating variables that pre-date acculturation include gender, age, education, and cultural distance. The issue of gender comes into play most often when women find it difficult to acculturate because their status as females differs substantially between cultures. Younger individuals usually encounter fewer difficulties than older ones, especially young children who acculturate more smoothly than either adults or older children. Individuals with higher levels of formal education are also more likely to acculturate successfully. The value of formal education may be partially due to the problem-solving skills and additional knowledge of the language and norms of the host culture that it imparts, but education is also linked with other positive factors such as higher occupational status and more income. Finally, the cultural distance between the society of origin and the host society is an especially reliable indicator of how difficult the acculturation process will be. As cultural dissimilarities increase in critical areas such as language and religion, the amount of learning necessary to function effectively in the host society also increases, along with the need to give up an increasingly large portion of the native culture in order to fit in.

Once an individual's acculturation is underway, its phase must be taken into account, since problems vary with the "length of time that a person has been experiencing acculturation" (p. 23). Acculturation strategy also comes into play at this point. Among the four strategies that were discussed earlier (integration, assimilation, marginalisation, and separation), the integration strategy is most likely to lead to a successful adaptive outcome, while marginalisation is most likely to accomplish the opposite. The amount and quality of social support is another important variable that affects the success of

adaptation. Most immigrants turn to other co-nationals for support but significant supportive relationships may also develop with friends and co-workers within the host society. In addition, the same societal attitudes that affect group acculturation also influence individuals. Favorable societal attitudes toward immigrants support positive adaptations, while prejudice and discrimination can be highly detrimental to the point of negatively impacting mental health.

Critiques of The Acculturation Framework

Berry's acculturation model that was just described appeared in the lead article for a special issue of *Applied Psychology* about acculturation. Three articles that critiqued Berry's work in the same issue are briefly examined here. In the first, Lazarus (1997) compliments Berry for the thoroughness of his analysis and model but believes that research should proceed from a different perspective than Berry's cohesive thread of acculturation. He maintains that a "stress, emotion, and coping paradigm" would provide a "more useful and general framework" than acculturation (p. 41). He calls for research to focus in particular on emotions, and lists 15 separate emotions that may stem from the struggles of adaptation that could guide additional research.

Pick (1997) criticizes Berry's model for fitting together so perfectly that it lacks the flexibility needed to capture the full fluidity of human relations. She advocates more specificity in immigrant research and espouses the "concept of the social actor" (p. 50). In her view, the study of the adaptation and acculturation process would be enhanced by more attention to immigrants' roles in creating and interpreting their own reality within structures such as the one presented by Berry.

Ward (1997) takes issue with Berry for mixing paradigms by relegating the acquisition of social skills to the same continuum on which he places stress and coping. She maintains that social skills acquisition is associated with a culture learning approach that focuses on social inadequacies, while stress and coping are associated with psychological inadequacies. In her view, the two perspectives are not adequately distinguished in Berry's model, and inadequate recognition is given to the social skills aspect of acculturation.

Ward, Bochner, and Furnham (2001) place Berry's model within the stress and coping approach to cross-cultural transition and contrast it with an earlier, medical model of cross-cultural transition, and with a more current cultural learning approach. The medical model has its origins in the earliest part of the twentieth century when, in 1903, "data from state mental institutions indicated that immigrants constituted 70 percent of hospitalised patients despite representing 20 percent of the population at large" (p. 33). Later in the century the medical model was reinforced by additional research that found a positive association with immigration and a higher incidence of psychiatric problems. From the perspective of the medical model, intercultural contact is inherently pathological and therefore contributes to psychological problems. Berry's model in contrast, while recognizing the inherent stressfulness of intercultural contact, emphasizes the role of stress as a stimulus for coping behaviors which in many cases lead to successful adaptation.

The culture learning approach proceeds from yet another perspective by focussing on the acquisition of the culture-specific skills that are needed to avoid cross-cultural problems. Research from this perspective focuses on skill-related variables such as

knowledge of the new culture, length of residence in the new culture, communication competence, and amount and quality of contact with members of the host culture. Berry's stress coping perspective differs from culture learning through in its emphasis on stress, resulting from the life changes of immigration. This stress provokes coping responses (negative or positive) that ultimately contribute to long-term adaptation. In a culture learning model, the emphasis is on the acquisition of culture-specific skills that alleviate cross-cultural problems without the assumption of stress as the primary motivator.

According to Kim (2001) Berry's model is an example of a pluralist model of cross-cultural adaptation. As such, it is based on the implicit assumption that individuals choose whether or not to adapt "depending on the sense of group identity they hold in relation to the dominant group in the receiving society" (p. 25). This pluralist assumption of individual choice is largely absent from the traditional assimilationist perspective which is based on the assumption that the pressure to adapt to the receiving society and the advantages of doing so, are so overwhelming that few individuals could or would resist the imperative to adapt. Kim maintains that both the assimilationist perspective and the pluralist perspective share the same flaw of being too absolute. In his view, no immigrant is capable of complete assimilation to the mainstream culture, regardless of the amount of effort he or she expends in doing so. Conversely, in spite of pluralist assumptions to the contrary, no immigrant is capable of completely avoiding adaptive change and "some form of new learning, accommodation, and internalization" will occur over time regardless of the individual's willingness to undergo change (p. 25).

In spite of his critique of Berry's model for being too absolute in its assumption of individual choice, many of Kim's views on immigrant adaptation, such as the importance

of both individual and environmental factors during the adaptation process, seem quite congruent with Berry's model. In particular, both agree that adaptive changes occur in response to stress. Kim elaborates extensively on this notion that individuals' responses to disequilibriums that they encounter in the host culture is the underlying engine of adaptive change and terms this process the "stress-adaptation-growth model" (2001, p. 58).

Additional elaboration of the concept of cultural distance and the role of social support networks are provided by Ward (1996) and Furnham and Bochner (1986). Ward contends that the concept of cultural distance originated in a study that sought the causes of distress faced by sojourners in foreign cultures, and mentions several other studies that later substantiated the concept. According to her, the concept can be situated within both a stress-coping framework of acculturation, and a social-learning approach in which "the learning of culture-specific skills is likely to become more difficult as cultural distance increases" (p. 137). Furnham and Bochner emphasize the broad applicability of the concept of cultural distance and state that "irrespective of how distance is defined," that as differences increase in "any of the salient characteristics on which human groups differ" so do the mutual problems (pp. 246-247). They call for additional work to "determine the relative importance" of cultural differences that contribute to stress and to examine the interplay of these differences.

Ward (1996) and Furnham and Bochner (1986), also emphasize the contribution of social support networks to psychological health during acculturation. Ward cites several studies that demonstrate the important support role played by other co-nationals or "expatriate enclaves" (p. 136). She also mentions one researcher who contends that

expatriate co-national networks may ease psychological adjustment, but simultaneously impede sociocultural adaptation to the host society. Both Ward and Furnham and Bochner mention the value of having a friend from within the host society. A friend from the host society can provide insight into the new culture and may also facilitate additional contacts.

Research on Immigrant Adaptation

As Berry's model indicates, a number of variables interact to shape the process through which immigrants adapt to a new cultural and physical environment. These variables include individual characteristics of the immigrant such as psychological make-up and intellectual resources. They also include a broad span of external factors such as the socioeconomic, political, and linguistic environment of both the country of origin and the adopted setting. This diversity of factors that contribute to immigrant adaptation is mirrored in a literature base that is inherently eclectic. The literature about this topic presents a collage of ethnic and national perspectives, and also includes numerous studies that attempt to isolate and examine specific aspects of the seemingly endless web of economic, linguistic, educational, and many other factors that shape the adaptation process.

The obvious way to review and make sense of such a confusing literature is to group studies according to themes, but this approach, by necessity, becomes arbitrary in its actual application. Goodis, (1986, p. 7) for example, reviews demographic and social aspects of immigrant adaptation, and depicts the overall process of immigrant adaptation as having "several dimensions" that include "demographic, social, economic, and political" which are in turn made up of smaller divisions. In her characterization,

"demographic dimensions include age and family structure, fertility behavior, propensities for intermarriage, and patterns of residential segregation" while "social dimensions refer to native-language retention, English-language acquisition, and educational attainment" (p. 7).

Rather than imposing an order that, arguably, does not actually exist, this present review about immigrant adaptation is structured in a manner that reflects the direction of this study. It is divided into two parts. The first provides a cursory overview of several studies that address the adaptation of both immigrants in general, and of Latino immigrants in particular, in order to give an indication of the range of the literature about this topic. The second part provides an in-depth review of several articles that were chosen because they address topics related to the adaptation of Latino immigrants that seem pertinent for this present study.

General Overview of Immigrant Adaptation Studies

A large number of studies (perhaps most) examine socioeconomic aspects of the adaptation process such as how the length of time spent in the adopted country affects the earnings, residential patterns, or household composition of various groups of immigrants. As the following review should indicate, the breadth and diversity of research about the interplay of the numerous socioeconomic factors that contribute to immigrant adaptation is striking.

A common theme that unites a number of studies is an exploration of the relationship between the economic attainments of various subsets of immigrants and variables such as education, gender roles, or legal status that may support or hinder economic advancement. The following four studies are exemplary. Stier (1991) notes

the important contribution that female participation in the labor market can make to the family economy and looks for reasons that explain the variable exploitation of female earning potential in families of Asian origin. Poston, (1994) in contrast, examines the relative importance of "individual-level factors" (p. 478) such as education and work experience for explaining earning variation among foreign-born male workers. Borjas and Tienda (1993) try to determine the economic advantage, if any, that legal immigrants have over undocumented immigrants, while Greenwell, Valdez, and Da Vanzo (1997) examine the contributions of social ties within the family and community to employment status and earnings.

In addition to economic themes, a broad range of additional topics is also explored in the literature. Bean and Berg for example (1996), look at the relationship between level of formal education and marital disruption patterns among Mexican immigrants and contrast their experience with that of non-Hispanic whites and African Americans. Massey and Mullan (1984), explore the residential assimilation of Hispanic immigrants by assessing housing patterns to determine if Hispanic penetration of an Anglo neighborhood is less likely to spur an epidemic of "white flight" than a similar movement of African-Americans. Hein (1988) examines the occupational experiences of Indochinese refugees in the U.S. in an effort to understand why ethnic Chinese are much more likely to be employed in governmental social service roles than ethnic Vietnamese, Cambodians, or Laotians from the same region. Stolzenberg (1990) explores the reasons for occupational inequality between non-Hispanic and Hispanic white men in the U.S. Other studies (Montero, 1981; Neidert and Farley, 1985; Zsembik and Llanes 1996) contrast the experience of immigrants with the experience of their offspring through one

or more subsequent generations. Other researchers explore psychological aspects of the adaptation process such as how the demands of adapting to another culture relate to psychological stress, or which aspects of adaptation contribute to higher or lower levels of depression (Hurh & Kim, 1990; Vega, Bohdan, & Kolody, 1987).

Studies that address issues related to the adaptation of Latino immigrants span a similarly broad spectrum. Several studies examine specific aspects of the adaptation process such as linguistic challenges, economic mobility, and political integration. To cite a few illustrative examples: Some researchers (Espinosa & Massey, 1997; Grenier, 1984; Veltman, 1988) utilize large databases from the U.S. census and other sources to explore the acquisition and use of English language skills by Spanish speaking immigrants. Other researchers (Kossoudji and Cobb-Clark, 1996; Neidert & Tienda, 1984; Reimers 1984; Snipp & Tienda, 1984) examine adaptation from an economic perspective and explore the wage and occupational mobility and overall economic achievements of Latino immigrants, while others (Alvarez, 1987; Pachon, 1987) examine the process through which some Latino immigrants ultimately become naturalized U.S. citizens.

Latino Immigrant Adaptation Reviewed in Depth

In this section, a group of writings that stands out from within the broad literature base that addresses the adaptation of Latino immigrants is reviewed in depth. These writings illustrate both the demographic scope of the challenge that the extremely high growth rate of this group of immigrants poses for the U.S., and also illuminate the specific needs of many Latino immigrants related to cultural literacy, access to information, or basic skills needed for life in this country. Because of their prominent

representation in the literature, a separate group of studies is also reviewed that looks at educational needs related to public health, in particular those related to the transmission of Human Immunodeficiency Virus (HIV).

Demographic trends and adaptational needs. The argument that studies (such as this one) that examine the adaptive needs of Latino immigrants are needed, finds two broad sources of support. The first is the demographic reality that millions of Latino immigrants and their descendants are fueling much of the population growth of this country. According to the U.S. Census Bureau (2003), the subset of the U.S. population defined as Hispanic or Latino is now this country's largest minority. The second source of support comes from numerous reports and studies that indicate that many members of this rapidly growing segment of the national population face substantial obstacles to successful adaptation to this society. This sub-section begins with writings that explore the demographic implications and scale of the movement of Spanish-speaking immigrants into the U.S. The remainder of the literature that is reviewed is targeted more directly at issues of immigrant adaptation.

Espenshade (1986) sketches the changing demographics of the U.S. and notes that since 1972, the birth rate in the U.S., similar to other Western developed nations, has fallen below replacement level and has stayed there. This trend has been counterbalanced to a large degree by both immigration and by a higher birth rate among these same immigrants. Consequently, the composition of the U.S. population is changing. The Hispanic population in particular is growing rapidly- "3 times faster than the total population"- and "may comprise as much as 19% of U.S. residents by the year 2080" (Espenshade, 1986, p. 7). Espenshade points out that while the U.S. has an official

immigration policy aimed at controlling the entry of immigrants, it does not have a policy for helping immigrants to assimilate once they are allowed in.

Paralleling Espenshade, Montero-Sieburth (1990) also points to the high growth rate of the Hispanic population in the US, citing census projections indicating that the overall population may reach as high as "47 million by the year 2020," and claims that in some parts of the country where they are geographically concentrated, Hispanics will become the majority population. Given the numerical ascendancy of this group, her overall characterization of the educational attainment and literacy levels of Hispanic adults as "desolate" is alarming (p. 98). She notes that this large and expanding educational deficit has not yet become a critical concern at the national level and cites several reasons ranging from a lack of national policy concern for adult education in general, to a similar lack of concern and knowledge about this specific group.

Graham and Cookson (1990) examine linguistic minorities in the U.S. and note that Hispanic immigrants have a much higher rate of difficulty with English than immigrants overall. "Only 17.4 percent of non-Hispanic immigrants report having difficulty with English, while 43 percent of Hispanic immigrants report having difficulty with English" (p. 47). Like Montero-Sieburth, they also report that a large proportion of Hispanic adults lack literacy skills in their native language of Spanish. This limits their ability to benefit from English as a Second Language classes, which are usually structured from an expectation of student literacy in the native language. Furthermore, this low educational level decreases the likelihood that they will participate in adult education programs of any sort.

Another factor that contributes to the failure of many Hispanics with low levels of literacy to acquire more than rudimentary English skills is the relatively large amount of social distance between members of this group and mainstream society. Components of this social distance include socioeconomic differences, relatively high group cohesiveness, and the existence of an optional non-English speaking lifestyle due to a large Spanish speaking community. To remedy this situation Graham and Cookson (1990) call for adult education programs that teach literacy and basic life skills directly to low literacy, non-English speaking adults in their native language.

A study by Curiel, Baker, Mata, Medina, and Trapp (1993) reports adaptational problems that stem from the linguistic component of cultural distance. A 212-member sample of the Hispanic population of Oklahoma City was interviewed in order to assess their need for, knowledge, and utilization of community services. It was found that most members of this sample lacked knowledge about community services, did not know how to acquire such knowledge, and in many cases lacked the necessary transportation to access them. "Between fifty and sixty percent of the sample possessed very little knowledge, if any at all, concerning the availability of major types of social services within Oklahoma City" (p. 13) and 71% complained of a lack of public transportation for reaching services that they were aware of. The authors attributed much of the ignorance to a widespread lack of English proficiency in this population, along with a corresponding lack of available information in Spanish.

Garcia and Duran (1991) conducted a study that further illustrates the numerous difficulties that the inability to speak and understand English poses for Latino immigrants, as well as some problems stemming from cultural dislocation and poverty.

They interviewed 10 immigrant Mexican parents of elementary school children in an urban Southern California community to develop a "profile of the life experiences and goals" of these individuals, with a particular focus on the literacy issues related to these goals and experiences (p. 11). The authors extend the concept of literacy beyond the ability to read and write, to include "the skills needed to function in socially appropriate ways in new settings" and cope with the demands of daily life and survival (p.6).

Analysis of their interviews yielded 5 prominent themes related to literacy challenges. In order of importance these themes were: "1) Housing, 2) English language development, 3) employment, 4) family restructuring, and 5) health care" (p. 13).

Housing, in addition to being scarce and expensive in this particular community, presented numerous problems related to cultural and linguistic literacy. The first problem was simply finding available housing in a community with almost no Spanish-language media. Once available housing was located, leases and other associated contracts were often signed out of necessity with no idea of the legal commitment conveyed by the exclusively English documents. Interactions with landlords and property managers also presented literacy-related problems. For example, although some landlords violated California law by refusing to rent to families with children, the non-English speaking adults whose rights were being violated were unaware of their rights, or helpless to rectify the violation due to an inability to speak English or lack of cultural knowledge about state regulatory mechanisms.

Although interviewees identified a lack of proficiency in English as a cause of many of their problems, numerous barriers to learning English were also identified. The respondents' crowded and busy lives, with several Spanish-speaking adults and children

living together in one dwelling and work environments that did not require the use of English offered few incentives or opportunities for learning a "foreign" language. English as a Second Language classes were often difficult to gain admission to, or too distant from home to be feasible. In addition, there were indications that factors such as embarrassment at slow academic performance or inflexible schedules had also kept respondents out of English as a Second Language classes.

Acquiring suitable employment was also extremely difficult for the respondents in this study, and the problems encountered while doing so closely paralleled those related to housing. Finding out about available jobs was the first challenge; next came the difficulty of filling out a job application written in English and communicating with the prospective employer. Getting to the job usually required the use of public transportation with the subsequent challenge of finding the right bus and schedule, as well as the necessary words to communicate with bus drivers. If a job was acquired, the inability to communicate in English usually insured that it was low paying. There were also reports of ill treatment, violation of rights, and discrimination in the workplace, but no knowledge of who to go to for recourse.

The resettlement process and subsequent economic and social stresses caused a considerable amount of family disruption. Some precariously established immigrants responded to economic stress by violating a strong pre-existing norm of helping out extended family members, and refused to house newly arrived relatives. There were also stresses related to having left other important family members such as grandparents or children behind in Mexico, and dealing with behavioral discipline and proper upbringing of children in crowded multi-family housing conditions.

Healthcare access among adults in this group was almost non-existent and always presented difficulties related to communication. The respondents used public health services only when faced by an emergency and then found it difficult to communicate symptoms to medical personnel or to understand subsequent diagnoses and instructions for treatment.

Smart and Smart (1995a, 1995b) write about the special susceptibility of Hispanic immigrants to acculturative stress. Writing from a counseling perspective, they discuss seven negative effects of acculturative stress that counselors should be alert for when dealing with a Hispanic immigrant client. These effects include impaired physical health; difficulties with decision making and occupational functioning; role entrapment in negative stereotypes held by the dominant culture; strained relationships with counselors; lack of role models, and increased stress due to minimal rewards for learning English.

Smart and Smart (1995b) contrast the Hispanic immigration experience with that of white European immigrants and list six ways in which it may be different. Hispanic immigrants may encounter discrimination based on a darker skin color than European immigrants. Some Hispanic immigrants may experience special difficulty adapting to a society that emphasizes the importance of the individual and de-emphasizes the importance of the family. Many Hispanics enter the U.S. illegally and this illegal status may greatly increase the ambiguity and difficulty of the immigration experience. The geographic proximity of the immigrants' countries of origin, particularly Mexico, may lead to lower commitment to the culture and language of the host country and ultimately impede successful adaptation. In the case of some Hispanic immigrants, particularly those from El Salvador, Cuba, and Nicaragua, a legacy of armed conflict may be a source

of stress. Finally, the U.S. economy has less need for manual labor than it did in the past, which can make it more difficult for unskilled immigrants to find employment or at least earn enough to live on.

Padilla, Cervantes, Maldonado, and Garcia (1988) examined the experience of Mexican and Central American immigrants from a stress/coping perspective. They conducted semi-structured interviews with 62 immigrants from Central America and Mexico to examine the psychological stressors they faced during the adaptation process and the strategies they employed for coping with them. The general question of "what three things make life difficult for Latinos in this country" was followed by the similar but more specific and personal question of "what were *your* (italics in the original) most difficult experiences during your first year here?" (1988, p. 421). Interestingly, responses to the first question did not match responses to the similar, but more specific, second question. Seventy three percent said that not knowing English was the most common problem for Latinos in general, while 50% cited not having a job as the second most common problem. The order was reversed when applied to their own first year however, and not having a job was recalled as a greater stressor than not knowing English.

Each set of responses to a question about stress was followed by questions about coping strategies to deal with the particular stressor. The problem of joblessness, for example, would generate a question aimed at finding out what was done to resolve it. Information was also sought about other stressors including stressors related to leaving the country of origin, economic stress, and family stress.

The three most common stressors overall were found to be inability to communicate in English, problems finding employment, and illegal immigration status.

These three major stressors were associated with other economic and familial stressors. For example, economic stress was associated with difficulty in finding suitable employment, which was in turn affected by the inability to speak English. The social support network of family and friends provided the most commonly used solution to stress, and was often called upon to provide housing and find employment.

Of all the stressors, the language barrier was the most intransigent. Although 59% of respondents thought that going to school or learning English through some other method was the best way to overcome this problem, only four percent reported having actually done so. The researchers postulated two likely causes for this neglect. The first was that most immigrants in this study had little formal education and therefore lacked familiarity, and were uncomfortable with formal methods of language study. The second was the economic necessity to obtain immediate employment, which limited time for studying English.

Summary of Adaptive Challenges and Latino Immigrants

This first section of Chapter Two began with a presentation of John Berry's acculturation framework that provides the theoretical framework of this study. Although the complexity of the acculturation process is reflected in the large and complex model that Berry uses to describe it, his framework is notable for its clarity as well as for its comprehensiveness. The model includes numerous factors, both individual and group, that contribute to the acculturation process, and also distinguishes between variables that predate the acculturation process and those that occur during the process. The actual process of acculturation is placed at the center of the model where it proceeds through a series of non-discrete stages that lead to the eventual adaptation of the individual.

Supplementary writings were also reviewed, some that critiqued Berry's model, and others that provided additional perspectives, concepts, and ideas about immigrant acculturation and adaptation.

The remainder of this first section reviewed the research on immigrant adaptation. First, an overview of several studies that addressed the adaptation of both immigrants in general, and of Latino immigrants in particular, showed that the range of literature about this topic is quite broad. Next, another group of writings was reviewed more extensively that illustrates that the extremely high growth rate in the population of Latino immigrants poses problems for both the immigrants and for the U.S. Several studies indicate that many members of this rapidly expanding group lack basic survival skills needed for life in this country, and face informational and educational deficits that impede the acquisition of these skills.

Overview of Educational and Communications Technology

This study proposes to explore the ways in which multimedia desktop computers and the Internet can serve to facilitate the adaptation of Latino immigrants by addressing informational and educational deficits. Because only a small amount of information was found about the interaction of this group of users with any sort of information technologies, a much more extensive literature devoted to broad issues of information technology, its implications for humankind, and its use in adult education is also examined.

This section is divided into five parts. It begins by reviewing the work of two frequently cited authors who speculate about the impact of information technology with a particular emphasis on education. The second part looks at the use of computers in adult

education, while part three reviews writings about distance education and its use in both adult education and English as a Second Language programs. Part four reviews the limited literature about Latino and other immigrants' use of information technologies. The final section specifically addresses the interface through which humans interact with computers.

Trends, Predictions, and Cautions

Like technology itself, the body of popular and scholarly literature that speculates about the social impact of technological innovations is both extensive and constantly being expanded. In *Things That Make Us Smart*, Donald Norman (1993) devotes a chapter to predicting the interaction of technological and social trends. He prefaces the chapter by looking at predictions about currently familiar technologies that were made during the period when these technologies were new and their potential was still unknown.

For example, the helicopter and nuclear power were both expected to play a significantly larger role in today's society than they actually do, but the expense and level of complexity required to implement either of these technologies on a large scale was not adequately taken into account. Predictions about the impact and acceptance of telephones and computers made the opposite error of underestimation. While acknowledging the obvious potential utility of the telephone, one sage generously predicted that these new instruments of communication would eventually be so widespread that one would be installed in every city in the nation! During the early years of computers the experts of the era looked at the size and complexity of those colossal number processing machines (it was possible to walk inside of the earliest central processing units) and confidently

predicted that four or five of would meet the needs of the entire United States (Norman, 1993).

Given the advantage of hindsight, some of these errant predictions now seem comical, but Norman uses them to make the point that both society and the technological innovation have to go through a period of mutual adjustment before a full level of use and acceptance can be achieved. Due to the complexity of this interactive process, accurately predicting the future is a matter of luck as much as science. Norman's own predictions include a gradual merging of telephones, televisions, computers and other communication media into one system that will offer access to vast archives of information, and continued growth in computer assisted education.

Norman (1998) credits many of the problems encountered by computer users to the the computer's relatively early stage of development compared to other, more mature technologies. He maintains that the early stage of a technology's life cycle is dominated by the concerns of engineers and early adopters who are interested in technology for the sake of technology. As the technology matures it changes in order to be useful and attractive to the much larger population of average consumers. Ultimately the technology becomes so easy to use that people stop thinking of it as a technology and simply accept it as part of their lives.

Norman also stresses that the role of a technology in people's lives often is shaped by social and historical forces that may have little to do with the actual technology itself or its current state of development. He illustrates this point through comparing the evolution of fax machines with the evolution of email. Fax machines evolved as a substitute for standard office procedures for sending paper-based mail, which

traditionally involved dictating information to a secretary who, in turn, produced a formal looking, standardized document that was mailed to the recipient. When fax machines arrived in offices they were used to send facsimilies of the same paper documents that traditionally had been sent through the mail. Consequently, the same rules of grammar, spelling, and formatting that traditionally apply to paper documents that are mailed are usually applied to documents that are sent via the fax machine. Email, in contrast, was first used by governmental and university research institutions for sharing information quickly and informally. As a result, the tolerance for bad grammar and spelling errors is traditionally much higher than it is for documents that are faxed.

Kim (1978), in an early but often-cited article, expresses concern about information overload and the cultural implications of reliance on increasingly impersonal forms of communication. He speculates about the effect of the inevitable advance of communications technology, "the sum total of mechanical systems that transmit, receive, and store information," on interpersonal communication, "the process of symbolic interaction between people with or without technological mediation" (p. 3). He maintains that the vast amounts of information that individuals living in technological societies must process imposes an "information-processing pattern" of "selecting, prioritizing, and discarding information" and becomes a permanent part of the personality that can often extend to "face to face interactions" (p. 7).

Electronic media, in particular, by separating the message from the person that produces it, have changed the nature of communication. Electronic messages can be, and often are, manipulated to maximize their purpose, which leads to lower perceived integrity. Communication that takes place over a distance also lacks the richness of

context that accompanies face-to-face interaction as well as the non-verbal aspects of communication. Electronically mediated communication also inhibits the "interpersonal imitation" that Kim considers to be critical for the reinforcement of cultural values and relationships (Kim, 1978, p. 8). There is, however, evidence that the disruption to established patterns of communication and social values can be minimized if innovative communications technologies can incorporate the existing social network and structure during their introduction.

Educational Technology and Adult Education

This study focuses on the role of the Internet in adult education. It is important, however, to emphasize that the Internet is essentially a network of computers, and that computers are still the primary means for accessing and using the Internet. Consequently, any study that looks at the interaction of adults with the Internet is also looking at the Interaction of adults with computers. The writings that are reviewed below reflect the interdependent nature of computers and the Internet. They examine the implications and place of both of these technologies in adult education, as well as the experiences of adult learners as they have come to terms with these technologies.

Based on several accounts, a major obstacle to computer use by many beginning adult learners is a simple lack of familiarity with computers (Kuhn, 1989; Milheim, 1993). Dejoy and Mills (1989) document their observations of adult learners at the Personal Adult Learning Laboratory that was formerly part of the Georgia Center of Continuing Education, and note "the lack of a perceptual set for computer work" (p. 40). Many of the adults they observed had difficulty developing the necessary eye-hand coordination for effective computer use and also found it hard to read the screens. In

addition, many experienced difficulties with menus, and embedded menus at deeper levels within the interface, proved especially perplexing. Another common problem was that some new users actually felt threatened by, or fearful of computers until they gained familiarity with them.

Askov and Turner (1989) also note the tendency of some new users to experience fear of computers, but point out that the use of computers can be inherently motivating for adult students, even when the actual focus of a course may be on a topic other than computer use. They cite a modern reverence for technology as a face-saving factor that can motivate students to enroll in, and remain in, basic skills courses. In addition, computers offer an alternative way of learning that may be preferable to students whose personal history includes negative educational experiences.

Ference and Vockell (1994) list several factors that motivate adults to seek out and persist with software instruction, and differentiate between external factors such as increased income and career advancement, and internal factors that include "self esteem, recognition, confidence, career satisfaction and quality of life" (p. 27). They claim that adult learners are more motivated when they understand clearly what the instruction will do for them, and when they are challenged but not overwhelmed by the perceived difficulty of a task. As an example of one way to provide motivation, they suggest starting a lesson with an exhibition of the end product to be expected from the software.

Allen (1984) draws on his own experience and that of several other instructors of computer courses for adults, to offer strategies for helping adult learners gain mastery of computers. He recommends using a variety of media to present instruction including video, slides, and pictures, as well as demonstrations that model "curiosity, exploration,

and playfulness" (1984, p. 76-77). In his view, learner competence is more readily and less painfully achieved from specific and small interactions that lead to more general concepts rather than the reverse. Similarly, instruction should include numerous opportunities to achieve and savor small successes, and learners should be frequently reminded of the value of partial successes, rather than of what is yet to be learned.

He admonishes instructors to demystify computers by avoiding the use of jargon, and by including exercises and comments that increase student understanding. For example, an instructor might include an opportunity to see the inside of a computer and point out that any sort of visual or audio feedback produced by a computer is actually based on a decision made by another human. The keyboard, with its multiple levels of function keys, is especially challenging to novice students and should be thoroughly explained and supplemented with other input devices.

Cahoon (1998) focuses on the skills needed for adults to access and use the Internet. In addition to "basic personal computer skills" (p. 6) needed to manipulate the graphical interface provided by a web browser, adult users also benefit from a mental model that provides an understanding of how the Internet actually works. For example, a user who understands how his or her computer solicits information from a web server may be more inclined to try again when the first attempt to access a website is unsuccessful than an adult who does not have this understanding. Similarly, an adult who understands how easily information can be published on the Internet may be a less gullible consumer of Internet-based information than another adult who lacks this knowledge.

Stites (1998) maps the use of technology in adult education onto a continuum that ranges from training at one extreme, through teaching in the middle, to self-directed learning at the other end. He notes that the use of "computer-based instruction and integrated learning systems, that take learners through a step-by-step programmed course of instruction" (p. 51) has become widely accepted at the training end of the continuum. With the emergence of networked information technologies such as the Internet, Stites foresees an even greater role for technology at the other extreme of his continuum in support of self-directed, self-paced learning. In his view, "learning environments for adults should use technology in ways that maximize opportunities for learner centered, problem-focused, discursive, and contextualized learning" (p. 56). Within these learning environments, adults should benefit from the use of technology by gaining control of and tailoring their learning experience to support their individual needs and interests.

Turner (1998) classifies the use of technology in adult education programs into the three fucntional categories of "management, instructional support, and direct instruction" (p. 59) and into the four programmatic categories of ABE/GED/adult diploma, ESL, work force literacy, and family literacy" (p. 62). Technology's role in management includes functions such as keeping student records and keeping in touch with funding agencies, while instructional support functions include activities such as test preparation and grading of standardized tests. Direct instruction takes place when a technology such as a computer is used by a learner as a means of self instruction.

Turner discusses the uses of technology in all seven of these interrelated categories, but her discussion of technology use in ESL and family literacy programs is of particular interest. She credits ESL programs for "some of the most interesting and

creative uses of technology" (p. 64) and for being especially successful in their use of the Internet. The ability of students in ESL programs to use the Internet to find websites from their native countries and to communicate with relatives provides an obvious and immediate benefit to the students. Their teachers also benefit by learning more about the students' backgrounds and countries of origin and, as a result, are able to better tailor instruction to their students' needs and interests. Family literacy programs, which teach both adults and children simultaneously, make use of technology in a variety of ways. The Internet, for example, has been utilized to create networked parental support groups that address both the rearing of children and GED completion.

In conclusion, Turner admonishes adult education practitioners not to view technology as simply another tool to be used in the traditional teacher/learner relationship that takes place in a classroom. Instead, they should be open to new models of instruction in which learning can be facilitated independently of the place and time restrictions that are imposed by a classroom and regularly scheduled classes.

Rosen (1998) surveyed more than 110 U.S. adult educators to explore their uses of the Internet. He found that most members of this group used the Internet in their personal lives but that there were barriers to full-scale implementation of the Internet in their practice. These barriers included the expense of computer equipment and Internet access, and the fact that some of the educators were fearful of electronic technology and felt that they could never learn to use it appropriately. Educators who did employ the Internet professionally used it primarily for communicating with their colleagues via email.

Russell (1996) performed a study with 30 teachers who were learning to use email and and found that their learning proceed through a six-step process. The first stage was awareness in which the learner first became aware of the existence of email. Stage two, "learning the process" (p. 636) was marked by uncertainty and extensive assistance from the teacher. During stages three and four, learners became familiar with email technology, required less assistance in order to use it effectively, and gained confidence. During stage five, learners began to adapt the knowledge they had acquired about the use of email to other situations such as the learning of other new software application. By stage six, some students had become completely comfortable with the use of email and began to use it in creative ways to "extend their educational environment" (p. 636).

Russell and Ginsburg (1999) discuss the implications of online learning communities for adult education and examine three community organizations that contain various systems for the delivery of learning to their members. Collectively, these three organizations -- Seniornet, Neighborhood Networks, and Bridging the Gap of Isolation/Powering up -- not only provide information but also contain mechanisms that foster communication and participation among community members. These learning mechanisms include email and listserv forums on various issues, electronic newsletters that convey informal instructional messages from other members, and websites with links to areas of specific interest. In their view, community learning organizations of this sort can provide valuable examples to the adult education community of new ways to deliver instruction and to foster and conceptualize adult learning.

Distance Education

Boyle (1994) writes from the perspective of an ESL practitioner as he depicts the evolution of distance education as having proceeded through three generations. The first generation gave way to the second when technological supplements such as the telephone, television, audiotapes etc. were used to augment correspondence-based courses, providing a higher degree of two-way discourse. In the current third generation of distance education, the information processing and transmission capabilities of computers dramatically reduce the amount of "transactional distance" (p. 291) between learners and instructors, and among the learners themselves. By eliminating the friction caused by conventional mail, email and computer conferencing can dramatically reduce the wait for feedback from instructors and increase the potential for interaction among students. In spite of these advantages Boyle depicts the language teaching profession as "slow to respond to this mode of instruction" (p. 292).

Harasim (1993) and Rice-Lively (1994) offer descriptive studies of distance education courses that take place in an environment of networked computers of the type that Boyle characterizes as third generational. Harasim describes the challenges involved in designing an on-line course and offers the benefit of her own experience using a computer conferencing system to deliver both graduate and undergraduate instruction in a Canadian University. Rice-Lively used ethnographic techniques to study the "networked learning community that emerged" (p. 20) when 19 adult master's and doctoral students participated in a five week state-wide educational seminar that was conducted via the Internet in Texas. Both authors report a high degree of interaction among students and active participation in class activities. Rice-Lively provides an

insightful depiction of the instructor's role shift from conventional instructor at the front of the physical classroom, to a more egalitarian status as role model, facilitator, and consultant in the electronic classroom.

In a surprisingly brief period of time, the graphically based subset of the Internet known as the World Wide Web (WWW) has gained widespread attention for its ability to provide a medium for distance education. The ideas of the Harasim (1993), Imel (1996), and Kerka (1996), typify the mixture of speculative enthusiasm tempered with caution that the vast but largely unrealized potential of this rapidly growing network to deliver distance education anywhere, anytime has inspired. Harasim effusively describes a "paradigm shift... a new way of teaching and learning" that "for the first time in history" allows "many to many communication across time and space." Imel notes the enthusiasm of Harasim and other writers, but tempers it with the observation that extensive staff development will be needed before the potential of this new medium can be realized. Kerka points out that distance education has always embraced new technologies such as audiotapes, videotapes, and satellites as they become available. The WWW is the latest generation of suitable new technology to come along but others may be next.

Uses and Implications of Information Technology for Latino Immigrants

Substantive literature about the use of information technology by Latino immigrants is difficult to locate and apparently scarce. This shortage of literature is probably related to the equally scarce, until very recently, incidence of Internet use among Latino immigrants. Consequently, the main thrust of the writings that are reviewed in this section is to focus on the causes and implications of the traditionally low incidence of Internet use among Latino immigrants.

A report by the U.S. Chamber of Commerce indicates that Internet use among Latino immigrants is still quite low compared to the country's overall populaton. According to this report, as of September 2001, only 14.1% of Hispanics who lived in households where Spanish was the only language spoken, used the Internet. This low figure contrasts with 37.6% Internet use in households where Spanish is spoken but not exclusively, and 53.9% Internet use throughout the entire U.S. population.

Some of the causes that underly this disparity are indicated in an article by Blau (2002), who explores the reasons behind the inequities of Internet access and use in this country. Although his article is not specifically targeted at immigrant populations, the points that he makes seem quite applicable to immigrant groups with low levels of income and education. He points out that there is a huge difference in home Internet use between high and low income families and that gaining access to computers and the Internet is only the first step to resolving this disparity. To use the Internet an individual must first overcome the barrier of learning how to use a computer and how to gain Internet access. Once Internet access has been achieved, daunting technical problems are likely to occur, that can be very discouraging if help is unavailable.

According to Blau, these barriers to successful Internet adoption must be viewed from a broad setting that includes institutional and cultural factors. A particularly important cultural factor is "community competence," which Blau defines as the "range of social contacts people have available to support and encourage their use of computers" (p. 52). In most cases, affluent individuals have ready access to other individuals with computer expertise from within their social and professional circles. Less affluent individuals may not only lack access to expertise, but also may not be in contact with

other people who regularly use computers or the Internet, and who can serve as inspirational role models. In addition, individuals whose social and professional network does not include Internet users with email addresses are unlikely to have any use for email.

Lazarus and Mora (2000) focused on content barriers to Internet use. They conducted meetings with 12 groups of low income technology users, 56 of whom were adults older than twenty two years, and 40 percent of whom were Hispanic, and identified four major types of content barriers including lack of local community oriented information, literacy barriers, language barriers, and cultural diversity barriers. Of these barriers, the lack of local information was the one that they found to be the most significant. The adults they interviewed consistently expressed a strong interest in local information related to issues such as suitable employment, affordable housing, neighborhood events and local schools. They also found that online materials at a suitable literacy level for their users were in short supply as well as online software tutorials "tailored to the underserved and limited literacy populations" (p. 20). In addition, they reported that non-English speakers expressed a need for improved online translation tools, more online instruction for developing linguistic and other skills, and more information from governmental agencies in their native languages. Their interviewees also expressed a desire for more websites devoted to culturally-specific information such as health information for specific racial and ethnic groups.

The Tomás Rivera Policy Institute (2002) conducted focus groups with Latinos in Los Angeles and New York and also found a desire for more culturally relevant content. This desire for culturally relevant content was not, however, the most significant barrier

to Internet use. Practical issues such as the cost of equipment and Internet access, the inability to use computers, and a general lack of understanding of the technology were the most common impediments to Internet usage. Although Internet content was a concern for existing Internet users, it did not become an issue for non-users until these practical obstacles to Internet access were overcome.

Larson and Wilhelm (1994) speculate about the ramifications of the rapid development of the national telecommunications infrastructure for this country's fast-growing Latino population. They maintain that because of "socio-economic disadvantages and linguistic differences," a large portion of this population faces the risk of being "barred from the information superhighway-- as consumers, as producers of information, and as political participants" (p. 1). They suggest that economic barriers to newly emergent paths for information and communication could be eliminated or reduced by adopting the national telephone system's practice of supporting universal access by subsidizing telephone service to low-income households. They also point out that open access to these new technologies means more than being able to connect to "libraries, schools, businesses, and government institutions"(p. 2), and also requires knowledge of how to utilize the connection.

Mendoza's (1995) report on his experience as a newly hired instructor at a multi-ethnic inner city college (with a 30% Latino student population) in Houston Texas highlights some of the barriers to computer use at his institution. Visiting this college in the spring, just after being hired, he was told that two newly equipped electronic classrooms would soon be available. With the expectation of being able to utilize this resource, he planned to write an article based partially on his experiences as an instructor

in an electronic classroom. The fact that the classrooms were still not available when he became an instructor in the fall inspired him to re-focus his article and question whether unequal access to new information technologies threatens to perpetuate the inherent inequalities of U.S. society in a new electronic realm.

He argues that "technology literacy" is "becoming one of the defining aspects of educational segmentation" and "is effectively producing new elites along the same old axes of race and class" (Mendoza, 1995, p. 5). To support this argument he cites the example of his own students, who are drawn from a student body that is 70% non-white. Many of these students attended underfunded inner-city schools in Houston where their access and exposure to technology was limited, and are now in an institution of higher education where their exposure to technology is still limited by underfunding.

His students' pattern of technology ownership provides additional evidence of socio-technological stratification. An informal survey indicated that of the approximately 25% of minority students who owned a computer, "all identified as middle class" (p. 7), while "half of the remaining three-fourths...identified as lower income." In addition, students' ownership or non-ownership of computers closely paralleled the situation in the household they had grown up in. All students who currently owned a computer had one available at home during high school, while all but two of those who did not own computers had not had one in their home while attending high school.

Wilhelm (1997) conducted six focus group sessions with 72 heads of middle class (income $25,000 - $65,000) Hispanic households in California, to investigate barriers to computer ownership among Hispanic families. While more than 90% of the respondents in his study felt that the ability to use a computer was important and presumably had the

means to buy one, there were numerous non-economic barriers to actually purchasing a computer that stemmed from a lack of familiarity. Most respondents, in particular those who did not speak English and/or were born outside of the U.S., reported little or no exposure to computers in either their workplace or in their social lives. This lack of exposure translated into a corresponding deficit of knowledge and confidence that impeded purchasing a computer

When asked how they and other members of their communities might gain the familiarity and confidence needed to purchase computers, respondents suggested computer classes for adults at churches, schools, and community centers as one potential solution They also cited a need for more consumer-oriented information in Spanish about the options and issues involved in purchasing computers and associated equipment.

Laflamme (1993) describes an action research project that indicates that adults with limited exposure to computer-based technologies can and will overcome cultural and linguistic barriers to their use when adequate support is provided. She describes a large English as a Second Language program in Florida with more than 750 students that purchased four relatively advanced (for 1993) multimedia computers for language instruction. Each new machine came loaded with an impressive combination of CD-ROM drive, digital sound board, headphone/microphone set, and educational software that offered students the opportunity to practice their pronunciation, and reading and writing skills.

In spite of an expressed interest on the part of most students in using computers, and extensive student use of the ESL program's older computers, over time it became clear that neither students nor their instructors were using the new machines. To remedy

this situation of non-utilization of expensive resources, an action research project was initiated. Through the project teachers and lab aides received instruction in the use of computers and in how to incorporate them into the instruction of adults, and a manual was produced for student use. In addition to improvements in computer-related skills and attitudes for all parties, teachers, lab aides, and students, Laflamme reports that actual student use of computers increased by 500% over the original base-line measurement.

Regardless of how common the use of computer-based technologies is in the lives Latino immigrants, a report by Hemphill, Ianiro, and Raffa (1995) offers evidence that the consumption of more conventional, television-centered, media is quite high. They report on three separate studies; two that examined media consumption by recently arrived non-English speaking immigrants, and one that focused on U.S. born young adults. The findings easily lend themselves to speculation about the extent to which computer-based technologies could spread among such groups as these newer technologies mature and become more mainstream. Among the six families and 11 adults who participated in the studies, all lived in households with one or more televisions, all but one household had videocassette recorders, and several had electronic game machines and/or video cameras.

Although all members of the three groups were skilled and avid users of the various electronic apparatuses in their homes, the role of television in the lives of the immigrants was especially striking. Of the two immigrant groups, one consisted of six adults, two of whom were Latinos, while the other group was made up of three Mexican families and three Vietnamese families. There was evidence that for most of these new arrivals, television functioned not only as a source of entertainment but also played a

socializing and linguistic function. Most immigrants reported that the surrogate social life provided by television was, by far, the most significant source of contact with and knowledge about the dominant English-speaking culture. Television also became, for many, the school of expedience for learning the English language. Intriguingly, televisions and videocassette recorders also supported the reverse function of cultural maintenance, by providing access to native-language broadcasts and videos from the home country.

Because of the ubiquity and extremely high incidence of media consumption, the authors contend that technology's role in adult education should be given greater consideration than it currently receives. Adult learners, particularly those from other cultures, may benefit from programs that impart the skills needed to become more critical consumers of mass media. They also argue that home-based media, both video and computers, could be used to deliver useful, culturally appropriate curricula to immigrant populations. Finally, they note that formal adult education serves only a fraction of the adult population and call for the exploration of "new multimedia and telecommunications technologies" so that learners whose needs are not being met "can jump over the existing formal schooling system" (Hemphill, Ianiro, & Raffa 1995, p. 163).

Issues of Interface

When humans interact with a computer they usually do so via textual or iconic representations of an otherwise invisible electronic environment. These abstract representations of electronic reality, which allow a biological human entity to manipulate an electronic one, are collectively referred to as an interface. Almost all programs have a proprietary interface that in some manner is unique, and website interfaces in particular

are highly individualized. The wording and particularly the language (as in English or Spanish), as well as the visual icons that are employed in various interfaces are expected to affect the ability of the group of users in this study to interact with individual programs, operating systems, and websites. As the participants in this study adapt to the use of computers and the WWW, it is almost certain that they will find some interfaces to be more appealing and easier to use than others.

Norman (1990), in an article titled "Why Interfaces Don't Work", asserts that the best interface is no interface because, by definition, interface gets between the user and the task. Given the current state of development of computer interfaces he maintains that there is a substantial distance to travel before this ultimate goal of no interface is approached. He contrasts the current state of computer/program interfaces with more specialized competitors such as Nintendo games and paper based systems for organizing schedules. The computer by no means wins on all counts. These "dedicated", simpler systems require much less time to set up and put into action. Nintendo games and paper schedulers are quite specialized, however, and the computer gets its highest marks for generality, or it's applicability as a tool in a variety of realms. The main points of this article are that program and hardware designers should focus on the user, the task, and the interaction. The tools should be invisible except when needed.

Several authors (Schneiderman; 1987; Shackel, 1988; Weiss, 1993) call for a distinction between users at different levels in the design of interfaces. Inexperienced users benefit most from simple, easy to use interfaces that link with previous areas of knowledge, such as the familiar desktop metaphor. More experienced users, often desire more control so they can design their own interface.

Schneiderman (1987) argues that interface design must also take into account the motivation that specific communities of users will have to learn to use it. He illustrates this principle with an account of a bibliographic system that adequately met the needs of a professional community of users at the Library of Congress but failed to meet the needs of library patrons. Because the approximately 15 minutes of individual instruction needed to learn the basic features of the system proved to be more than patrons would willingly invest without becoming disgruntled, the interface of the system had to be redesigned before they would use it.

Grudin (1990) also examines interface design from a group perspective, and convincingly makes the point that the difficulty of designing an interface suitable for individual users pales in comparison with the problems encountered in designing a workable interface for a group of users. In order to be effective and, most importantly, accepted, software designed for group use must somehow accommodate the various personalities, roles (which frequently shift), and interests of all members of the group. Also, each group inevitably develops a personality that is different from any other group; what works for and is accepted by one set of humans may be rejected by another set.

The frequency of use and relative permanence of an interface should also be taken into account. Jones (1995) draws a distinction between short-term interfaces used in computer based instruction (CBI), and the more permanent ones such as MS DOS and Windows that are often used daily over long periods of time. Given enough time and motivation, users will eventually learn any operating system, no matter how cumbersome. The special challenge for CBI is that it is usually intended for a specific one-time purpose. As he terms it, "the purpose of the software is not to create lifetime

users. The purpose is to get the users into the program, teach them the things they need to know, and then get them out" (p. 4). He proposes that designers think of the computer screen as a thread that holds the interface and program together, and decide on a theme to help "pull the thread through the interface" (p. 8).

Jones (1989) makes the intriguing point that full understanding of a system is not necessary in order to use it, and employs the example of natural systems to illustrate this idea. While humankind has had limited understanding of many pervasive natural phenomena such as gravity and weather until recently, this lack of knowledge has not prevented the creation of effective strategies for coping with them. These strategies spring from a natural human tendency to form a conceptual model based on available information about phenomena and to incorporate additional information into the model as it is acquired. For the "user" the significance of this model is not its accuracy but its utility in predicting the weather or the consequences of interactions with gravity.

This trait of humans holds true when they encounter computerized systems as well, but the shape of the model varies depending on the experience level and background of the user. Designers need the objectivity to recognize that a user's model of a system will likely be quite different from the more accurate one that exists in the mind of the designer. In Jones's view this trait can be either an impediment or an opportunity depending on whether the designer takes it into account. He advocates creating the user's model at the start of system development and basing it on a myth or metaphor that is already familiar to the user.

The highly abstract, non-physical nature of electronic interfaces must also be taken into account. Kerr (1986) introduces the concept of "surface design" (what

actually appears on any given screen) and "interface design" that helps users navigate electronic documents and utilizes the familiar textual interface of books to illustrate issues involved in the design of electronic interfaces. He contrasts the commonly accepted rules for laying out paper pages and accessing books with the still evolving ones for electronic environments. Paper interfaces- -whether the Dewey decimal system that leads the user to the book (external structure) or the table of contents, index or page numbers that allow navigation within a given document (internal structure)- -are well established and widely understood. Electronic interfaces, because they are relatively new and constantly evolving, challenge both designers and users.

Norman (1993) distinguishes between the surface and internal representation of artifacts. Surface artifacts such as folders are inherently understandable to some degree, because of their physical shape and nature. For example, merely by looking at a folder it is possible to discern that it is used for storing something, and a full folder is easily distinguishable from an empty one. In contrast, the internal process of information storage that takes place inside of a computer has no easily discernible physical manifestation. The extent to which this storage process is represented in a manner that it can be readily comprehended, is completely dependent on the human interface designer's ability to provide an adequate surface representation of the process. Given this constraint, it is not surprising that computer interfaces commonly lack an adequate set of explanatory features.

Summary of Overview of Educational and Communications Technology

By design, this section began by reviewing a writer who emphasizes the inherent unpredictability of emergent technologies such as desktop computers and the Internet.

While advances in information technology show promise for expanding the informational and educational options of marginalized groups in our society such as Latino immigrants, lessons from the past teach caution. Some technologies lose significance with the passage of time, while other technologies become unexpectedly prominent, take on unexpected roles, or turn out to be more or less benign than anticipated.

Both the empirical studies and the more speculative writings that are reviewed in this section reflect the newness of the technologies that this study proposes to investigate. The subsections on distance and adult education contain numerous references to "new users," the difficulty of using unfamiliar technologies, and speculation about the ultimate impact of these technologies in the future. The writings that are reviewed in the subsection on Latino immigrants and information technology also reflect an early state of technological development. Since reports of computer and/or Internet use among members of this group are almost non-existent, this subsection was limited to reviews of articles that are either speculative, anecdotal, or somewhat peripheral. The final subsection about interfaces highlights the difficulties involved in crafting electronic environments to suit their human users.

Chapter Summary

Producing this literature review was a key factor in expanding my knowledge about the topics that I investigated. In particular, the need to produce a written description of Berry's Framework for Acculturation Research caused me to internalize a much more thorough understanding of the factors that contribute to the acculturation process and ultimately lead to adaptation. Prior to analyzing this model in depth, I had

found a relatively sparse collection of writings about immigrant acculturation and adaptation. As an increasing familiarity with the model broadened my awareness of the many factors that make up acculturation, the range of available literature also expanded.

As Berry's model indicates, acculturation is a highly complex process that encompasses many aspects of immigrants' lives both before and after immigration. The writings that are included in the first section of this review introduce only a portion of the numerous factors that make up this process but, hopefully, do offer a broad enough sample of the general literature to indicate its flavor and breadth. Several studies and writings were reviewed in depth that addressed issues and problems related to the acculturation and adaptation of Latino immigrants. This section of the chapter helped to illuminate the scope and nature of the adaptational needs that inspired this study.

The ultimate goal of this study was to provide some insights for meeting these same adaptational needs through the use of information technologies. The literature that was reviewed in the second section of this chapter, about the uses and implications of information technology, certainly indicates that this path lacks illumination at present. Although the general literature about information technology is vast, studies that address its uses and implications for adult education and especially for Latino immigrants is not extensive. As this review narrowed its focus from a broad body of work by relatively prominent writers who address the societal implications of advances in information technology, to concentrating more specifically on adult education and Latino immigrants, the selection of available literature shrank dramatically, and both the writers and their work became increasingly obscure. For me, the apparent lack of substantive research

about the uses and implications of information technologies for Latino immigrants indicates that the territory that this study explored is largely unmapped.

CHAPTER THREE

METHODOLOGY

This study explored the process through which Salvadoran immigrants gain familiarity with and become competent users of the Internet. At the outset, none of this study's participants had ever used the Internet and most had never used a computer. Consequently, extensive experimentation took place to determine effective ways to facilitate participants' understanding and effective use of the Internet. A guiding principle of this study was that the consumers of a technology are best equipped to make decisions about its use. Thus, throughout this research an effort was made to direct it in a way that participants' interests and needs would be met.

Design of Research

To insure the input of participants in its direction, this study integrated a participatory approach into the basic qualitative design. The most distinctive feature of participatory research is the role it assigns to research participants who become active partners and co-owners of both the process and the outcomes of the research process. Selener (1997), after examining numerous participatory studies from a broad cross section of fields, concludes that participatory methodologies vary a great deal depending on the character of the research being undertaken and the unique setting. Given that "no single approach can address the multiple realities existing within society" researchers are free to "borrow the most appropriate elements from a variety of frameworks" (Selener, 1997, p. 7). In this study two of the most challenging realities were the novelty and lack of context among participants for the technology

they were being introduced to, and the researcher's inexperience in the performance of participatory research. Given this caveat, it should be stated at the outset that this study borrowed participatory techniques to the extent that they were deemed appropriate, but makes no claim of strict adherence to all aspects of participatory design.

Bryceson (1982, p.76) links the origins of participatory research to "the philosophical tradition of pragmatism," in which "the production of knowledge is viewed as beginning with practical problems." This commitment to practical problems is firmly embedded in the guiding philosophy of participatory research which is aimed directly at problem resolution and the generation of benefits, both during the research process and later through the knowledge that is acquired (Hall, 1982).

The insistence on immediate benefits to participants is a central element of participatory research distinguishing it from most conventional research, which separates the generation of knowledge from its application. Bryceson, (1982, pp. 70-71), after noting that descriptions of participatory research are necessarily general, lists other characteristics that are closely linked with this central value of participant benefits. First is the impossibility of value neutrality or objectivity on the part of researchers. Practitioners of participatory research are unable to be neutral because it is imperative that the original researcher identify with, and be closely involved with the population or community being studied in order to effectively engage in the dialogue needed to identify problems and community resources. Research is "problem centered" and directed toward an understanding and transformation of "the conditions underlying a problem" while also being an educational process for all parties involved.

Finally, participatory research proceeds from an assumption that knowledge creation and analysis is a capacity shared by all people and not the exclusive property of professional researchers.

Based on the available evidence, this study is among the first to employ participatory methods in exploring human interaction with digital technologies. There are, however, numerous instances of participatory research being used to explore and facilitate farmers' interaction with new agricultural technologies. Because of this shared emphasis on the introduction of new technology, many of the common elements of farmer participatory research studies are also applicable to this study. Unlike conventional agricultural research, which develops new plant varieties and other innovations in a controlled research environment, farmer participatory research is most concerned with the agricultural and cultural settings into which the innovations are to be introduced. The conventional model of technology transfer is most likely to benefit prosperous farmers with large holdings who can afford the fertilizers, insecticides, and mechanization necessary to replicate the conditions of the research environment. Participatory research, in contrast, is most often directed at the needs of small, resource-poor farmers by eliciting their opinions at all stages of the research process in order to locate or produce appropriate agricultural technologies that they actually can or will utilize (Selener, 1997).

This study is also concerned with the appropriate use of technology. Just as farmer participatory research uses participants' input to produce a menu of technological options rather than deciding beforehand on a technology to be transferred, the needs and opinions of this study's participants have been used to make

decisions about instruction and the types of Internet resources to focus attention on. The evolutionary path of farmer participatory research which "starts with the knowledge, problems, analysis, and priorities of farmers" who ultimately "become the researchers, experimenters, and evaluators" in the research process (Selener, pp. 160-161), resembles this study's goal that its participants learn to utilize the Internet in ways that meet their interests and needs.

Selener identifies four stages of farmer participatory research which were modified to map an appropriate course for this study: (1) problem identification, (2) exploring and selecting potential solutions, (3) testing and adapting the technology, and (4) evaluating the technology. In this study, all of these stages were largely concurrent. Although this study adhered as closely as possible to Selener's model, there is no question that it deviated from the ideal of 100% control of its course by participants. What follows is an outline of how participatory methods were implemented in this study, and as faithful a rendition as possible of the compromises that occurred, as well as why and when they occurred.

During stage one, problem identification, eight Salvadoran adults and two children assembled at my home for an initial session. I explained that this meeting was to identify problems that they considered to be major impediments to adapting successfully to life in this country, that could serve as starting points for research. Because of my previous association with several members of this group, I was already familiar with many of the problems that they faced, and also knew that many members of this group were quite talkative. I confidently awaited their responses about the difficulties in their lives that we would try to resolve as a group through the liberating technology of the

Internet. After a long awkward silence, one brave member of the group tentatively suggested that his inability to speak English was a major problem. Rather than the outpouring of potential research topics that I expected to follow this initial suggestion, it continued to be very difficult to elicit conversation. As a consequence I, the researcher, did much more talking than I had originally intended, and the topics that we ultimately settled upon as a starting point for research were as much inspired by my suggestions as by theirs.

The setting for stage two, which involved the exploration of potential solutions, was partially pre-ordained by the nature of this study, in the sense that all exploration for solutions to problems would take place via the Internet. The choice of the Internet as a medium also mandated that a great deal of non-participatory guidance take place in the early stages of this study, since it was impossible for participants who had no concept of the Internet to make suggestions about how it should be used to resolve problems. Consequently, the initial decision to produce a website with a rudimentary online English lesson, and links to other potentially useful and or interesting websites was, by default, made by me instead of by the participants.

Stage three, testing and adapting the technology, had an inherent participatory element from the beginning, in that once participants were in front of a computer with an Internet connection, they indeed were doing their own testing. Some were also adapting the technology to the extent that they were using it for independent exploration. At this point, it is important to make a distinction between the experiences of participants based on the degree and quality of Internet access. The amount of Internet exposure called for in the original design of this study, three instructional sessions, imposed a limit on the

amount of exploration that could take place. For the eight members of this study whose Internet exposure consisted of three or (at best) four instructional sessions, this limitation was critical since much of their time and mental energy was dedicated to learning how to use the Internet instead of actually using and exploring it. Every effort was made to support their independent exploration of the Internet, but their actual participation was inevitably impacted by their level of access to the technology being explored. The amount and quality of participation increased dramatically in the case of four other participants who utilized long-term Internet access in their homes. Because of the much higher level of access, they were able to search for solutions to problems (stage 2), and test and adapt Internet technology to their own needs and interests (stage 3) with a high degree of independence.

The mandate implied by stage four, evaluating the technology, was only partially adhered to in this study. Through their exposure to the Internet, participants automatically received an opportunity to evaluate this technology that they otherwise would not have had. During interviews, participants were asked to evaluate their experience with the Internet and the information that was supplied was woven into subsequent interviews so that it could be evaluated against the opinions of additional participants . For example, the topic of children as a motivation for using the Internet which arose in the first interview, was always explored in subsequent interviews if it did not arise independently. Participants did not, however, take part in a formal analysis of data and were not present during the actual process of examing and contrasting units of data, and sorting them into categories. The chief reasons for this omission were logistical. The data that was analysed was in English, a language that none of the

participants could read fluently. Furthermore, this study had a large instructional component that imposed a significant burden of time and effort on both the participants and the researcher. For the participants, taking part in this step would have taken even more of their time with less potential benefit to them than gaining experience in the use of the Internet. For the researcher, the additional effort implied by training participants to perform qualitative analysis would quite possibly have meant that this study would not have been completed.

A final important component of participatory research that must be addressed is the question of whether and how did participants, individually or collectively, benefit from this research? First, it seems reasonable that all participants potentially derived some benefit by increasing their knowledge and comfort level with computers and the Internet. A much stronger argument for long-term benefits exists, however, in the case of the two participants who still have and still use their Internet connection at home. Not only do these two participants continue to use the Internet, but their example of using the Internet successfully to resolve an immigration concern, inspired a neighboring Salvadoran family to visit the local library and do the same. As further evidence of how their example has impacted this family, one of its members (the wife) has elicited my assistance in acquiring Internet access at home. Based on this evidence, it seems clear that this study has embedded the concept within at least part of the local Salvadoran community, that Internet access is both useful and attainable. The degree to which this concept is acted upon and realized in the future within this community, will ultimately provide a measure of the long-term value of this study.

In spite of its differences, the process of participatory research resembles that of conventional research by including the familiar phases of problem definition, methodological choice, data analysis, and application (Selener, 1997). At the same time, participatory research offers practitioners both the freedom and the responsibility to choose the most appropriate methods from among a variety of options. This study responded to that freedom by integrating its participatory approach with qualitative methods.

An especially compelling feature of qualitative methodology is the inherent flexibility it imparts to research design. Instead of possessing a rigid structure that is fully developed prior to the actual research, the shape of a qualitative design changes and evolves during the research (Merriam, 1998; Patton, 1990). The course of this study was unpredictable at its outset. Its participants explored an unfamiliar electronic environment and there was no way of knowing beforehand how they would react to this environment, how they could best be enabled to explore it, or the directions in which they would explore. Given the highly exploratory nature of this study, Patton's advice (1990, p. 62) that "the point is to do what makes sense, report fully on what was done, why it was done, and what the implications are for findings" was especially apt.

Qualitative research makes extensive use of fieldwork in a naturally occurring setting (Bogdan and Biklen 1992; Merriam, 1998; Patton, 1990), an emphasis that is also shared by this study. This research introduced its participants to the use of an unfamiliar technology that, while not yet a naturally occurring part of their daily existence, had potential for addressing some of their needs and problems. In order to introduce this technology effectively, it was necessary to take into account the physical

and cultural contexts in which participants live and work. Throughout this study, ways were sought to integrate Internet use into these pre-existing contexts by tying it to technologies and locations that were already part of the daily lives of participants.

Three additional aspects of qualitative research, a concern with process, an emphasis on the important and central role of the researcher, and an ongoing attempt to comprehend the meaning that people make of their experience and lives (Merriam, 1998) were also present in this study. The role of researcher was especially central since the principal researcher was also an instructor and facilitator of new technology. To some extent, participants shared the role of researcher, particular in the later stages of the study when a web page was created that linked to the favorite websites of two relatively skilled participants. The process through which participants learn to use and gain access to the Internet became the major focus of this research. During this learning process participants were obligated to construct meanings in order to make sense of, and function within, an unfamiliar and abstract electronic environment. This study has sought to comprehend their individual interpretations of this environment and its place within their lives.

To summarize, this study has sought to follow a participatory route but has relied extensively on qualitative techniques. The integration of a participatory approach with qualitative techniques was appropriate given the inherent flexibility of participatory and qualitative research and the aims of this study.

Sample Selection

This study employed a purposeful sampling strategy. Patton (1990) outlines 15 different variations of purposeful sampling and states that the principle that underlies

all of them is the need to select cases that are rich in information. Since qualitative inquiry seeks to extract information in depth from a small sample, it is important that the sample be composed of cases that can provide a plentiful supply of the information needed to serve the purposes of the research.

Patton also points out that combinations of more than one of the various strategies of purposeful sampling may be appropriate. In this study I used a combination of criterion and opportunistic sampling. In criterion sampling, as its name suggests, the sample is selected based on pre-established criteria. To participate in this study, sample members had to be adults who were born in El Salvador, and who also spoke Spanish as their first language. For logistical reasons, all resided in or near a college town in the Southeastern U.S.

Another criterion, stemming from the participatory nature of this study, was that I, as primary researcher, should have an understanding of the other participants and their situations (Bryceson, 1982). This criterion was met by choosing participants from among people whom I already knew, or from among their friends or family members who are also Salvadoran immigrants. It should also be noted that those who write about participatory research (Hall, 1982; Bryceson, 1982; Selener, 1997) use the word community so frequently as to indicate an inherent assumption that participatory research is undertaken by, for, and within communities. At the same time, the word community itself is quite ambiguous since its scale ranges from planetary, as in "global community," to only a few people. Although participants in this study to some extent represent all Latino immigrants numbering in the millions, they come from a much smaller subset of Salvadoran immigrants in the Southeast. Most members of this

group are originally from the same small rural community, centered on the town of El Brujo, in the province of Santa Ana, El Salvador. While all participants do not live in a contiguous community in this country, this earlier and ongoing affiliation with the parent community in El Salvador provided a sense of community that would have been absent otherwise.

The sample for this study consisted of twelve Salvadoran men and women with an age range from 19 to 48. The level of formal education ranged from six to 14 years. All members of the group are functionally literate in Spanish.

Data Collection

A major goal of participatory research is to directly benefit research participants. In accordance with this goal, data collection in this study began by assessing the needs and interests of participants in order to guide subsequent research. This initial data was collected during a group session with participants. While this session was underway, two other bilingual observers assisted by taking notes, and audio recordings were made of the discussion and interaction.

After this initial assessment data gathering proceed through two main phases. The first phase started soon after the assessment. Data gathered during the initial assessment was used to decide upon a starting point for instruction. Two group sessions, of approximately two hours duration, were held in a networked computer laboratory, with 15 total participants (seven of whom did not complete the full course of the study). This laboratory setting made it possible to observe, train, and videotape several participants at once, and also offered an optimal level of Internet access.

Two group sessions with a total of seven participants were held in the public library, which offers free computer use and Internet access to its patrons. In both sessions, two-hour blocks of time were reserved for the sessions.

Initially, it was expected that one instructional session would be held in each participant's home but home-based visits were used more frequently than expected. Although it required more effort on my part, home visits ultimately proved to be logistically less difficult than coordinating external facilities with large groups of participants. Home-based instruction offered the opportunity to gather data about participants' interaction with computers and the Internet in a comfortable and familiar setting. From the same experience, participants gained the opportunity to assess what it is like to actually use a computer and access the Internet in their home, in case they were interested in doing so after fieldwork is complete. With three families of participants, home-based sessions also included the use of an "Internet appliance" known as WebTV, which displays Internet content on the television. The use of WebTV was explored because of its relatively low price, ease of use, and association with the already familiar technology of television. On three occasions participants came to my own home to take advantage of two computers with a high-speed Internet connection.

Before each home visit I provided and assembled a computer or WebTV, and the necessary peripheral equipment. Although in many sessions one adult was the primary participant, all households included additional adults and, in most cases, children. Visitors were also frequent. As a result, home-based sessions were often chaotic, noisy affairs. Table 3.1 provides a summary of training and interview dates.

Table 3.1. Summary of Training and Interview Dates

Participants	Training Sessions by Month and Year				Interview Dates	
Arsenio	10-1998	2-1999	2-1999	3-1999	3-1999	
Juan	11-1998	2-1999	3-1999		4-1999	
Raul	10-1998	11-1998	3-1999	5-1999	5-1999	
Marcos	11-1998	3-1999	5-1999		5-1999	
Mateo	11-1998	2-2000	3-2000	4-2001	5-2001	
Marta	2-2000	3-2000	4-2001		5-2001	
Fernando	11-1998	1-2002	2-2002		2-2002	
Alonzo	11-1998	1-2002	2-2002		2-2002	
Guillermo	3-2002 -- 7-2002 -Internet at home- Multiple training visits				6-2002	7-2002
Irving	3-2002 -- 7-2002 -Internet at home- Multiple training visits				6-2002	7-2002
Claudia	8-2002 -- 10-2002 - Internet at home- Multiple training visits				10-2003	
Francisco	8-2002 -- 10-2002 - Internet at home- Multiple training visits				10-2003	

Because of my dual role as researcher and instructor, I was unable to take notes during instructional sessions. Initially I experimented with videotaping and audiotaping as a source for data during instructional sessions but found that the difficulty and obtrusiveness of these media were not compensated for by the amount of data that resulted.

A second phase of data collection began two years later after personal events in my life that brought progress in this study to a near standstill were no longer impeding factors. In phase two, computers and Internet access were provided to two Salvadoran households for periods of more than two months. One computer with high-speed cable access to the Internet was placed in the home of three Salvadoran men who lived in a mobile home park with approximately 100 other Salvadorans. Later, another computer

with dial-up Internet access was provided to a Salvadoran couple. In both households, all necessary training in the use of the computer and the Internet was provided.

This new approach of integrating the Internet directly into the living space of participants as a semi-permanent feature was taken for two reasons. First, an increasing awareness and acceptance of the Internet, along with an increase in computer expertise and interest among the Salvadorans made such a step reasonable. Second, because having the Internet as a part of their daily lives was expected to generate a level of familiarity and expertise among participants that would be unattainable otherwise. Later events proved this expectation to be correct and the extra expense and effort to be well rewarded.

Semi-structured interviews were conducted with 12 participants who passed through at least three instructional sessions. In four cases the interviews were with individuals, but in four other cases they were performed simultaneously with two participants from the same household. Audio recordings were made of all interviews. The interviews took place in Spanish and were translated and transcribed, by me, into English. During translation, the guiding principle was to accurately convey the meaning of what was said. Verbatim translations have been supplied whenever possible and appropriate, but it is important to recognize that "word for word" equivalency is not always possible or desirable when translating from one language to another. Accurate translation of meaning requires an understanding of context, as well as careful attention to linguistic variables such as pronunciation and phraseology.

To verify the accuracy of my translations, another bilingual translator who was a native speaker of Spanish, performed a "spot check" translation of selected segments

of two interviews. In both cases her translations and mine were very similar in our choice of English words and phrases, and congruent in terms of meaning. To offer one typical example, my translation of a participant's response to a question about Spanish content on the Internet yielded "we have found a lot in Spanish but now I am fine, because I translated something that interested me a lot." The other translator interpreted the same response as "we have found things in Spanish but I am fine now because I translated something that I was very interested in."

Data Analysis

Patton (1990) offers a daunting description of the challenge of producing findings from the data collected in a qualitative study. The goals of the process are "to make sense of massive amounts of data, reduce the volume of information, identify significant patterns, and construct a framework for communicating the essence of what the data reveal (pp. 371-372)." Next, he notes that while certain guidelines for meeting this challenge do exist, they are not absolute and qualitative analysis ultimately depends "on the skills, training, insights, and capabilities of the researcher" (1990, p. 372).

To avoid repetition, lack of focus, and prevent the quantity of information to be analyzed from becoming unmanageably large, Merriam (1998) recommends that researchers engage in ongoing analysis during the collection of data. Bogdan and Biklen (1982) list several suggestions for how to conduct such a dynamic analysis. The gist of their suggestions is that researchers should continually analyze data during the collection process, and use the results of the analysis to improve the quality and focus of subsequent data that are collected. For example, in studies that rely on

interviews, the construction of research questions prior to data collection and analysis inevitably requires speculation about the true nature of the phenomenon being investigated. As data are collected, insights that are gained through analysis can be used to shape new and more sharply focused questions based on the researcher's increasingly well-informed opinion about the actual phenomenon.

The ongoing analysis of data in this study revealed a deficit in the amount of data being produced and led to changes in the way that participants were instructed. With an open-ended research and instructional project such as this one, a logical point for terminating the collection of data was difficult to decide upon, but the data that were collected, were judged adequate for addressing the research questions.

After data collection was over, the data were catalogued and organized. Interviews were transcribed and re-read thoroughly to check for comprehensiveness. Since the interviews in this study were translated from Spanish, the additional step of verification by an independent translator was also included for selected segments of interviews.

The constant comparative method of data analysis, in which units of data are continually examined and contrasted with one another to find consistent and recurring themes and patterns, was employed to uncover mutually exclusive categories of data. This process of categorization requires an intensive effort to understand the data, and also involves manipulation of data. Analysis of written information usually entails cutting, pasting, and organizing text either physically with scissors and index cards, or electronically with a computer. In this study Atlas TI, a computer program for organizing

and analyzing qualitative data, was used extensively to organize data into appropriate categories and to link together categories, ideas, and information that were related.

During data analysis Berry's Framework for Acculturation Research, the theoretical framework for this study, was used as a cognitive tool for assessing the adaptational significance of data. Two concepts from this model, cultural distance and coping, were especially instrumental in the formation and understanding of key categories.

Validity and Reliability

Because this study used qualitative methods for data collection and analysis, its validity and reliability depend on both the appropriateness and proper application of these methods. Common indicators of research credibility that apply to this study are the internal and external validity, and reliability of its findings. The internal validity of a study refers to the degree to which its findings match reality (Merriam, 1995). This statement is more complicated than it first appears because there is more than one view of reality. The positivist view associated with quantitative research considers reality to be "fixed and stable," whereas the qualitative view holds that reality is "constructed and interpreted" (p. 53). Given this qualitative view of reality, the internal validity of a qualitative study depends to a great extent on the researcher's success in capturing and re-constructing other people's interpretations of reality. Several strategies are available to qualitative researchers to insure internal validity. This study employed triangulation through the use of multiple sources of data; in this case interviews and observations.

External validity refers to the generalizability of findings to other situations (Merriam, 1995). Certainly, the potential benefit of this study would be easier to

establish if a convincing argument could be made that its findings apply to the larger population of several million Latino immigrants. Given the particularistic nature of qualitative research such an argument cannot be made. An effort will be made, however, to provide descriptions and quotations in sufficient depth and detail for consumers of this research to make their own decisions about its applicability to their particular situation.

The reliability of a study is the degree to which the results of one study can be reproduced in another study that follows the same procedures (Merriam, 1995). Reliability is an accepted criterion for establishing research credibility in many scientific fields, and rests upon the assumption that repeated and objective measurement can ultimately determine whether or not a phenomenon is stable (Merriam, 1995). Although this assumption rests on a shaky foundation since, as any dart player can attest, consistently achieving the same result is not necessarily the same as achieving the correct result, in certain types of studies replicable results are not even a viable option. Research that records the behavior and thoughts of unique human actors and then utilizes another unique human brain to analyze the resultant data, is highly unlikely to achieve the identical results of another study that looks at different people at a different time in a different setting. It is possible however, to strive for accuracy by collecting and analyzing data in such a manner that it more closely reflects the actual and unique circumstances of the study.

The transient phenomena being investigated in this study, immigrants in the process of adaptation and technology that is constantly evolving, insure that its precise results will never be replicated. This study's accuracy was insured by the

methodological triangulation already described and an audit trail consisting of a detailed description of all decisions made during the research process and how they were implemented. The goal in keeping such a record was to produce a blueprint that subsequent researchers could follow to conduct a similar study.

Researcher Bias and Assumptions

Even when efforts are made to insure objectivity, the personality, opinions, and professional background of a researcher are likely to influence the course and the findings of a research project. In a study such as this one, which explicitly relies on the informed subjectivity of the principal researcher to select and interact with participants, and collect and analyze data, the researcher's role is especially influential. Merriam describes the qualitative researcher as "the primary instrument for data collection and analysis" through which "data are mediated" (1998, p. 19). In this present study, I am the instrument Merriam describes, so it is important to communicate an understanding of the strengths and limitations that I brought to this role.

A principal source of strength, my long-term acquaintance with the community from which participants are drawn, also presented a risk. The strength came from years of interaction with many members of this community. Consequently, I have a much greater knowledge of their life and situations than I would otherwise, and have established a foundation of trust and mutual help that served me well during the course of this study. The risk came from the ambitious mix of instructional and research objectives that my high comfort level with the participants gave me the confidence to undertake and that has taken so long to complete.

My knowledge of the technology that was used in this study has been another source of strength and weakness. I have nine years experience of both using and developing informational and educational materials that are delivered via computers and the Internet. As a result of this experience, I had a stockpile of technical knowledge to draw upon for insuring the success of this study. At the same time, my fluency with these digital media often made it easy to forget how intimidating and frustrating they can be for someone with less experience, and may have led me to view major victories for participants, learning to use a mouse comes to mind, as lesser accomplishments than they actually were. Throughout this study it has been a challenge for me to keep in mind that the other participants were experiencing phenomena and performing tasks that are new for them even though they were very familiar to me. I have made an effort to ensure that my extra years of experience should facilitate the learning experience for the other participants rather than detracting from it through my impatience or inability to empathize with the problems faced by people with less experience.

Other challenges that have had to be confronted result from my simultaneous roles as researcher and instructor. Participatory research provides a unique opportunity for a researcher to enter and positively impact the lives of participants but comes with a dual set of responsibilities. As instructor, my obligation was to facilitate the participants' learning. As researcher I was expected to analyze the participants' learning as well as my own role in facilitating it. Fulfilling these dual obligations required vigilance to avoid letting the obligations of one role detract overly from my performance in the other. Frankly, at many points I found it very difficult to balance

these roles and must confess that the instructor has often benefited at the expense of the researcher.

I am certain that I brought numerous assumptions into this study that my own subjectivity did not allow me to recognize. A list of the assumptions that were evident to me includes: (a) Adults have an innate motivation to reduce the difficulty of challenging life situations by adapting to them. They will invest time and energy in learning that supports adaptation when convinced that the reward will surpass the investment. (b) Many Latino immigrants, because of their relatively limited acquaintance with formal education, lack an awareness of their own capacity for learning, and of how to obtain and use materials for fostering such learning. Because they are unfamiliar with abstract means of learning such as books, the idea of using such means is foreign to them; (c) Learning can be facilitated and delivered effectively via computers and the Internet; (d) This study can be structured so that those who participate can benefit from their participation.

CHAPTER FOUR

FINDINGS

Introduction

The purpose of this study was to determine ways in which one group of Latino immigrants, Salvadorans, gain familiarity with and become competent users of the Internet. The following questions guided this study:

1. What motivates participants to access and to learn to use the Internet?
2. What are the barriers (cultural, financial, linguistic, and otherwise) that prevent participants from making use of the Internet, or make it more difficult for them to become competent users?
3. What are participants' conceptions of the Internet?
4. Which opportunities do participants consider most valuable and choose to utilize?
5. What is the process by which participants gain familiarity with and become competent users of the Internet?
6. In what ways does gaining access to and learning to use the Internet, facilitate participants' adaptation to life in this country?

This study integrated a participatory approach into a qualitative design and focused on the process through which participants learn to use and gain access to the Internet. This research introduced an unfamiliar technology, which, by design, required that its participants receive instruction and facilitation in its use. This instructional component was, by far, the most time consuming part of this research

since it required that each participant have three separate sessions of Internet exposure. An even greater instructional effort was made with the final four participants by installing a computer with an Internet connection directly into their homes for an extended period of time.

Between October 18, 1998, and October, 2002 a total of 12 individuals who were purposely selected, participated in at least three training sessions and were interviewed in a face-to-face setting. Interviews ranged in length from thirty to ninety minutes and two participants took part in a second follow-up interview. Ten interviews took place in participants' homes and two were conducted in the researcher's home. All interviews were tape recorded and transcribed by the researcher.

This chapter has three sections. The first profiles the participants while using pseudonyms to protect their anonymity. The second section consists of an overview of the findings and a presentation of data that support the findings. The final section consists of a chapter summary.

The Participants

Twelve adult immigrants from El Salvador who live in or near Athens, Georgia participated in this study. Ten participants are male and two are female. There are two reasons for the prevalence of males in this study. First, based on my observations, single males are much more common among Athens Salvadorans than either single females or married couples. Second, although five of the participants are married and live here with their wives, only two of the wives chose to participate in more than one training session. Participants ranged in age from 19 to 48 years old. Their educational level ranged from third grade to two years beyond high school.

Ten of the 12 participants' employment involved working with plants: seven worked in plant nurseries, two were employed in landscaping, and one was a property caretaker whose responsibilities included gardening and landscaping. The two exceptions were one participant who worked in a factory and another who was a fulltime homemaker. Table 4.1 provides a summary of information about the individual participants.

Table 4.1. Summary of Participant Information

Participant	Gender	Age	Years Formal Education	Employment	Approx # Years in U.S.
Mateo	M	35	3	Factory	20
Marta	F	32	12	Plant Nursery	6
Arsenio	M	48	3	Plant Nursery	15
Raul	M	41	6	Landscaping	20
Marcos	M	25	12	Landscaping	4
Juan	M	39	3	Plant Nursery	16
Guillermo	M	22	13	Plant Nursery	1
Irving	M	19	8	Plant Nursery	2
Fernando	M	47	3	Plant Nursery	16
Alonzo	M	39	3	Plant Nursery	14
Claudia	F	34	14	Homemaker	1
Francisco	M	38	14	Landscaping	2

My relationship with this community began in 1991 when I unexpectedly found myself recruiting workers for a local tree planting company. My first recruit was a man from a small village in El Salvador named Jorge. Jorge, who proved to be a stellar tree planter, soon recruited three other relatives to work with us on weekends. The energy and efficiency of these four men was amazing, as they invariably left everyone else on the crew far behind while they chattered and laughed their way across the vast tract of land that we were reforesting.

During the course of the winter I met several other family members and friends and quickly discovered that all of them were linked by a web of previous relationships in El Salvador. Many of them had started their sojourn in the U.S. in California but had come to Athens because of difficulties finding work in California. The majority of the people that I met in the 1990's were from two small sister communities in northeast El Salvador, but more recently I have noticed an influx of people with urban backgrounds, most from a large city that is near the two original small towns.

I have never known exactly how many Salvadorans from this group actually lived in the Athens region, but would have estimated their numbers at less than 25 in 1991. At present, in 2002, I am certain that several hundred live here and would not be surprised if there were more than 1,000. So far, almost every new person that I meet from this group is related to someone else whom I already know. Throughout the past 11 years I have occasionally been called upon to help out with problems or invited to special occasions. I have been to the hospital to assist with paperwork soon after the birth of a child and have attended one funeral so far. My life has been enriched by my relationship with this group and hopefully I have successfully returned the favor.

Arsenio

As of 2002, Arsenio is 48 years old, the same age as myself. I know a great deal about Arsenio because of an interview that I had with him while taking a course in qualitative analysis. He came to Athens in the early 1990's from California where he found it very difficult to find and maintain employment. All of the other Salvadorans I have asked came to the U.S. for economic motives but Arsenio came because he feared that he would be killed if he stayed in El Salvador. He was not getting along with his

wife and he feared that she would denounce him to the authorities as a guerilla sympathizer. According to him, a denunciation of this sort by a close family member often translated into a death sentence during El Salvador's civil war.

Arsenio works in the same plant nursery as four other participants, Marta, Lorenzo, Fernando, and Juan, and is married to a woman in her twenties. They have one daughter and own their own home, a mobile home on a plot of land near Athens. Arsenio is short, quite plump, and suffers from diabetes. Not long after coming to Athens, he managed to bring in his new wife. Soon afterward they had their first and only child. Arsenio called me once to request that I assist with a family crisis. It seemed that a Salvadoran neighbor who lived in the same trailer park was making provocative statements to his wife. I arrived at the same time as the local police and interpreted for Arsenio as he explained his side of the story. He was extremely upset and told me that the man who was causing the problem was from a much wealthier family in their village that had always taken advantage of his family.

I have always enjoyed talking to Arsenio because of his quiet philosophical form of humor. He seems relatively well read or somehow to have acquired a greater breadth of knowledge than most other members of this community.

Mateo

The most striking feature about Mateo is his cheerfulness. He laughs easily and always seems to be smiling. Mateo is 35 years old. At 16 he left El Salvador and moved to California. I met him the same way that I met Raul, when Jorge recruited him to plant trees with us. At the time, Mateo was single and working full time at a large local nursery. Since that time, he has changed jobs a few times. He worked for several years

at a carpet factory in a nearby town and presently works in a factory that produces wooden materials for construction. In addition to his wife, Marta, Mateo is related to at least three other participants including Juan, his brother, Lorenzo, his first cousin, and Raul, the husband of another first cousin.

In spite of spending more than half his life in the U.S., his English is still rudimentary. After living in Athens for approximately five years, he married a woman from El Salvador named Marta, also a participant in this study, who soon afterward came here to live with him. They own a home in a small town near Athens and have a four-year-old daughter. When I spoke with Mateo recently he made a point of informing me that he has Internet access with his new job and that training is delivered to him and other workers in both Spanish and English via the Internet.

Marta

Marta came to Athens in 1996 to be with Mateo, her husband, when she was in her mid twenties. I don't know her nearly as well as Mateo but have noticed that she seems to be on equal footing in her family with her husband. In most other families in the study, it was almost impossible to convince the wives to participate once we were in their homes. The husband inevitably took control of the computer and Internet connection while the wife took care of the children and housekeeping. With Marta it was quite different. She was at least as interested in the Internet as her husband and her questions and requests tended to guide the experience.

She is now 32 years old, has a four-year-old daughter and works at a large local plant nursery that employs 30 or 40 other Salvadorans. Prior to coming to the U.S. she worked as a seamstress. In her job at the nursery she works in inventory, which requires

her to use a computer. Like Mateo, she is from a rural part of El Salvador but lived in a nearby large city before coming here. Unlike many other Salvadorans in this community, she did not live in another part of the U.S. before moving to Athens.

Alonzo

Alonzo is from the same rural section of El Salvador as most of the other participants and is a first cousin of Mateo and Juan. He lives with his wife and son in a mobile home on the grounds of the same large plant nursery where he works. His two brothers, who also work for the nursery, live nearby on the same property in separate homes with their families. The setting has the feel of a small, intimate village. The three brothers pay no rent in exchange for serving as after-hours caretakers. One of their duties is to guard against incursions into the nursery by whitetail deer; as a result, all three families frequently eat venison.

Alonzo works in the nursery's shipping department where he reported that some of the other English-speaking employees use the Internet to communicate with clients. He himself had not used either a computer or the Internet prior to this study. During training sessions and the interview, Alonzo's wife interacted very little. In contrast, his ten-year-old, bi-lingual son was extremely outgoing, and Alonzo sometimes had to ask him to calm down in order to proceed with a lesson.

Raul

Raul was the first among the group of Salvadorans that I know to arrive in Athens. According to the story that I heard from him and others, he was hitchhiking east from California without a clear idea of his ultimate destination. While he was crossing the Mississippi river on foot, a Mexican man stopped and gave him a ride. During their

ensuing conversation the Mexican man asked Raul where he was going and he said that he did not really know but that he was looking for work. The Mexican told him "I know a place where there is all the work you could possibly want" and pointed him toward Athens, Georgia.

When I met Raul in the winter of 1991, the Mexican's prediction had come true. He had found work with a local landscaping company, and lived in a mobile home park on the outskirts of town with his young pregnant wife. Several relatives had joined him in Athens, including his brother-in-law, Jorge, who became the first member of a tree planting crew that I was managing. Jorge soon recruited Raul and two other relatives to work with us on weekends. During this period Raul 's first child, also named Raul was born.

Raul is taller and broader than most of the other Salvadorans of his generation. His brother-in-law, Jorge, attributes the extra size to the fact that Raul was an only child in a community that seems to have produced many extremely large families. During the years since 1991, I have interacted with Raul several times. Once I called his employer on his behalf and tried, unsuccessfully, to mediate a conflict. Raul and his wife have both asked me for advice related to home buying and other financial matters. I have also seen him at several social events, ranging from funerals to parties.

Raul and his wife Renata seem to have prospered here. They recently purchased several acres of land about 12 miles outside of town where they now live in a spacious manufactured home. Renata owns and manages a business that cleans the interiors of homes and businesses, and Raul now owns his own landscaping business and has become a competitor of his former employer.

Marcos

I met Marcos when he accompanied Raul, his uncle, to an early training session. I did not get to know him as well I did the other participants because our only interaction was within the context of this study. He worked with Raul in the landscaping business and impressed me as being bright and extremely alert. Although Marcos was Raul's nephew, he was not from the same part of El Salvador as the other participants and had spent most of his life in San Salvador, the country's capital. In high school, Marcos had taken a class that taught computer use and had obviously paid attention, because he not only knew how to use computers but also had a good technical understanding of how computers worked. He also caught on very quickly to the nuances of Internet use. After a training session in the local library, he returned to the library and, with no help from me, set up a Hotmail email account for himself.

Fernando

Fernando came to the U.S. 16 years ago, leaving behind a wife and two children. During those 16 years he has never visited El Salvador or seen any of his family members in person until two years ago when his eldest son came to the U.S. to live with him. Fernando is short and darkly tanned from years of outside work. He is extremely friendly and open but there are moments when he seems sad. In a recent conversation he described his life in this country to me as "muy duro" or extremely hard.

Fernando lives in a mobile park that is totally filled with Salvadoran families, with an ambience that I take to resemble a Salvadoran village. With Fernando's consent, I installed a computer with a high speed Internet connection in his home. His son and nephew, who live with him and also agreed to become participants in this study,

ultimately became very skilled Internet users. I have visited his home several times and often find him outside helping one or another of his neighbors with automobile maintenance. Usually, other drop in guests also arrive during my visits. I have the impression that his home is sort of a social center for the mobile home village. Outside of his home is a large grill that seems to receive a lot of use.

Juan

One of the most notable characteristics of Juan's personality can be summed up by the cliché "eager to please." I have visited him at home several times and he always makes a large effort to insure that I am comfortable and well fed. Like his younger brother Mateo, he also smiles and laughs quite readily. Juan works at the same large plant nursery as Arsenio, Marta, Fernando, and Alonzo and lives with his wife and two children. Juan's home was active and noisy and almost always had at least one visitor.

Of all the participants in this study, Juan was, by far, the most intimidated by computers, and experienced great difficulty in the use of the mouse and keyboard. In contrast, his five-year-old daughter, Janet, who was fascinated by the computer, insisted on participating in training sessions and quickly became more adept at computer use than her father. I always felt that it was a credit to Juan's good nature and willingness to help that he participated in this study, in spite of the difficulties that he experienced in doing so.

Guillermo

Guillermo is tall, cheerful, and extremely bright. He came here originally in 2001 with a group of several other Salvadorans who were brought in by Jorge to plant trees, and later got a job in a plant nursery. As I got to know Guillermo, it became obvious that

his intellectual ability far exceeded the demands of the type of work that he was doing for a living. At the same time, given his inability to speak English, and his ambiguous legal status, there were no clear alternatives to working as a manual laborer. I was very pleased when I heard recently that he and his cousin Irving are now enrolled in an English class.

It is impossible to describe Guillermo within the context of this study without dwelling on his high technical competence in the use of both computers and the Internet. Just prior to coming to the U.S., he had become a certified instructor of Microsoft Office. He moved into the home of Fernando, his uncle, precisely at the time when a computer with high speed Internet access also arrived and quickly became an expert user. Every time I visited he would show me something new, and many times I found myself learning from him. After struggling to teach rudimentary computer skills to most other participants, it was gratifying to have a participant who was more of a peer than a student. Guillermo, for his part, derived obvious enjoyment from the intellectual challenges offered by the Internet.

Irving

Irving, Fernando's oldest son, spent most of his childhood without his father. Fernando left El Salvador for the U.S. when Irving was a small boy and they were reunited only recently when Irving, now a young man himself, came to this country and they began living together. Like his father and Guillermo, who also lives with them, Irving works at a plant nursery. Compared to his father who is quite loquacious, Irving is relatively quiet and usually does not have much to say unless he is spoken to first. Like many young Salvadorans of his generation whom I have met, he seems much more

worldly than older Salvadorans of his father's generation. When asked about his musical tastes, he responded with a list of musicians that included many names from this country.

When Irving accompanied his father to a training session in my home I was very impressed with how quickly he became adept at using the Internet, in spite of never having touched a computer. His aptitude and obvious fascination at his first encounter with the Internet inspired me to choose his and Fernando's household for installing a computer with a high-speed connection to the Internet. After several months of observing his skills and knowledge of the Internet grow, I know this decision was a sound one.

Francisco

I first heard of Francisco when Guillermo mentioned that another Salvadoran man had called and asked him for help with a recently purchased used computer. During a subsequent visit with Guillermo and Irving, I unexpectedly met Francisco and his family and discovered that they were still having problems with their computer. I offered to help and they offered to participate in this study.

A good starting point for describing Francisco is the exterior of his mobile home, where there is ample evidence that he is a skilled and clever handyman, as well as an excellent gardener. The driveway to his home is bordered by a lush profusion of flowers that spill out of durable star-shaped containers made from used tires. The entry to the home consists of a large, solidly constructed front porch, and nearby is a large hand-made swing set fashioned from treated lumber. I was not surprised to discover that Francisco's full-time job involves landscape maintenance on a large family estate, and that he does additional work as a free-lance carpenter.

Francisco and his wife have more formal education than any of the other participants in this study. After graduating from High School in El Salvador, he studied agronomy for two more years. Francisco has lived in the U.S. for only two years and his wife arrived here less than a year ago. They have three daughters, ages four, six, and eight, who attend the local elementary school.

The one word that best expresses my overall assessment of Francisco is solidity. He impresses me as being extremely ambitious, is obviously hard working, and has a long-term goal of owning his own carpentry business. He and his wife are also actively looking for a new home. Soon after I interviewed them, Francisco and I spent more than an hour together evaluating a house that he was potentially interested in purchasing. Now that I know Francisco fairly well, one of the most lingering impressions is that he reminds me of my father, who has a very similar work ethic and set of skills.

Claudia

Claudia, the wife of Francisco, has faced a lot of changes since she arrived in this country with her three daughters less than a year ago. One of the biggest changes is that in El Salvador she never needed to drive, but now she lives in a rural mobile home park that is miles from the nearest store. Another big change in Claudia's life is that she can no longer practice her profession as a licensed nurse. In this country she not only lacks a license, but she is still waiting on her work permit to arrive from the INS. Finally, Claudia now lives in a country where the primary language is English instead of her native language of Spanish.

Although Claudia is somewhat shy, she has impressed me with her determination to overcome all of these problems and seems every bit as ambitious and motivated as her

husband. By the time I met her she already had a driver's license and drove frequently. She is also working hard to learn English and has already investigated all of the requirements for becoming a nurse in Georgia. When I first visited their home, there was a massive collection of audiocassettes for learning English on the kitchen counter, which she claimed to listen to on a regular basis. Claudia was also very interested in using their new computer for learning English and sought my help in finding a computer-based English course.

My wife and daughter accompanied me to a training session at Claudia's home and there was an immediate empathy between both families. Soon after this visit, our relationship with Claudia and her family expanded into friendship and childcare. Now she visits our home once a week to take care of our 21-month-old daughter. Not long after her husband and I evaluated a house, my wife accompanied Claudia, Francisco, and their six-year-old daughter on a trip to the dentist to serve as an interpreter. Recently, we found evidence that Claudia's studying is having a positive effect, when our answering machine recorded a conversation in English between Claudia and another of our friends.

Overview of Categories

The purpose of this study was to determine ways in which one group of Latino immigrants, Salvadorans, gain familiarity with and become competent users of the Internet. As can be seen in Table 4.2, only one category, children, emerged from data analysis as a clear motivation for Internet use. Although participants discovered many different uses for the Internet, the desire to provide their children with the perceived benefits of the Internet was the strongest motivator for wanting Internet access. Five categories of barriers that inhibited participants from using the Internet surfaced: lack of

home access, inexperience in the use of computers, a lack of facilitation and support among their peer group, a shortage of spare time to invest in learning how to use computers and the Internet, and being of rural origin. Participant's conceptions of the Internet resulted in two categories: functional and systemic. Most participants' conceptions of the Internet were strictly functional and centered around its perceived uses. Two participants' conceptions of the Internet were not only based on its functions, but also included the notion of a system made up of many separate components. Four categories of uses emerged that participants either considered valuable or chose to utilize including, communication, information, learning English, and entertainment. The process through which participants learned to utilize the Internet was encapsulated by the four categories of awareness of the Internet, assisted interaction, foraging, and focused exploration. An exploration of factors that facilitated adaptation yielded three categories: removal of informational barriers, stronger connection to home country, and information access in native language. These categories of findings are summarized in Table 4.2.

Table 4.2: Categories

Motivations for Internet Use

- Children

Barriers to Internet Use

- Lack of Home Access and Lack of time
- Computer Inexperience
- Lack of facilitation and/or peer group support
- Rural Origin

Conceptions of the Internet

- Functional
- Systemic

Uses

- Communication
- Information
- Learning English
- Entertainment

Process

- Awareness of the Internet
- Assisted interaction
- Foraging
- Focused exploration

Facilitation of Adaptation

- Removal of informational barriers
- Stronger connection to home country
- Information access in native language

Children as Motivations for Internet Use

Participants reacted with interest to a number of potential uses of the Internet but there was no one use which clearly provided motivation for becoming an Internet user.

One issue that did stand out, however, for its ability to motivate several participants, was a desire to provide the perceived benefits of Internet access to their children.

Several participants discussed or mentioned children as a motivator, including Guillermo who did not yet have children but speculated that an acquaintance was motivated to buy a computer for his daughter "because every time he comes here she wanted to play with the computer." When Guillermo's acquaintance, Francisco, later joined this study, he validated Guillermo's supposition by stating that he and his wife were "thinking of the future of our daughters" when they decided to buy a computer. Arsenio's discussion of why he would like to have Internet access in his home and what the Internet will be like for his daughter is especially eloquent:

> Yes, it's very important. I have always had the idea since the first time since I went with you to the university. To play with the computer to know it. Because my daughter is growing up and all that and it could be good for her. I would like to have that.

He went on to say that:

> I think for them it will be useful because for them it will be like a game. For them it won't be difficult, they will be people who will be able to use the computer like we use our tools at work.

And finally he noted that:

> I have observed that my daughter uses the television to change channels, using the stereo with the remote control. Doing things at times that I don't know how to do. For her it will be very useful in the future. It will be something without end. Whatever that they want. Whatever ...

Alonzo, Fernando, Raul, and Juan all expressed a desire to provide Internet access to their children. Alonzo's statement of "right now my son is in school and because I have promised him that I am going to buy him a computer so that he studies and can access the Internet" captures a sentiment that was shared by all four. Fernando's responses to two questions also indicate the strong motivational pull of offspring. When asked to explain the potential utility of the Internet to an imaginary friend, he stated that it could be useful for learning English, finding information, and as a substitute for television. When asked if he would one day have Internet access in his home he responded that he probably would because of his desire to provide the Internet to his son.

Barriers to Internet Use

In every interview participants were asked to describe the physical and technical problems that form barriers to their use of the Internet. The ensuing discussions uncovered four separate themes: lack of home access and time, inexperience, lack of facilitation and/or peer group support, and rural origin.

Lack of home access and time. Although they were originally treated as separate categories, lack of home access and lack of time are so strongly related that it was decided to combine them. Participants in this study are extremely busy and have a very limited amount of time to spend in negotiating the learning curve that leads to becoming a competent user of the Internet. Lack of home access creates an additional time barrier by imposing the need for travel to a site where Internet access is available, such as the public library.

Guillermo and Irving's assessment of the lack of interest among their acquaintances in acquiring Internet access is illuminating. They reported several requests

from friends and neighbors for information about the World Cup of soccer, immigration information, and for downloading songs. At the same time, they did not detect any interest among the same individuals in acquiring their own Internet access. When asked to explain this discrepancy, Guillermo response of "Who knows, maybe for the lack of time? I don't know, if they don't have it in their home" was corroborated by Irving's statement that "more than anything perhaps is the lack of time. They arrive home late from work."

When Arsenio was asked about the difficulties of computer and Internet use, he answered in the same vein: "That is well, it's not hard, to look for help to learn a little at a time but you don't learn it all at one time. It would be best to have one in the house so that you could practice." Marta concurred with her succinct statement that "the hardest thing is not to have one. That's what's hard."

There are strong indications that the time barrier diminishes once home access becomes a reality. When asked to describe the Internet to an imaginary friend, Fernando said " something else that I would say is that instead of watching television he could spend time on the Internet." Fernando's assertion is supported by the statement of Irving who, after being provided with home Internet access for several months stated: "It doesn't so much take up time as sometimes it helps you in the spare time that you have. Instead of doing something else, you have it there to spend time on."

Finally, it was observed that in both homes in which Internet access was made available the time barrier was surmounted. In Fernando, Irving, and Guillermo's home, the computer that provided Internet access occupied a prominent space next to the large screen television. Irving and Guillermo, in spite of working more than 40 hours a week,

both found time for lots of Internet use. In Francisco and Claudia's home the pattern was similar. In spite of maintaining a five-person household, within weeks of gaining access to the Internet at home, Claudia found time to use the Internet for email, to successfully research questions related to her professional aspirations and immigration status, and to help her daughter complete a homework assignment. During the same period, Francisco used the Internet frequently for news, and developed a highly evolved conception of the structure of the Internet and its uses.

Computer Inexperience. At the outset of this study only two of its participants had ever used a computer. This absence of experience proved to be a major impediment for several participants as they struggled to learn the use of the mouse and keyboard, and to understand the unfamiliar interface presented by a computer screen. Field notes taken in a laboratory setting with seven novices using seven separate computers at once, indicate that all but one participant had initial problems with the use of a mouse including which mouse button to use and how to click properly so that the appropriate action would occur. Participants also encountered difficulties with the concept of a windowed operating system, and often did not know what to do next when an errant click caused a folder or application window to appear on top of the browser window. In a home setting, with just one person using one computer at a time, it was still exceedingly difficult in some cases to surmount the barrier of inexperience.

Several participants mentioned this barrier in interviews. Marta's statement, spoken with a frustrated tone, undoubtedly captured the sentiment of several other participants: "Do you know what I want to know about computers? The basics, to learn computers. Because there has to be something basic to start. Something that opens up

the path so that you can begin searching and studying." Arsenio expressed similar sentiments in his interview by saying “well, what I don't understand is how to begin. How to look for more information.”

The struggles related to lack of experience were evident even to non-participants. Juan's wife, who had assiduously avoided the computer on both home visits compared the computer to a car and noted, "the computer has a lot of things that you have to use, in comparison [to] a car. I know how to drive, so I think that a car is easier than a computer." Juan's brother-in-law who had witnessed Juan's struggles from a safe distance but had not actually touched the computer himself, injected a bit of humor by pointing out that "it's like a chicken that is eating corn, looking for the letter."

Finally, it is worth describing what happened when an attempt was made, in the case of three separate participants, to compensate for participants' lack of computer experience by introducing an alternative method of Internet access known as WebTV. Two of the three described WebTV as "easier" to use than a computer but the most striking difference was the attitude change in Arsenio's home when I needed help connecting the WebTV to his television via the video recorder (VCR). In the same home a week earlier everyone had passively watched me in seeming wonderment as I assembled the alien technologies of keyboard, monitor, mouse, and desktop computer. When I needed help with the WebTV, which involved the familiar technology of television and VCR, there was a spontaneous burst of assistance from both Arsenio and his nephew, and the comfort level throughout the session seemed higher as we all sat around and "watched" the Internet on television.

Lack of facilitation and/or peer group support. Cahoon (1995) found that informal networks of users were essential for facilitating the learning of computers and new computer programs in the workplace. In a similar vein, Blau (2002, p. 52) notes that a certain level of "community competence," in the form of technically proficient social contacts, must be available in order for most individuals to become computer and Internet users. In my own experience of learning to use computers and, later, the Internet, other, more knowledgeable users provided critical assistance that greatly facilitated the learning process for me as well. At the beginning of this study I was the only computer and Internet user that its participants knew and the sole source of support. Although lack of facilitation was mentioned in only three interviews, its absence was glaringly obvious to me. Not only did participants not have access to peers who could offer help, they also had no peers to set an example of Internet use. The absence of Internet using peers also posits a large motivational barrier in that, without friends or family members who use the Internet, there are no friends or family to communicate with via the Internet.

Guillermo's response, coming from, by far, the most skilled computer user in this group, to the question of whether or not he used email is telling. After stating that he had used email very little, he reflected further and noted that he obviously knew how to use email but "yes, that's the only thing that I need to know, who to write to." Guillermo's description of a conversation with Francisco who had taken the unusual step of purchasing a used computer further illustrates the need for peer facilitation:

> He called me like two times or one time and he asked me what the problem was. I told him I thought that it was that he did not have Windows installed. "What you

need to do I told him is to get the CD." He asked me if I had it and I told him no or I would loan it to him.

In spite of his unusually high initiative, Francisco ultimately had to rely on me, a non-member of his peer group to repair his computer and facilitate his goals of using it to learn English and access the Internet. Fernando's wife Claudia later expressed her gratitude for my help, and recounted her amazement when she heard from Francisco that Fernando and Irving had a computer with Internet access in their home. Her first question to Francisco was "who helped them, how did they do it?"

Rural origin. A final barrier that was noted due, in part, to the researcher's knowledge of participants and, in part, from information gleaned from interviews comes from the extremely rural origins of most participants. Seven of the 12 members of this study grew up in remote sections of El Salvador where relatively mature technologies such as television, telephone, and electrical service were not available until recently. Fernando, for example, reports "in the village that we are from there was no potable water or electricity until 1985." None of these rural participants had had any exposure to computers prior to coming to this country, but two of the participants from urban areas had actually taken a course in computer use. The two other participants who were from an urban area had purchased a computer on their own initiative prior to contacting me. A similar level of initiative was not demonstrated by any of the participants from rural areas.

Conception of the Internet

On the whole, participants' conceptions of the Internet were simplistic and indicative of mental models in a relatively early state of evolution. Most participants

responded with a definition of the Internet based solely on their knowledge of its uses, which resulted in the functional category. The second category, systemic, came from only two participants who conceived of the Internet as not only the sum of its uses, but also as a system with many separate components.

Functional. Juan, the participant who struggled the most during his training and interview, produced a highly simplistic functional definition by describing the Internet as " fine for someone to study." Arsenio, while claiming total ignorance of what the Internet "means," endeavored to define it by describing how the Internet was used on a favorite television program for people "to get to know each other, "to get together", and "to get married." Alonzo, who focused exclusively on communication for his definition, compared the Internet to a telephone.

In three cases, participants who were relatively sophisticated users of the Internet still based their conceptions of the Internet solely on its uses. Claudia conceived of the Internet as “a form of communication, the most complete that can exist” and further stated that “you have everything you need and you can communicate with whoever you want. She also noted that you can “find information about anything that you want.” Marcos, who offered a relatively complex definition, described it as "something that allows us to communicate around the world, to discover several things, to consult; it can be really useful for learning." Irving described the Internet as "a means of communication and education" and further added, "It can be used for many things. You can't just define it just one way."

Systemic. Francisco and Guillermo's conception of the Internet included the notion of a system made up of many separate components. When asked to define the Internet to an imaginary questioner, Francisco responded:

> The Internet is an advanced communication system that encompasses practically all others, because through the Internet you can use a telephone, [you can use it] for bibliographic consulting, to send documents. That encompasses a lot of things in just one system. But it is a new system for communication, much faster, much cheaper, and more efficient.

Guillermo also conceived of the Internet as a multi-functional system. In his words:

> Depending on how we want to use it we can find different answers. If we look for news, we find news. If we want to look for work we can find it. Education, there we can find it. It is all the information processed in the same system.

Internet Uses

At the time they were interviewed, the Internet experience of eight of the twelve participants in this study consisted of three instructional sessions during which they were learning how to use the Internet and exploring its potential. The first part of the original research question "which opportunities will participants consider most valuable" applies more to these participants than the second part which asks which opportunities they "choose to utilize" simply because their opportunity to actually utilize the Internet was quite limited. The other four participants, with full-time Internet access in their home for more than a month, utilized the Internet extensively before they were interviewed. Not surprisingly, these four participants reported many more actual uses than the other participants. Because of this dichotomy it is important to stress that potential uses that

were recognized by participants whose Internet exposure was relatively limited, are given the same weight as the actual uses reported by the four participants who had additional exposure. Four major categories of actual and potential uses emerged from the data: communication, information, entertainment, and learning English.

Communication. Several participants expressed interest in using the Internet for communication, but four participants are especially notable for their level of high level of interest and initiative. Guillermo exhibited a clear understanding of the Internet's potential for communication when he discussed the theoretical possibility of communicating with someone from China and further stated "Through the Internet we can be in communication with the whole world." Alonzo, who stated that communication was the most impressive feature of the Internet, stood out for his construction of communication scenarios, in spite of only having observed the process of writing and receiving an email. When questioned about his interest in Internet-based communication, the ease with which he listed potential benefits created the impression that he had given the matter previous thought: "to be able to write a letter to find out if my mother is OK, or to communicate more rapidly with a friend. In comparison with a letter that takes 8 days." Additional evidence that Alonzo's imagination had been stimulated come from a scenario he concocted in which an imaginary Internet user shares a love song with his girlfriend via the Internet.

Marcos, another participant who was very intrigued by Internet-based communication, on his own time and initiative, utilized the free Internet access provided by the public library to establish an email account. When asked what he had liked best

about the Internet, he stated unequivocally "what I liked best was the mail, to have my own email account."

Claudia and Francisco expressed interest in communicating via email with Francisco's brother, who had Internet access through his job in El Salvador, but at the time of their interview did not yet have his address. Claudia did, however, communicate via the Internet to support her professional interests. While she was exploring the requirements for becoming a nurse in Georgia, she visited a chat room where she met another woman who had worked as a nurse in Colombia and now, like her, was going through the professional transition of becoming a nurse in the United States. After the Internet meeting, the woman telephoned Claudia to continue the conversation. As she reflected on this experience Claudia stated "I made a friend there."

The experience of Irving, one of four participants who were provided with long term Internet access in his home, is also notable because he is the only participant who became an avid user of email prior to his interviews. He used the Internet to locate and communicate with a cousin in California, and frequently exchanged emails with another cousin who lived only a few miles away. He also visited Internet chat rooms, and developed an online relationship with a Salvadoran woman who lived in California. When interviewed, he was still in contact via the Internet with this woman even though she was currently visiting El Salvador.

Information. Of the four sub-categories of uses, information was by far the largest. Participants' informational interests extended to information about their home country, as well as news, weather, employment, medical, immigration, and commercial information.

Several participants expressed interest in information about El Salvador, their home country. Arsenio's discourse about why he liked being able to find out things about El Salvador that were previously unavailable to him indicates the level of interest that online exploration of the home country inspired among some participants:

> Like there is where you grew up and you don't even know where the president was born or how old he is, and nothing about the politics. So through this means you find out how the family is and if you want to know some news in particular or about sports or all that. If you want to know something about your country you look for it and you find it.

Irving and Guillermo, the beneficiaries of high-speed access in their home, indulged their interest in online exploration of El Salvador to a surprisingly detailed level. They were especially avid in their exploration of Metapan, the large urban center that was Guillermo's hometown, and reported many discoveries, including the website of the city's soccer team, the mayor's office, and archaeological sites. They explored the geography of El Salvador as well; reporting visits to park websites, "places, rivers, different things" and also mentioned that they had discovered a way to calculate distances between cities. One of the most significant home country links for their household came from online Salvadoran radio stations. Soon after entering their home, the computer used for Internet access was equipped with powerful speakers and both reported that they frequently listened to live broadcasts from El Salvador.

Several participants expressed interest in the Internet as a source for news and weather information but with the exception of the four participants who had long-term Internet access at home, had little to say beyond a brief mention of this capability. The

comments of Marta and Mateo, a married couple who were interviewed jointly, are typical. When asked what had most impressed her about the Internet, Marta responded concisely 'to inform yourself about what is going on in the world, in other countries," but made no additional comment. Mateo, responding to a question about how he had used the WebTv that was left in their home for several weeks, answered, "I looked at the weather, the daily newspaper the news and all of that."

In contrast, Guillermo and Irving talked extensively about their use of the Internet as a source for news about El Salvador and elsewhere. Their online news sources included U.S. and international sources such as CNN, as well as Central American newspapers and radio stations from El Salvador, Guatemala, and elsewhere. They were also regular consumers of online weather sources, as Irving reported: " If we want to know for example, will it be hot tomorrow or will it rain today, we look for it there." Claudia and Francisco also utilized the Internet as a source of news. Claudia, who reported that she frequently read the news online, made the additional observation that "sometimes we visit the Internet in the morning and then in the evening when we see the news [on television] that interests us we say, oh we already know that." Both noted an additional advantage of being able to consume news on the Internet upon demand rather than having to wait for a specific item of interest on television news. Francisco pointed out that with Internet-based news "you can focus on what you want" whereas with television news "you have to hear the entire program because you don't know when they are going to offer it."

Other informational uses that drew the attention of various participants included employment, medical, and immigration uses. Arsenio, a diabetic, used the Internet to

find medical information about his condition as well as a recent illness of his wife. Among the things that most impressed him about the Internet, he listed "the prescriptions for medicine, of how to treat illnesses" and "finding information about the illness and how to treat it."

Arsenio also speculated about the future use of the Internet by his daughter for "more than anything for employment" and went on to state: "If you put together a business it's really easy." Alonzo, who worked in a plant nursery, specifically wanted to know "how would you go about finding out if there is work in a nursery?" and was extremely interested in the process of using an online employment service that ultimately led to a job posting for a nursery manager in Texas. Claudia, as mentioned earlier, successfully used the Internet to research her professional aspirations of becoming a nurse in Georgia.

Francisco and Claudia were unique among participants for using the Internet for commercial purposes. At the time that they gained access to the Internet they were actively looking for a house to purchase. Carlos reported that they had visited websites that listed several homes that were for sale locally, and that the online information was more thorough than the information that was available in print-based real estate publications. They also visited the websites of retail stores with local outlets and reported that they found bargains online that they would not have discovered otherwise.

Marta, Guillermo, Irving, Francisco, and Claudia brought up the use of the Internet for immigration information. Marta, whose Internet exposure was limited to three sessions, mentioned immigration information as an impressive feature of the Internet. Guillermo, Irving, Francisco, and Claudia made frequent use of this

informational resource from their homes. Guillermo stressed the importance of up-to-date immigration information when he stated that it is "very important for us to be able to stay informed about immigration, about what is going on." On one of my visits, Irving was accessing immigration information when I arrived. Irving noted frequent visits to the Immigration and Naturalization Service (INS) website to seek the latest information and he and Guillermo both reported that they had been called upon by Salvadoran neighbors for immigration assistance. Claudia and Francisco were also successful at using the Internet for immigration purposes, and were able to access information about Claudia's specific case.

Learning English. The possibility of using the Internet as a way to improve their English skills interested several participants. Raul, who was especially insightful about this potential use, felt that after living in the U.S. for more than 10 years he could speak English adequately, but he was dissatisfied with his English writing ability. He pointed out that while searching the Internet he not only read English but also received writing practice "because you are writing various things to look for what you need, to practice your writing." Fernando, after practicing with an online English lesson prepared by the researcher stated, "the lesson that you did was impressive" and that "someone could study English in their home and it would be easier than studying from a book." When asked to advise an imaginary friend who was considering Internet access, Fernando's recommendations included the suggestion that "he can learn how to speak English or any other thing that interests him."

Guillermo and Irving also described how Internet use provided practice with English. Guillermo's words "you see the text and then you figure out how to understand

it" were followed by Irving's observation that "you won't understand everything in English. You understand a word here and a word there but you don't understand everything."

Guillermo recounted his experiences receiving computer training in El Salvador where "Word, Excel, everything was in English" and compared it to his current use of the Internet which also required frequent interaction with English-based content and programs. Guillermo's final observation was especially compelling:

> Almost everything on the computer, all of the messages, is in English so you have to find a way to understand it. To find out what sort of message the computer is giving you. So you begin to remember the words, it helps a lot.

Finally, it is worth noting that Claudia reported extensive use of a computer-based program for teaching English to Spanish-speakers. Although this program was not Internet-based, its use by Claudia is worth mentioning because it was acquired through the Internet. Soon after meeting Claudia and Francisco, they asked for my help in finding a program for learning English. To my knowledge, this type of program is not available locally and would have been much more difficult to acquire without being able to find, evaluate, and purchase it via the Internet.

Entertainment

In almost all areas of Internet use there was a notable difference between the experiences of the participants whose exposure to the Internet was restricted to three sessions and the four users who had unlimited Internet access at home for more than a month. This distinction was especially apparent with the use of the Internet as a source of entertainment. Among the less experienced users, Raul and Fernando stood out for

even noticing that the Internet was a potential source of entertainment. Raul mentioned an interest in Internet-based sports news, and Fernando was notable for his assertion that the Internet could compete with television as a pastime.

In contrast, the Internet became a source of entertainment for all four of the participants who had full-time access at home. Guillermo and Irving were particularly heavy consumers of entertainment features of the Internet. They used the Internet for downloading and playing games such as soccer and chess, for music by downloading songs and listening to online radio, and for sports information. Their consumption of music was especially prodigious, so much so that their computer's hard drive became full and they began to delete songs that were no longer of interest in order to make room for new ones. They also transferred music from the Internet to CD ROMs that could be played elsewhere, and in some cases downloaded music and created CD ROMs specifically at the request of friends. Both of them seemed enchanted with this particular use of the Internet and especially liked being able to acquire one specific song that they liked without having to buy an entire musical CD. As Irving said "you can make it like you want it."

Sports information was also a major focus for Guillermo and Irving, in part, because the World Cup soccer tournament took place soon after they acquired a high speed Internet connection in their home. They claimed that the coverage of this international event on the Internet was much more comprehensive than from any locally available news source, including television. In the words of Guillermo "anything we want to know about the World Cup we find out on the computer." Guillermo further reported that he was repeatedly queried for World Cup information by other Salvadoran

acquaintances, and that he shared information by printing out daily lists of "all of the different groups and where and when they would play, which stadium, etc."

For Francisco and Claudia, the Internet supplemented television as source of entertainment. A favorite website of both was Univision.com, the portal of a major Spanish language television station. Claudia reported frequent consumption of news from Univision.com, while Carlos noted that much of the news from this website consisted of "gossip about actors" and television program schedules.

Process

As participants in this study became increasingly competent and familiar users of the Internet it was possible to discern four stages of development: awareness, assisted interaction, foraging, and focused exploration.

Awareness. All participants entered the awareness stage by default when they first became aware of the Internet's existence. For some participants this stage began when they were invited to join the study, but others had already heard of the Internet through other sources. For Arsenio and Alonzo, awareness came via television. Alonzo first heard of the Internet in an advertisement, while Arsenio's first exposure came from a drama from a station in Miami called Christina, "in which they speak of the Internet through which many people get married, through the Internet they get to know each other." The awareness stage was quite long for Raul who claimed to have heard about the Internet several years ago but who " didn't have any idea what it was used for and never thought that I would give it a try."

Assisted Interaction. The assisted interaction stage began for all participants soon after their entry into this study, when they accessed and interacted with the Internet for

the first time. During this stage, all participants had to learn how to use a web browser and all but two had to learn how to use a computer. A few participants mastered these tasks with ease, but most required a relatively high level of assistance during this stage in order to access content and begin the process of learning to use the Internet.

Some participants, such as Juan, whose large work hardened hands were obviously more accustomed to his role as a manual laborer at a nursery, found it especially difficult to master the mysterious mechanical trio of mouse, keyboard, and monitor. During the training sessions that took place at a university computer laboratory it was quite common to find Juan or other participants staring helplessly at the monitor wondering what to do next after an errant click of the mouse that caused the browser window to disappear, or some other incomprehensible occurrence that required assistance, had brought their Internet exploration to a halt. During home-based training, frequent intervention and guidance was also required for browsing to progress smoothly.

Foraging Stage. Participants who moved beyond assisted interaction entered the foraging stage, in which they navigated the Internet with a high level of independence and were able to find information and resolve many problems on their own. Some participants never reached this stage while others, because of innate ability or prior experience with computers, progressed into the foraging stage very quickly. Raul, for example, with no prior computer experience and minimal instruction, was able to explore the Internet independently at both the university and the public library, with no observable difficulty. As he recounted his first encounter with the Internet at the university, he expressed surprise at how quickly the time passed. Irving also entered the foraging stage quite easily. After a few minutes of training he was able to navigate the

Internet independently, while his father, Fernando, the beneficiary of two prior training sessions, still needed frequent assistance. Irving offered a simplistic description of his first experience in the foraging stage as "like with a book, the more you look the more you find."

Focused Exploration. Only the participants who had Internet access in their home for an extended period of time reached the final stage, focused exploration. This relatively advanced stage was marked by a higher level of competence and increasingly creative uses of the Internet, both of which were manifest in more detailed descriptions of participants' accomplishments.

Irving, who earlier had used the familiar metaphor of a book to describe his first Internet experience, demonstrated an enriched vocabulary when he described the process of how he had found immigration information. His statement "I looked from univision.com and used the keyword 'immigration'" included both the address of a website and the use of the word "keyword" to label the process of entering a term into a search engine. Irving also described how he would sometimes start by exploring a "small idea" which would in turn lead to more information and inspire further ideas. Like Irving, Guillermo reported the use of search engines, such as "Google," and he also used software to translate English content. Guillermo also became very skillful at using audio software known as RealAudio, which allowed him to rapidly access a long list of online radio stations from around the world.

Facilitation of Adaptation

Question six asks "In what ways does gaining access to and learning to use the Internet, facilitate participants' adaptation to life in this country?" Three categories

emerged from the data in response to this question: removal of informational barriers, information access in native language, and home country connection. Each of these three categories encapsulate ways in which Internet access and use can impact adaptation; however, the latter two categories challenge an assumption which was held at the outset of this study that any effect of the Internet on adaptation would be positive.

Removal of informational barriers. Berry's model (1997, p. 15) lists coping strategies and resources among the factors that moderate the acculturation process. The results of this study suggest that Internet access and use can support coping by removing informational barriers, allowing greater access to medical, immigration, educational, and employment information. Access to immigration information offers an especially good example of how Internet access can support coping because of its use by both Irving and Claudia to deal with actual problems.

Prior to having Internet access, Claudia had filed an application with the INS and was anxious for information about the application's progress. While reading correspondence from the INS she discovered that she had been provided with a special code that could be used to retrieve information from the INS website about her specific case. With the use of this code, she was able to find out information about her case that was more up-to-date than the information that she had received most recently by mail. She was extremely pleased by the amount of immigration information available on the Internet in comparison with other sources and noted that "there (the Internet) you can learn about everything, visa dates, a mountain of things that you can't find in other places. There is no thorough information in the [non-Internet] news."

Irving's use of the Internet for immigration purposes is also instructive. The legal status of many Salvadorans in the United States, including Irving, is contingent upon a very tenuous immigration status known as Temporary Protected Status (TPS). When there is a change in the rules that govern TPS, immigrants who have achieved this status often have to act very quickly to file the appropriate papers needed to stay in compliance. When rumors reached Irving of a change in TPS that could impact him and some of his neighbors, his first resort was the Internet. A search led him to visit the website of the Immigration and Naturalization Service (INS) where he was able to successfully resolve his concerns and share the information with his neighbors.

In these two instances, Internet access put Claudia and Irving on equal footing with other, more traditional information brokers such as immigration lawyers or immigrant help organizations because they were able to easily acquire the necessary information directly from the INS. Without the empowerment provided by Internet access, the same information may have had to come from a secondhand source, and possibly would have required them to pay a fee.

Claudia's experience researching her professional goals offers another clear example of how the access to information provided by the Internet can support adaptation. As mentioned earlier, Claudia, who had been a nurse in El Salvador, wanted to practice the same profession in Georgia but had no idea what the requirements were. She started her research at Univision.com, the web portal for a Spanish language television network and followed a series of links that branched from the general theme of immigration. During the exploration she visited the websites of other immigrants with professional qualifications from their home countries, who had gone through a similar

process of re-establishing their credentials in the U.S. and were sharing their experiences via the Internet. According to Claudia, ultimately she found exactly the information that she needed and had a clear understanding of the process ahead of her and the steps that she would need to take in order to complete it.

Information Access in Native Language. None of the participants in this study spoke or read English fluently. Not surprisingly, it was observed throughout this study that participants displayed a marked preference for content in their native language. Not all of the content that interested participants was available in Spanish, but at least two participants used readily available, free translation programs to bypass this barrier. Although the ability to access information in their native language provides immediate empowerment to non-English speakers, there is room to question how it could impact their acquisition of English skills. If the need to read information in English is eliminated, the incentive and opportunity for learning to read information in English is diminished. As Claudia pointed out when asked if the Internet helped her to learn English "Yes it helps. The only thing is that now you look for the translation." In Berry's model (1997, p. 15), language is a component of the cultural distance that separates immigrants from becoming fully adapted to the host country. While the Internet may serve as a useful prosthetic for negotiating the language component of cultural distance, it also may serve as an impediment to the long-term adaptational advantage of becoming fluent in the language of the host country.

Home Country Connection. Internet access also supported a strong affinity on the part of several participants for information about their home country. This thirst for information about El Salvador included not only the anticipated categories of news and

sports, but also encompassed geographic, political, and historical information. Arsenio's example that was presented earlier of how he enjoyed finding out more about his country's president, paralleled Irving and Guillermo's extensive exploration of websites that provided geographic and historical information about El Salvador. Raul and Alonzo also expressed interest in finding out more about "my country" while, during training sessions, it was observed that news and information about El Salvador was an effective way to gain the interest of any participant. This consistently high level of interest in the country of origin was not matched by a similar level of interest in the host country.

Chapter Summary

The purpose of this study was to determine ways in which Salvadoran immigrants gain familiarity with and become competent users of the Internet. The first question that guided this study centered on the motivations of participants to access and to learn to use the Internet.

Data analysis revealed that Children provide the clearest motivation for Internet use. Participants discovered many different uses for the Internet, but these uses were rarely mentioned when they were asked if they would like to have Internet access at home. In contrast, the desire to provide their children with the perceived benefits of the Internet was consistently mentioned by participants as in response to the same question. Even participants who obviously derived a great deal of enjoyment from their interaction with the Internet invariably spoke of their children when asked whether at some point they might want Internet access.

The second question addressed barriers to Internet use. Two barriers, lack of home access and lack of time, were linked. This study's participants were very busy

people who often worked substantially more than 40 hours a week, and in most cases had families. Consequently, spare time for learning to use the Internet and, in particular, for visits to the public library to access the Internet, was limited. With participants whose interest in using the Internet was high, however, this time barrier was negated to a large degree by the convenience of Internet access at home. There was also evidence that time spent in other recreational activities, particularly in viewing television, was diverted to the Internet.

Inexperience in the use of computers was another barrier for the ten participants who had never used one. Some of these novices found it quite easy to master computers and most were able to reach an adequate level of competence with practice, but one participant never did overcome this barrier. This near universal lack of experience with computers was related to a third barrier. The participants' peer group contained almost no computer and/or Internet users who could provide facilitation and serve as role models. These two barriers taken together created a classic "chicken and egg" situation. The overall lack of computer and Internet experience within this group meant that the base of experienced computer and Internet users needed to overcome the lack of experience did not exist.

A final barrier stemmed from the rural origin of many participants, who were from an extremely remote part of El Salvador where there was little opportunity for formal education, and basic technologies such as television, telephone, and electrical service were largely non-existent until recently. Participants from this rural area had less prior exposure to computers, and overall demonstrated less interest and aptitude for both computers and the Internet.

Question three probed for participant's conceptions of the Internet and resulted in two categories: functional and systemic. Most participants conceived of the Internet strictly in terms of its functions and no amount of questioning could separate them from the notion that the Internet is what the Internet does. The exceptions were two participants who conceived of the Internet as a system made up of separate components.

Data analysis centered on the fourth question uncovered four categories of uses that participants either considered valuable or chose to utilize including, communication, information, learning English, and entertainment. The first usage category, communication, was notable more for the amount of interest that it generated rather than the amount of actual use. Many participants were intrigued by and, after a demonstration, quickly grasped the Internet's potential for communication. Few of them, however, had any acquaintances or family members with Internet access to communicate with. The one participant who did communicate extensively via the Internet was exceptional for having two cousins, one of whom was in California, who also had Internet access.

Participants used the Internet extensively for information. Informational interests included news, weather, employment, medical, immigration, and commercial information. One focus that was surprising in both its prevalence and intensity was the high degree of interest in almost any information about the home country, which extended well beyond basic news into more academic areas such as history and geography. Participants who used the Internet extensively for news also expressed an appreciation for its capacity to provide immediate and specific information upon demand.

Several participants expressed interest in the Internet's potential as a means for learning English but no substantive Internet-based English instruction was found that could be shared with them. Consequently, any actual use of the Internet for learning English was peripheral to other activities such as the occasional need to understand English content and English-based software. Two participants, who would have been candidates for online English instruction, used the Internet instead to evaluate and purchase a computer-based English course.

The Internet's potential for delivering entertainment was utilized extensively by the four participants with long-term Internet access in their homes. Their entertainment interests both included music, games, and sports. The website of a major Spanish-language television station was also a frequently visited source of entertainment that provided, among other things, information about favorite television actors and television schedules. The Internet was especially valued by two young male participants during the World Cup of Soccer, when it provided much more comprehensive information about games and schedules than locally available television.

The fifth question explored the process through which participants learned to utilize the Internet. Through analysis of the data this process was found to have four stages: awareness, assisted interaction, foraging, and focused exploration. Stage one, awareness, began whenever a participant first learned of the Internet, which, in several cases came about through this study. The second stage, assisted interaction, was characterized by a high need for facilitation in the basic use of a computer. Participants graduated into the foraging stage when they were able to use a computer to navigate the Internet with a high level of independence. This stage was also marked by a greater

ability to solve computer-related problems and find information independently. The final stage, focused exploration, was typified by even greater competence and increasingly creative uses of the Internet. Participants who reached this stage also demonstrated an enriched vocabulary of new Internet-related terms, and were able to speak more fluently about their experiences in using the Internet.

The intent of question six was to uncover ways in which Internet use facilitated participants' adaptation to life in this country. Three categories emerged from the data in response to question six. The first category, removal of informational barriers, encapsulates the ways in which the Internet supports positive adaptational outcomes by providing access to critical information that would otherwise be difficult or expensive to acquire. The latter two categories, information access in native language, and stronger connection to home country, indicate the Internet's potential for a negative impact on adaptation. The second category captures a strong preference by participants for Internet content in Spanish, and frequent use of software for translating English content into Spanish, that raises the possibility that Internet access may reduce their motivation to learn English. The third category addresses the surprising amount of interest that participants demonstrated for a broad range of information about their home country, El Salvador.

CHAPTER FIVE

DISCUSSION AND RECOMMENDATIONS

Summary

The purpose of this study was to determine the ways in which Salvadoran immigrants gain familiarity with and become competent users of the Internet. The following research questions guided this study: (a) What motivates participants to access and to learn to use the Internet? (b) What are the barriers (cultural, financial, linguistic, and otherwise) that prevent participants from making use of the Internet, or make it more difficult for them to become competent users? (c) What are participants' conceptions of the Internet? (d) Which opportunities will participants consider most valuable and choose to utilize? (e) What is the process by which participants gain familiarity with and become competent users of the Internet? (f) In what ways does gaining access to and learning to use the Internet, facilitate participants' adaptation to life in this country? This study integrated a participatory approach into a basic qualitative design. The constant comparative method of analysis was employed with the data to find consistent and recurring patterns.

Twelve Salvadoran adults who were purposefully selected and who participated in at least three training sessions were observed and interviewed for this study. Observations were made throughout the study whenever participants were accessing the Internet in my presence. Semi-structured interviews of forty-five minutes to one and a half hours were conducted with all 12 participants. A follow-up interview was held with

two participants in order to elicit additional information. Follow-up contact via telephone and social interaction also generated supplemental data.

Data analysis revealed children as the only clear motivation for Internet use. Five barriers to Internet use emerged from the data: lack of home access, computer inexperience, lack of facilitation and/or peer group support, lack of time, and rural origin. Participants' conceptions of the Internet produced two categories: functional and systemic. Internet uses by participants are encapsulated in four major categories: communication, information, learning English, and entertainment. Analysis of the process through which participants became Internet users revealed four steps: awareness of the Internet, assisted interaction, foraging, and focused exploration. The analysis of the Internet's impact on participants' adaptation to life in this country produced three major categories: removal of informational barriers, stronger connection to home country, access to news, and information in Spanish. This chapter will draw upon these findings to offer conclusions, implications for practice, and recommendations for future research.

Conclusions and Discussion

Four general conclusions were drawn from this study's findings: (1) Barriers to Internet Use Reflect the Current State of Latino usage; (2) Novice Internet Users Become Competent Through a Common Process; (3) Regular Internet Use Requires Both Access and Interest; and (4) The Internet is Both a Facilitator and a Barrier to Adaptation.

Barriers to Internet Use Reflect the Current State of Latino usage

The desire to provide the perceived benefits of Internet access to their children surfaced as a near-universal motivator among participants who were parents. Based on the results of a study reported by The Pew Internet and American Life Project, they share

this motivation with many other parents in this country. This study (Lenhart, 2000) found that within the subset of adults in the U.S. who do not yet use the Internet, parents in general were much more likely than non-parents to state that they planned on getting Internet access. Among participants in this study there was also a broadly expressed perception of the Internet's value for communication and information, which may have made a secondary contribution to motivation.

In spite of the motivation provided by children and the Internet's perceived value, actual Internet usage by members of this study was well below the national average. As of 2001 (U.S. Chamber of Commerce, 2002), 53.9% of the U.S. population reported that they had Internet access at home. In contrast, no member of this study had used the Internet prior to joining, and the two households that now have Internet access received considerable assistance in the course of acquiring it. In both cases, a computer and free initial Internet account were provided, along with any necessary training in the use of both the computer and the Internet. Even in the case of Francisco and Claudia, who purchased a used computer prior to joining this study, the machine they purchased had numerous problems and was replaced by another one in order to facilitate Internet access. Because of the high level of assistance that was required, it is highly likely that no members of this study would have surmounted the barriers to acquiring Internet access at home had it not been for the participatory nature of this study.

As a starting point for exploring this failure to overcome the barriers to Internet access, it should be pointed out that the participants in this study are not unique in this respect. As non-English-speaking Latino immigrants, they are members of a much larger demographic subset with exceptionally low levels of Internet use. The U.S. Chamber of

commerce reports that as of September 2001, only 14.1% of Hispanics who lived in households where Spanish was the only language spoken, used the Internet. This low figure contrasts with 37.6% Internet use in households where Spanish is spoken but not exclusively, and 53.9% Internet use throughout the entire U.S. population. Based on my knowledge of the local Salvadoran population, most of its members are first-generation immigrants and English is spoken in very few households. As a consequence, the majority of this population falls within the category of Latinos who are least likely to use the Internet.

It is also worth noting the possibility that Internet use among Latinos in Georgia may well be even lower than the national average because of the recent emergence of the Latino population in this state. Between the 1980 and 2000 census, the portion of Georgia's population listed as being of Hispanic origin increased from 61,000 to 435,000. If, as seems likely, more of these new arrivals live in non-English-speaking households than Latinos in states such as California and Texas with much longer histories of Latino immigration, Internet use should also be lower. If this supposition is correct, a local Salvadoran would be less likely to have direct contact with any other Latino Internet users than a Salvadoran counterpart in California.

As part of a group in which Internet access and computer use is rare, members of this study and the larger group of local Salvadorans from which they are drawn, lack the "community competence" (Blau 2002, p.52) which provides a network of informal technical support. In addition, they lack internet-using friends or family members who can serve as role models or as an incentive for Internet mediated communication.

There is evidence that a strong national trend in the growth of Internet use across all sectors of society will ultimately overcome these barriers. Most notably, the U.S. Chamber of Commerce reports that Internet use has increased dramatically among previously under-represented societal segments from 1997 to 2001 by rising from 9.2% to 25% among families that earn less than $15,000 annually, and from 11% to 31% among the overall Hispanic population. It is also worth noting that in 2002, the 9-17 age group had more Internet users (69%) than any other age group, which implies especially high use among school children. Ultimately, this national trend of increasingly high levels of Internet use among all members of this society and Salvadoran children's exposure to the Internet at school should result in the development of a user base that will provide both technical support and role models. Once this user base emerges, the most intransigent barrier to Internet use among local Salvadorans will no longer exist.

Novice Internet Users Become Competent Through a Common Process

As described in the previous chapter, participants in this study progressed through four discernible stages of development, as they became increasingly competent and familiar users of the Internet. These stages consisted of awareness, assisted interaction, foraging, and focused exploration. Although no other studies were found that described this process of learning to use the Internet in exactly the same way, there is reason to believe that the process observed in this study was not unique.

Russell (1996) in a study of 30 teachers who were learning to use email described a six-step process with many similarities to this study's four-step process. In Russell's study the first stage, awareness of the existence of the new technology, was identical to the first stage in this study. Russell's second stage "learning the process" (p. 636) which

is marked by uncertainty and extensive assistance from the teacher, is quite similar to the assisted interaction stage of this study. Russell's final four stages divide the remainder of the learning process more finely, but resemble this study's final two stages of foraging and focused exploration. During Russell's stages three and four, learners were more familiar with email technology and required less assistance in order to use it effectively. In this study participants experienced a similar level of independence during the foraging stage when they were able to navigate the Internet and resolve problems more effectively on their own. During stages five and six in Russell's study the learning is transferable to new situations and learners discover creative new uses for email. In this study stage four, focused exploration, was also distinguished by an increase in creativity and transferable uses such as Guillermo's independent discovery and use of translation tools.

The experience of this study's participants during the assisted interaction stage when they were learning to use computers to access the Internet, in particular, resembles accounts of other novices during their early interactions with computers. As new computer users, they were confronted with the unfamiliar mechanical devices of mouse and keyboard, and the need to somehow use these devices to interact with equally unfamiliar electronic facsimiles of buttons, folders, and files. Although they faced these challenges at a time when a large portion of the mainstream U.S. population had already become familiar with computers, their experiences as computer novices seems quite similar to that of other new users of computers who came before them.

Accounts by other researchers (Kuhn, 1989; Milheim, 1993 Dejoy & Mills, 1989) of the obstacle to computer use posed by lack of familiarity with computers mirror my own observation of perceptual and mechanical obstacles encountered by novice users in

this study. Dejoy and Mills' description of adult learners' difficulties with developing the necessary eye-hand coordination for computer use could serve equally well to describe the same problems that I witnessed. Several participants found it extremely difficult to develop the coordination for basic physical activities such as clicking a mouse correctly. Often, instead of using a quick single click to activate a hyperlink, a novice user would click and release the mouse so slowly that nothing would happen. The quick series of two mouse clicks needed to open a program was an especially daunting challenge for almost all novice participants, and several experienced real difficulty in coordinating movements of the mouse in their hand with movements of the mouse arrow on the computer's monitor. Using the keyboard to input text or numbers was universally challenging to novices and always required an extensive search for the right keys.

Many participants also experienced difficulties with browser windows and menus due to their lack of computer experience. On numerous occasions an inexperienced participant would click outside of the browser window, or somehow shut down the browser and have no idea of how to proceed next. The need to move the browser's scrollbar up or down in order to view the portions of a web document that did not immediately appear on the screen was another frequent source of confusion. Dropdown menus that lead to features such as bookmarks were particularly inaccessible to novice users. The combination of physical and conceptual difficulties represented by clicking and navigating a given menu presented a challenge that some participants never overcame. Although many of these problems were quite difficult to overcome and posed a major obstacle to successful use of the Internet, there is no reason to think that they were in any way unique to this study.

Regular Internet Use Requires Both Access and Interest

The participants in this study were more likely to use the Internet when easy convenient access at home was combined with a high level of interest. The four participants who took advantage of Internet access in their homes reported many more uses and demonstrated much more enthusiasm than the other participants whose Internet use was more limited. There were two principal reasons for this difference in perception and experience. The most obvious reason for this difference is that participants who had Internet access at home had many more opportunities for utilizing the Internet and become much more skilled and fluent in its use. The less apparent, but equally important reason is that the users who benefited most from Internet access at home were to a degree self-selected because of their high level of interest and/or aptitude for Internet use.

My decision to provide Irving and Guillermo's household with a computer and Internet access was based, in part, on Irving's high level of interest and aptitude for Internet use. Guillermo, who joined Irving's household afterward and also became an enthusiastic and skilled Internet user, had previous computer experience that allowed him to immediately take advantage of having Internet access at home. Claudia and Francisco were essentially self-selected because they requested to join the study in order to learn how to use a computer that they had already purchased.

In contrast, Irving's father, Fernando, showed no interest in using the Internet in spite of the fact that it was freely available in his home. When I questioned him about his lack of Internet use he explained that he felt it was very beneficial for his son to learn how to use computers and the Internet but irrelevant for his life. Marta and Mateo who had free access to the Internet via WebTV for two months but used it very little exhibited

a similar lack of interest. The experience of another participant, Raul, demonstrates the opposite scenario of high interest but limited access. Raul was obviously very intrigued by the Internet and also showed a high aptitude, but he did not have Internet access at home and had only used the Internet three times at the time of his interview. In spite of his obvious aptitude and interest, his knowledge of its uses was very limited compared to the four participants whose equally high level of interest coincided with convenient access in their homes.

The marked importance of home Internet access that was exhibited in this study may not be universal. Lazarus and Mora, who interviewed 107 low-income Internet users, of whom 40% were Hispanic, state that "large numbers of low-income people are using the Internet outside of the home (2000, p. 16)." Because their research methods relied on community technology centers, such as public housing computer labs, to find low-income Internet users, this statement is not surprising. The fact that these technology centers obviously generated a substantial amount of community Internet use does, however, suggest that participants in this study may have been more receptive to accessing the Internet outside of their homes under the right circumstances. Although the free Internet access provided by the local public library was largely unused by this study's participants, they may have reacted more positively to a public facility with Internet access in a more convenient and familiar location, such as the mobile home park in which some of them lived.

This study's finding, that Internet interest and access must both be present in order for participants to make regular use of the Internet, is significant for two reasons. First, it illustrates that members of the larger group of Latino immigrants represented by this

study can not be expected to become Internet users simply because Internet access is provided to them. Like other members of the larger society, my father comes to mind, many members of this group are likely to have no interest in using the Internet even when it is made readily available. This finding also supports the previous finding related to barriers to Internet use. In mainstream U.S. society where, as reported previously, Internet use is now above 50%, it is increasingly unusual to encounter adults who are interested in the Internet who have not taken the steps to gain access. In contrast, none of the participants in this study who were interested in the Internet achieved convenient access at home independently.

The Internet is Both a Facilitator and a Barrier to Adaptation

Berry's Framework for acculturation research (1997) places coping strategies in the middle of the acculturation process. Coping occurs as a response to the stressors that result from the cultural distance between the immigrant's society of origin and the new society the immigrant is adapting to. In Berry's model the ultimate outcome of coping, adaptation, is made up of "relatively stable changes" (p. 19) by the individual immigrant, which may be positive or negative. Positive changes contribute to a well-adapted individual who is able to manage life effectively in the adopted setting, while negative changes support the opposite effect. The access to information afforded by the Internet clearly has the potential to make positive contributions to the coping strategies of Salvadoran immigrants. In this study there were two uses that most clearly demonstrate the positive potential of the Internet: immigration assistance and employment research. There were also two uses of the Internet by this study's participants that have the potential to make a negative contribution to adaptation. One such use was the heavy consumption

of readily available Spanish-language media that could reduce the incentive to learn English. The second was the use of the Internet to sustain a connection with the country of origin that could detract from identification with this country.

Immigration information. Based on the experiences of this study's participants, the most clearly positive potential impact of Internet use on adaptation comes from having immediate access to immigration information. Many Salvadoran immigrants in this region do not have permanent residency immigration status or have a close family member who lacks this status. Those who do not have permanent residency are either here illegally or have an interim status that they have to maintain in order to remain here legally. Studies by Smart and Smart (1995a, 1995b), and Padilla et al. (1988) find that illegal immigration status can greatly increase the stress and difficulty of the adaptation process.

A principal reason for this information-related stress is that for most immigrants with a legal status short of permanent residency, there are potential rewards for vigilant attention to INS rules and processes in order to be aware of and assess changes. There are also potential hazards for those who lack access to critical information. Immigrants with an interim status may need information such as when a meeting with the INS is scheduled or how to react to a new immigration ruling by Congress that affects their status. For illegal immigrants, there is always hope that a new amnesty will appear such as the Immigration Reform and Control Act of 1986 (Runyan, 2000), which may require prompt action to receive its benefits.

My own experience with acquiring permanent residency for a foreign-born spouse, and providing interpreting services for an immigration law firm, provide first-

hand knowledge of how the process of maintaining or upgrading immigration status becomes much more stressful when critical information is lacking. At several points during the 21-month process of acquiring permanent residency for my foreign-born spouse, we both experienced feelings of frustration and often felt threatened or inconvenienced by the difficulty of acquiring timely and necessary information. At one point we were obligated to spend nine hours at the INS headquarters in Atlanta with our two-month-old child due to a lack of information about how to reschedule an appointment. In my role as an interpreter, I interacted with numerous Spanish-speaking immigrants and saw firsthand how frantic many of them were for information about the implications of a new immigration ruling.

Terrill contends that the Internet "levels the playing field for immigrants" in part, by empowering them to research governmental websites "to prepare for interviews" (2000, p. 3). Claudia's use of the INS website to find information about her specific case supports this statement by illustrating how Internet use can benefit immigrants with an interim status who may need information such as when to expect a change in their immigration status or the scheduled date of an interview. The experience of Irving illustrates the potential of Internet use to benefit the many Salvadorans whose legal status in the United States is governed by rules that occasionally change, and that may require action on their part to remain in compliance. Not only did Irving benefit by being able to use the Internet to quickly resolve his own questions about the impact of new rules on his immigration status, but several of his neighbors who were also affected by these rules also benefited. In both of these cases, the Internet was used efficiently to allay concerns

related to lack of information. The same information could have been acquired elsewhere but only at greater effort and possibly at greater cost.

Employment information. Participants' interest in using the Internet to research job information indicates potential for addressing another adaptational challenge, employment. Padilla (1988) interviewed 62 Mexican and Central American immigrants and found that not having work was the greatest psychological stressor that members of this group faced during their first year in this country. Although none of this study's participants were actively seeking employment, there were still several expressions of interest in researching job opportunities via the Internet. Claudia's experience in researching the requirements for recovering the same professional status in Georgia, as a nurse, which she had held in El Salvador, is most notable because it illustrates the effectiveness of Internet use for transcending language and cultural barriers. As recounted earlier, she found specific information listing the requirements for becoming a nurse in this state, overcame the barrier of not reading English through the use of a free online translation tool, and found a support group through websites and chatrooms that allowed her to benefit from the experiences of other Spanish-speaking professionals who had immigrated to this country.

English acquisition. The need to function in a society in which the dominant language is not their own is one of the greatest stressors that Spanish-speaking immigrants encounter in this country. Berry's framework places language as one of the most prominent components of cultural distance and numerous researchers (Espinosa & Massey, 1997; Grenier, 1984; Veltman, 1988) address the acquisition of English skills by Spanish-speaking immigrants. Graham and Cookson (1990) note that Hispanic

immigrants report a much higher rate of difficulty with English than non-Hispanic immigrants, while Curiel et al. (1993) link numerous adaptational problems to a lack of English proficiency.

Because of the obvious and well-reported impact of English proficiency on adaptation, any potential effects of Internet use on the acquisition of English skills are worth examining. Rosen (1996) reports mixed opinions from ESL students in California that he questioned about their interest in taking an English course online. One student reported that chatroom use was improving her English, but others thought that English was best learned in the physical presence of other people. In this study, the results are not just ambiguous but, to some extent, support arguments that Internet use may have both a positive and a negative impact on English proficiency. The positive implications derive from the fact that much of the Internet's content is English-based, which may spark attempts to read and write in English, and also from the Internet's potential as a medium for providing English instruction. The negative implications for English proficiency arise because participants in this study showed a marked preference for Spanish language content, and for using digital tools for translating content into Spanish whenever it was necessary to read an English document.

Several participants indicated that negotiating Internet content in English had value as a tool for learning English. Raul, as noted, felt that Internet use had a positive impact on his English writing ability because of the need to write search terms in English, while Guillermo and Irving described how the attempt to decipher English webpages and use English-based interfaces forced them to learn English words. In spite of these accounts, the avidity with which participants gravitated to Spanish-language websites

indicates a much higher comfort level with content in their native language. Furthermore, once participants discovered one of the free translation tools that are readily available on the Internet, they inevitably used it to eliminate as much as possible the tedious but instructive process of translating English documents into Spanish. In the case of Guillermo, his use of a translation tool went beyond Internet content and he also used the tool to translate paper documents.

The amount of Spanish-language content on the Internet is already massive and will only become greater, and it seems inevitable that translation tools will continue to improve in both quality and convenience. These two factors, along with the predilection of this study's participants for both, would seem to decrease the likelihood that Spanish-speaking immigrants will increase their English proficiency through casual Internet consumption.

The potentially negative impact of Internet use on English proficiency is also questionable. There is no doubt that Internet access leads to a tremendous amount of Spanish-based media, both print and audio, that would otherwise be unavailable. While the pull of this media was demonstrated in this study and there is reason to believe that many if not most Spanish-speaking Internet users will consume some portion of it, the question that arises is what other activity is this new Spanish media consumption replacing? The fact that newspapers and magazines in English or Spanish were rare in the homes of participants, while televisions, which were universal, were always tuned to Spanish-language stations and almost always on, points to a probable answer. Internet use is unlikely to supplant consumption of English-language media, but may lead to less consumption of Spanish-language television.

Some participants expressed an interest in Internet-based English training. Unfortunately, the English lessons that I succeeded in locating during the training phase of this study were too rudimentary to give an accurate assessment of the potential contribution of the Internet to English training. It is worth noting, however, that Claudia and Francisco, with my assistance, used the Internet to evaluate and purchase computer-based software for learning English and would probably have been receptive to an Internet-based English course as well.

Link to home country. A potentially adverse effect of the Internet on adaptation is suggested by the extremely high level of interest in information about El Salvador, the home country. It was not surprising that online sources of news about El Salvador were of interest to participants, but the fascination that was exhibited toward historical, political, and geographical information about El Salvador was not at all anticipated. Almost universally, participants wanted to know more about their home country, including information about the president's family, geographical features, sports teams, and pictures of all sorts. They were also very interested in Salvadoran newspapers and radio stations. At the same time there was no evidence of a comparable level of interest toward their adopted state or country or its online media outlets.

A potential reason for this anomaly is suggested in an report from The Tomás Rivera Policy Institute (2002, p. 4), which claims that there is a shortage of "culturally sensitive, language appropriate content" that is "specific to Latino community needs" produced for Latinos in this country. The report also states that just as English-language websites from other countries are likely to be less interesting to English-speaking consumers from this country, Latinos are likely to prefer "websites that are more relevant

to their local communities" than the offerings of websites from other countries. Lazarus and Mora (2000, p. 8), in a similar vein, cite a “lack of Internet content generated by ethnic communities themselves or organized around their unique cultural interests and practices” as a major barrier to Internet use by foreign-born residents. These claims of a predilection on the part of immigrants for culturally relevant content from their own communities suggest two reasons for the preference among participants in this study for content from their home country. First, it seems quite reasonable that in the mind of a Salvadoran immigrant who is not fully acculturated to this country, the "local community" is likely to be the one that he or she left behind in El Salvador. Second, the Internet erases the geographic barrier to culturally compatible content from El Salvador, which means that there is no incentive to consume less attractive content from this country.

This heavy consumption of home country Internet content echoes an earlier finding by Hemphill, Ianiro, and Raffa (1995) that native-language videos and television broadcasts from the home country performed a function of cultural maintenance in the lives of immigrants. Regardless of its function, this fascination with the home country coupled with easy access to information, has the potential to divert time and intellectual energy away from learning more about this country. It also seems likely that if Internet access were widespread within El Salvador, Salvadorans here would communicate regularly with family and friends who were left behind, via email and chat rooms. With increased access to the home country through electronic information and communication potentially reducing the incentive to establish social and political relationships within this

country, the question arises: could the Internet evolve into a surrogate home country that would form a barrier to coming to terms with the realities of living in this one?

Recommendations for Educational Practice

This study explored the implications of Internet use among a small group of Salvadoran immigrants in one U.S. community. In spite of this study being quite local in its scope, the participants are to some degree representative of the much larger state and national groups of Spanish-speaking immigrants. As such, some of its findings offer potential benefits to educators who are looking for ways to incorporate the Internet into their own practice with similar groups of Spanish-speaking immigrants. Some findings of this study may also have utility for educational practice at the state and national levels, especially since the technology use that it examines is global in nature.

One finding that seems especially significant for addressing the educational needs of adult Latino immigrants is the motivational significance of children. The desire to improve the lives of their children was a universal motivator among parents in this study and almost certainly extended to areas other than computer and Internet use. If, as seems likely, other Latino immigrants share this characteristic, any educational endeavor is likely to be viewed more favorably if it is perceived as benefiting their children. Consequently, educational initiatives for Latino adults should be designed and promoted in a way that emphasizes the benefits for Latino children whenever possible.

Educators who wish to facilitate Internet use among Latino immigrants should also be aware of this study's finding that the home seems to be the best place to learn and use the Internet. Public settings, such as a computer laboratory, may have some value for learning the basic computer skills needed to use the Internet. The experience of this

study strongly suggests, however, that the convenience of long-term Internet access in a home setting can ultimately lead to a much deeper level of learning because of frequent use. Although the significance of Internet access at home depends on individual interest and ability, the extent to which the four participants who most fully utilized Internet access in their homes surpassed all others in terms of ability, understanding, and use, leaves little doubt of its value.

Another insight from this study that may be of value to other educators is the importance of a high amount of facilitation during early encounters with computers. This study provided many opportunities to observe and interact with adults who were learning to use computers for the first time in a variety of settings. Most of these opportunities consisted of training sessions, which ranged in size from eleven participants to just one. In the first training session, with only myself and six participants in a university laboratory, the overwhelming need for facilitation was inadequately met because of my inability to keep pace with the number of requests for help. The next training session, with nine participants, ran more smoothly due to the additional facilitation provided by two bilingual friends. Even so, the need for assistance was so high that all three facilitators were exhausted at the end of the two-hour session.

During the course of this study, training sessions were conducted in the local public library, participants' homes, and my home. Ultimately, it became apparent that the computer skills needed to access the Internet were acquired most easily during small training sessions with one or two persons in the quietest possible setting. The overall experience of this study indicates that novice computer users benefit from the highest possible amount of facilitation. Other educators may benefit from this experience by

being alert for a situation in which the instructional needs are great and reducing class size or seeking additional assistance accordingly.

The use of the INS website by participants in this study offers an example of how Spanish-speaking immigrants can interact successfully with a governmental agency via the Internet. The leap by Claudia, from a paper document provided by the INS to electronic information on the INS website, offers a particularly instructive example for other governmental agencies. By successfully prompting Claudia to acquire this information via the Internet instead of phoning or writing a letter, the INS resolved a constituent's need for information at less expense for both parties. Other agencies that deal frequently with immigrants such as the Social Security Administration may be able to lessen their need for interpreting assistance and provide better service to their non-English-speaking constituency through similar strategies.

Espenshade (1986) contends that this country has a policy that attempts to govern immigration but no corresponding policy that addresses the adjustment of immigrants once they are here. At present, there is little evidence of educational programs at the state or federal level to contradict Espenshade, but history indicates that the current lack of educational programs may not be permanent. As described in Chapter 1, soon after the turn of the previous century a vigorous educational campaign was launched to address national concerns about massive immigration in that era. Since any similar campaign that takes place in the future is likely to incorporate the Internet into its educational strategy, this study's finding about the high appeal of Internet-based content from the home country could be of benefit. The heavy consumption of news and information from the country of origin implies that Internet access may foster the maintenance of ties with the

original culture and language, but it also supports an argument for using the same medium to support the learning of English and to provide culturally appropriate information about this country.

This study provides at least one indication of how such an effort could provide an incentive that would make its potential consumers more receptive. During Francisco and Claudia's interview they described a proposed change in immigration policy that they had read about on the Internet that greatly intrigued them. This policy, as they described it, would link the process of gaining permanent residency status with the behavior patterns of immigrants. Immigrants who showed their commitment to this country by learning English, and whose lifestyle demonstrated socially appropriate behavior such as steady employment, avoidance of legal problems, and prompt payment of taxes, would ultimately be rewarded with permanent residency. While the validity of this information has not been ascertained, the enthusiasm of Claudia and Francisco's reaction to it was unmistakable. Based on one article they were already thinking about how to shape their behavior to insure their membership in this exclusive group of immigrants. Claudia spoke for both when she responded to the idea of a blueprint that outlined a behavioral path to permanent residency by saying, "knowing that we have to get moving."

Claudia and Francisco may be exceptional in their level of willingness to follow a prescribed plan of adaptation, but their reaction does offer an example of the power of immigration policy to affect behavior. An upgrade in immigration status as a reward for learning English and for achieving a demonstrated level of cultural literacy, would act as a powerful incentive to achieve both. The motivation and ability that was exhibited by several of the participants in this study to use the Internet for a variety of purposes leads

to an additional recommendation: the effectiveness of such an incentive could be greatly enhanced by employing the Internet to provide access to information and educational resources that support its goals.

Recommendations for Educational Research

This study provided a unique research opportunity to participate in and examine the process that occurred as 12 adult learners interacted with an unfamiliar technology. At times, this process literally was "hands-on" because it mandated guidance in the use of hands, as well as eyes and minds, to utilize this technology. If the following recommendations for research seem unusually pragmatic, it is because they emerged from a project in which pragmatism proved to be an essential element for accomplishing the instructional and investigative goals of the research.

1) The successful introduction of a new technology requires a clear understanding of its context in participants' lives. By introducing them to the Internet, this study initiated its participants in the use of a powerful new technology with an unexplored potential to impact their lives. From the outset, this study sought to follow a participatory research model based on the introduction of new technology to resource-poor farmers, by involving its members in decision-making about the direction of the research. The rationale of farmer participatory research is that involving farmers in the research process increases the likelihood of finding or producing useful agricultural technologies (Selener, 1997). This study differed from farmer participatory research, however, in that when farmers are being introduced to unfamiliar technologies there is an obvious connection of the research to their economic activity of farming. In this study, the Internet's context within the lives of participants was not so immediately obvious.

This lack of knowledge about the Internet's significance for their lives worked against the goal of involving the members of this study as full participants in the research. This problem was especially acute in the early stages of this study when participants were asked to discuss and present problems, which could potentially be addressed through Internet access. Because they were unclear about the meaning of this new technology and what aspect of their lives that it could potentially impact, it was often difficult to elicit meaningful responses. As participants gained familiarity with the Internet it became easier to involve them in the research, but the barrier posed by the initial lack of context was one of the most difficult problems encountered in this study.

As a consequence of this initial lack of context, there was a clear split between the experience of the four members of this study who explored the Internet independently on a regular basis in their homes, and the other eight who did not. These four participants achieved a much greater level of understanding, and participated to a much greater degree in their own learning, than the other members who either did not have home access or did not use it. This high level of independent exploration greatly enhanced the participatory aspect of this study by turning these same four members into independent researchers who discovered the Internet's context in their lives by constructing it. During interviews with these participants I realized that that our student/teacher relationship was reversed, and they were teaching me about the ways in which they used the Internet for entertainment and personal enrichment. With less experienced participants this feeling of role reversal never occurred because there was much less learning and meaning to share.

The experience of this study suggests that future participatory research projects that introduce an unfamiliar new technology can benefit by being aware of whether or not

the technology has an obvious place in participants' lives. If the technology's context or meaning is not clear to participants a strategy should be included in the research design that supports the development of both. In this study the level of understanding needed to fully establish the Internet's place in the lives of participants was best achieved after several weeks of Internet access and use at home. This strategy may not be directly applicable to a different technology or a different study, but the experience of this study suggests that other researchers may benefit by being aware that a strategy of some sort may be needed.

Although this study's record of success through providing Internet access in participants homes does not provide an exact template for future research, it does make a convincing case that any future project that introduces the Internet to new users may benefit by providing similar access. In previous years this level of access would have been prohibitively expensive for many research budgets, but at present could be achieved at a much more modest cost than in the past. The price of both new and used computers has diminished greatly, and the surplus department of this university receives a steady flow of Internet-capable computers that could be re-purposed for a study such as this one. While helping participants in this study shop for a commercial Internet provider, I discovered that the local rates for good quality dial-up access are now as low as $9.00 a month. Given the proven benefits of home access, the cost of providing it seems well worthwhile.

2) Perform a study similar to this one but with more female participants. Only two of the twelve participants in this study were women. To a degree this gender bias reflects the overall makeup of the Salvadoran population in this region since four of the

participants were single males and, in my experience, single males are much more prevalent than single females. The other six male participants were married however, but only two of their wives chose to participate. The four wives who did not participate stayed busy with children and housework during home visits and displayed little interest in what the men were doing with the computer. I made it clear that this study was open to men and women and always invited all members of a household to participate. As a male from another culture, however, I was unsure about the social norms governing this behavior and did not feel comfortable about strongly encouraging male participants' wives to join in.

This lack of female participation is regrettable, especially in view of the fact that at least one of the women who did not participate does not work outside of her home. Claudia, the other homebound wife who did participate, became much more adept at using the Internet than her husband, and added a new dimension to this study by using it to support her professional interests. In addition to benefiting professionally from the Internet, she also discovered other beneficial uses, including immigration assistance, assisting her child with homework, and searching for a new home. Because of the demonstrated potential of female participation for adding additional dimensions to this study and for benefiting the female participants, a similar study with greater female involvement would seem warranted, especially if the study was conducted by a female researcher.

3) Explore the impact of Internet use by individual households on the larger Latino community. Another avenue for potential research that appeared in this study is the effect of Internet use by members of an individual household on neighbors,

acquaintances, and family members. The first inkling of a collateral effect came when one participant asked me if it would be possible to use the Internet to explore a report that a fire had destroyed a large marketplace near his community in El Salvador. When we found an article in an online Salvadoran newspaper with information and photographs about the fire, he requested that we print it out so that he could share it with his coworkers.

Evidence that surfaced later in both households that were provided with semi-permanent Internet access, indicates a potential for an Internet enabled household to become an informal community resource. As described earlier, Guillermo and Irving provided news about sporting events and immigration information to other Salvadoran acquaintances. At least two neighbors of Carlos and Claudia were also affected by their Internet access, including a young Mexican woman who frequently explored the Internet while visiting, and a neighboring Salvadoran woman who called me to ask for assistance in getting her own Internet account.

Given that many Latino immigrants are subject to informational deficits that negatively impact their lives (Curiel 1993; Garcia & Duran 1991), it would be useful to explore more fully the potential for Internet-connected households for becoming community informational resources. Ideally, a study that chose to investigate this potential resource would follow a participatory model and elicit input from community members to determine what sort of information should be targeted. Informational interests among participants in this study suggest that a website that provided basic legal advice and local information related to housing, shopping, employment, and educational opportunities would be well received.

Closing Thoughts

The focus of this study was purposefully oriented toward the future in that it examined the intersection of two phenomena; the ever-expansive role of the Internet and the ever-present informational needs of Latino immigrants, that have yet to fully converge. It is my firm belief that this convergence will occur. Carlos' description of the Internet "as an advanced communication system that encompasses practically all others" was a perceptive assessment of the Internet's propensity for enveloping other systems of communication and media that has made it an increasingly familiar and essential feature of everyday life in this country. More and more Latino immigrants can be expected to respond to this trend by turning to the Internet for information, communication, and entertainment. As they do, the extent to which Internet use will provide positive support for their adaptation to this country will depend, in part, on the creative efforts of educators. My fondest hope for this study is that it in some way contributes to those efforts.

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APPENDICES

APPENDIX A

Consent Form

Consiento participar en la siguiente investigación: *Explorando Los Usos De Nuevas Technologias de Información Por Inmigrantes Salvadoreños.*
Esta investigación está conducido por Emuel Aldridge, Departamento de Educación por Adultos, bajo la dirección de la Doctora Sharan Merriam, Departamento de Educación de Adultos. *(706-542-2214)*. Me doy cuenta que la participación en este estudio es enteramente voluntario; en cualquier momento que yo decido que no quiero participar más en este proyecto, puedo dejar de participar sin compromiso. Además, por protección adicional, tengo derecho para pedir que me devuelven, o que sea destruido, cualquiera información personal que procede del estudio.
Señor Aldridge me ha explicado bién las siguientes cosas:

1) El proposito de este estudio es para buscar la mejor forma en que inmigrantes Salvadoreños pueden utilizar los recursos informacionales del Internet para mejorar su vida aquí en Los Estados Unidos.
   Si participo en este estudio, reciberé el beneficio de lecciones introductorias en el uso de las computadoras y el Internet.

2) Lo que va pasar en el estudio es el siguiente:
   (1) Participaré en por lo menos 3 reuniones en que utilizaré una computadora para ganar aceso al Internet en mi casa.
   (2) Durante el estudio, Sr. Aldridge me va a entrevistar uno o dos veces. Las entrevistas estarán grabado con audiocassette. Las entrevistas durarán menos de una hora

3) Ninguna incomodidad está previsto por este estudio.

4) Ningun riesgo está previsto por este estudio.

5) Los resultados de este estudio seran privados. Sin mi permiso ninguna información que puede estar usado para identificarme como miembro del estudio será compartido con ninguna otra persona. Un libro será publicado sobre el estudio y los resultados del estudio, pero mi nombre y los nombres de lo demás participantes se quedarán confidencial. Si un nombre parece en el libro, será un nombre seudónimo (un nombre seudónimo quiere decir nombre imaginario). Los videocassettes y audiocassettes que estan producidos durante este estudio no estarán publicados sin mi permiso. Cuando el estudio termina, los cassettes se quedaran con Sr. Aldridge y no estarán borrados. La razon es que los cassettes van a contener información útil que puede ser utilizado en el futuro en un nuevo estudio. .

6) Sr. Aldridge contestará a cualquiera pregunta que tengo sobre la investigación, ahora mismo or en el futuro durante el curso de la investigación. El numero del teléfono del Sr. Aldridge es 1-706-549-7007.

Firma del Investigador	**Fecha**	**Firma del Participante**	**Fecha**

Por Favor, firme las dos copias de este document. Una copia es para usted para guardar. La otra copia es para el Sr. Aldridges

Las investigaciónes de La Universidad de Georgia, en que participan seres humanos, toman lugar bajo la supervisión de la Junta Institucional de Revisión (Institutional Review Board). Preguntas or problemas sobre sus derechos como participante deben de ser enviado a Julia D. Alexander, M.A., Institutional Review Board, Office of the Vice President for Research, University of Georgia, 606A Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-6514; E-Mail Address JDA@ovpr.uga.edu.

APPENDIX B
English Translation of Consent Form

I agree to participate in the research titled (Acculturation in the Age of Information. Exploring the Implications and Uses of Emergent Digital Technologies for the Adaptation of Salvadoran Immigrants.*)*, which is being conducted by *(Emuel Aldridge, Department of Adult Education, UGA, 706-549-7007)* under the direction of *(Dr. Sharan Merriam, Department of Adult Education, 706-542-2214)*. I understand that this participation is entirely voluntary; I can withdraw my consent at any time without penalty and have the results of the participation, to the extent that it can be identified as mine, returned to me, removed from the research records, or destroyed.

The following points have been explained to me:

1) The reason for the research is to determine ways in which Salvadoran immigrants can utilize informational resources that are accessible through the Internet to facilitate their adaptation to this country.
   The benefits that I may expect from it are: Introductory lessons in the use of computers and the Internet.

2) The procedures are as follows:
   (1) I will also participate in at least 3 instructional sessions in my home in which I will use a computer to access and explore the Internet.
   (2) I will participate in one or two individual interviews of approximately 1 hour duration.

3) No discomforts or stresses are foreseen.

4) No risks are foreseen.

5) The results of this participation will be confidential, and will not be released in any individually identifiable form without my prior consent, unless otherwise required by law. Although an account, and the results of this research will be published, the names of participants will be kept confidential. Any names actually published will be pseudonyms. At this point, it is not anticipated that any of the videotapes produced during the course of this research will be published in any form. Some verbatim quotes from the audio tapes will almost certainly be published in print. The tapes will be retained indefinitely because only a portion of the data that they contain will be utilized in this current research project. Given the high level of resources that will be required to produce these tapes, it would be wasteful to discard them since they could serve as a valuable source of original or comparative data for similar research that I may undertake in the future.

6) Mr. Aldridge will answer any further questions about the research, now or during the course of the project, and can be reached by telephone at. 1-706-549-7007

_____		_____	
Signature of Researcher	Date	Signature of Participant	Date

Please sign both copies of this form. Keep one and return the other to the investigator.

Research at the University of Georgia that involves human participants is overseen by the Institutional Review Board. Questions or problems regarding your rights as a participant should be addressed to Julia D. Alexander, M.A., Institutional Review Board, Office of the Vice President for Research, University of Georgia, 606A Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-6514; E-Mail Address JDA@ovpr.uga.edu.

APPENDIX C
Interview Guide

Foreword: Interviews in this study were marked by a high degree of informality due the high level of familiarity between the researcher and the participants. By the time of their interviews, all participants had taken part in at least three training sessions with the researcher and, in most cases, had a pre-existing social relationship. As a consequence, interviews invariably became an occasion for visiting and casual conversation as well. The questions below served to guide interviews and stimulate conversation, but numerous other questions were frequently interjected when they were warrented by the direction of the interview.

1. In order to use a computer, it is necessary to physically manipulate and move the little thing that we call a mouse, and to use your fingers to enter letters and numbers. Have these things been difficult for you? In what ways?
2. Speaking of computers what does the word program mean to you?
3. We have spoken a lot in this study about the internet. I would like to know in your words what is the meaning of the word "internet."
4. What is a computer? What are the components of a computer?
5. Do you think that you will one day have Internet access in your own home?
6. If you did have Internet access what would it be useful for?
7. What are some examples of things that you can you do with the Internet?
8. Think about your life here in the United States and the difficulties that you have encountered. More than anything, think of how you have had to adjust
9. to this country as a foreigner who knew little about this country and did not speak the language. Do you think that the internet could have been useful if you had had it when you arrived? If you had had access to some of the things that you have seen in the lessons?
10. Let's imagine that we are in the future and that you have a computer in your home that you know how to use very well. You know how to find anything that you want in the Internet and how to send email to other people? Under these circumstances how would the Internet be useful to you?
11. If someone were to ask you "I am thinking about buying a computer and getting a connection to the internet. Why should I do this?" What would you tell them?
12. Of everything that you have learned about the Internet what has been the most impressive? Why?
13. Do you think that the Internet will be useful for your children?
14. Why?
15. Is there anything else that you would like to say?