Bridging Divides through Technology Use:

Transnationalism and Digital Literacy Socialization

by

Silvia Cecilia Noguerón

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Graduate Supervisory Committee:

Doris Warriner, Chair
Christian Faltis
Terrence Wiley
Teresa McCarty

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ABSTRACT

In this study, I investigate the digital literacy practices of adult immigrants, and their relationship with transnational processes and practices. Specifically, I focus on their conditions of access to information and communication technologies (ICTs) in their life trajectories, their conditions of learning in a community center, and their appropriation of digital literacy practices for transnational purposes. By studying the culturally situated nature of digital literacies of adult learners with transnational affiliations, I build on recent empirical work in the fields of New Literacy Studies, sociocultural approaches to learning, and transnational studies.

In this qualitative study, I utilized ethnographic techniques for data collection, including participant observation, interviewing, and collection of material and electronic artifacts. I drew from case study approaches to analyze and present the experiences of five adult first-generation immigrant participants. I also negotiated multiple positionalities during the two phases of the study: as a participant observer and instructor's aide during the Basic Computer Skills course participants attended, and as a researcher-practitioner in the Web Design course that followed.

From these multiple vantage points, my analysis demonstrates that participants' access to ICTs is shaped by structural factors, family dynamics, and individuals' constructions of the value of digital literacies. These factors influence participants' conditions of access to material resources, such as computer equipment, and access to mentoring opportunities with members of their social networks. In addition, my analysis of the instructional practices in the classroom shows that instructors used multiple modalities, multiple languages and specialized discourses to scaffold participants' understandings of digital spaces and interfaces. Lastly, in my analysis of participants' repertoires of digital literacy practices, I found that their engagement in technology use

for purposes of communication, learning, political participation and online publishing supported their maintenance of transnational affiliations. Conversely, participants' transnational ties and resources supported their appropriation of digital literacies in everyday practice. This study concludes with a discussion on the relationship among learning, digital literacies and transnationalism, and the contributions of critical and ethnographic perspectives to the study of programs that can bridge digital inequality for minority groups.

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I approached the topic of transnationalism and digital literacies out of my interest as a language and literacy educator. However, during this study I realized how much I rely on technologies of communication to maintain my own transnational affiliations. My parents and sister have supported me in every step of my graduate studies, even when a border separates us. I am grateful for every call, email, and greeting card that they have sent my way to keep us together all these years I have lived in the U.S. I especially thank my father, who has been my technology mentor since I was a child, inviting me to sit by our home computer and learn how to navigate every new interface and program. I thank him for never letting me be afraid of computer problems, or of any challenge I may face in life.

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Chapter 1

INTRODUCTION

> *Eso era un objetivo mío cuando yo llegué a Estados Unidos. Lo primero, la computación y el idioma [inglés]. Porque eso es lo que te abre las puertas donde quiera. Tú tienes que sentirte útil donde quiera…*
>
> That was one of my goals when I arrived to the United States. First of all, computer training and the [English] language. Because that is what opens doors everywhere. You need to feel useful everywhere…
>
> (Marisa, interview, 4-9-10)

When I first met Marisa, it was shortly after her arrival to the U.S. as a political refugee. In this statement, she expressed her pride about learning computer skills at a community center. In her home country, access to technology had been limited. In spite of her higher education training as a physician, she considered English and computer skills as gate-keeping skills that shaped the progress in her new life in the United States. During my time as an English teacher in Mexico and in Arizona, I heard similar comments many times from adult learners. "*Inglés y computación"* were the keys to success and upward social mobility, as they strove to obtain a better job, a better education, or personal improvement. However, I became concerned about issues of access to these skills for adult immigrants, and wondered about their opportunities to be socialized into digital literacy practices after migration, while they were still in the process of learning English. In this dissertation, I address this concern by studying the technology use of adult learners with different immigration histories and educational backgrounds. I focus on their access to material, social, linguistic, and transnational resources related to their emergent digital literacy practices.

The spread of information and communication technologies (ICTs) in educational spaces has had a tremendous impact on the ways we think about learning,

teaching, reading, and writing. Approaches that study the nature of new literacies highlight the affordances of ICTs for students labeled "at risk," or those from culturally and linguistically diverse backgrounds. In digital spaces, minority youth are able to mobilize knowledge across geographical borders and to rely on various semiotic means to craft agentive selves, through multimodal design and communication practices (Hull, Zachert & Hibbert, 2009; Lam, 2006a; Leander, Phillips & Taylor, 2010; Vasudevan, 2006). Research documenting the efforts of after-school and community-based programs to promote technology use stresses the potential for minority students to develop 21st century skills, as well as academic identities (Cole & Distributed Literacy Consortium, 2006; Hull & Katz, 2006; Vásquez, 2003). In addition, studies of the out-of-school practices of immigrant students showcase the multilingual and multicultural repertoires they develop in their participation in digital literacy practices that connect them with global communities and audiences (Black, 2006; Lam, 2000, 2004, 2006b; McGinnis, Goostein-Stolzenberg & Costa Saliani, 2007; Yi, 2009).

However, the focus of this body of work has centered primarily on minority students at the K-12 level, documenting the digital literacy practices of youth. This research explores their identity construction through design, multilingual practices, media production and communication. Although some projects have focused on intergenerational collaboration between mentors, students, and community members in media production practices (e.g., Hull & Katz, 2006; Sandoval & Latorre, 2008; Vasudevan, 2006), the study of digital literacy practices of minority adult learners in the U.S has been limited—particularly from perspectives that view literacy as a social practice. Within household settings, the practices of African American and Latino adults have been documented in ethnographic work using critical and new literacies' perspectives (Barbatsis, Camacho & Jackson, 2004; Lewis, 2009; Menard-Warwick &

Dabach, 2004). This work describes the digital literacy practices of minority adults and the role of gender, class, and cultural identities in these practices. Research such as this provides information about the family and community resources that support novice adult learners in their technology use, as well as the reciprocal learning between parents and children (Lewis, 2009).

My dissertation study contributes to this growing body of literature by exploring the digital literacy practices of adult learners in a community center, drawing on critical and sociocultural perspectives. I examine the ways in which apprenticeship opportunities took place in various settings (a community center and participants' homes, online and offline spaces, local and transnational sites) and describe the different mediational tools that were utilized in this process. In addition, I document the online publishing efforts of a particular group of adult learners, following their learning trajectories from their development of "basic" computer skills to their understanding of the genres of website and blog design. Finally, I explore the dialectic relationship between appropriation of digital literacy practices and processes of identity construction, as novice technology users incorporate new technologies in their everyday repertoires of linguistic and literacy practices.

Adult Immigrant Learners, Technology and Social Inequality

This dissertation study documents the ways in which access to ICTs is made available for culturally and linguistically diverse adult learners. It is informed by views that forefront existing conditions of disadvantage in conversations about the digital inequality. These views stress the need to document group differences and antecedents of disadvantage, and the importance of broadening definitions of ICT access to include material resources, training, and availability of meaningful online content (DiMaggio & Hargittai, 2001; Warschauer, 2003). These perspectives help me frame the large-scale

survey data that identifies the unequal condition of Spanish-dominant immigrants in their participation in technology use, especially when compared with other foreign-born groups and with the rest of the Hispanic population.

The U.S. Census (2009a) reported that out of the total U.S. population in 2009, 12.18% were identified as foreign-born. This label refers to first-generation immigrants, including naturalized U.S. citizens, permanent residents, refugees, temporary residents and undocumented immigrants. Most of this population comes from Latin American countries (54.1%), the majority being born in Mexico (31.60%). Most employed Latin American immigrants over the age of 16 work in occupations related to service, production, transportation, and materials (50.7%). In addition, most adult Latin American immigrants over the age of 25 have less than a high school diploma as their educational background (49.3%) and this figure rises to 61.2% for immigrants born in Mexico. This information provides a context for understanding the conditions of inequality for adult immigrants of Latin American background—the largest group within the foreign-born population in the U.S.

Survey reports on digital inequality identify such background factors in the limited access of first-generation immigrants to ICTs. Other factors include educational attainment, income, residential segregation, limited social networks for ICT support and limited English skills (Ono & Zavodny, 2008). In this report, computer ownership in Spanish-speaking households was more limited than in other immigrant groups. When comparing Spanish-dominant users versus English-dominant or bilingual Latinos, the former group has been identified as having lower rates of computer ownership and Internet use (Fairlie, 2007; Fox & Livingstone, 2007; Livingstone, 2010). The ability to read English well was also identified as a factor influencing Internet use: 81% of Latinos who reported reading English well had frequent online use, versus 24% of Latinos who

reported being unable to read in English (Livingstone, Parker & Fox, 2009). In addition, when comparing first and second generation immigrants, recent survey data reports that 85% of native-born Latinos "go online," in comparison with 51% of foreign-born Latinos (Livingstone, 2010). In spite of the age differences between foreign- and native-born Latinos, this gap persisted across age groups.

As shown in this overview of surveys, access to ICTs is described as limited for first-generation immigrant users, specifically for those who are Spanish dominant. In addition, the asymmetry between Internet access in their sending and receiving nations is another factor to be considered in conversations about digital inequality (Benítez, 2006). This situation mirrors the global nature of inequality between developed and developing nations (Kuttan & Peters, 2003). For instance, national 2009 surveys in Mexico indicate that 18.4% of households have Internet access (Instituto Nacional de Estadística y Geografía, 2009), compared with 68.69% in the United States (U.S. Census, 2009b). These survey data are useful to show large-scale discrepancies across nation-states. Although they point to structural factors that may affect conditions of ICT access for immigrant Spanish-speaking adults, they do not delve into the complex nature of access beyond ownership of equipment or self-reported habits.

In order to bridge inequality in the distribution of information technologies, it is important to define them in broader terms and not only as "fixed objects" (DiMaggio & Hargittai, 2001), looking beyond their material affordances. Warschauer (2003) points to the dangers of *technological determinism* ideologies, in which access to technology is regarded as having immediate benefits, and *technological neutralism*, in which ICTs are considered to be neutral and value-free. These views parallel Street's (1993) definition of an *autonomous* model of literacy, where automatic benefits are associated with literacy skills. Warschauer (2009) calls for the application of Street's *ideological* model of

literacy to technology use. In this view, the links between literacy practices and power structures in society are made visible. In the study of digital literacies, this has the potential to point out conditions that facilitate or constrain access to technology for marginalized groups.

In my dissertation, I draw from Street's ideological approach to look closer at issues of power and inequality in technology use by an understudied segment of the U.S. population. When I noticed similar patterns in the statistics described above that pointed to first-generation immigrants' disadvantage, it seemed urgent to me to study in detail the conditions and life histories behind these figures. I worried about the potential of oversimplification of their conditions of access, especially when these data highlight only what adult immigrants *lack*: English proficiency, academic credentials, or a higher income. As a result, I chose to use qualitative and ethnographic methods to delve into the details that might inform efforts to bridge these divides.

To that end, I examine the particular efforts of one university-based program to promote access through instruction in students' native language, Spanish. This program is unique in the state of Arizona, where state policies restrict bilingual education programs and primary language support in K-12 classrooms. I document the experiences of focal participants with diverse national and educational backgrounds, immigration trajectories, and levels of English language proficiency in this particular classroom space. By doing so, I provide an in-depth look at the influence of structural factors on the use of new technologies, as well as the agency that participants exercise through their use of digital literacies, as they counter and transform deficit views on their community resources.

Promoting Access to Technology: Community-Based Programs

The role of community centers as spaces to bridge inequality is highlighted in research describing efforts to improve ICT access for marginalized groups. Servon (2002) stresses how libraries and community technology centers play a number of important roles, including the diffusion of technology and ICT training, and building social capital for low-income communities. Dewan and Riggins (2005) also emphasize the differences in service and goals for community kiosks with for-profit establishments—mirroring the spread in cybercafés in countries like Mexico, a common space where youth access Internet and computer equipment for hourly rates (Robinson & Labardini, 2005). Such efforts are strengthened when they also facilitate coalitions, networks, mobilization, and integration with already existing community resources (Warschauer, 2003). In other words, when digital literacy practices are situated first within the community needs, learners are able to practice and experience success more regularly. This differs from community centers that assume a one-size fits-all approach for all learners in ICT use (Bruce & Bishop, 2008).

For Spanish-speaking populations living in the U.S., transnational institutional and government agency agreements have mobilized resources created in immigrants' sending countries, in order to provide first-language support to their lifelong learning efforts. One instance of these arrangements is the *Plazas Comunitarias* project. Offered through the Mexican Council for Education for Life and Work, adult education modules are available online in various community centers in the U.S. They provide basic literacy, along with elementary and middle school content (Consejo Nacional de Educación para la Vida y el Trabajo, 2007). However, the possibilities to realize the potential of these programs lies within the appropriate local support, through local tutors

who have the proper preparation, and a means for outreach to community members (Gándara, 2007).

In addition, efforts made at macro-social levels are not the sole predictor of the success of such programs. Peers and family members who are competent in technology use also play a relevant role in processes of digital literacy socialization (Hargittai, 2003; Warschauer & Matuchniak, 2010). In the case of adult immigrants, these social and family networks extend beyond national borders. Examination of the transnational processes that may facilitate learning can be explored at intermediary levels between "transnationalism from above and below" (Guarnizo & Smith, 1998). Guarnizo and Smith point to the need to investigate both micro- and macro-level dimensions that shape transnational practices. Within the context of this study, I explore these macro-dimensions by examining the institutional agreements that allowed a computer course designed in Mexico to be used in the United States. Simultaneously, I explore the micro-dimensions of transnationalism in the ways a community of immigrant learners with transnational practices of their own, appropriated this course content.

Conceptual Framework and Research Questions

For purposes of this study, I draw from theories that explain and define the nature of digital literacies as culturally and socially shaped ways to understand and produce information (Snyder, 2009), based on the notion of literacy practices (Street, 1993). I consider the ways in which adult learners make sense of technology and its use in their everyday lives. I also explore the affordances of electronic environments new to novice ICT users, and the role of multimodality in their understanding of the specialized discourse of technology use (Kress, 2003; New London Group 1996). In order to address issues of power affecting participation in digital literacies, I also rely on critical

perspectives regarding the relationships between literacy and technology (Luke 2004; Warschauer, 2003; Warschauer & Ware, 2008).

To explore the face-to-face interactions that scaffolded ICT use in my research, I view learning through sociocultural and cultural historical perspectives. Specifically, I draw from concepts of situated learning and communities of practice (Lave & Wenger, 1991; Wenger, 1998), principles of mediated action and appropriation (Wertsch, 1993), and cultural historical activity theory (Cole & Engeström, 1993; Engeström, 1987, 1998). These approaches allow me to identify the various instances of apprenticeship between expert and novices, the mediating tools that facilitate learning, and the various roles and division of labor in the spaces where digital literacy socialization occurs.

I also make use of anthropological perspectives that explore adult immigrants' affiliations with and simultaneous membership in transnational social fields (Levitt & Glick Schiller, 2004). In these spaces, social practices connect immigrants with people, ideas, and texts located beyond national borders. I situate digital literacies as tools that may facilitate these connections. However, I also explore the ways existing transnational practices might support adult immigrant learners' participation in digital literacy practices. Informed by these theoretical approaches, my dissertation study addresses the following research questions and subquestions:

1. What are adult immigrants' conditions of access to ICT resources in their life trajectories? What factors facilitate access to these resources?
2. How are adult Spanish-speaking immigrants socialized into digital literacies in a transnational classroom space? What tools mediated this process? How are roles distributed among community members?

3. How do transnational affiliations support adult immigrants' participation in digital literacy practices? How does participation in digital literacy practices support adult immigrants' maintenance of transnational affiliations?

Overview of the Dissertation

In Chapter 2, I provide an overview of the three fields of study that inform my understanding of learning processes, digital literacy practices, and theories of transnationalism. I present main tenets of sociocultural theory, with particular attention to activity theory and communities of practice approaches. I then focus on literacy studies, describing New Literacy Studies, multimodality and critical perspectives. Lastly, I look at transnational approaches and their intersections with learning, literacy, and language approaches. Within each section, I also present a literature review of recent research related to the use of ICTs by minority and immigrant communities, identifying the gaps in the literature that this study seeks to fill.

In Chapter 3, I provide a description of the methodological and analytical tools that I utilize to study learning, literacy, and transnational practices of adult immigrant learners. I provide a rationale for the use of ethnographic and case study methods, explaining their appropriateness in approaching the complexity of the contexts where adult immigrant learners engage in technology use and appropriate these tools. I then describe the political, ideological, and personal contexts of the study, as well as the transnational nature of the research site, and the classroom contexts where the study took place. At the conclusion of Chapter 3, I describe the data collection and analysis processes I used to study classroom practices, participants' life trajectories, repertoires of digital literacy practices, and writing and design processes.

Chapter 4 presents the first set of findings, describing the biographical narratives of the five focal participants of this study. These case study narratives highlight

conditions of access to technology before and after migration, as well as the social capital that is required to use ICTs. I also describe participants' construction and understandings of the value of ICTs in their everyday lives, explaining the ways these understandings shape their engagement in the practices of the course.

In Chapter 5, I focus on the various elements of the classroom activity system, highlighting the ways in which mediational tools were utilized to facilitate participants' understanding of digital literacy practices. I also examine the division of labor within a transnational learning space, where an online platform allowed for local and distant tutors to interact with students and support their learning in face-to-face and online interactions. Drawing on socio-cultural perspectives on learning—in particular, activity theory (Cole & Engeström, 1993) and concepts of mediated action (Wertsch, 1993)—this analysis describes the enactment of a curriculum designed for online and remote instruction purposes.

In Chapter 6, I explore the ways in which participants appropriated digital literacy practices in their everyday routines, particularly as they relate to their maintenance of transnational affiliations. I explain this relationship in two ways: (a) by analyzing the repertoires of digital literacy practices that both supported participants' maintenance of transnational connections and their interest in appropriating digital literacy practices; and (b) by studying how participants mobilized their transnational resources in the process of online publishing. I describe the way they used tools for online communication, online publishing, and online searches, while explaining how those tools connect participants with ideas, texts, and persons located in their nations of origin. I show that there is a mutual relationship between the use of new technologies and the maintenance of transnational ties. Participants' interest in reaching family members abroad or efforts to seek information in their first language led to further

participation in digital literacies. Their appropriation of digital literacies for transnational purposes also reified and expanded their ties with their home countries.

In Chapter 7, I review the findings of this study before analyzing the ways in which they inform and complicate each other. I discuss the relationship between access to ICTs, appropriation of digital literacies, and transnationalism. I also present the implications of my study for the fields of New Literacy Studies, and for the study of transnational processes and experiences. Throughout, I foreground participants' perspectives on their experiences with ICTs, learning, and mobility. I also outline the ways this study informs methodologies to study digital literacies, while balancing multiple roles as a researcher-practitioner. I conclude with a description of the future directions and areas of research that should be pursued in order to better understand immigrants' lived experiences, digital literacy practices, and transnational affiliations.

Chapter 2

LITERATURE REVIEW

In this chapter, I present three theoretical perspectives that inform my understanding of learning processes, digital literacy practices and transnationalism with adult immigrant communities. I introduce and define theoretical concepts in: (a) sociocultural theory, with particular attention to activity theory and communities of practice approaches; (b) literacy studies, with a focus on New Literacy Studies, multimodality and critical perspectives; and (c) the study of transnationalism, especially in relation to processes of learning, literacy, and language learning. I provide a critical review of recent research in order to frame my investigation of technology use in immigrant communities. Then, I summarize the conceptual tools that guide this dissertation study.

Socio-cultural Perspectives on Learning

To study the nature of learning and participation in the use of technology, I draw from approaches that center on the social and cultural foundation of these processes. This field extends and develops the work of a group of scholars referred to as the Soviet sociohistorical school (mainly work by L.S. Vygotsky, A.N. Leont'ev and A.R. Luria). Their work departed from decontextualized and individualized understandings of interaction and cognition, and developed "a theory that highlights the rich interconnections between cultural institutions, social practices, semiotic mediation, interpersonal relationships, and the developing mind" (Minick, Stone & Forman, 1993). First, I define main concepts in sociocultural theory that help me conceptualize students' appropriation of new technologies. These concepts are the social nature of learning and development, the nature of mediated activity and the structure of the zone of proximal development. Then I focus on two post-Vygotskian approaches (Daniels, 2001) that

inform my analysis of classroom activity and interaction: cultural-historical activity theory (Cole & Engeström, 1993; Engeström, 1987) and situated learning (Lave & Wenger, 1991; Wenger, 1998).

Vygotskian Approaches: Mediation and the Social Nature of Learning

One of the main contributions of the work of Vygotsky and his colleagues was their study on the process of *mediation* in the formation of psychological process (Lantolf, 2000; Moll, 1992). Vygotsky's attention to the signs and tools humans utilize pointed to the culturally-based nature of their behavior and departed from a biological explanation for development. For instance, Vygotsky described the use of mnemonic devices such as sticks and knots in early forms of writing as signs that allowed for "a new culturally-elaborated organization of their behavior" (Vygotsky, 1978, p. 39). He distinguished between artifacts that mediate activity depending on their external or internal influence on humans. He referred to *tools* as the artifacts oriented externally and aimed to master nature, and to *signs* as the means that are aimed at internal activity, and that hence modify the individual. These types of tools are created and inherited over time, and modified across generations (Lantolf, 2000), because they are used to mediate humans' relationships with themselves and their context.

In addition to mediational means (tools and signs) supporting the transmission of cultural knowledge, their use also promoted the development of higher mental functions (Wertsch, 1988). Wertsch labels this process as the principle of *decontextualization of mediational means*, where "the meaning of signs becomes less and less dependent on the unique spatiotemporal context in which they are used" (p. 33). For instance, the use of material objects as signs to represent quantities changes when numbers are represented by abstract symbols. As a result, signs allow for the mediation of thinking about the concept of number, and for the movement towards more abstract forms of thinking about it.

Within the context of ICTs, humans interact with a wide variety of mediational means, including graphic interfaces that rely on icons, animations, and specialized discourses. These interfaces rely on shared interpretations of meaning, or a similar cultural and historical background of users. For instance, the metaphor of an office (Selfe & Selfe, 1994) is found in most versions of the Windows Operating System, with folders, documents, a recycle bin, and different layers of organization. An understanding of the features and amenities offered by a physical office is assumed to facilitate the navigation of these interfaces.

Wertsch (1993) further theorized the nature of mediated action, focusing on the interaction (and tensions) between agents and cultural tools. He describes the materiality of mediational means and their affordances for action, as they can facilitate certain aspects of activity, but they may also add limitations. Instead of looking at processes of internalization of the use of tools, Wertsch refers to the relationships between agents and tools as *appropriation*. Informed by Bakhtinian perspectives, this means making a tool one's own. In this appropriation process, there may be friction between agents and mediational means, when agents do not view tools as "belonging" to them and their repertoires of practice. For instance, when cultural tools change or evolve, agents may not rely only on their increased level of performance as the main reason to adopt them; their decision to appropriate a cultural tool may also be based on its history or associations with power and authority. In the context of information technologies, the notion of appropriation of mediational means helps frame students' decision to incorporate particular uses of software or online communication in their existing practices—or resist their use if tensions arise.

Another concept introduced in sociocultural theory to analyze interactions between learners and mentors with more expertise is the zone of proximal development.

Vygotsky defines it as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). This concept emphasizes the social nature of learning when novices and experts collaborate around a task. In contexts of schooling, creating these zones of collaboration can lead to mastering the use of cultural tools related to academic practices (Moll, 1992).

Several of the principles of sociocultural theory have been applied to the design of instructional contexts with the use of new technologies. One of the most well-known programs was developed by the Laboratory of Comparative Human Cognition (Cole & Distributed Literacy Consortium, 2006), known in its first prototype as *The Fifth Dimension*. The contributions of this program are relevant to understand the relationship between the use of technology as a mediational tool and the nature of interactions between learners and mentors. Through a university-community partnership project (UC Links) an after school program was created, where children, youth and university students explore various computer games and educational activities. In this setting, mediational tools that facilitate content and delivery of the interactions include computers, task cards, a maze with riddles and questions, and an electronic figurehead who interacts with students and mentors through computer-mediated communication. In addition, social arrangements between children and undergraduate mentors are based on the notion of the zone of proximal development: expertise is distributed across various members of this community, and in their interactions, mentors provide enough support for students to develop understanding of concepts.

In addition to studying the arrangements of social and technology resources for learning, this program has been modified to the needs of diverse groups. A version of

this program, *La Clase Mágica*, was adapted for bilingual communities, incorporating the use of two languages to make the experience culturally and linguistically relevant (Vásquez, 2003). *La Clase Mágica* maintained the use of educational computer games from the Fifth Dimension, adding content related to Mexican history and culture. An example of bilingual literacy activities include email and chat exchanges with a site community mediator ("*El Maga*"/the wizard) who codeswitched with students and volunteers to guide and monitor their way through the maze.

In addition to applying the central aspects of sociocultural theory, the Fifth Dimension project is also informed by two other aspects of Vygotsky's theoretical contributions: situated learning and cultural-historical activity theory. These two approaches consider the nature of cognition as socially distributed, instead of being contained in individual minds (Cole & Engeström, 1993). They also provide useful models to examine activities and practices within communities and institutions. In the section that follows, I highlight their main contributions to the study of teaching and learning in contexts with information and communication technologies.

Activity Theory: Collective Perspectives on Mediation

While some approaches to sociocultural theory focus on mediated action (e.g., Wertsch, 1993), scholars following an activity theory approach foreground activity systems and the social conditions of such systems as units of analysis (Daniels, 2001). Cole and Engeström (1993) define activity systems as "historically conditioned systems of relations among individuals and their proximal, culturally organized environments" (p. 8). These systems evolve over time, and have a complex mediational structure (Engeström, 1998) depicted in diagrams representing the different elements that shape human activity, and the relationships between these elements.

Engeström (1999) describes the evolution of activity theory in three generations. The first generation goes back to Vygotsky's development of the concept of mediation, creating the "classical mediational triangle" (Figure 1). This triangle represents the subject, the object and the mediating artifact the subject utilizes to act on the object. Engeström explained the shortcoming of this model was its focus solely on the individual. This limitation was addressed in the second generation of activity theory, started by the work of A. N. Leont'ev, one of Vygotsky's students.

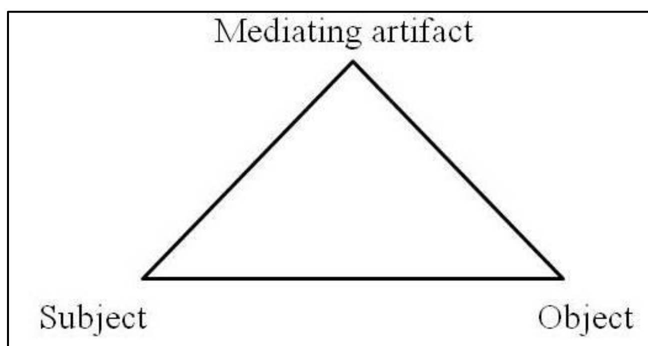


Figure 1. Classic mediational triangle (Cole & Engeström, 1993). This figure depicts the basic principles of activity: a subject acting on an object through a mediating artifact.

In Leont'ev's model, the development of the human mind should be studied through the interaction between subjects and objects. This leads to a focus on sociocultural activities that situate humans acting on the world, and hence interacting with their context and its socially developed rules (Kaptelinin & Cole, 2002). Leont'ev's work highlighted the social and community influences on activity, pointing to the role of division of labor into the model. The use of tools and artifacts is not only viewed within the individual plane, but shifts to allow for the development of collaborative work and socially distributed activity. Actions also take a different meaning within the rules and motives of the collective, beyond individual needs (Kaptelinin & Nardi, 2006). A new structure of the mediational triangle expands to include social mediators of activity: rules,

community and division of labor (Cole & Engeström, 1993; Engeström, 1987, 1998). In the third generation model, Engeström calls for the need to look beyond a single activity system, and to explore the relationships, perspectives and networks between various activity systems.

Figure 2 represents the second generation model, where at the top of the mediational triangle, the *subject* acts on the *object*, and this activity is mediated by *artifacts* (including symbols and tools). These are the “visible” elements of the activity. The elements at the bottom of the triangle depict the social, cultural and historical factors that influence the system: the *community* that subjects are part of, the *rules* of such community, and the *division of labor*, the distribution of roles and responsibilities within the activity system (Cole & Engeström, 1993). The three central elements in the system interact (subject, object and community) mediated by artifacts and the community’s rules and division of labor. This conceptual model supports our understanding of the systemic factors that influence daily practice, and that has been applied to the analysis of activities in institutions or communities. As a unit of analysis, activity systems allow for a middle-level focus between structures and everyday practice (Engeström, 1998), to explore the tensions and contradictions within systems that lead to change and development (Daniels, 2001).

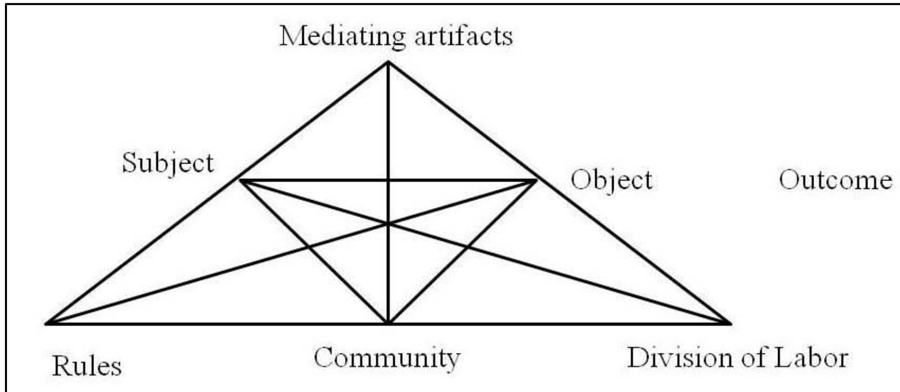


Figure 2. Engeström's (1987) model of activity theory. It incorporates the elements of rules, community and division of labor.

The application of activity theory to the study of ICTs has drawn from first and second generation models of activity theory to understand the relationship in human-computer interaction (Nardi, 1996; Kaptelinin & Nardi, 2006). It also has been used to study the implementation of ICTs in various educational and workplace settings. Within the theorization of human-computer interaction, the focus on the "classic mediational triangle" situates ICTs as mediational tools that subjects employ to act on the world:

> In activity theory *people* act *with* technology; technologies are both designed and used in the context of people with intentions and desires. People act as *subjects* in the world, constructing and instantiating their intentions and desires as *objects*. Activity theory casts the relationship between people and tools as one of *mediation*; tools mediate between people and the world. (Kaptelinin & Nardi, 2006, p. 10)

Applying this framework to the design of systems that facilitate user-system interactions allows for the analysis of technology in use, instead of studying tools and humans separately. It also provides a cultural-historical perspective to the evolution of tools-in-use, and the ways ICT use interacts with a larger social context (Kaptelinin & Nardi, 2006). In addition to exploring the way humans interact with ICTs individually, activity theory can also be used to study the ways in which ICTs connect human beings with each other (Fjeld et al., 2002). With the spread of online platforms for

communication and learning, the study of activity systems can inform the design of these tools for purposes of building virtual communities and groups. Barab, Schatz and Scheckler (2004) applied these principles to the creation of a web-based forum designed to support in-service and pre-service teachers. They utilize multiple viewpoints in their analysis, considering the perspectives of the designers, in which the online platform is the *object* of their design activity, and from the perspective of the end users (the inservice and preservice teachers) for whom the online platform is the *tool* that mediates their interaction in an online community.

Another application of activity theory in technology domains is the study of adoption of computer equipment and online resources in classrooms, from the perspectives of teachers and students (Lim, 2002). Within the context of higher education, case study research (Issroff & Scanlon 2002, Scanlon & Issroff, 2005) examines the contradictions in the classroom activity system when electronic learning tools are used. For instance, they analyze the struggles novice technology users face when management of documents shifts from printed copies to electronic copies. Jewitt (2006) also applies this model to study the use of multimodal CD-ROM resources as tools in a classroom community. As a new tool is introduced in the classroom system, a reconfiguration of relationship between the various activity elements takes place.

The activity system model proposed by Engeström is useful to analyze the various elements present in mediated activity, at the interaction level and at the systemic level. It also allows us to consider the cultural and historical background of communities and artifacts. I use this middle-level unit of analysis to explore the factors that shape the mediational means that are mobilized in a formal learning space. In addition, this model also informs my understanding of the affordances of online communication tools to shape

the learning community, when they include the participation of community members who are geographically distant. Given the transnational nature of the research site and the transnational affiliations of the members of the community, this framework provides various elements that can help theorize its complex structure.

Learning in Communities of Practice: Participation, Identity and Access

Based on the concept of cognition extending beyond the individual mind, and distributed among community members, other approaches address the ways in which knowledge is shared within social groups (Daniels, 2001). One of the most influential approaches that explored learning-in-doing within a group was presented by Jean Lave and Etienne Wenger (1991) in their text *Situated Learning: Legitimate Peripheral Participation*. In this work, they propose an analytic approach that defines learning as an integral part of social practice. Their unit of analysis, *communities of practice*, refers to "a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice." (p. 98). Communities of practice constantly renew themselves across time, as new members become apprenticed through a process of *legitimate peripheral participation.* This process transforms both the membership and identity of the new members, and the nature of the community. Legitimate peripheral participation is a lens to view learning trajectories, in which new members of a community move from a peripheral position to become "full" participants, in relation to old timers. This involves the use of artifacts and engagement in activities in recognizable ways. A view of "learning-as-doing" extends the focus of apprenticeship to the organization and structure of the community and its resources that allow learning. Even though old-timers do not engage in explicit instruction of the practices with newcomers, they do play an important role in making available resources for newcomers to gain legitimate access to social practices (Lave, 1991).

Hence, a situated learning perspective provides relevant insights on the relationship between participation, power, and identity. Peripherality can be considered either an empowering or disempowering position, depending on the structures and roles in the community. The position of "newcomer" may facilitate access to resources to master and understand social practices. However, if a person is prevented from full participation and their access to these resources is limited in the long term, peripherality becomes a form of marginalization (Wenger, 1998). The evolving nature of membership leads to the conceptualization of self, as learning is related to becoming a particular kind of person within the possibilities afforded in this system. Identities are defined as "long-term, living relations between persons and their place and participation in communities of practice" (p. 53). Identity construction within communities not only involves matters of participation, but also of recognition of newcomers as legitimate members in the process of becoming "old-timers" (Lave, 1991).

Within this perspective on power, issues of access and participation become central to understand how newcomers move from peripheral to full participants. Resources related to the mastery of a practice require access to the knowledge of "old-timers," opportunities for participation" and engagement with the "technologies of everyday practice" (Lave & Wenger, 1991, p. 101). Following the cultural-historical nature of tools described in sociocultural theory, Lave and Wenger explain that the mastery of their use connects participants with the heritage of the social practice. However, understanding this cultural significance means making visible how technologies encode aspects of social practice, because they are not always transparent. This cultural and historical information may be available to some members of the community, and this availability may be shaped by their trajectory of participation and the history of their membership (Wenger, 1991).

Since the publication of the work cited above, the concept of communities of practice has been applied in a variety of fields. Barton and Tusting (2005) attribute its widespread use to its affordances as a middle-level theory that provides an analytical tool between structure and agency. It is also helpful in the ethnographic study of groups within formal and informal settings, including the study of virtual communities. The concept of communities of practice has been used to study online participation in digital spaces (Arnold & Smith, 2003; Ardichvili et al., 2006). In later work, Wenger, White and Smith (2009) stress the potential of online platforms to support communities where learning is the central purpose. In these communities, members can learn from and with each other, in formal and informal interactions. Gee (2004) coined the notion of *affinity spaces* to provide an alternative concept to describe sites, portals, or places where individuals sharing a common endeavor interact and participate in practices conducive to their shared interests. This concept has been applied to the study of fanfiction sites (Black, 2007) and massively multiplayer online games (Steinkuehler, 2004).

However, critics of the model have pointed to its shortcomings. Engeström (2007), whose activity theory framework is described in the previous section, highlights the lack of discussion of historical patterns to organize work, and its application in organizational settings where production is fragmented (e.g., settings driven by outsourcing). He points to the effect of digital technologies in the generation of organizational forms that are not clearly bounded but are directed towards certain goals (similarly to affinity groups), and are formed by heterogeneous participants working symbiotically (e.g., communities creating and sharing open source software). From literacy perspectives, Barton and Tusting (2005) express concerns about the oversimplification of later iterations of the model, with a lesser focus on issues of power. Gee (2004) highlights the associations that the word *community* has with close personal

ties, and the multiple meanings that can be associated with the notion of "membership." This prompted his development of alternative concepts, such as affinity spaces, described above. From language learning perspectives, Kanno (1999) describes the complexities involved when language minority students work to become "full" participants in mainstream language classrooms. She explains how structural conditions may prevent their access to the resources they need to increase their participation when their knowledge and experiences position them differently in relation to other "newcomers" in classroom contexts. Haneda (2006) adds that the model does not distinguish between types of social practices, especially as they relate to schooling. For instance, certain forms of knowledge can be facilitated through explicit instruction, and not necessarily through apprenticeship.

In spite of the limitations of this approach to the study of language and literacy as situated practice, the notions of peripherality, access and participation are relevant to my investigation of the trajectories of newcomers to learning communities. Conditions that shape newcomers' participation can be illuminated through critical lenses that make visible the power asymmetry within groups. A communities of practice approach also facilitates the analysis of resources and apprenticeship opportunities beyond the classroom, including informal learning spaces. For the study of appropriation of ICTs by adult immigrant learners, this lens makes it possible to identify their positionality in various contexts, and their access to resources that facilitate or impede their participation in digital literacy practices.

Summary

To understand contexts where adult immigrant learners participate in the use of new technologies, sociocultural approaches to learning provide a framework to explore processes of mediation, apprenticeship, and interaction with various tools and community

members. For learners who are newcomers to ICT use, the concept of mediational means can support the analysis of: (a) the tools and semiotic means utilized to navigate digital spaces; and (b) the ways in which new technologies are appropriated as mediational means to engage in various social practices. An activity system approach frames the analysis of the classroom space where adult learners interacted with peers and instructors, and where the conditions of these interactions are shaped by various elements within that system—such as the norms enacted and the division of labor. Finally, a community of practice perspective supports an understanding of the trajectories of participation that adult learners go through as newcomers to ICT use. It also informs the analysis of issues of identity formation and access to resources that facilitate their learning. However, these models have limitations in the study of the multimodal and translocal nature of digital literacy practices with multilingual learners. To address these limitations, I draw from literacy and transnational perspectives to inform my understanding of the relationship between digital literacy practices and transnational affiliations.

Sociocultural Perspectives on Literacy

In this section, I provide an overview of literacy perspectives that frame the relationship between literacy and technology from a sociocultural perspective, in alignment with the learning theories presented above. First, I focus on the evolution and main tenets of New Literacy Studies, a framework that utilizes ethnographic methodologies to study literacy and technology as socially and culturally situated. Secondly, I describe multiliteracies and multimodality approaches, which have been applied in the study of new technologies to explore the ways various semiotic means are utilized to engage in digital literacy practices. Then, I review critical approaches to the study of literacy and technology that highlight issues of power and access to digital literacy for historically marginalized communities. At the end, I present a literature

review of studies informed by these perspectives, with a particular focus on research that has explored the technology use by immigrant youth, minority students and adult learners.

Literacy as a Social Practice: New Literacy Studies' Perspectives

Drawing on ethnographic methods to study literacies as cultural and situated practices, research in the field of New Literacy Studies challenged views of literacy as a solely cognitive, individualized process—as it had been traditionally studied by cognitive psychology and behavioral sciences, or the field of psycholinguistics. Baynham and Prinsloo (2009) describe the evolution of New Literacy Studies in various generations, emerging from the work of scholars in the United States and the United Kingdom, and drawing from anthropological, linguistic and sociocultural perspectives to learning.

The early generation of studies that provided a foundation in the field includes the work of Scribner and Cole (1981), Heath (1983) and Street (1984). Through the ethnographic and cross-cultural work conducted by these early scholars, the social and cultural aspects of literacy and learning processes emerged as central. Scribner and Cole (1981) drew from Vygotskian perspectives in their research with subgroups of Vai subjects in Liberia, with the purpose of studying the relationship between literacy uses and schooling. In the Vai community where they worked, individuals relied on English literacy for schooling purposes, Vai (an indigenous script) literacy for everyday affairs, and Arabic literacy for religious purposes. In their findings, Scribner and Cole argue for a *practice* approach to understand literacy within socially organized practices in context, beyond a focus on decoding and higher mental functioning (Wertsch, 1988).

In her ethnographic work in two rural communities in the Appalachians, Heath (1983) compared the uses of language and literacy of families in an African American and a white community, both of working-class background. She coined the concept of

literacy events as units of analysis, defined as “occasions in which written language is integral to the nature of participants’ interactions and their interpretive processes and strategies” (p. 98). Using this heuristic, she explored how each community had different ways of interacting and sharing knowledge surrounding print. For instance, these included events following established community social rules (such as bedtime stories). In her findings, she described how ways of talking about printed text were related to cultural ways in which children interact with caregivers. Her conclusions challenged the orality/literacy divide. For instance, in the African American community she studied, oral narratives, metaphor or recreation of scenes were the main “ways with words” and ways of knowing in families. These did not align with the literacy events that were heavily based on print, recognized and valued in school settings.

Street (2000) acknowledges the utility of the concept of literacy events, as it allows researchers to document observable situations and capture them in a “snapshot” fashion. However, as part of the ethnographic stance, it is not enough to limit only to researchers’ description, but it is also necessary to draw from the participants’ understandings, values, and experiences that explain the literacy event. Making connections between the meanings of the events and larger social issues and structures is what Street denominates as *literacy practices*. Scholars in a later generation of New Literacy Studies, like Barton and Hamilton (2000) take up Street’s definition and provide this explanation of the social and cultural aspects of this concept:

> This includes people's awareness of literacy, construction of literacy and discourses of literacy, how people talk about and make sense of literacy. These are processes internal to the individual; at the same time, practices are social processes which connect people with one another, and they include shared cognition represented in ideologies and social identities. Practices are shaped by social rules which regulate the use and distribution of texts, prescribing who may produce and have access to them. (p. 7)

In other descriptions of literacy as a social practice, Barton and Hamilton emphasize that literacy practices are embedded in cultural practices and social goals, constantly changing in processes of learning and sense making. Their contribution also points to the different types of literacies associated with various domains in life, including the household and institutions such as school or the workplace. In addition to the exploration of multiple domains, ethnographic methods are used to situate literacy in social and cultural practices within and across cultural groups. As a result, literacy is defined as multiple, expanding the notion of a single, privileged form of literacy, to multiple literacies. However, Street (2000) cautions against making this plurality a correspondence between literacy and culture. Doing so would reduce the complexity of culture as a process, where literacy is fluid, multiple and changing.

Notions of literacy as a social practice inform my understanding of events, domains and meaning-making of information technologies in cultural and historical contexts. This ethnographic stance situates literacy practices related to electronic environments beyond approaches that frame these tools as "neutral," or that situate the World Wide Web as a "global" homogeneizing space (Hawisher & Selfe, 2000). As innovations in new technologies change the nature of literacy practices, the impact of such innovations for different cultural groups and their everyday practices can be explored using literacy practices and literacy events as heuristic tools (Baynham & Prinsloo, 2001). A focus on the changing nature of literacy through technology provides a foundation for the approaches to literacy described in the following section—multiliteracies and multimodality perspectives. In addition, responses of New Literacy Studies scholars to their central tenets, and their commonalities and differences are also presented.

Literacy as Multimodal: Multiliteracies and Multimodality Perspectives

Another perspective on the multiple nature of literacy was brought up in a seminal paper by the New London Group (1996). This group was composed by scholars meeting in New London, New Hampshire, to discuss new ways to conceptualize social contexts of literacy learning (Cope & Kalantzis, 2000). They coined the term *multiliteracies*, to refer to various aspects of the plurality of literacy. One of them referred to the scope of literacy for culturally and linguistically diverse groups, looking at literacy across (and within) cultures. The other referred to the different forms in which text is represented. These forms include multiple channels and forms of communication and representation, such as images, sound or other types of media, which are commonly found in the composition of multimodal texts in online environments such as web pages or videogames. The New London Group proposed a model for a multiliteracies pedagogy, where the notion of *design* is central in ways to think about literacy, learning and teaching. In their model, available designs become resources to create meaning, utilizing the "grammars" of different semiotic systems. They also establish a relationship between the act of designing and the construction of identity: through the use of various semiotic systems, designers are able to renegotiate their representation of selves.

Kress (2003), one of the members of the New London Group, elaborates on the nature of design practices, and their role in the redefinition of literacy in a theory of *multimodality*. For instance, he (re)defines writing as: "assembling according to designs" in ways which are overt, and much more far-reaching, than they were previously. The notion of writing as 'productive' or 'creative' is also changing." (p. 6). Under a multimodal approach to learning and literacy, there is an assumption that language is partial, and meanings are made and received through a variety of modes—resources for meaning-making that can include gestures, speech, images, music—beyond speech or

writing (Kress & Jewitt, 2003). In the context of information technologies, these different modes proliferate and interact. Hence, the screen becomes a major site for texts that are no longer bound to print media or books. As a result, both reading and writing require different ways to engage with, interpret and create multimodal texts.

Street (2000) has provided a response to the New London Group's emphasis on semiotics. He refers to the initial purpose of New Literacy Studies to situate literacy as multiple, focusing on social practices in particular contexts/societies. He cautioned against the sole focus on the mode or the channel used to make meaning, with the risk of falling into a "technology/channel determinism." Social practices, Street emphasizes, should remain central in the analysis. In later work, Kress and Street (2006) pushed for a focus on the complementarity of the two theories: multimodality focuses on the study of semiotic modes and the way they are utilized in communication, while New Literacy Studies look at the uses of reading and writing in social context. They both approach the field of literacy from different positions, utilizing different theoretical tools, and are positioned in ways they can explore each other's weaknesses.

Part of the rationale to expand the definition of literacy by the New London Group (1996) was to conceptualize the "new" literacies that emerged with the dissemination of information and literacy technologies. Lankshear and Knobel (2004) made a distinction between the ways one might conceptualize the novelty of ICTs. They distinguish between *ontologically* new literacies (new in form, as in post-typographic types of texts) and *chronologically* new literacies (recent). The intersection between these two types occurs when ontologically new literacies (e.g., comic books that incorporate image and text) are distributed, enhanced and transformed in chronologically new ways (e.g., through digital electronic media). This distinction points to the fact that

there should not be a dichotomy or divide between “old” and “new” literacies, but a nuanced examination of processes of transformation, as technologies evolve.

Given the complexity and the multiple ramifications of research associated with use of ICTs, Coiro et al. (2008) suggest their study requires its own theoretical framework: “one that is grounded in the social practices of the new literacies of the Internet and other ICTs and the contexts and conditions under which these social practices occur, develop and evolve” (p.12). However, they also call for the need for interdisciplinary work, in fields such as ethnographies of cyberspace, computer-mediated communication, second language research, media literacy, language learning studies, educational technology, among others. The acquisition of literacy skills, under the framework proposed above, would involve defining literacy in ways that adapt to new technologies, along with the capacity to select when and how to use particular technologies and literacies, depending on purpose.

As part of defining the new literacies field, Coiro et al. (2008) list four characteristics of this emergent perspective. This include: (a) the affordances and new potentials of literacy practices in the use of ICTs; (b) the centrality of these practices for participation in a global community, and the power issues in terms of access (and lack of it) for some individuals in various regions in the world; (c) their changing nature and constant renewal, and the ways users keep up with them; and (d) the multimodal nature of new literacies, that require an interdisciplinary perspective. Overall, these features integrate elements from the ethnographic approach of New Literacy Studies, and the focus on semiotic systems from multimodality theory. They also bring up issues of access, addressed in larger- scale research on the digital inequality. The next section describes the need for critical ethnographic research within literacy studies that addresses these very issues with marginalized communities.

Literacy and Power: Critical Perspectives

When literacies are defined as social practices linked to cultural ways of knowing, it is necessary to examine the way that larger social structures define and value certain literacy practices over others. An important contribution from the New Literacy Studies was Street's (1993, 2003) differentiation between autonomous and ideological models of literacy. An autonomous model of literacy refers to conceptualizations of literacy as a neutral skill that will provide with automatic benefits to those who become literate (e.g., social mobility, improvement in cognitive skills). Street suggests the use of an alternative view of literacy from an *ideological* perspective, to question and unveil the power and structural forces behind the value assigned to literacy practices.

Luke (2004) also stresses the need to link ethnographic perspectives to literacy and connect them to larger levels of social analysis. He incorporates Bourdieu's notion of cultural capital, looking for ways in which certain literacy practices "carry exchange value as forms of capital" (p. 333). Within the context of schooling, institutionalized positions of power define what is constituted as valuable knowledge and ways to engage in reading and writing that are recognized (Barton & Hamilton, 2000). As a result, dominant literacy practices (e.g., academic literacies) are regarded as more visible and influential, while "vernacular" literacy practices (e.g., graffiti, instant messaging) may be ignored or marginalized. Frameworks that explore literacy as a social construction point to the role of institutions and larger social structures in reifying what constitutes literacy competence (and incompetence), and who gains access to resources to learn based on these constructions (Cook Gumperz, 2006; Luke, 1994).

In their literature review describing approaches to study literacy and technology, Warschauer and Ware (2008) identified three frameworks to study these topics in educational settings. Their analysis reveals a lack of studies looking at these issues from

a critical perspective. They describe a *learning* frame, which emphasizes the use of technology to improve learning outcomes. This framework conceptualizes technology only as another form of educational media, studying the incorporation of software for instruction purposes. A *change* framework focuses on the transformation of the concept of literacy with the emergence of new technologies, bringing about a paradigm shift in practices and conceptions of what it meant to read and write. Several of these studies focus on the use of multimedia, online communication, and use of video-games. Finally, a *power* framework focuses on the relation between digital literacy practices and their implications to empower users in social, educational and economic domains. Warschauer and Ware emphasize the need for studies under this frame to find a balance between agency and determinism. They call for research that provides examples of bottom-up agency, where students from marginalized communities are enabled to use ICTs in transformative ways, but also keeping in mind the dangers of romanticizing these practices. In an effort to situate the three frameworks in a critical and social change perspective, the authors conclude:

> A power framework can consider learning and change not as abstract ends but rather in the context of working to expand students' broader educational, social, and economic opportunities (p. 233).

Hence, a framework to view digital literacies from a critical perspective can inform the implications of these practices for the social inclusion and mobility of marginalized communities. Warschauer (2003) proposed a model that conceptualizes technology use as a social practice, embedded in socio-cultural contexts and existing power relations. This framework categorizes the following resources that work together to promote ICT use for social inclusion: (a) *physical resources*, referring to access to information technology tools, such as computer equipment and Internet connection; (b) *digital resources*, involving culturally relevant and meaningful content online, as well as

content in users' dominant languages; (c) *human resources*, describing the instruction in the affordances of ICTs, including multiple literacies and the specialized discourses and dispositions related to technology use; and finally (d) *social resources*, referring to structures at the levels of community, institutions and society, and the ways these structures allow users to build social capital through their technology use. It is relevant to note the complex way in which these resources work together and are mutually dependent on each other. As Gounari (2009) explains, material access to ICTs does not guarantee their appropriation without the knowledge to negotiate their use. Acquiring the discourses and cultural capital to operate technology is not enough either, because having access to the actual tools is necessary to materialize their use.

Power perspectives in the study of literacy and technology view ICTs as tools that are not distributed equally across cultural groups. As a result of existing inequality, lack of participation in digital literacy practices results in further marginalization of disadvantaged communities. This critical model allows me to understand the different values associated with digital literacy practices, and to focus on the study of how dominant practices related to technology are socially constructed and reproduced. In addition, Warschauer's model illuminates various conditions of access to ICTs that may be restricted to certain minority groups. For instance, this would include the predominant use of English in electronic domains that may affect the participation of language minority users in digital literacies. In order to identify findings on similar populations and gaps in the literacy studies field, the following section provides a critical literature review of research informed by New Literacy Studies, multiliteracies and critical perspectives.

Review of the Literature on Minority Students and Digital Literacy Practices

The studies reported in the following sections were informed by the literacy studies approaches described above. They fall into either the change or power perspectives proposed by Warschauer and Ware. All of these studies were conducted with historically underrepresented groups in the U.S., often portrayed as vulnerable or at-risk when their diverse background is viewed from deficit perspectives. These groups include (a) first-generation immigrant youth; (b) low-income minority youth; and (c) adult learners in basic education or ESL instruction.

Research with first-generation immigrant students. The incorporation of the use of technology with English language learners was addressed in a special issue of *TESOL Quarterly* titled *TESOL in the 21st century*. In this issue, Lam (2000) presented a study that incorporated New Literacy Studies' perspectives to analyze the intersection of technology use, design practices, identity construction and English language development. In a case study of an adolescent Asian immigrant, Lam described his participation and exchanges in online communication with other Asian fans through a Japanese pop culture website he designed. She extended the concept of identity construction through the analysis of the online communication and the design of a personal website that Almon, the focal student she worked with, engaged with. In her findings, Lam explained how Almon was able to improve his English language skills through participation and interaction with this online community. Lam's study has been cited and regarded as a breakthrough study in research on online communication and youth in the field of second language learning. This study also explores the relations between discourse, language, identity and community in online environments, the possibilities for online ethnography, the research of activity in cyberspace, and of the use of multimodality and design for identity representation (Beavis, 2008).

In subsequent studies, Lam explored language socialization practices in chat rooms in case studies of two Chinese immigrant girls (Lam, 2004; Lam 2006b), and a Hong Kong immigrant student who designed an anime multimedia website (Lam, 2006b). She found that the focal students in this study developed fluency in a hybrid variety of English by joining chat conversations with other Chinese immigrants. She found they used code-switching and Romanized forms of Cantonese, in different ways that Chinese-Americans or non-immigrant Chinese users did. This variety allowed them to create a different hybrid ethnic identity for this group of users who code-switched: a variety they were socialized in, through online communication. Another focal participant in this study had built an anime multimedia site, similar to Almon's. His site had a global reach, in which he collaborated with fans from Canada, Mexico and Australia, using English as a lingua franca. In these case studies, Lam stresses the different types of language that students used to construct transnational identities. They used varieties of global English that had an important value in their affiliation with particular online communities.

Other studies that have explored identity construction of immigrant youth learning English through participation in the use of digital literacies include the work on fanfiction writing by Black (2006, 2007), digital storytelling (Nelson, 2006), and the design of personal web spaces (McGinnis et al., 2007). Black (2006, 2007) documented the fanfiction writing practices of students who identified themselves as English language learners. She analyzed the content of their stories and the identities they constructed as writers and participants in a larger anime fanfiction writing community. Nelson (2006) studied the experiences of international college students from Asian backgrounds in a multimodal composition course. In their creation of multimodal narratives, they found ways to represent their bi/cultural identities using visual and pictorial modes and multiple

linguistic codes. Nelson found they relied on “semiotic richness and hybridity, both linguistic and extralinguistic, [which] could only serve to increase the possibility of emergent knowledge, which may in turn positively affect intellectual and affective development” (p.71). Finally, McGinnis et al. (2007) documented the different aspects of narration and representation of transnational selves of immigrant youth who were Colombian, American-Bengali, and Jewish American. The authors analyze their production of weblogs/personal webpages such as MySpace to examine the way in which they maintain transnational connections. They also emphasized the multiplicity of languages, media and identifications that these students portrayed and performed in their websites.

This body of work explores the intersection between language, culture, identity and participation in several forms of online communication and representation of the self for first-generation immigrant students who are also learning English as a second language. Participation in online communication allows for these young users to improve their mastery in certain varieties of English (Lam, 2004), and for their writing to be scaffolded in affinity spaces (Black, 2006). In these studies, there is a focus on the identities these students construct as successful users of English, along with identities as knowledgeable members of affinity groups. Their transnational and hybrid affiliations are also highlighted in some of this work (Lam, 2006b; McGinnis et al., 2007, Nelson, 2006), as well as the possibilities for language maintenance through their communication with networks in their home countries.

However, issues of access to computer equipment, Internet connectivity or mentoring in digital literacy practices are peripheral to these studies. Almon, from Lam’s study (2000) was initially introduced to email and other forms of online communication in a class he took at a junior college; and multimodal composition was the focus of the

class where Nelson (2006) conducted his study. Hence, it can be inferred that access to technology in school-like environments was useful to some of the studies' participants, while access to home equipment (where data was collected for some of them) and to mentoring and networking opportunities online (e.g., Black, 2007) were key for participants to further develop their digital literacy skills. Nevertheless, as the studies focus on youth who were already proficient in personal web design, email communication and online interaction, their paths to master these practices are not the central aspect of this work. In addition, most of these studies focus on immigrants from Asian descent, with a limited representation of Latino/a students (in McGinnis et al., 2007). The focus on student populations who have been positioned and identified as "at-risk," are presented in the section that follows.

Research with minority students. While the focus on the work cited above was first-generation immigrant youth, literature on the digital inequality in the U.S. (DiMaggio & Hargittai, 2001; Servon, 2002; Warschauer, 2003) highlights the need to bridge differences for communities who remain marginalized from the use of ICTs. This marginalization is viewed as a result of a history of economic and social disadvantage that existed prior to the spread of ICTs. Part of the efforts to create further access to this population include the creation of spaces and programs serving these communities, analyzing their effect after programs have been implemented.

An after-school program informed by multiliteracies/multimodality perspectives is an extension of the University- Community Links projects described earlier in this chapter. In the Digital Underground Storytelling for Youth (DUSTY) project in Oakland, California, middle and high school students from different ethnicities create digital stories using images, sounds and animation. Hull and Nelson (2005) describe this community technology center, which was "conceptualized from the outset as a mechanism for

making powerful forms of signification (tools for and practices of digital multimodal composing) available to children and adults who did not otherwise have such access at home or at school" (p. 230). The community they worked with included African American residents and first-generation immigrants from Southeast Asia, Mexico and South America. The center provided digital storytelling lessons, where users created their own digital stories and displayed them for a local audience. Hull and Nelson describe in detail the affordances of multimodal composition of one particular digital storyteller, explaining the complexities of the use of multiple modes as a whole, that differs from the meaning allocated to a single mode (music, images, text). Work in this site also emphasizes the possibilities for individuals to "define and redefine themselves, voicing agentive selves through the creation of multimodal texts" (p. 71, Hull & Katz, 2006).

Another set of programs also started with an agenda of change and community transformation, drawing from critical perspectives. Lankshear and Knobel (2005) report on the applications of Freirean pedagogy approaches with a marginalized Aboriginal community in Brisbane, Australia. The project GRUNT started with a community center for youth supported by performance artists/cultural animateurs. Activities that were part of the site during its onset in 1992 included the production of "socially-based performance art" (p. 294) and job training for disadvantaged youth in the area. In the late 1990s, the GRUNT community sites had desktop computers, Internet connection and multimedia equipment (scanners, HTML editors, video cameras, etc.). Web-based projects were added to the cultural production of Youth Theatre conducted in this center. Young members created collages and websites representing the valley where they lived, and compiled and published texts and poetry. Lankshear and Knobel describe this center as a site to validate marginal voices and identities, where they could produce alternative

texts and readings to “name” and “codify” the world, following Freire’s terms. The authors recommended the use of ICTs for critical, liberatory and dialogical purposes in education.

Sandoval and Latorre (2008) reported on a similar community activism group that also added the use of ICTs in their work with minority youth. They described the work started by Judy Baca, an urban muralist in Los Angeles who helped found the Social and Public Art Resource Center (SPARC), a community arts organization. In the mid 1990s, a laboratory incorporating ICTs for art production was founded within SPARC: the César Chávez Digital Mural Lab. It is in this site where Baca moved to work with youth on “digital artivism,” a convergence between activism and artistic production, where the use of digital media is viewed as liberatory. Through summer youth programs, courses and other outreach efforts in this center, Judy Baca engaged youth in the affordances and power of digital murals with a socially conscious message, such as the questioning of racial stereotypes, and representation of ethnic populations.

Vasudevan (2006) drew on multimodal counterstorytelling in her work with African American adolescent boys in urban neighborhoods. She worked with the boys to “digitally document and story neighborhoods, imagined fictions, experienced realities, and many other dimensions of our lives” (p. 207). The knowledge and identities they created through their media production provided an alternative view of their identities in school. For example, one of the participants, Romeo, represented himself as a storyteller and art historian, disrupting his identity at school as a disengaged student. Vasudevan highlights the power of representation through multiple modes for youth traditionally constructed “at risk” to author and perform their selves differently.

The programs described above provide alternative visions of minority youth that have been represented in the digital divide literature as marginalized from access to skills

and equipment to use ICTs. Not only are these programs providing the physical access to equipment and tools; they also involve the crucial work of mentors with expertise who scaffold their learning, and extend the mentorship by already established community leaders and activists. Their focus on the social context of the community incorporates the concept of "culture" in a less fixed, top-down way. These programs indicate a move towards the exploration of "literacies that are multimodal, aesthetically alert, and morally attuned" (Hull & Nelson, 2009, p. 2). The nature of cultural production for youth traditionally and historically marginalized fosters the creation of new identities and possibilities. In addition, it socializes them into the use of digital tools to produce these texts.

These paths to access and socialization to produce counternarratives through ICT use align with the power framework described by Warschauer and Ware (2008). In these projects, the history of marginalization is recognized but spaces for agency and transformation are built through the use of new technologies. As a result, participating in digital literacy practices becomes a means to a larger end; it is not as the primary purpose of these spaces. However, most of the projects described in these past two sections have focused on immigrant and minority *youth*, indicating a gap in the study of digital literacy socialization of *adult* learners. The following section presents the research conducted with this population, including the work with adult Spanish-speaking immigrants.

Research with adult learners and families. A few studies informed by literacy studies have focused on the digital literacy practices of adult learners with a limited educational background. Barton et al. (2007) examined cases of adults and young adults in community centers, shelters or other institutions in England. They explored their learning experiences, transitions and practices surrounding literacy, numeracy and English language learning. A few of the reported cases described participation in digital

literacy practices in their everyday lives, for purposes of leisure or information in areas of their interest. They also reported the cases of immigrant and refugee families, with an increased use of email for transnational communication. However, they found that younger members of the family relied more frequently on the use of ICTs for that purpose, compared to older family members. Frank (2001) also documented the understandings and practices of adult learners in northwest England, when they participated in a "Computer for the Terrified" course. Participants expressed that keeping up with the use of computers with family members (especially their children) was an important reason to join the class. They identified the power reversal in their families, when their children had more expertise than they did in this domain.

Snyder, Angus and Sutherland-Smith (2002) examined home and school digital literacy practices of families from different socioeconomic backgrounds in Australia. Snyder et al. found that each family appropriated technology into their norms, values and lifestyles. They described how families with a higher socio-economic status supported digital literacy practices that aligned with school uses of technology. Their dispositions and values towards technology use were those recognized and valued in school settings. Also informed by theories of cultural capital and social reproduction, Menard-Warwick and Dabach (2004) explored differential technology use in immigrant families of Mexican origin in California. They found influences of gender and class in the digital literacy practices they engaged in. For instance, male participants had better access to computer equipment in their workplace. Also, the focal family that benefited the most from computer instruction was the one with higher educational background and a larger transnational network of acquaintances and relatives with technology access.

Overall, the studies cited above include ethnographic accounts and critical perspectives on the study of technology use of adult learners. They address how class,

gender and age shape their participation in digital literacy practices. However, they do not describe in detail the linguistic and transnational practices that research conducted with immigrant youth does, or the ways that new technologies support these practices. This work does not address either the potential of design practices for the reconstruction of identities in powerful positions, or the composition of counternarratives; practices that have been the focus of the work done in community centers serving minority youth. In addition, only a few studies include immigrant adults as focal participants, pointing to a gap in research with this population in the fields of New Literacy Studies and multimodality.

Summary

New Literacy Studies and Multimodality perspectives provide powerful theoretical concepts to make these theories central in the study of practices facilitated and transformed by information technologies. An ethnographic approach allows me to investigate the cultural and social nature of digital literacy practices, and the meaning-making process of communities where these practices take place. A multimodal approach focuses on the various semiotic resources that are involved in the design, reading and interaction practices in online spaces. These resources form part of a "metalanguage" or specialized discourse that novice technology users are socialized in. Finally, a critical perspective permits the identification of factors that may facilitate or impede access to participation in digital literacy practices for minority learners. However, given the scarcity of studies that focus on the experiences of adult immigrant learners, the relationship between their use of technology and their ongoing transnational affiliations with their home countries still remain understudied in these fields. In order to examine literacies in local/global contexts, the next section focuses on transnational perspectives in the study of social practices in immigrant communities.

Transnational Perspectives and Social Practices

The mobilization of economic, linguistic and cultural flows has been studied in contexts of transnational migration and cultural aspects of globalization (Appadurai, 1996). Research informed by anthropology and cultural studies (Basch, Glick Schiller & Szanton Blanc, 1994; Mahler, 2001; Miller & Slater, 2000; Smith, 1996; Valverde, 2002) has explored how communication tools—letters, conference calling, mobile phones, and computer-mediated communication—have been utilized by immigrant communities to create and maintain transnational ties. In this section, I provide an overview of the main concepts informing a transnational approach to study the ways in which immigrants develop, maintain and nurture their networks and relations with their home country, and the ways this framework intersects with theories of literacy, language and learning.

Transnationalism: Anthropological Approaches

The concept of transnationalism emerged partly out of the need to understand how immigrants maintain relationships with *both* their sending and receiving nations (Levitt & Glick Schiller, 2004). They do not necessarily abandon practices and ties of one nation to belong to the other, as linear processes of acculturation or assimilation would maintain. As opposed to models that describe a "bounded" nature of policies and practices that are contained and enforced within nation-states (Guarnizo & Smith, 1998), "unbounded" models explore the ways in which immigrants create new spaces where these multiple affiliations are maintained (Warriner, 2007). Basch, Glick Schiller and Szanton Blanc (1994) proposed a definition of "transnational social fields" in which individuals actively build spaces that extend across geographical and socio-political borders, and are able to link their practices, relationships and affiliations in both countries. Basch et al. use the term *transmigrant* instead of the label immigrant, to

indicate these ties maintain affiliations across national borders. This simultaneous membership has an impact at a micro and macro level, as they describe here:

> Our definition of transnationalism allows us to analyze the "lived" and fluid experiences of individuals who act in ways that challenge our previous conflation of geographic space and social identity. This definition also will enable us to see the ways transmigrants are transformed by their transnational practices and how these practices affect the nation-states of the transmigrants' origin and settlement. (Basch, Glick Schiller, Szanton Blanc, 1994, p. 8).

As Basch et al. point out, not only do these transnational spaces shape the lived experiences of immigrants, but also the communities in their receiving and sending countries. Different scales of analysis have been defined as transnational processes from “above” and “below” (Guarnizo & Smith, 1998), referring to: (a) changes and transactions at the institutional or structural level and (b) local and grassroot practices immigrants participate in. Basch et al. (1994) acknowledge how these levels interact in their model, in regards to the relationship between agency and hegemony. Immigrants’ identities are constructed and reproduced by positions and labels assigned in two nation-states (e.g., race, ethnicity), but also, in their daily lives, they create transnational social fields through situated social practices.

Transnational studies as a field focuses on phenomena at these various levels. For instance, some studies address transnational practice or processes across space, across time, or across contexts, such as shifts on human rights movement in the past and present, or adoption of practices at the workplace or household contexts (Khagram & Levitt, 2008). Another focus of study includes the flows of information and texts travelling through networks within transnational social fields. Levitt’s work with Dominican immigrants (2001) focused on the circulation of these practices. She used the term *social remittances* to refer to “ideas, behaviors, identities, and social capital that flow from host-to sending-country communities” (p. 54). These social and cultural forms

of knowledge are mobilized through physical visits of immigrants in the U.S. to their hometowns, or through exchanges of media via communication technologies, such as telephone calls, videos or email communication. Given the increasing spread and speed of ICTs, the flows of social remittances can take place through various channels and platforms.

However, the sole presence of a particular technology does not guarantee its use. As cultural tools (Hawisher & Selfe, 2000; Miller & Slater, 2000), their appropriation in everyday practices is influenced by other factors, such as generational status, class, history of settlement, cultural capital, and access to these tools (Panagakos & Horst, 2006). In the case of adult immigrants, many of these economic and cultural barriers make their appropriation of ICTs for transnational communication a complex process. Research informed primarily by anthropological and transnational perspectives has explored some of these difficulties, considering transnational infrastructures for ICT use, ease of access and social/family relationships that mutually shape and are affected by these practices.

Mahler (2001) pointed to the fact that in transnational research, an emphasis has been placed on the nature of the ties that immigrants maintain, but not necessarily on the means and processes to maintain these connections. She points to the lack of infrastructure for telephone communication technologies in rural areas for immigrants trying to reach relatives in El Salvador. She explored the ways these gaps in communication increase stress in marital relationship, when spouses do not hear from each other for long periods of time. In a more recent study, Benítez (2006) came across similar findings with Salvadoran immigrant communities and the existence of generational and class divides. He found that young people in both the sending and receiving countries had more frequent access to ICTs than older users. In addition, a

class divide within the immigrant community in the U.S. resulted in better educated users benefitting more from online resources for family communication and participation in diasporic online communities.

Wilding (2006) found similar patterns in class and generational practices shaping the appropriation of ICTs by transnational families living in Australia. She explains how the ease and speed of communication did not necessarily create stronger family ties. For instance, if a relationship was strained prior to ICT use, the use of communication tools may not necessarily create a stronger bond. In addition, her findings also point to the lack of appropriation of email communication by older family members, who relied on younger relatives to print, send or receive email messages from them, or simply preferred regular mail and telephone. Economic factors also shaped the adoption of these practices on both ends of communication. Relatives living in underdeveloped areas did not have the house or community infrastructure for telephone or online communication. In addition, the low incomes of their relatives in Australia restricted their means to afford phone cards or more costly communication technologies, even when the receiving country had the necessary infrastructure.

Overall, this body of research points to the various factors that shape the appropriation of ICTs for immigrant communities with economic limitations, both in their sending and receiving nations. They highlight the impact of a transnational digital divide, describing the complexity of language and literacy practices that are common in immigrant /bicultural communities. In addition, it is relevant to link the nature of these practices to educational opportunities for immigrant learners. Transnational approaches help explain how people connect with flows of information from local and transnational sources. However, what are the implications of these connections for our understanding of processes of learning and socialization? The following section addresses this question,

looking at research and theoretical models that incorporate transnational, language, and learning perspectives.

Transnationalism and Learning, Literacy and Language

As students travel across multiple spaces, theoretical models of learning need to account for ways to capitalize on students' knowledge and repertoires of practice (Gutierrez & Rogoff, 2003) informed by their cultural background. Gutierrez (2008) used the term of *third space* to theorize the pedagogical space where knowledge from formal/informal, official/unofficial spaces intersects, and the multiple places where students learn and interact are acknowledged. Leander et al. (2010) build on similar perspectives, stressing the potential of the resources for learning that people access when they move across contexts. They introduced the term of *geographies of learning* as a conceptual tool that can help address questions such as: "[h]ow are the dynamically moving elements of social systems and distributions, including people themselves and all manner of resources for learning as well, configured and reconfigured across space and time to create opportunities to learn?" (p. 331). In this view, the definition of learning site is no longer limited by physical boundaries. People may expand their learning environments beyond face-to-face interaction, formal and informal learning spaces, and local/transnational spaces. This notion of expanded geographies of learning aligns with the potential of a transnational lens applied to educational sites for immigrant learners. We can focus on identity construction processes and transnational ties as objects of study, but also considering how these processes support immigrants' opportunities for lifelong learning after migration.

Within the field of New Literacy Studies described in the previous section, recent theoretical and research developments move towards looking beyond the "local" (Baynham & Prinsloo, 2009; Brandt & Clinton, 2002; Street, 2005; Warriner, 2009), and

adopting translocal and transnational perspectives to understand how texts and practices travel, how they are produced and consumed in various contexts, and how they are transformed (and transform) their readers/consumers. Within these new directions, the study of transnational literacies addresses the different "written language practices of people who are involved in activities that span national boundaries" (Jiménez, Smith & Teague, 2009, p. 17). The study of literacy practices that transcend geographical boundaries and connect individuals across them intersects with studies of language, identity, power and multimodality. Transnational literacy practices are situated within contexts where they are assigned a value, and may be constructed differently. They can be considered either emancipatory or transformative resources, or as a means to reproduce existing inequalities (Warriner, 2007). In addition, they are situated in communities where multilingual and multimodal practices shape and are also transformed by transnational flows of information and ideas (Hornberger, 2007).

Jacquemet (2005) proposes a theoretical tool to frame the linguistic interaction in transnational contexts that draw on multiple semiotic systems—a common feature of electronic media use. Focusing on the intersection between mobile texts, mobile people and multiple languages, he coined the term *transidiomatic practices* to define the communicative practices of members of transnational communities in interaction with both local and distant audiences, where multilingual talk and electronic media are present. Participants in these practices are situated in transnational environments where "talk is mediated by deterritorialized technologies" (p. 265) and linguistic innovations are likely to emerge.

Another theoretical concept that integrates the use of multiple modalities and languages was coined by García (2008). She focuses on the local and situated practices in interactions in bilingual and bicultural families and classrooms. She uses the term

translanguaging, to define "*multiple discursive practices* in which bilinguals engage in order to *make sense of their bilingual worlds*." (p. 45). Different modalities are also present in these interactions; for instance, in children's literature, prayer, or use of online communication. She also draws on the work by Orellana et al. (2003) and Valdés (2003) that documents language brokering in families. As a result, she includes code-switching and translating practices as part of translanguaging events.

Informed by the theoretical approaches described above, the following studies represent different ways in which transnational language and literacy practices have been analyzed with immigrant communities. The studies below document various print-based and digital literacies, examining their relationship with transnationalism in the following ways: (a) how repertoires of practice connect individuals with ideas, texts and understandings of literacy in their sending nations; and (b) how composition and design practices allow individuals to craft transnational selves through narrative and multimodal means.

Rubinstein-Avila (2007) utilized a transnational lens to understand the ways in which a young Dominican woman maintained and extended a repertoire of transnational literacy practices in her everyday routine. By doing so, she incorporated dual frames of reference and understandings of the value of literacy in two languages. The role of parenting has also been explored from a transnational perspective, as caregivers create repertoires of practice that connect their family members with ideas and people beyond national borders. De la Piedra (2011) focused on the study of a family transnational literacy practice she labeled "*leer juntas*" [reading together]. In her study of Mexican mothers living in proximity of the U.S.-Mexico border, De la Piedra found some of the purposes of this practice were homework support, nurturing relationships with their children, and use of the Spanish language. One particular purpose was the maintenance

of transnational affiliations through joint participation in digital literacies. For instance, one of her focal participants read email messages with her daughter, who invited her to sit together by the computer, where her daughter supported her computer use. In this way, a transnational use of information technologies also became a family literacy practice. This intersection between family practices, transnational connections and technology use is part of the focus of the present dissertation study.

Lam (2006a) emphasized the diversity in language and literacy practices of immigrant, first-generation youth. She described the impact these transnational practices have for their English language development, and for their identity construction within transnational social fields (Levitt & Glick Schiller, 2004). Applying this concept to online environments extends the potential of digital spaces for immigrant students to:

> draw on multiple languages, information sources, and cultural input from different countries and perceive an increase in their ability to connect with friends and family, obtain news and information, learn about other countries, and read and write in their own languages (Lam, 2006a, p. 225).

Exploring the relationship of transnational affiliations and repertoires of practice, Lam's research has documented the different digital literacy practices that connect immigrants with people, texts and ideas beyond national borders. Lam and Rosario-Ramos (2009) surveyed the digital literacy practices of transnational students from diverse cultural and linguistic backgrounds. In their survey findings, they report that students used the Internet to communicate with persons in their countries of origin and other countries, via instant messaging, email and chatrooms. Students also reported accessing information and communicating in their native languages, in order to maintain their language proficiency. Within these practices, they adopted a dual frame of reference to assess information from different perspectives. For instance, news that was produced in their home countries versus news that was broadcast in the U.S. Similar

results were found by Yi (2009), who explored the relationship between online literacy practices and transnational practices of Korean high school students in the U.S. Her findings described how participants' repertoires of digital literacy practices supported their maintenance of transnational social networks and identities.

Processes of creative writing with adult and adolescent Mexican women have also been explored as practices where transnational literacies are mobilized. Hurtig (2005) explores the role of transnational narratives for Mexican immigrant women who participated in a writing workshop project. Through their crafting of stories, they make sense of their experiences in two countries, juxtaposing their practices, continuity and contrast in their roles as mothers. She also described how in these spaces, they are able to contest ideologies about gender roles and acculturation. Sánchez (2007) also studies authoring practices, looking at the ways in which young second-generation Latina women utilize their transnational experiences to craft a narrative in a picture book. In this process they are able to compose counternarratives where their transnational knowledge and bilingualism are valuable resources to create a culturally authentic text.

Lam's research (2000, 2006b) also addresses the relationship between the use of technology and the design of transnational selves. Her analysis of websites crafted by Asian immigrant youth describes how they use multimodal and multilingual resources to provide information on Japanese animation and popular culture for a global audience. McGinnis' et al. (2007) study documented the ways in which immigrant youth crafted transnational identities through design practices of personal profiles in social and networking websites, incorporating the use of their first and second language, and symbols, images, media, and information connecting them to their home country.

Summary

This overview of research in transnational approaches complements and expands on the scope of learning and literacy practices explored in previous sections. Adopting a transnational focus allows me to situate technology use as a practice that (a) is appropriated by individuals who may engage in practices that already connect them to both their sending and receiving countries simultaneously; and (b) can become a tool to support and strengthen already existing practices related to transnational affiliations. I also consider approaches that illuminate processes of mobility of knowledge, as helpful to identify learning spaces facilitated by communication technologies and transnational social fields.

Conceptual Framework

This dissertation study draws from sociocultural theory, literacy studies and transnational approaches to examine the trajectories of adult immigrant learners in their socialization into digital literacies at a community center. Chapters 4, 5, and 6 utilize the theoretical lenses described above to analyze participants' trajectories, access to ICT resources, learning processes and transnational practices. In Chapter 4, I draw from transnational approaches to examine the life histories of participants before and after migration, and to locate the multiple resources related to ICTs across time and space. I utilize critical perspectives to examine these conditions of access, drawing mainly from Warschauer's (2003) model to identify human and physical resources that enable technology use. I focus on answering the focal questions: What are participants' conditions of access to ICT resources in their life trajectories? And what factors facilitate access to these resources?

In Chapter 5, I draw primarily from learning theories—in particular, activity theory and communities of practice—to theorize the learning space where participants

were apprenticed into digital literacy practices. I identify the various mediational tools that facilitated participants' understandings of digital spaces and the ways roles were distributed and understood among community members. I also keep a transnational focus to explore this classroom space, where members of this learning community were situated locally and transnationally. The focal guiding questions of this chapter are: How are immigrant Spanish-speaking adults socialized into digital literacies in a transnational classroom space? What tools mediated this process? And how are roles distributed among community members?

In Chapter 6, I draw from transnational and New Literacy Studies perspectives to study the relationship between transnational practices and digital literacies. Using the lens of literacy practices, I explore the functions and understandings of digital literacies in participants' everyday lives. Applying the concepts of transnational social fields, I explore how digital literacy practices allow participants to maintain and develop connections locally and transnationally. I also explore the ways in which the use of these resources fosters identity construction, either by their development of a repertoire of digital literacy practices, or by their participation in design practices. The guiding questions of this chapter are: How do transnational affiliations support adult immigrants' participation in digital literacy practices? And how does participation in digital literacy practices support adult immigrants' maintenance of transnational affiliations?

In the next chapter, I describe the methodological and analytic tools that I have used to study digital literacy practices, learning practices and transnationalism from the theoretical lenses presented in this chapter. I also explain the ethnographic approaches that explore the connectivity of multiple sites, arguing they can help us understand the online and offline spaces where technology users interact, and the local/transnational sites where immigrants engage in social practices. I then provide a description of the social,

political, and personal contexts that frame the study, and the characteristics of the research site, the research participants and the researcher.

Chapter 3

METHODOLOGY

In this chapter, I provide a description of the methodological and analytical tools that allow me to explore learning, literacy events and literacy practices, and the ways in which learning and literacy practices interact with transnational processes. I explain how ethnographic and case study methods are appropriate to examine the complexity of the contexts where adult immigrant learners engage in ICT use. I then describe in detail the transnational structure of the research site, and the social, political and personal contexts of the study, as well as the classroom contexts where participants and I interacted for a ten-month period. Finally, I provide the rationale for the analytic tools I utilized to study classroom practices, participants' life histories, repertoires of digital literacy practices and their writing and design process.

Overall Approach and Rationale

This study uses a qualitative research approach, following a constructivist paradigm (Guba & Lincoln, 1994), where the nature of reality is assumed to be socially and experientially based, constructed by the individuals within a group. Knowledge is considered to be created from the interaction between the investigator and the object of investigation. Thus, because the researcher becomes part of the project, my own assumptions, beliefs, and participation will be clarified and stated as part of this study.

Within qualitative research approaches, I draw from ethnographic methods, adopting ethnographic techniques to collect data (participant observation, interviewing and collecting archival data), and to discern cultural patterns in the practices of the community studied. Wolcott (2008) calls this process a type of "borrowing ethnographic techniques" (p. 44), since the product of this inquiry does not result in a full-fledged ethnography. However, the goals of this study align with Wolcott's definition of

ethnography's purpose, which is to understand "what the people in some particular place or status ordinarily do, and the meanings they ascribe to the doing, under ordinary particular circumstances, presenting that description in a manner that draws attention to regularities that implicate cultural process" (p. 72). Following the work by Heath and Street (2008), I examine literacy events and literacy practices to identify cultural patterns in multiple languages and literacies in transnational communities.

I draw from multisite ethnography methods (Marcus, 1995) and connective ethnography (Leander, 2008) as rationales to conceptualize my research site. In multisite ethnography, the notion of site extends from one single location. Given the use of transnational/translocal perspectives to situate literacy practices, a multisite approach facilitate the analysis of flows of ideas, people and practices across traditionally bounded units such as the nation-state (Basch et al., 1994). This approach can also extend the research site to the virtual spaces where individuals engage in online activity (Hine, 2000). However, instead of considering the offline/online and the local/translocal as separate "sites" bounded geographically, a connective approach to ethnography allows us to understand "the relationships and connections among activity and social spaces" and how "relations are being traced among sociocultural practices and agents" (Leander, 2008, p. 8).

Within these approaches, individuals' practices, activities and meaning-making processes are not only related to an immediate local community, but to their connected experiences in multiple localities. In addition to understanding *connections* between sites, connective ethnography also helps analyze the *separations* of sites (e.g., school/out-of school) and how they are constructed as social achievements, and how both these separations and connections are mediated through language and literacy practices. For purposes of this inquiry, this approach is helpful to map practices that support the

creation of transnational social fields (Levitt & Glick Schiller, 2004), spaces where immigrants incorporate practices, ideas and relations from both their sending and receiving nation-states.

In order to illuminate the complexities in trasnational trajectories across various conditions and the multiple subjectivities of immigrants, I utilize a multiple case study approach (Duff, 2008; Merriam, 1998; Stake, 1995). In this approach, the goal is to understand particular students' experiences in detail, emphasizing their uniqueness by "understanding the case itself" (Stake, 1995). According to Stake's classification, the purpose of this case study would be classified as instrumental, since through the detailed inquiry on students' practices the researcher expects to gain insight into the themes addressed in research questions. It intends to focus on a specific phenomenon (the students' experiences), provide a thick description of the practices involved, and expect unknown relations to emerge and illuminate the understanding of the phenomenon: what Merriam (1998) describes as the particularistic, descriptive and heuristic qualities of case study research.

Regarding the generalizability of case study and qualitative research, the scope and goals of this study do not claim to produce "*abstract universals*" in the ways a quantitative study would, from a large, representative sample. Instead, it focuses on the *concrete universals* drawn from studying a particular case in depth, providing rich description, that can inform later research projects or classroom contexts with similar situations (Erickson, 1986). In order to increase the potential of understanding how these particular findings may apply to similar situations or settings, I provide a thick description of the research context, as well as of the multiple participants and their circumstances during the time of the study (Merriam, 1998).

The Research Site

I conducted fieldwork for this project during the 2009-2010 academic year at a community center that offered adult education courses to the Spanish-speaking population in the state of Arizona. Sponsored by a local higher education institution, this center coordinated undergraduate students doing internship hours as face-to-face tutors in community centers located across the county. Through a binational university partnership, the centers were able to utilize an online learning platform developed by a Mexican university. The structure of this binational partnership in terms of learning resources and tutoring system is described further in Table 1. By paying a small enrollment fee (around $25), students were given an account and password to access the online platform and become online students in the course of their choice. This platform had a wide range of online courses available, such as Basic English Skills, Basic Computer Skills, Guidelines on Running a Small Business, and Introduction to Web Design. The use of an online platform made it possible for these courses to be offered in various locations within Mexico and in the U.S. Within the Mexican university system, undergraduate students were able to also enroll in internship or *servicio social* [social service] credit hours as online tutors. Each online tutor was assigned a number of students enrolled in the courses, and their role was primarily to guide them through the course modules, provide directions for the assignments and grade their work, via online communication. As a result, students who enrolled in the online courses received face-to-face instruction from local tutors at their community centers, as well as online instruction from their distant tutor through the online platform.

Table 1

Binational Program Structure

	Higher Education Institution in Mexico	University-based community center in the U.S. (Arizona)
Program features	Online learning modules designed and owned by Mexican university. Available to adult learners in Mexican states and some U.S. states via online platform.	Online modules available as part of an agreement between both institutions. Local students pay a registration fee to Mexican university
Tutors' academic and linguistic backgrounds	Undergraduate students received internship credits. Spanish-dominant, but likely to have some English proficiency.	Undergraduate students received internship credits Bilingual/bicultural students.
Tutors' responsibilities	Email course overview, directions to assignments and modules to students. Grade and provide feedback on assignments.	Facilitate assignments and modules in face-to-face instruction.
Learning site	Password-protected online platform All modules and assignments are in Spanish.	Computer-mediated classroom with 15 laptop computers, data projector, printer and whiteboards. All programs and operating systems are installed in English (Microsoft Office, Windows XP)

When I first learned about this program through acquaintances, I became interested in the transnational nature of the curriculum and its delivery. I had heard about similar efforts conducted by the Mexican Department of Education through the *Plazas Comunitarias* program, where adult Mexican learners living abroad were able to complete online modules in Spanish on basic literacy, elementary and middle school education. Some of these centers were located in California and other states, but their effectiveness was limited by the type of tutoring they receive on site, and the feedback students would receive in their work (Gándara, 2007). In the binational university partnership model, students benefitted from local and remote tutoring, and also had

access to learning modules in their primary language. After conversations and meetings with the program coordinator, I was granted access to the site and permission to conduct this project from August 2009 to June 2010. I obtained approval from the Institutional Review Board on August 14, 2009 (see Appendix A).

The Multiple Contexts Framing the Study

Historical and Political Context

During the time period when the study was conducted, various events at the state and community level influenced the context of the study and the lived experience of participants and the classroom community. On April 23, 2010, Senate Bill 1070 was signed into law, an immigration legislation that became subject of controversy at the state and national level. This became one more piece in a series of other legislations that affected in particular the Hispanic community in the state. Prior legislation affecting this community included Proposition 203, which was passed by Arizona voters in 2000, making English the only language of instruction in K-12 mainstream public school classrooms (limiting bilingual education to schools where parents submit waivers) and restricting instruction for English language learners to one method—sheltered/structured English immersion. Proposition 300, passed by voters in November 2006, limited access to adult education programs funded by the state to students who can submit proof of legal residence in the state. This proposition has resulted in the denial of adult education services for this population since its enforcement. This policy context directly affects the educational opportunities of adult and children in immigrant communities.

When I started my fieldwork in August of 2009, immigration raids in the community were often part of the conversations between students and local instructors. Several of the students (and study participants) followed the news in the Spanish-speaking media, and often commented on the impact of these raids and the actions of the

county sheriff in their neighborhoods. They also discussed events they heard about through word-of-mouth, such as marches or protests. As the news spread of the early versions of the bill in February, 2010, Senate Bill 1070 became a frequent subject of conversation, and also a topic that prompted online and media searches in the classroom space. Under this bill, any individual who was considered to be "reasonably suspicious" of being present in the U.S. without authorization or legal documents could be questioned by law enforcement officers at any stop, detention or arrest. Although the most controversial aspects of the law were blocked by a federal judge a day before its enforcement (July 28, 2010), the uncertainty about its meaning for the Hispanic community were a concern for most of the participants and students in the research site.

The Basic Computer Skills Course (August-December 2009)

The Basic Computer Skills course was reported to be very popular and heavily attended, since the center started to offer it three years prior to the study. The online curriculum content covered the following applications and tasks: (a) basic operations of the Windows operating system (e.g., creating folders, copying and pasting); (b) creating and formatting a document in a word processor; (c) creating and formatting a slide show; (d) creating and managing information in a database using a spreadsheet; (e) opening an email account using a free web-based email provider; and (f) conducting simple online searches using a search engine. Four local tutors were in charge of the class that met on the evenings twice during the week and on Saturday mornings. The local tutors were undergraduate students, foreign-born and native Spanish-speakers, but had lived in the U.S. from a young age. There were usually two tutors in each class: one of them took the role of directing the class and presenting the content, while the other went around the rows helping out students who were struggling. I also took on the role as an aide (especially if only one tutor was in the classroom) approaching students who needed

support and sitting to their side and helping them “find their way” in the applications and interfaces.

Most students were between 30-50 years old. During the period of data collection, around 25 students were enrolled in the course. Most attended either on the weekdays or during the Saturday course, while a few of them attended in both schedules. The classroom had three rows of laptop computers, with five computers in each row, with a total capacity of 15 computers. In days when more than 15 students came to class, instructors separated the class in two classrooms, as another room was available. Some students also brought their children with them, especially during the Saturday morning classes. Most of the time, children engaged in online searches of their own, and requested headphones from the instructors; they rarely requested any help, and frequently watched YouTube cartoon or music videos, or played online games.

Every class meeting followed a similar routine. Students arrived and opened Internet Explorer to log into their student account in the online platform. This platform included a message center, where students could see if they had any messages from their online tutor, or if grades for their latest assignment submitted were posted. Some students took this time to conduct online searches on their own, or to read the learning modules in the platform. Once all students had checked their messages, the instructors provided a summary of activities done the last class, and then introduced the activity of the day. Chapter 5 provides further detail on the instructional strategies utilized by the instructors. These included guiding students step-by-step in the activities to submit through the online platform, or demonstrating the various features, icons and commands of electronic interfaces. In addition, students’ questions about programs or websites they heard about prompted instructions’ explanation of additional software. Towards the end of the course, when all assignments were completed, I met with two of the local

instructors, and we discussed possible future content that was meant to be responsive to students' questions and interests. As a result, during this period of time, the content of the course included both the online platform content that was graded by the distant tutors, but also content that emerged out of students' requests and interests.

I describe the sequence of activities in Table 2. It lists the software or application that was the focus of the activity, and then it classifies the origin of the activity or assignment. For instance, by "Local Curriculum Activities" I refer to the instructional activities that were not part of the online platform, and that were designed and implemented locally. By "Online Curriculum Activities" I refer to assignments that were part of the "official" online platform content. All of these assignments were graded by distant tutors, who provided feedback or corrections through the online platform. Overall, most of the time of the course was spent working on the Online Curriculum assignments.

Table 2

Content and Sequence in Basic Skills Course

Software/ Applications	Local Curriculum Activities	Online Curriculum Activity
Online platform	Enter and navigate platform	
Online platform message center		Assignment 1: Send personal introduction to online tutor
Online platform learning modules		Assignment 2: Answer questionnaire with comprehension questions
Windows Operating System	Find and open a USB drive	Assignment 3: Copy and create files and folders
Microsoft Word		Assignment 4. Format a Word Document
Microsoft PowerPoint		Assignment 5. Create a slide show on recycling
Microsoft Excel		Assignment 6. Create database for convenience store
Web-based email provider (Gmail)		Assignment 7. Open an email account
Internet Explorer/search engine		Assignment 8. Conduct online searches for adult education courses
Microsoft Word	Use a template to create a resumé	
Windows Operating system	Download photos from camera to USB drive	
Windows Movie Maker	Upload media to create short videos	

The Web Design Course (January-June, 2010)

Over this five-month period, it was my intention to create a pedagogical space where students and I could make sense of the meaning of publishing online documents,

and the complexities of the writing and the design process. In my multiple roles as a researcher and a practitioner, I documented the ways in which I co-constructed knowledge with focal participants and how I became an agent of digital literacy socialization and mentor in their design process. Drawing on writing and reader's workshop approaches, and on my experience with HTML programming, web design and blog platforms, I tried to engage students in the different digital literacy practices involved in the production of online documents.

Enrollment in this class was around 15 students; however, a few of them stopped attending halfway through the course, due to work or family responsibilities. Some of the students came only on Saturdays, while others only attended the weekday evening sessions. Most of the classroom routines in the fall course continued in the spring. These included students bringing their children, and adult students checking their online platform messages at the beginning of the class. As a researcher and instructor, I was able to plan and organize activities that aligned with my philosophy of the writing process drawing on Graves's work (1983), emphasizing writing for authentic audiences, promoting students' choice, and providing support through teacher- and peer-review—and most importantly, considering writing a craft, where skills are honed through practice and throughout the life time in a non-linear process (Graves, 2004).

In Table 3, I present the various steps of the writing and design process in sequence, as I structured the activities in the class throughout the semester. I followed Nia's (1999) approach to genre study, in an attempt to create a space for students to understand the purposes and genres within online publishing. I tried to "immerse" students in "mentor" texts, such as personal and business websites in Spanish, as well as personal blogs. After that, we brainstormed possible topics for students' websites, and created outlines of their structure. We also engaged in small attempts of online

publishing, where students published short announcements or blog entries to share with their peers, before starting to draft their full website.

It is worth noting that our web design practices took place primarily in two sites and by using genres with affordances and skills of their own. We worked first on publishing online content through a blog platform, a content management system that does not require extensive knowledge of HTML coding. Through a browser-based interface, users can upload and edit content in their blogs, in a text editor similar to that of their web-based email accounts. They can also use pre-designed themes with established layouts and color combinations. The second way to publish online content, was by using HTML tags to format content, create a layout and a color combination. Once the website files were ready for publication, they needed to be uploaded to a free hosting service. It is at that point that local files were available in the web through a remote server; on the other hand, in the blog platform, a post or a page could be written and published in a single step, in a way that resembles how an email is sent.

Table 3

Chronology of Events in the Web Design Course

Steps in the design process	Local Curriculum Activities	Online Curriculum Activities
"Immersion:" Understanding online publishing	Read sample blogs in Spanish Discuss videos defining blogs	
"Planning:" Brainstorming of topics and audience	Brainstorm topics Outline site	
"Try-outs:" Sharing small pieces of information in class blog	Post short responses in class blog Respond to peers' posts	
Design in blog templates: Creating own blog account and domain	Create blog account, domain and template	
Introduction to HTML: Understanding concepts related to HTML structure and web design	Analyze structure of websites	Assignment 1. Submit activity defining basic concepts
Writing HTML: Design site using html tags	Write HTML tags using text editor	Assignment 2. Submit home page using basic web page structure
Composition process: Crafting and outlining text and sections	Analyze "mentor" sites Compose website text Spell-check and peer review	Assignment 3. Submit full completed website
Gathering media	Search for images	
Website publication through webhost and through blog platform	Upload content in blog platform	Assignment 4. Upload website through free hosting service

I started the course by examining different websites and blogs in Spanish, analyzing their structure with students, and the topics authors chose to explore. We then moved forward to outlining the content of participants' websites, and to get an overview of concepts and terms related to the use of HTML. The longest and most intense period

of time was spent creating a website structure through the use of HTML, structuring and revising of the website texts before publication. Towards the end of the process, participants selected and edited images to include in their sites. We then proceeded to the publishing process using first a hosting service (to upload local files created in HTML), and then migrating the text content to a blog platform.

Personal Context for the Study

I came to this study with a background in English language teaching in northern Mexico, in the state that borders Arizona, Sonora. I started to teach English to children and adults as an undergraduate student. As an English teacher, I noticed the ways in which English and computer skills were constructed as valuable tools to obtain a better job, or to become a “global” citizen. These constructions of English were topics I addressed in my master’s thesis work at ASU. It described the literacy practices in English and Spanish with college students in my hometown university, and how these practices were related to their emergent professional identities. I found Bourdieu’s theories of cultural capital and Norton’s concept of investment useful to understand differences in access to border crossing, travel, and understandings of language competence linked to the experience of living in the United States.

During my time in Arizona as a graduate student, I tried to find opportunities to get involved with the Spanish-speaking community in the area. I became a volunteer ESL instructor during 2008-2009 in a family learning center in Phoenix. This experience allowed me to see the interactions of children and parents while using computers at this site. The students attending my ESL class also had questions for me when I used an LCD projector to show PowerPoint slide shows, videos or search engines for our class. I started to visit two other learning centers in the area that offered computer courses for Spanish-speaking adults, and as I learned about their large demand and challenges, I

became interested in pursuing a research agenda to examine the parallels and intersections between English learning and use of ICTs.

The skills and background experiences I brought to this inquiry had important implications for the ways in which I negotiated access and interacted with the participants of the study. They also affected the construction of subjectivities of the researcher and the researched. I am a bilingual, biliterate, college-educated Mexican woman whose work is now affiliated with a U.S. university. Although we share a language and common national background, I am an outsider to their immigration experiences and daily struggles, and was often naïve to their needs, since I relied on our second language and ICTs on a daily basis. I had to negotiate roles within the colonizer/colonized divide Villenas (1996) describes: on the one side, being a minority as a Mexican national, non-citizen in the United States, but on the other side, occupying the position of a researcher, affiliated with a higher education institution. These differences construct distance (Jacobs Huey, 2002), even though a common native language was shared: "although the native and the researcher look alike, speak the same language, and share many of the same beliefs and customs, the researcher still approaches the natives to observe them" (p. 194). However, I used our shared native (and dominant) language, Spanish, in mostly all of our interactions. Sometimes I would codeswitch to English when students initiated the language switch. I also used common Spanglish terms utilized by many students—such as "*parquear*" for parking—that were understood by most of them.

In addition to reflecting on my positionality in the insider/outsider spectrum, the shift in my participation roles added an additional layer to the construction of my subjectivities. At the onset of the study in the fall of 2009, my initial role was that of a participant observer in the Basic Computer Skills course. However, my role changed to that of an instructor in the Web Design course in the spring semester. I documented the

intersections and tensions between my multiple positionalities (Herr & Anderson, 2005) by keeping detailed notes and reflections from each class session on my own role in participants' digital literacy socialization. In spite of the limitations that this new role had in my understanding of our interaction, I sensed that sharing this learning space with participants from an instructor's perspective gave me access to information on their learning process that I would not have obtained as a participant observer.

Data Collection

My initial research design divided the study in two phases. In the first phase of the study, I had planned to be a participant observer during the fall semester months, and would follow new students enrolled in a Basic Computer Skills class, and then conduct focus groups and interviews with focal participants. In the second phase, I planned to work together with the coordinator and local tutors to develop a family Saturday media production workshop for focal participants to attend with their relatives. However, given the needs of the center and the interests of the students, my participation and positionality in the study took a different direction.

During the first phase of the study (August 2009-June 2010), I did end up being a participant observer in the Basic Computer Skills course. I visited most of the evening and Saturday classes. During my classroom visits, I provided assistance to the local tutors, by giving one-on-one directions to students who got "lost" doing activities on the computer or on the Internet. At the end of the Basic Computer Skills course, students expressed interest in continuing with a different and "more advanced" computer class. Since the Mexican online platform system offered a Web Design course that had been offered in the local center before, several students expressed interest in this topic. However, some of the local tutors were close to graduating, and it was hard to find a bilingual student with the preparation to teach HTML and web design in Spanish.

Given my experience in web design as part of my graduate assistantships and support to professional organizations, I volunteered to teach the class in the spring. As a result, I became a local tutor for the group of students who enrolled after the fall semester class. In doing so, I became part of the binational instruction system that was set up by the local and the Mexican universities, and that had to follow the structure and curriculum in the online learning platform. In the following sections I describe in detail the two main sources of data collection for classroom activity, and focal participants' interviews and document collection data.

Classroom Observation Data

Table 4 provides an overview of the types of data collected during the two phases of the study. During the first phase of the study (August-December), when I was a participant observer at the Basic Computer Skills class, I took written and typed field notes of classroom activity. I collected screen shots of the programs and applications that were explained by the instructor in the projector, using my own laptop computer, while I followed the directions or steps in each activity. I also collected files related to the assignments that students were working on—particularly, from the online curriculum that guided instruction. I took notes of my conversations with students, listing the types of support they needed when they requested my help or the help of instructors. I also created sketches of the classroom seat arranging, noting where students chose to sit, who they frequently interacted with, and when they looked at each others' screens. I wrote most of the fieldnotes in Spanish to detail activity and to quote verbatim the interactions that took place in this language; in addition, I tried to make any interpretive or "hunches" notations in English, to separate descriptive notes from any emergent interpretations.

During the second phase of the study I followed a similar approach. However, my new positionality as a researcher/instructor required additional methods to record the

events that took place in each session. During the majority of the classes, I audio recorded our classroom interactions that were conducted mostly in Spanish. I also utilized screen-recording software, installed in my laptop computer, to record both the screen activity and audio that I projected on the screen for students to see. At the end of each class, I wrote an account of class events, highlighting key interactions that I considered needed to be revisited in audio recordings. I also wrote down reflective field notes, where I recorded my interpretive hunches, but also my pedagogical and research concerns, such as the frequent struggles that certain students' encountered in several occasions, and my feelings about the effectiveness of my instruction.

Table 4

Classroom Data Collection

Data Collection Technique	Amount of data
Phase I of the study (August-December 2009)	
Observations field notes	83 hours of classroom observation
Document collection	15 class sessions with multimodal field notes
	Directions for seven assignments
Phase II of the study (January-June 2010)	
Class field notes and reflective notes	138 hours of instruction
Class audio recording	118 hours of audio recording
Class screen recording	88 hours of screen recording.

Focal Participants' Data

Given the case study approach of the study, focal participants were selected to display maximum variation of cases (Miles & Huberman, 1994). In doing this, I tried to illustrate how distinct trajectories are influenced by their generational status, educational background or social class. All five participants were chosen according to the following selection criteria: (a) being foreign-born, (b) having migrated to the U.S. during their adolescent/adult years; (c) speaking Spanish as a native language. Within these criteria, I was interested in selecting students that differed in their age, English proficiency, literacy

skills, educational/career backgrounds, and time living in the United States. I conducted individual interviews and focus groups with 11 students over the course of the project; but given their unique trajectories and characteristics, I selected Rita, Marisa, Rafael, Joselyn and Miguel as the five focal participants whose case studies are presented in this dissertation.

Participants' ages ranged from 22 to 60 years old. Rita was the oldest participant, who lived with her son and granddaughters, and had lived in the U.S. for more than 40 years. Miguel, the youngest participant at age 22, had lived in the U.S. for four years. Rita, Rafael, Joselyn and Miguel were all from Mexico, but from different regions: Rafael was from the north area, close to the border, and Joselyn and Miguel were from the center, near the nation's capital. Rita came from a state with a long history and tradition of U.S.-Mexico migration. Marisa, on the other hand, was from Cuba, and arrived to the United States as a political refugee. She and Rafael were the only participants who had graduated from college in their home countries. Although most participants came from Mexico, I decided to include Marisa's case in the analysis to contrast her history and practices with participants close to her age (Rita) and with a similar professional background (Rafael).

It is evident from this brief description that the educational, professional and migration histories of these five students are very unique, and different from each other. In order to craft their case study narratives and their access to ICTs over time in two nations, and during the time of the study, I utilized the following data collection sources for all five participants: (a) a life history interview (based on Seidman, 2006) focusing on migration, past and current experiences with technology, schooling and language learning (see Appendices B and C); (b) one 20-minute screen-recording session of their computer activity, including their audio-narration (Appendices D and E); and (c) collection of

documents related to their writing and design process during the Web Design course (except for Miguel, who did not attend the Web Design class). For some of the participants whose availability allowed further participation, I was able to collect data from (d) participation in one focus group session, reflecting on their classroom experience and computer use with other peers (Appendices F and G); and (e) an interview with one of their family members, to explore their access and support with ICTs at home (Appendices H and I). Table 5 provides further detail on the interview data obtained from each participant. All interviews and classroom instruction took place in Spanish, with occasional instances of English-Spanish code-switching.

Table 5

Interview Data Collection

Participant	Focus group	Individual interview	Individual interview with family member
Rita	11-3-09 (with Juan) 6-12-10 (with Sara, Gloria, Catalina)	4-20-10	
Marisa	6-10-10 (with Pablo)	4-9-10	4-9-2010 (Pablo, husband)
Rafael		5-13-10	
Joselyn	11-7-09 (with Maria)	4-15-10	4-15-10 (Christian, nephew)
Miguel		2-28-10	

The following paragraphs present short profiles describing each focal participant. I provide a brief rationale on the reason to invite them to participate in the study. I also try to capture snapshots of their behavior and interactions in class, especially when I first got to know them during the fall months. I then present their current circumstances and struggles at the time of the study. Their biographical information is presented in detail in Chapter 4, as part of the analysis of their life histories and ICT access.

Rita Moreno. Rita was the oldest participant in the study (age 60) and the one who had lived in the United States for the longest time, having migrated from Mexico in the late 1960s as a young woman. In interviews, focus groups and classroom interactions, she often made references to her humble beginnings, and to the fact that she was able to overcome various struggles while living in Mexico and in the United States. At the onset of the study, she was adapting to her life in "retirement:" she had just been laid off from her job working for a cell phone manufacturer, and was encouraged by her son to go back to school. At the learning center, she stood out for her vibrant and friendly presence, as she was not hesitant in providing *consejos* [advice] to peers and instructors, about matters ranging from cooking, health, child rearing, English language learning, or immigration.

Marisa Pérez. After living in the U.S. for three years, Marisa was 56 years old and eager to learn new skills. She and her husband Pablo had migrated from Cuba as political refugees. I first met them in the fall semester, when they stopped by the center to use the computers or ask the director a question. Both of them were very friendly, and often shared with other students and instructors the struggles of their immigration experience and of their life under a dictatorship. They usually sat together in class, shared notes and a USB drive, and completed each others' sentences. For purposes of this dissertation, I chose to focus on Marisa's experience, since she was close in age to Rita; but their educational and immigration experiences made a difference in the ways they viewed and appropriated digital literacies in their everyday lives.

Rafael Urias. I got to know Rafael later in the fall semester, since he started the Basic Computer Skills course two months after the study began. In spite of starting the course late, he was able to catch up and complete the activities of the course by January, in time to enroll in the spring Web Design class. He often asked instructors about ways

to fix and maintain his computer, and about photo, music and video storage and editing, and he was also familiar with many terms related to computer use (like software, gigabytes, or hard disk/ "*disco duro*"). At the time of the study, he was 45 years old, and had lived in Arizona for 10 years with his wife and 6-year-old daughter. He worked a long daily shift in waste management services. He was interested and engaged in class, and sometimes helped other students who got confused navigating the operating system, or following directions. I was curious to learn about his past experiences, since he brought very specialized knowledge to the class that other students did not.

Joselyn Guzmán. In the Basic Computer Skills classroom, Joselyn was noticeable for her determination to help other students who were behind or got confused, and for her curiosity to explore new practices. She attended the courses with her older sister Guadalupe, and they often sat together. At 30 years old, she was one of the youngest participants in the study and in the class. Like Rafael, her progress throughout the months of the study was remarkable, as she tried new things with her computer both at home and at the center. At the onset of the study, she was a stay-home mother of two young girls (two- and four-years old), and received support from her husband with child care so she could regularly attend the evening classes with Guadalupe.

Miguel Ramírez. At age 22, Miguel was the youngest participant in the study, and one of the youngest students at the center. In class, he was usually quiet and attentive to the instructors. While other older students greeted their peers and engaged in conversation about their day, current events or news during class, Miguel's gaze was usually fixed on the screen. He was often ahead other students in his work, following closely the assignments' steps, while he explored other programs. Like Rafael, he worked long hours in a physically demanding job at a wood carving furniture industry. His previous and current access to technology indicated a more recent migration

trajectory, when compared to the other participants. He had only lived in the U.S. for four years, and he had attended public schools in Mexico at a time when Internet connectivity and ICTs curriculum were more common in this country.

Data Analysis

Reflective Notes and Memos

During the ten months I spent at the center, I conducted data analysis at various points of my fieldwork. As I typed my field notes in both phases of the study, I wrote brief interpretive and reflective memos, posing questions and "hunches," connecting them with events, participants' quotes, or activities that I observed. I engaged in the constant comparative perspectives that characterize ethnographic fieldwork (Heath & Street, 2008): comparing and contrasting emerging data patterns with the categories in the conceptual frame, and moving back and forth between the theory building and theory-dependent aspects of ethnographic research.

For instance, I entered the field with certain questions and assumptions about access and apprenticeship within families. I wondered if the type of language brokering (Orellana et al., 2003) that bilingual children do for monolingual parents would extend to support in their home computer use. After writing descriptive field notes during the first phase of the study, I wrote reflective notes when I noticed co-occurrence of students' comments or reported events. In the following reflective note, I wonder about the types of support (or lack of it) that Clarita—a student in her mid 50s who is not a focal participant in this dissertation—received at home from her children. She brought a new laptop to class and wanted someone to help her figure out how to use instant messaging:

> I notice that until now, Clarita wants to know how to communicate with her sister, now that she has a computer with a camera of her own [that her children bought for her]. I wonder about access and family roles: who owns the computer

> and who's allowed to use it? Juan also mentioned he asked his nephew about his own project to take photographs—because his teenage nephew knows more?
> (Reflective notes, 11-23-09)

In these notes I posed questions about issues or topics that I deemed important in theorizing access and support at home for adult learners. These instances also informed the questions in the interview protocol I used during the focus group interviews at the end of the fall semester. In descriptive field notes, I also made notes about the types of relationships I was building with participants, how some of them were curious about me, and the ways in which they understood my role and constructed my subjectivity. In one instance, Clarita (who I described above) greeted me happily, and made the following comment to me:

> *"De donde dijiste que eras?" A mí me da pena y le digo, "De Obregón, Sonora." "Pareces americana" me dice. Me apeno mas y le digo, "no, no, parezco de Obregón." Se sonríe y se va al baño, diciendo "no, pareces americana."*
>
> Where did you say you were from? I am embarrassed and I say "From Obregón, Sonora." "You look American" she tells me. I get more embarrassed and say "no, no, I look like I'm from Obregón." She smiles and walks toward the bathroom, while she says "no, you look American."
> (Field notes, 9-17-09)

Notes like this helped me focus on documenting the multiple positionalities and subjectivities during fieldwork; wondering in what ways I considered myself to be an insider to the community, but also understanding how I was positioned (or positioned myself) as an outsider. This became critical during the spring semester, where I negotiated various positionalities as a researcher and instructor. These notes became a space where I wondered about earlier patterns I had noticed from my analysis of classroom practice (described below). They also noted the ways in which my participation as an instructor shaped participants' understandings and actions in their computer use—especially since they had been attending the class for several months by

then. As I mentioned in the Data Collection section, I tried to use English to write reflective or interpretation memos or notes in English, while trying to use Spanish to describe events or verbatim quotations in descriptive notes. In the following instance written in English, I wondered about the role of my explicit "step-by-step" guidance, and about the differences across participants and independent computer use. I compare Elena's struggles with focal participants Rita and Marisa, who were older than she was:

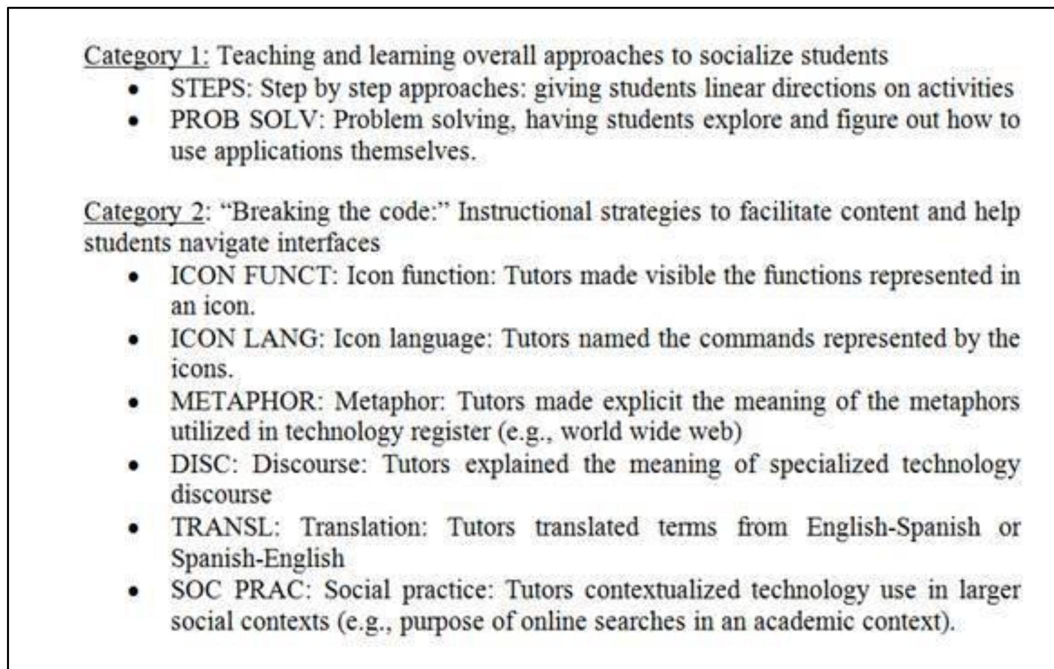
> Elena struggles, she forgets the name she used to name files, she keeps opening Word (to find her USB) and she does not find them (she tells me, "you named it, I don't know what you named it"). So how much am I contributing to their helplessness? But people like Sarita and Rita work on her own, and Gloria, even when she struggles more, she tries! And it's not age, since Rita is probably older than Catalina and Elena, and Marisa understands certain things (although she still forgets how to find her photos in the USB drive).
>
> (Reflective notes, 4-10-10)

Overall, these notes were helpful to document interpretive aspects that were not contained in descriptive field notes, and to store hunches and explanations that informed interview protocols. It also helped me rethink and wonder about the concepts I identified in the literature as possible tools to analyze adult immigrants' socialization process. They supported the building of categories and explanations that later became codes in the process of analysis of classroom practices and learning trajectories, that I describe next.

Analysis of Classroom Practices

With the purpose of understanding the ways in which access to ICTs was facilitated in this classroom space, I used grounded theory methods (Strauss & Corbin, 1990) to code classroom field notes after the Basic Computer Skills course was completed in December 2009. This approach utilizes " a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon" (Strauss & Corbin, 1990, p. 24). As part of the ethnographic stance I took upon this study, I was interested in noticing the patterns of instruction that emerged in the field, and that could also inform

my interviews and focus groups with students, to seek for confirming or disconfirming evidence, as part of an analytic induction process (Erickson, 1986; Le Compte & Preissle, 1993). Using open coding techniques, I analyzed the field notes' files using the qualitative software tool, Atlas TI. After I created the first set of codes by reading and analyzing the files, I merged codes that were similar, and tried to find relationships between them. I grouped them in the following two categories outlined in Figure 3:



Category 1: Teaching and learning overall approaches to socialize students

- STEPS: Step by step approaches: giving students linear directions on activities
- PROB SOLV: Problem solving, having students explore and figure out how to use applications themselves.

Category 2: "Breaking the code:" Instructional strategies to facilitate content and help students navigate interfaces

- ICON FUNCT: Icon function: Tutors made visible the functions represented in an icon.
- ICON LANG: Icon language: Tutors named the commands represented by the icons.
- METAPHOR: Metaphor: Tutors made explicit the meaning of the metaphors utilized in technology register (e.g., world wide web)
- DISC: Discourse: Tutors explained the meaning of specialized technology discourse
- TRANSL: Translation: Tutors translated terms from English-Spanish or Spanish-English
- SOC PRAC: Social practice: Tutors contextualized technology use in larger social contexts (e.g., purpose of online searches in an academic context).

Figure 3. Initial coding system for classroom practices. The two categories show the main areas of analysis and the sub codes under each area.

This initial set of codes helped me represent and analyze patterns in the "everyday life" of the classroom, and the various tools that instructors utilized to facilitate understanding. I was able to ask interview questions about what participants considered "effective" instruction, and noticed the "*paso a paso*/step-by-step" label was an emic term that some of the focal participants used. I used primarily English to label the codes, since it was also easier to abbreviate the words in this language, or to relate them to the theory. However, I tried to keep the language used by participants in some

emic terms. For instance the terms "*paso a paso*/step-by-step" was used in both languages by Rita, that I abbreviated as "STEPS" as a code. However, "*ortografía*" [orthography] became a code in Spanish only, since participants emphasized this word in their interactions as a valuable and desired skill. These terms helped me triangulate the hunches I was forming about approaches to teaching and learning in this classroom site. Hence, during the spring semester I was conscious of these routines and strategies that students preferred and were comfortable with. I wrote down in my field notes further instances of these strategies, and noted down my own decisions and experiences utilizing them.

After the end of fieldwork in June 2010, I started to think about ways to theorize these classroom practices in relation to the different participants that were part of the classroom context, given the transnational nature of the class with local and distant tutors, and myself as a participant. I found the model of cultural-historical activity theory (Cole & Engeström, 1993) described in Chapter 2, a useful heuristic to identify mediational tools and systemic influences in this space. I went back to the interview and field notes' data set to identify: (a) the *subject(s)* in the activity of learning various types of digital literacy; (b)the *objects* of instruction (content); (c) the *artifacts* (including symbols and tools) that mediated activity; (d) the members of the learning *community* that subjects are part of; (e) the *rules* of such community; and (f) the *division of labor*, referring to the distribution of roles and responsibilities within the activity system.

Analysis of Life Trajectories

After I transcribed and categorized interview data, and assigned pseudonyms for all participants and their places of origin, I analyzed their accounts using an open coding system, looking to identify understandings, events and persons related to their digital literacy and transnational practices. In order to craft case study narratives to identify

participants' access to technology, I crafted their accounts relying on Barton et al.'s (2007) approach to explore multiple contexts of adult learning over time. This framework focuses on four interrelated spheres in adult learners' trajectories: (a) *their life histories*, in which I explore critical transitions in participant's lives, such as migration, educational and professional background, parenthood and their relation to technology use; (b) their *current identities and practices*, where I map their access to various forms of social, cultural and linguistic capital (Gounari, 2009) necessary to appropriate digital literacies, and their identity construction processes resulting from this appropriation; (c) their *present circumstances and contexts*, where their social networks and spheres of activity are situated; these also extend across nation-states, as participants maintain affiliations and practices simultaneously in two or more nations (Levitt & Glick Schiller, 2004); and (d) their *imagined futures*, as participants' narratives document their goals and aspirations, and the potential role that digital literacies play in accomplishing them. I analyzed these trajectories reading and coding the interviews in Spanish, and I only translated excerpts of interviews that are presented in this dissertation for a non-English-speaking audience.

Analysis of Digital Literacy Practices

A third topic of open coding of classroom field notes, interviews and focus groups was to identify different social practices in which participants incorporated the use of ICTs, and their meaning, values, and understanding of them. In this way, I analyzed their repertoires of digital literacy practices, and their relationship to transnational practices and affiliations. An initial set of categories was informed by Warschauer's (2003) categorization of electronic literacies as computer literacy, information literacy, online communication literacy, and multimodal literacy. However, as I compared and contrasted examples of digital literacies across cases, I decided to base the categorization

of digital literacy practices on two criteria: their purpose and function (Heath, 1980) within a particular social practice (e.g., document and media production), and the similar type of interface used in each category (e.g., software toolbars). The data sources for this coding purpose were *reported practices* in individual interviews, focus groups, and classroom interactions; and *observed practices* in screen recordings of online activity during the spring semester and during classroom activities. The main categories analyzed in this dissertation are described in Table 6, and include both digital literacy practices that were part of the content of the two courses in the community center, and practices that participants engaged out of personal interest at the center and in other contexts.

Table 6

Categories of Digital Literacy Practices

Type of digital literacy	Purpose and function	Interface/application
Computer literacy	Navigate operating system and software application toolbars	Windows operating system Software toolbars
Online communication	Interact with a third party in synchronous or asynchronous time, and being able to share media	Web-based email Instant messaging Voice and video-chat Social networking platforms
Online learning and reference	Find information for occasional reference or learning purposes.	Search and media engines (Google, YouTube)
Media and document production	Create documents or media using a software application	Microsoft Office tools Photo and video editing software
Political participation	Affiliation with political institutions locally or transnationally	Web-based platforms Blog platforms Media search engines (YouTube)
Online publishing	Publish content in blog or personal website	Blog platform Web host services HTML editors

These categories cut across a variety of literacy domains (Barton & Hamilton, 2000) including participants' households, community and educational institutions. Informed by the concept of literacy practices (Street, 1993; Barton & Hamilton, 2000), each of these practices was situated in participants' trajectories, in order to understand how they made sense of their purpose and importantly, how they were appropriated (or not) in their everyday practices—including the social practices that connected them with ideas, communities and people beyond national borders. I also coded and explored the meanings participants attached to these practices. This layer of analysis allowed me to analyze their meaning-making process and emic understandings of technology.

Analysis of Writing/Design Process

The final level of analysis addressed the type of digital literacy practices where participants were able to represent themselves through composition and design practices, in addition to the ways in which their repertoire of practices (described above) relates to their identity construction. Informed by theories of multimodality and design, discourse analytic methods were used to analyze the composition and design process of two participants (Rita and Rafael), during their time at the Web Design course. Using positionality theory (Harre & van Langenhove, 1999; Wortham & Gasden, 2006), I examine how Rita and Rafael position themselves as transnational authors, immigrants and users of literacy and digital literacy in their *talk* about their online publishing process, and in their *text*—as both of them composed biographical and autobiographical accounts in their web design project. This analysis was conducted examining texts composed by the participants in Spanish, and only translating to English excerpts that are presented in this dissertation.

I described above the different units of analysis and analytical tools that I utilized at various stages during and after fieldwork. I introduced the different theoretical concepts and frameworks that were useful to organize data and make sense of the wide range of social practices and their meanings assigned by participant across time and space: (a) during their life trajectories, as they described past and current practices and relationships prior and after migration; and (b) during their time at the community center, where I observed the ways in which digital literacy practices were scaffolded in a formal and transnational space. I examine how these practices are related, and the work they do in connecting participants to local and transnational affiliations.

Summary

In this chapter, I introduced and described the methods and methodologies I utilized to collect and organize data, to analyze the digital literacy practices of adult Spanish speaking immigrants, and their relation to transnational practices. I provided an overview of the ethnographic approaches that I drew from, as well as case study approaches to situate the experiences of the five focal participants. I described my access to the research site, and the various data collection and data analysis methods to examine classroom practices and students' accounts, as well as the meanings that participants ascribed to these practices. Finally, I described the various levels of situational, classroom and personal contexts that shaped the study. In the following three chapters, I present the key findings from this study, describing participants' life histories and ICT access, classroom experiences and practices at the center, and their appropriation of digital literacy for transnational purposes.

Chapter 4

ACCESS AND CONSTRUCTION OF DIGITAL LITERACIES IN TRANSNATIONAL TRAJECTORIES

In this chapter, I present the biographical narratives of the five focal participants of this study, with particular detail to their family and educational background before and after migration, and to their conditions of access to ICTs throughout their lifetime. After that, I describe how they understand the value of ICTs in their lives, as relayed to me in our interactions. Their histories help frame their engagement in digital literacy practices at the research site. Based on frameworks that define literacy as socially constructed and situated, I examine case study narratives to understand the following: (a) What are adult immigrants' conditions of access to ICT resources in their life trajectories? and (b) What factors facilitate access to these resources?

In the analysis of participants' life histories and constructions of digital literacy, I demonstrate that multiple layers of factors shaped their access to digital literacies in more than one nation-state, before and after migration. These factors are categorized as follows: (a) structural conditions at the macro social level, such as limited or restricted ICT infrastructure in their communities of origin; (b) community and family practices and dynamics, where social roles and division of labor shaped access to ICTs in particular ways; and (c) individual factors, such the constructions participants held of the role of digital literacies in their lives, and the decisions participants made to exercise their agency and seek opportunities and spaces to engage in digital literacy practices. These different layers interact and are shaped by each other. For instance, participants' constructions of digital literacies were shaped by their experiences and interactions with ICT users, as well as institutional and public discourses. Overall, the narratives I

examine provide evidence of the socially situated nature of technology use, influenced by the transnational aspects of the distribution of ICT resources for immigrant communities.

Participants' Trajectories and Conditions of Access

In this section, I present the contexts for digital literacy socialization that participants describe in their biographical accounts. I particularly focus on identifying previous access to equipment and instruction, identifying past opportunities that facilitated or impeded their use of digital literacies (Gounari, 2009; Warschauer, 2003) before they started the computer class at the research site, and during the time period of the research study. For this purpose, I draw on participants' descriptions of their past histories, and their social practices. Like Barton et al. (2007), I examine how these histories shape individuals' access to social and cultural capital, as well as their actions to exercise agency to shape these conditions.

Of particular interest are participants' experiences of schooling in their country of origin and in the United States, factors influencing their decision to migrate, and their description of opportunities to use computer equipment prior to the study. Findings show that they "construct their interpretation of past events from the vantage point of a particular present" (Soliday, 1994, p. 514). Hence, these interpretations are not reports of observed events, but participants' subjective accounts of lived experiences. Such accounts are temporally and spatially organized beyond their current local context. In immigrants' narratives and chronicles, participants' identities are expressed locally, but also influenced by their multiple membership in communities located beyond national borders (De Fina, 2003).

I also describe their experiences with English language learning in the United States and in their sending countries. This information is relevant to understand how their language skills and investment (Norton, 1997; 2000) position them in certain ways

in their interactions with other technology users and with the interface of computer software. Other aspects of their life histories such as Spanish literacy skills, educational background and employment are considered, since they relate to their building of social and cultural capital aligned with technology use I relate this factors to their conditions of access, exploring in particular these two types of resources from Warschauer (2003) model: (a) *physical resources*, equipment and internet connectivity at home or at other sites during the study, and (b) *human resources*, members in their social networks who were familiar with ICTs and who were potentially able to provide support or mentoring to participants in their ICT use.

The profiles of Rita, Marisa, Rafael, Joselyn and Miguel are summarized in Appendix J, which captures their immigration, family and educational background. Participants' arrival in the United States took place between 1970 and 2007. Consequently, while some participants observed the spread of ICTs in their home countries (even when they were not actively participating in digital literacies), others observed this while they were living in the United States. All accounts include participants' experiences with schooling in their sending countries and their migration experience, the nature of their family networks in their local community and in their home country, and their conditions of access to ICT resources prior and during the research study.

Rita: "I Better Ask… I Don't Want to Make a Mistake"

Rita was born in a small town in east central Mexico, located in a region with a historical high migration rate to the United States. On various occasions, she shared with me and with classroom peers the poverty she experienced in her childhood: "*en México era super pobre. Porque no tenía ni para rentar una bicicleta. Y yo quería andar en bicicleta, estaba jovencita*." [In Mexico, I was very poor. Because we did not have

(money), not even to rent a bicycle. And I wanted to ride a bicycle, I was really young] (class audio recording 3-20-10). She also recalled and shared how she could not continue with her studies past sixth grade, because both she and her sister needed to work. For instance, this comment followed our conversation about search engines correcting her misspelling of Spanish words:

Rita:	*Es que, lo malo Silvia, es que… Yo no tuve educación, más que hasta el sexto año. Entonces…*
Silvia:	*En Orozco.*
Rita:	*Allá en México. Fue todo. Yo me empecé a venir para acá. Y… es que éramos bien, bien pobres, pero bien pobres… Y fíjate que bien triste, Silvia, porque mi hermana se vino chiquitilla. Y mi mamá, en lugar de decir pues, hay que sacrificarnos para ir a la escuela… a trabajar.*

Rita:	It's just…the bad thing Silvia, is that… I did not have education, until sixth grade. Then…
Silvia:	In Orozco…
Rita:	There in Mexico. That was it. Then I started to come over here. And… we were so, so poor. But so, so poor. And you see Silvia, it was really sad, because my sister came here really young. And my mom, instead of saying, well, we need to sacrifice to go to school…. [instead she said] get to work.

(Rita, interview, 4-20-2010)

Rita often mentioned her shame in her lack of formal schooling, and how this resulted in her "poor" literacy and math skills. Her schooling was interrupted by her journey north, following her sister's. They supported their parents financially, and helped pay for their younger brother's education. In contrast, he was able to finish high school and complete two years of college, before migrating himself. She started working in cleaning jobs, and lived in California until the mid 1990s, when she moved to Arizona. She often mentioned the difficulties of raising her son as a single parent, after divorcing her husband. This involved working two jobs in various shifts.

In spite of her busy schedule and responsibilities, Rita received support from one of her employers to study English. She described the difficulties she faced staying in school, because of her long work hours and her feeling tired at the end of the day:

> *A mí me llamaban mucho a la oficina del trabajo. [Trabajaba] Para una compañía. "¡Tienes que irte a la escuela! ¡Tienes que irte a la escuela! ¿Cuál es tu problema? Nosotros te pagamos. Queremos, que, que adelantes. Que tu vida sea diferente" Y yo les decía, "pues yo tengo que trabajar dos trabajos, me canso mucho, yo tengo un hijo, yo soy sola, tengo que ayudarles a mis papases," porque yo siempre les ayude a ellos, y pues al hijo, yo quería que él fuera mejor que yo. Gracias a Dios si es mejor que yo, pero tú tienes que motivar y pushar, y andar, demostrar, todo lo que se relaciona con estudio [...]Y yo me probé en, yendo al inglés, porque yo fui a la escuela de inglés.*
>
> They used to call me to the office from work. [I worked] For a company. "You have to go to school! You have to go to school! What's your problem? We'll pay you. We, want you, want you to move forward. For your life to be different." And I used to tell them, well I have to work two jobs, I get too tired, I have a son, I am by myself, I have to support my parents, because I always supported them, and for my son, I wanted him to be better than me. And thanks to God, he is better than me, but you have to be motivated and *pushar* [push], and go forward, and demonstrate, with everything that is related to studies […]. And I proved myself, going to English [classes], because I went to English school.
>
> (Rita, focus group, 11-7-09)

Rita also shared this narrative about her strong will to attend ESL courses several times in the center. She did this especially to encourage other women in the center to study English, so they would not depend on their children to translate for them. Her oral English proficiency was praised by the Basic Computer Skills class instructors, since she often read aloud messages or sentences in English that popped up in the computer screen. I saw she was not shy to make requests or ask native English speakers questions at the center's building, and she often codeswitched to English to report what she, her son, or somebody else had said in this language. However, she deemed her English literacy skills needed further development: "*yo sé bastante [inglés], yo sé bastante pero no, escribirlo no. Es lo que yo necesito, escribirlo*." [I know quite a good deal (of English), I know a good deal, but I don't, not writing. That's what I need, to write it." (focus group,

11-7-09). These views of her limited literacy skills in English were parallel to her perception of her Spanish literacy skills, that she considered poor due to her limited schooling.

Family networks and practices. At home, Rita's everyday routine was also extremely busy: she had been the primary caregiver of her two granddaughters (6 and 11-years old) for five years, after her daughter-in-law passed away. She lived with them and her son Eduardo (32 years old), and for certain periods of the year, she also took care of her 85-year old mother, who spent periods of time in Mexico and Arizona. Although Rita's siblings and her son lived in the U.S., Rita reported traveling to her hometown often. Such transnational support allowed her to send her son to school in Mexico during his teenage years, to prevent his involvement with local gangs. She enrolled him in a private school in Mexico, which she regarded as more strict and better for her son: "*pero lo que admiro allá es que les exigen a que estudien*." [what I admire over there is that they demand them to study] (class audio recording, 3-20-10). Rita was very proud of her son being able to graduate from college in the U.S., in spite of all the hardships she endured to get him through school in his teenage years. Another transnational connection Rita had was with her niece Carmen, who had moved to Spain recently. This connection was facilitated through phone calls. However, prior to coming to the class, Rita had noticed her son used the computer to communicate with Carmen using email. Rita was not sure how to participate in that type of communication.

Rita worked hard to maintain her family's ties to their first language and culture. She purchased books in Spanish for her granddaughters, especially for the youngest one, to whom she read aloud to. When her mother stayed in Phoenix, she communicated with her granddaughters in Spanish. Her son also tried to enact a "Spanish-only" language policy for certain days of the week; however, Rita explained this effort often failed, even

with her: "*a mí no me hablan… pero como saben que mi mamá no habla inglés, a ella si le hablan español. ¿Qué curioso no? Son bien diantres.*" [they don't speak [Spanish] to me… but because they know my mom only speaks English, they do speak Spanish to her. Isn't that funny? They are such tricksters] (interview, 4-20-10). In a complex intergenerational household, Rita tried her best to maintain the use of Spanish, her dominant language, with the support of her son, whom she had raised with the support of her family abroad.

Previous access to ICT resources. Since Rita had migrated to the United States in the 1960s, her experience and exposure to ICTs happened after her migration. Her first experiences using a computer had occurred in her last job at a multinational assembly plant where cell phone parts were tested. Rita had worked there for 16 years, before being let go. She explained that her use of a database system followed a very systematic routine, where her role was simply entering data:

> *Tú llegabas, pero o sea, el ingeniero te daba un proceso. Entonces tu nomás le seguías los pasos, al proceso. […] [era un sistema] para partes, para probarlas. Entonces, tú nomas te daban eso, y tú nomás abrías. Abrías las, le abrías a la, ibas a la ventana donde ellos te ponían y ya. Y luego ya, relacionándote con lo, con la pantallita de la computadora también, de la parte como estaba trabajando la máquina.*
>
> You got there, but, I mean, the engineer gave you a process. Then you just followed the steps, the process, […]. [It was a system] for parts, to try them. Then, they gave you that and you opened it. You opened, you opened the, you went to the window where they put you and that was it. And then, you became familiar with the, with the little screen in the computer too, the part where the machine was working.
>
> (Rita, interview, 4-20-2010)

In this position, Rita became familiar with a computer interface through the sole practice of entering data. According to her, the computers at work were turned on 24 hours of the day, so at home she was afraid to use her son's computer and did not know how to turn it on. A few months prior to the study, she enrolled in a computer class at a

local community college, while she was still working full time. She described this course as a negative experience, because she felt the pace of the class was too fast, and that the instructor rushed through the steps. She dropped out after a few weeks, when she stormed out of the room during the first exam:

> *Entonces, un dia le digo,* "Dr. Higgins, please can you slow down a little bit? Because I'd like to take this note!" *Y luego dice* "No, we behind, we behind"[sic] *y luego dice "OK…" Y entonces ya, a la hora de la prueba, pues ya, tú sabes, si no, yo, tengo que tomar notas, porque si no tomo notas, pues no agarro nada. Entonces, un día cuando ya me dio el examen, y, y deste, y no, la segunda, como la segunda, tercera pregunta, dije bueno, aquí no le hallo. "¿Sabes qué?" Le dije, "toma tu papel." Y que me levanto y que me voy. Y ya no volví.*
>
> Then, one day I tell him "*Dr. Higgins, please can you slow down a little bit? Because I'd like to take this note*" And then he said "*No, we behind, we behind*" [sic] and then says "OK…" And then at the time of the exam, well, you know, if I don't… I have to take notes, because if I don't take notes, I don't get anything. Then, one day, when he gave me the exam, and, uh, and, the second, third questions, I said, well, I can't get this. "You know what?" I told him… "here's your paper." And I stood up and left. And never came back.
>
> (Rita, interview, 4-20-2010)

Rita felt that some students in the class were there just "to practice" and already knew the contents: basic functions of the Windows operating system, like creating folders or naming files. Although the class was in English, she did not feel the language of instruction was a barrier. In her view, the class was ineffective because she felt ignored when she asked for help or when she requested the instructor to slow down.

One of the main factors that prompted Rita to join the computer class at the center was her lack of employment. Not only did she find herself with time to attend school (after being laid off), but she also needed to file unemployment reports online. She mentioned that she felt embarrassed that she had to ask her son for help each weekend, when she needed to file updates. Her son encouraged her to take computer classes again: "*vete a la escuela, vete a la escuela, me dice*" [go back to school, go back

to school, he tells me] (focus group, 11-7-09). After hearing about the computer classes in the local Spanish-speaking radio, she decided to enroll in classes at the research site.

Access to ICT resources during study. Conditions of access reported by Rita in her household were shaped by her family dynamics and by her roles and responsibilities in the household. There were two functional computers in her house: a desktop for her granddaughters to use (a gift from their grandparents), and a laptop that used to be "hers" but was her son's now, because his own desktop had stopped working. Although her son encouraged her to use the computer making comments like "*ahí tienes la computadora polveándose"* [there you have the computer, getting all dusty] (focus group, 11-7-09), Rita's use of the computer at home during the time of the study was limited, especially when compared to the other participants. She had a hard time accessing her email account in class, and mentioned she did not check it very often.

During conversations with Rita, I noticed she was often worried about her son's computer, because he had a great deal of information stored in that laptop. She explained she still needed to ask for help, and she was afraid she would delete something: "*por lo regular mejor pregunto, porque tengo miedo a picarle algo que no es y borrarle algo a aquel*." [Regularly, I better ask, because I am afraid of pressing something wrong and deleting something of his] (interview, 4-20-10). Consequently, her routine access to computers and the Internet was limited, as she did not consider herself as a legitimate and competent user of this equipment. She also mentioned the struggles she experienced in the distribution of time of computer use, pointing to the location of the laptop in rooms that did not provide her with "full" access:

> *[Mi hijo] se puso abusado, la traía yo mucho aquí y la traía yo para mirar las recetas o algo, y miré así. O estuve haciendo lo de la biografía también. Y pues la traía yo aquí [to the kitchen], y pues cada vez que la buscaba, venía y la llevaba, y se la llevaba, y ahora la encajó por allá, [..] y ahora le dije a mi sobrino, "bájamela porque va a venir la instructora."*

> [My son] he gets smart, I used to bring it here a lot, and I brought it to see the recipes or something, and look at things. I was working on the biography too. And I used to bring it here [to the kitchen] and well, every time he looked for it, he came, and took it away, and took it away, and now it's stuck somewhere there, […] and today I told my nephew, "get me the computer downstairs because the instructor's coming."]
>
> (Rita, interview, 4-20-10)

Rita explained how her son kept the laptop computer in a small room that he used as a home office, where she did not like to be. As she started to move the laptop to search for recipes in the kitchen, or to work on her website for the HTML class—a biography on a Mexican president—her son kept moving the computer back to the little office. For the home visit in which I conducted this interview, Rita asked her nephew to bring the laptop back to the kitchen, since I was coming to see her. Consequently, the physical location of the laptop computer became a contested space, and Rita responded to this by moving the laptop back to the kitchen when she needed it.

Regarding access to mentoring and scaffolding opportunities from competent ICT users who lived in the house, Rita explained that they did not have enough patience—especially referring to her son, when she requested "step-by-step" instruction from him. She also reported feeling embarrassed to ask for help: "*Me da pena hasta con mi sobrino y con mi hijo* […] *me siento como 'que ignorante'*" [I am embarrassed even with my nephew and my son (…) I feel like 'how ignorant'] (focus group, 6-12-10). In the following excerpt, she describes an instance of this shame and frustration in enlisting her nephew's help, when she tried to file an unemployment report:

> *Un día le dije, "por favor me ayudas a…a mandar el deste, por favor me ayudas, ¿me puedes decir cómo hacerlo?" Me dijo "tía, vaya a tal parte." Así pues. Y ya le hice… pero, no me salía, entonces, ya luego le dije ya* "nevermind*" lo cerré. O sea que yo soy, como muy sentida, o también me enojo bien fácil.*
>
> [One day I told him "could you please help me to… to send the, this thing, could you please help me, can you tell me how to do it?" He told me "Tía, go to this

> site" Like that. And I did that, but it did not show up, then, and I told him "*nevermind*" and I closed it. I am very touchy, I get angry easily too.
>
> (Rita, Interview, 4-20-10)

In this narrative, Rita described her frustration when she struggled to perform the task her nephew was guiding her in. She preferred to stop the activity. Eventually, her nephew encouraged her to complete the task, but she stressed she preferred to remove herself from situations like these. As a result, her actual use of technology at home was limited. Overall, Rita's access to a shared computer and to potential mentoring by her family members was shaped by the relationships and social positioning made available to her within this particular context.

Case summary. Rita brought to the center rich and long experience navigating life in the U.S., and maintaining family connections transnationally. She had strong networks of relatives in her local community, and was able to use her oral English skills to communicate at work and with younger family members who were English dominant, like her granddaughters. Nevertheless, she was concerned about her limited educational background in Mexico, and the development of her literacy skills in English and in Spanish. She did not regard herself as an "educated person" (Bartlett & Holland, 2002; Levinson & Holland, 1996). Her use of computers in her work environment was limited to a mechanical and linear process that did not prepare her for independent computer use outside of this space. And, although computer equipment and competent computer users were present in her household, she reported struggles negotiating access to time and mentoring to further develop her digital literacy practices.

Marisa: "The Internet is for Me, for my Whole Life, until I Die"

When describing her life in Cuba, Marisa took pride in the fact that education was available for all, but also explained education was part of her family's values: "*en*

Cuba [la educación], toda la vida, desde que tú abres los ojos, ¿no? Por lo menos mi familia, depende la familia" [in Cuba, (education), for your whole life, since you open your eyes, right? At least in my family it all depends on the family] (interview, 4-9-10). She mentioned she was able to study English and typing in elementary school, before the establishment of communism; after that, her father made sure she kept studying that language. She went to medical school, and specialized in hematology; her husband Pablo went to law school. Prior to her migration, she was an experienced physician at a hospital, working in a hematology lab and training medical students. She and her husband went through a long process to obtain status to leave as refugees seeking political asylum, and arrived directly to Arizona in 2007. They received support in local offices to find a place to live, and opportunities to study what Marisa deemed to be crucial skills to succeed in the United States: English and computer skills.

Marisa said she had studied English in Cuba and believed that her English literacy skills were strong. She mentioned her frequent consulting of a hematology book in English and French that was her most valued professional resource. When she and her husband enrolled in ESL courses in Arizona, she was placed at an advanced level. Marisa stressed that what she needed to develop the most were her oral communication skills:

> *En Cuba se estudia el inglés-inglés. Teórico. Entonces que sucede, que tú no hablas inglés en ninguna parte, a no ser que llegue alguien y son saludos, y si los libros, libros técnicos, por ejemplo de medicina o de derecho o ingeniería donde tú, este que tienes que dominar, este, ese lenguaje. Que eso es otra cosa que tú tienes que ir a estudiar después, ahora que es la comunicación y el oído. Ya yo ahora ya sé, que cuando me habla en inglés un árabe, y me entiendo bien, la pronunciación. Si es un asiático, si es un norteamericano, que habla, el, el, americano de, lengua de la calle, el más difícil, o el inglés correcto. Que es el que me gusta a mí.*
>
> In Cuba you study English-English. Theoretical. Then, what happens, is that you don't speak English anywhere, other than somebody arriving and saying hi, and the books, technical books, for example, medicine or law or engineering

> where you, you need to master, the, the language. Something else you need to go study later, that's communication and listening. And now I know, when an Arabic person talks to me, I understand their pronunciation well. If it's an Asian, if it's American, a person who speaks, American, street language, [which is] the most difficult, or correct English. Which is the one I like.
>
> (Marisa, interview, 4-9-2010)

Marisa's strong academic and professional background allowed her to develop literacy skills in Spanish and English. Her views were different from Rita's, who regarded her literacy skills in English as limited and felt comfortable with her English oral skills and with codeswitching. Marisa, on the other hand, had developed views about language use in the U.S., distinguishing between "street" language and "correct" English—the latter being the one she preferred to use and learn, and that was spoken, in her view, by people like professors and anchormen.

Family networks and practices. Marisa and her husband Pablo did not have any local relatives they could rely on, but met other Spanish-speaking immigrants in their college and computer courses. They also registered as volunteers with Organizing for America, part of the Democratic National Committee under the Obama administration. They attended trainings where they made new acquaintances with both Spanish and English-speaking members. In addition, keeping in touch with their relatives back in their home country was crucial for both of them. Marisa attributes a lot of value to her ability to open an email account in the Basic Computer Skills course, because it facilitated this communication for them. As Marisa explains: "*¡Todo esto lo aprendí yo aquí! Si no fuera por… por ustedes, no sé qué sería de mí*." [I learned all of this in here! If it was not for, for all of you, I don't know what would happen with me.] (interview, 4-9-10). Marisa had parents, siblings and nieces in Cuba, as well as some relatives in Florida, that she was excited to reach through email and through phone calls.

Previous access to ICT resources. Marisa and her husband emphasized they only had a chance to learn how to use computers and the Internet until they arrived in the United States. In her hometown, Marisa's husband had attended courses that she described as very basic, and with very limited opportunity for students to use the equipment. She described the first computers she saw at her niece's home:

> *En Cuba, las computadoras que toqué, pero que no usé fueron en la casa de mi sobrina en La Habana que tienen hasta, escondido, claro, tienen hasta 200 canales, pero eso es muy escondido. Con antenas parabólicas, computadoras, que la hermana le manda el dinero. Pero eso no está al alcance de la población.*
>
> In Cuba, the computers I touched, but never used, were in my niece's home in Havana, they even have—hidden, of course—almost 200 channels, but that's hidden. [Her home has] Satellite dishes, computers, her sister sends her money. But that's not within the [general] population's reach.
>
> (Marisa, interview, 4-9-2010)

Although Marisa had the chance to "see" computers at her niece's home, she argued that her job and the pressures of her immigration application process prevented her from taking computer classes while in Cuba. Once they settled in Arizona, she and her husband received a computer as a gift from the church they attended. However, her husband thought it was old and not functioning very well, so they stored it and stopped using it. Their first access to Internet and email use was at the computer course offered at the research site. They enrolled the semester prior to the study, and by the time I met them in the spring of 2010, email communication with their relatives and with local organizations was part of their daily routine.

Access to ICT resources during study. During the fall months, Marisa and her husband visited the community center at times to check their email. However, when they heard about the spring Web Design course in one of these occasional visits, Marisa and her husband decided to enroll to further expand their computer knowledge. At the time of the study, they did not have a computer at home, but they lived in an apartment

complex where there was a common room with three computers for residents' use. Marisa said she and her husband felt comfortable using the equipment and navigating the Internet in this space. In addition, both of them attended ESL classes on a daily basis at a community college, where they had access to a computer lab. They were hoping they could afford a newer computer and Internet connectivity in the future, since cost was the main reason they did not have this access at home.

Case summary. As a result of her educational and professional experiences, Marisa had developed a strong academic identity that she tried to maintain in her new life in the U.S. In spite of having strong literacy skills in her first language, structural conditions in her country of origin had prevented her from learning how to use a computer there. Compared to Rita, Marisa was able to enroll in full-time ESL courses after her arrival to the U.S. and her institutional affiliations provided her with opportunities to access computer equipment at a school lab. After she and her husband had gone through the initial Basic Computer Skills course together, they visited computer labs in their apartment complex, the community college and the community center (research site) together, providing support for each other. In spite of her short time in the U.S., her cultural capital and the social networks she was building with institutions and organizations supported her digital literacy socialization process.

Rafael: "I First Took Computers Apart, Then I Learned the Programs"

Rafael grew up and went to school in Northern Mexico. He attended public schools for his K-12 education, and completed an undergraduate degree in geology at the state university, located in the same city, during the 1980s. Rafael said he had really enjoyed geology, and worked in the field of gold exploration after graduation. Nevertheless, when the price of gold plummeted in the region, the job market became harder. In this situation of economic hardship, Rafael decided to migrate north, as he

explained: "*hubo haz de cuenta la recesión de ahora, corridos masivos así de geólogos, sin trabajo. De hecho fue una de las razones que me animé a venir al sueño americano, que no lo encuentro*" [there was a type of recession like the one happening now, massive amounts of geologists being let go, without work. In fact, that was one of the reasons why I got the nerve to pursue the American Dream, that I can't find yet] (interview, 5-13-10). In spite of the time he had spent in the U.S., he felt that in those ten years he had wasted his time:

> *Me quedé en el… me quedé en el aire,…. Y siento que como es tiempo perdido. Como que… se hizo un paréntesis en mi vida, y ¡nada! Ni pa' atrás ni pa' adelante. Porque, ni siquiera seguí leyendo sobre geología, ya ni me acuerdo de muchas cosas.*
>
> I got stuck … got stuck like floating in air… And I feel this is all wasted time. Like… my life was in the middle of a parenthesis and, nothing! Not moving backwards, not moving forward. I did not even keep reading about geology, I can't even remember a lot of things.
>
> (Rafael, interview, 5-13-10)

In his employment in Arizona in the labor industry, Rafael was not able to put into use his professional skills and knowledge. In addition, he had quit attending ESL classes after the birth of his daughter (6 years old). He said he thought his English oral communication skills were limited, and he felt he had little opportunity to improve them, because most of his coworkers spoke Spanish. As a result, he felt he lacked fluency to respond promptly to English native speakers:

> *Aquí estudié y si aprendí bastante, pero como no lo practico. Entiendo mucho, según yo, no. Digamos un 80, 90 por ciento. Cuando alguien me habla yo puedo entender. Pero mi dificultad es para armar la oración. En inglés, rápido, para contestar. Como siempre he tenido jefes gringos, me dicen algo, y yo no nomás contesto ah… o en señas.*
>
> I studied here and learned a great deal, but I don't practice. I understand a lot, that's what I think. Let's say, 80, 90 percent. When someone speaks to me I can understand. But my struggle is to put a sentence together. In English, quick, to

> answer. I've always had American employers, they tell me something and I just respond, uhm… or with gestures.
>
> (Rafael, interview, 5-13-10)

In comparison to Marisa and Rita, who felt confidence about some of their English language skills, Rafael often commented in class he did not like to use English, and he labeled his knowledge as poor. In spite of his strong academic and professional background, Rafael's work circumstances and family responsibilities thus made it hard for him to pursue further educational opportunities. He was not able to capitalize on the skills he acquired in higher education in Mexico, working instead in a profession that was not related to his past experience.

Family networks and practices. During his time in Arizona, Rafael and his wife were able to make a living and to maintain a close relation with his wife's siblings. They lived in the same city, and their nephews had been born in the U.S. Rafael's siblings and parents, on the other hand, still lived in Mexico, but were able to visit him often. In addition, Rafael had acquaintances from his hometown who were alumni of his same university, who had also migrated and were working in Arizona.

At home, Rafael and his wife tried to enforce a Spanish-only language policy to raise their daughter. He was surprised to see how she was able to speak English with her peers at school, and tried to keep languages "separated," in an attempt to prevent code-switching, which he deemed undesirable for her to learn: "*Así nada que, los Spanglish ni las… ni las pochos que medio inglés ni nada. Puro español*." [So nothing of, Spanglish, nor the… no *pochos*, no half English, nothing. Only Spanish] (interview, 5-13-10). In his view, speaking Spanglish or "*pocho*[1]" was not an acceptable practice. He mentioned his wife was trying to teach her to read in Spanish, but he feared they might "confuse"

[1] "*Pocho*" is a term used to label codeswitching practices by Mexican-Americans with negative connotations.

her, because she was taught to read in English at school. Overall, Rafael's networks and practices seemed to take place mostly in Spanish, and he kept close ties with relatives living in Mexico through their visits and phone communication.

Previous access to ICT resources. One relevant aspect of Rafael's knowledge about was the influence and support he gained from his transnational experiences and social networks. Rafael's first experience using computers went back to his college years, where he took a programming class. For this class, they needed to punch cards to be processed in early computer models (prior to PCs) that read them. Rafael mentioned that in his early work as a geologist he did not use any computer equipment similar to what we know today. As he narrated in his personal homepage (described in Chapter 6) he distanced himself from their use, especially after he moved to the U.S.

After several years living in Arizona, Rafael received advice from his brother who lived in Mexico to assemble his first personal computer. At that time, around 2005, his brother worked as an ethnic studies teacher in Rafael's hometown, and used a computer as part of his job. In his visits to the U.S. to see Rafael, they went to electronics stores together, as he explained:

> *Y cuando él venía, lo llevaba a ver las tiendas, y uuuta… se quedaba maravillado "Mira como hay mucha tecnología." Y por fin me animé y compré la computadora. Y luego cada rato me decía "ponle el internet, la computadora no es nada sin el Internet."*
>
> When he came, I took him to the stores, and oooh… he was marveled. "Look at all this technology." So I finally got the nerve and bought the computer. And then he told me every now and then "get the Internet, the computer is nothing without the Internet."
>
> (Rafael, interview, 5-13-10)

Encouraged by his brother, Rafael started to buy the different parts of the computer before putting it together. Over several months, he purchased a CPU at a yard sale, a flat screen, a hard drive, and a CD-ROM drive. He asked questions to salesmen at

electronics stores, and through trial and error, managed to put all the pieces together. However, when it was time to install software, he sought professional assistance. He found Spanish-speaking technicians in a Latino ad magazine, and they installed Windows and other programs for him in Spanish. His brother also brought him CDs with software to edit photos and manage music files that he also installed in Spanish. Given his strong network of local and transnational Spanish-speaking resources, Rafael was able to develop his knowledge about computers "from the outside in," as he describes it: "*Yo empecé al revés. Yo primero las desbaraté y luego ya empecé a hacer, a aprender los programas*" [I started backwards. I first took them apart, and then started to do, to learn the programs] (interview, 5-13-10).

For Rafael, coming to the center was an opportunity to come back to adult education courses. In spite of his knowledge on hardware, software installation, and online communication, he considered he had a lot left to learn. He watched a TV commercial advertising the courses in one of the Spanish channels. He was drawn to the low cost of the classes and the convenience of the schedule, and started attending in October, 2009.

Access to ICT resources during study. By the time we met, Rafael had assembled his own desktop computer. He considered himself to be the most knowledgeable member of his household in computer matters; he shared his equipment with his wife and daughter, and was in charge of fixing it when it was malfunctioning. In class, he often complained about his computer being slow, as he tried to find ways to improve its performance. He mentioned it was not worth it for him to install new programs—like Microsoft Office—because the computer was old and he was hoping he could get a laptop soon.

In addition to his brother in Mexico, Rafael mentioned he had an acquaintance who he called for computer support. His friend had gone to college with him in Mexico, and his wife had studied information technology. Rafael complained about his friends' inability to teach him to troubleshoot. He usually opened multiple windows to show him different things at the same time: *"[decía] ah mira, aquí salió un video de esto [...]. Y luego se cambiaba y... o sea que, al mismo tiempo hacía como cinco cosas*" [he said, "look, here's a video of this (…) And then he switched and... I mean, he was doing like five things at the same time] (interview, 5-13-10). He also relied on Spanish-speaking technicians when he took his computer in for service, but he did not think they were transparent when explaining the work they had done. In a similar way Rita did not deem her interactions with family members as useful for her learning, Rafael also regarded competent ICT users in his social networks as unable to teach him.

Case summary. Like Marisa, Rafael's cultural capital aligned with practices related to ICT use: he had attended college, had strong first language literacy skills and had access to his own equipment at home, with the expertise of assembling it and finding resources for troubleshooting. He also had a strong network of computer users beyond national borders, including his brother, who used a computer frequently at his workplace in Mexico, and who encouraged and guided Rafael in his first computer purchase. Compared to his brother, Rafael did not have access to a computer in his workplace, and he was not able to apply any of the skills from his professional background in Mexico. In addition, his opportunities to use English in this environment and in his household were also very limited. Although structural conditions prevented Rafael from taking additional ESL instruction or working in a different job, he invested time in trying new things to improve his computer equipment, and tried to make the most out of the evening courses he took at the research site.

Joselyn: "I Try New Things, to Teach Myself"

Like Rafael, Joselyn had lived in the U.S. for 10 years. She had also been able to complete some higher education level courses in her hometown in central Mexico, where she attended two years of business school. She met her husband in Arizona, whom she described as very supportive of her efforts to learn English. She attended ESL courses in a community college for two years, and described her English proficiency as very low when she migrated: "*Cuando llegué a este país, yo estaba ciega, ni entenderte 'cómo estás*'" [when I arrived in this country, I was blind, I could not even understand "how are you"] (interview, 4-15-10). Joselyn considered that both everyday language use and ESL courses contributed to her learning, but deemed formal instruction as crucial, in terms of grammar knowledge: "*primero las clases, porque puedes vivir la vida diaria y a veces, si lo escuchas, pero no es lo mismo el saber la gramática como va*." [classes are first, because you can live your everyday life and you do listen to it, but it is not the same as knowing how grammar goes] (interview, 4-15-10). For her future educational goals, she hoped she could resume her education, to perhaps pursue a degree as a nursing assistant.

Family networks and practices. Most of Joselyn's relatives were living in Arizona at the time of this study, including her siblings, nephews, mother and grandmother. Because most of her family lived in the U.S. she had not traveled to her hometown in a long time. However, she kept a close relationship with her husband's relatives who lived in Mexico (her sisters-in-law), and some of his nieces who lived in Arizona as well. She shared various family responsibilities with her sister Guadalupe, including child care, carpooling, and helping their mother with a small business. When both of them attended the computer class, her husband was able to take care of their daughters. Joselyn and her husband tried to establish a one-parent, one-language policy to raise them to be bilingual. She took on the role of the Spanish-speaking parent,

explaining that her husband was very fluent in English. Overall, Joselyn had a very strong local network of relatives in her community, as well as transnational networks with her husband's family abroad.

Previous access to ICT resources. Joselyn recalled taking a computer skills' class in high school around the mid 1990s. She regarded these courses as very limited: "*nos ponían, más que nada, como a ver programas allí. Estabamos solamente viendo, y nos decían como apagarla y prenderla*." [they had us mostly look at programs there. We were only watching, and they told us how to turn it on and turn it off] (focus group, 11-3-09). After migrating to the U.S., she had used a desktop computer at home to view a computer-based English course (in CD-ROM) that she did not find very useful. Prior to the study, she had taken another basic computer class in Spanish at the public library, where she said only "the basics" were taught: how to use a mouse and a keyboard, and conduct basic online searches. When she saw a commercial advertising the center's course in a Spanish TV channel, Joselyn and her sister decided to enroll in the fall courses.

Access to ICT resources during study. When Joselyn started the course at the research site, she reported visiting her sister Guadalupe's home to practice some of the assignments they had learned together. After three months in this class, Joselyn received a new laptop as a birthday gift from her husband. She shared this news with her peers at the center, and asked the instructor questions about the programs she needed to install. In addition to the advice from instructors, she relied on her adolescent nephew, Christian (Guadalupe's son), for technical support. On various occasions, Joselyn described Christian as "the expert" she consulted when she had a question on computer security or program installation. According to Guadalupe, Christian was the most knowledgeable person in their household, since he spent most of the time using the computer and he

fixed it if it ever had a problem. In an interview I did with Christian, he explained how Joselyn enlisted his help in computer "emergencies," like virus threats: "She came to my house that very night, […] I took them all off and got her system restored." (interview, 4-15-10). She also asked him how to download music from the Internet.

In the first months of the study, Joselyn also mentioned that she had relatives in Mexico who had access to computers, and who she stressed already knew how to use ICTs: "*porque la parte de mi esposo, su mama, sus hermanas, todos ellos, tienen acceso a computadoras. Están estudiando en México, entonces yo creo que sí, es muy buena idea. Saber cómo, mantenerlos en contacto*" [because from my husband's side, his mom, his sisters, all of them, have access to computers. They are studying in Mexico, so I think that's a very good idea. To know how to, how to keep in touch] (focus group, 11-3-09]. Joselyn was hoping to learn about ways to reach them and to establish online communication with them. Hence, her network of relatives who were familiar with technology use extended across national borders.

Case summary. Joselyn was able to rely on the multiple ICT resources available in an extended network of households: her sister's computer, her nephews' technical support, and her husband's support with childcare for her to attend evening school. Like Marisa and Rafael, she had taken college-level classes in her country of origin; and like Rita, she had the opportunity and support to attend ESL instruction after moving to the U.S. In addition to the strengths of her social capital through her family networks, Joselyn's access to brand new computer equipment for her personal use made a difference in her digital literacy socialization process, especially when compared to the other participants. She had material and social resources available, as well as an educational background where she could develop literacy skills in her first and second language. Like Marisa, she had strong first-language literacy skills, but she also had a

strong network of relatives who were digitally literate living near her in the same city, and living in her home country. She was able to draw from the various sources of knowledge in these networks, and use her primary language to facilitate these interactions.

Miguel: "I Never Thought I Would Have my Own Computer"

Miguel migrated to the U.S. when he was 18 years old, from a rural town in central Mexico. He attended public school there, until his third semester in high school, when he dropped out and started to work. Miguel recalled and regretted that he did not find school very interesting. After migration, he worked long hours, and it was not until a friend of his encouraged him to go back to school that he decided to do so in the fall of 2009. When he thought about his prior focus on "work, work, and work," he said he felt glad to make the decision to enroll in adult education classes. Reflecting on the opportunities he had missed, he decided to share his experience with others who were younger than he was and who were able to stay at school:

> *Solamente pensaba en trabajar. Y a las personas que conozco más jóvenes que yo, y que tienen la oportunidad de estudiar… Pues yo, de alguna manera, basándome en mi experiencia que he tenido, les aconsejo de la mejor manera que yo considere que sigan estudiando y que lo hagan lo mejor que puedan, porque yo quisiera poder hacerlo.*
>
> All I thought about was working. And everybody I know who are younger than me, and who have the chance to study… Because I, in some way, based on the experience I've had, I tell them in the best way I can that they should continue studying and that they should do it the best way they can, because I wished I could.
>
> (Miguel, interview, 2-28-10)

In addition to joining the Basic Computer Skills course, Miguel also enrolled in ESL evening courses. He mentioned some struggles getting used to school after a long time, and considered the educational system and grading in the U.S. to be very different to what he had experienced in Mexico. For instance, a friend of his helped him

understand the letter grades, and explained what it meant to obtain a B in his ESL grading card. He thought his English skills were still limited, but still tried to "practice" by reading his bills, or studying his notes. In the spring, he could not continue attending either of these courses because of his work schedule. Although he had been working with a wood carving company, he had to switch jobs over the winter break. However, he was able to find a GED course in Spanish that fit his schedule, and reported being excited about the content of this class.

Family networks and practices. Miguel's parents and most of his siblings and extended family lived in Mexico. He communicated with them mostly through the phone and through regular mail. Miguel supported them economically, sending remittances back home. Two of his older siblings were living in California, but he did not keep in touch with them as much: "*pero ellos, [son] ajenos a mí, a mi estilo de vida. Ya tienen su propia familia.*" [but they (are) distant from me, from my lifestyle. They have their own family.] (interview, 2-28-10). During the fall semester, Miguel had a roommate who was Mexican too, around his age; he also had a female friend who had lived in the U.S. for a longer time, and who motivated him to go back to school. Miguel also shared with me pictures of other friends he played soccer with. However, during the spring semester, some of his friends (and his roommate) were deported. Hence his local social network of acquaintances was dramatically reduced.

Previous access to ICT resources. Miguel remembered taking a computer class in high school, which he considered only covered very basic information, that he did not remember well. He mentioned the class was around two hours a week, and that about 35 students needed to share ten computers. In addition to the limited equipment, Miguel remembered that he did not see the relevance of this course for his future:

> *Nunca yo eh, digamos… veía un interés más allá de eso, nunca yo… nunca pasó por mi mente que en algún momento llegaría yo a tener mi propia computadora. Y tendría que saber cómo usarla. Por lo mismo que, no había tanta facilidad para acceder a ellas, y no era tan común, dentro de mi familia y dentro del ambiente en el que yo vivía.*
>
> Never have I, let's say… saw an interest beyond that, I never thought… it never crossed my mind that at some point I would have my own computer. And that I would have to know how to use it. Because of this same situation, it was not easy to access them, and it was not common, within my family, and within the environment where I lived.
>
> (Miguel, interview, 2-28-10)

Although Miguel described the access in his community as very limited when he was a high school student, he noticed a change in his recent conversations with his nephews. He recalled that during his own childhood, he never heard about computers. However, his nephews, who were around 10 and 12 years old, told him on their phone conversations that they knew about computers and started to use the Internet. This gave him hope about the progress in his hometown, commenting "*y digo, que bueno, yo en mis tiempos, uff, la palabra computación casi no pasaba por mi mente*." [and I say, that's great, in my times, uff, the word computing never crossed my mind] (interview, 2-28-10). Consequently, the research site was one of the first places in which he learned how to use computers—other than his high school experience—and used a laptop for the first time.

Access to ICT resources during study. Like Joselyn, Miguel was able to purchase a laptop computer after a few months in the Basic Computer Skills course. For him, buying his own computer was a great achievement: he recalled that this seemed impossible to him when he was a middle-school student in Mexico. He brought his laptop to the center, to seek advice in installing the software they were learning in the course (Microsoft Office applications). He reported feeling frustrated about sharing his new laptop with his roommate who was doing "all kinds of things" with his laptop camera and instant messaging, and did not show him how (field notes, 11-7-09). Like

Rafael and Rita, he reported not being able to receive proper mentoring from household members; and although he had full access to his own computer, he sought explicit instruction that could make his use transparent.

Case summary. More than 40 years separate the migration histories of Rita and Miguel. However, there are similarities in their reasons for leaving school and their reasons to migrate in their youth to support their parents economically. Miguel's access to ICTs was limited in his community and, according to his account, previous conditions of instruction were deficient, compared to what he received at the research site. Unlike the other participants, Miguel's local social networks were very limited, and the political climate in the state of Arizona at the time of the study—when Senate Bill 1070 was signed into law—exacerbated this by influencing his acquaintances to leave the state. Because he was not able to rely on peers to mentor him in the use of his brand new computer, he benefitted from the explicit scaffolding he received at the center.

Histories of Migration and Access

In this section I introduced the educational, professional and family backgrounds of the five focal participants in this study. Their past and current circumstances provided them with different of types of cultural and social capital associated with the use of ICTs. Survey work cited in Chapter 1 considers lack of English proficiency, low income level, lack of social networks of computer users, and low educational background (Fox & Livingstone, 2007; Ono & Zavodny, 2008) as factors that prevent first-generation immigrants from engaging in ICT use. The trajectories presented above allow us to take a closer look at the participants' backgrounds, providing a complex picture of how these factors play out in digital literacy socialization.

A transnational view of educational and work histories makes visible the academic and professional identities that first-generation immigrants develop through

active connections to more than one nation-state. They also help frame the investment (Norton, 2000) of adults' learning of certain skills, and to understand their social positioning before and after migration. For instance, Rafael and Marisa had professional backgrounds and higher education degrees prior to their migration. They viewed their current circumstances as immigrants in the U.S. from different perspectives, given the opportunities they had to continue their education. Marisa, for instance, situated herself as a full-time student, for whom digital literacies were a new set of practices in her academic trajectory. Rafael, in contrast, was rediscovering his passion and interest for new technologies, interrupted after he graduated from college—even when he had to keep a job comprising manual labor, unrelated to his professional background.

Participants' social networks locally and transnationally became a type of the social capital that influenced their later experiences with ICTs (Portes, 1998). In this case, social capital included the structure of the family, community and institutionalized relationships that can provide different types of support. Rafael's network of transnational relatives provided support and encouragement for him to find a way to purchase a computer of his own. Joselyn and Rita had extended family networks in the U.S. and in Mexico, and Joselyn received further support in her attendance to school and childcare through her local family networks. Marisa and Miguel, on the other hand, had a more limited network of local support, since most of their relatives were back in their home countries. Nevertheless, Marisa and her husband were actively involved with various institutions as full-time students and volunteers, and this helped them navigate their lives in a new country.

The confluence of economic, social and cultural capital resources had implications for participants' negotiation of ICT resources. These resources were mobilized differently, as individuals adopted technology use in complex ecologies of

practice, where roles and responsibilities were distributed in particular ways. Their availability to equipment and Internet connectivity (physical resources) and interaction with competent ICT users (human resources) is summarized in Table 7.

Table **7**

Distribution of ICT Resources

	Rita	Marisa	Rafael	Joselyn	Miguel
Computer equipment and Internet connectivity	Shared laptop at home with son and nephew.	Used computer lab at apartment complex and community college.	Used own assembled desktop computer in 2005.	Received new laptop as gift in late October 2009	Purchased new laptop in November 2009
Competent ICT users	Son and nephew	Nieces and nephews in Cuba	Friend from college Brother (in Mexico)	Adolescent nephew and nieces-in law Sisters-in-law in Mexico	Roommate

Participants' access to computer equipment during the study ranged from lack of ownership of a personal computer at home (in the case of Marisa), to Miguel's and Joselyn's ownership of brand new laptop computers during the fall semester. While survey reports provide information on the limited access that Latinos or other minorities have to ICTs, they usually focus on the presence or absence of equipment in a household, the number of computers, or the frequency of use. They do not describe the complex nuances of shared use of ICTs as household resources, nor the social implications of mobility and quality of equipment, something this analysis intends to do. Although Marisa and her husband could not afford a computer in their household, their investment in their academic preparation motivated them to frequent public computer labs at their community college and apartment complex. For Miguel, his enrollment in the computer

class strengthened his decision to purchase a laptop computer, in spite of the large amount of money required just to "get started." For Joselyn, support from her relatives in her emergent computer use resulted in obtaining a brand new laptop for her private use—a condition of access that was more complex in Rita's household, where she needed to negotiate her positionality as a legitimate user.

Regarding access to knowledgeable ICT users, for most of the participants, interactions with peers and relatives for the purposes of computer support lacked the explicit nature of classroom instruction. Their interactions were mediated by the relationships and social positioning already existing in each family network. This positionality was favorable for Joselyn, whose funds of knowledge were pooled across various households, including her nephew Christian's skills. In the case of Rita, however, power and legitimacy positions limited her access to her younger family members' expertise. Although both her son and her nephew were knowledgeable in computer skills, Rita reported feelings of shame in their interactions when she requested help. Rafael and Miguel also reported similar frustrations in their own observations of more competent peers' use of ICTs that were not conducive to their own learning, in their perspective. Overall, although most participants were acquainted or related to other ICT users, their presence did not guarantee interactions that resulted in successful scaffolding for some of them—in a similar way in which physical resources' presence or absence was not enough of an indicator to ascertain computer use.

As Snyder et al. (2002) point out, access to ICTs is mediated by various cultural resources available to individuals in their contexts of use—in this case, participants' households, and schools. From a sociocultural perspective to learning, interactions leading to apprenticeship in values and practices of cultural communities involve the structuring of participants' involvement to engage and support shared endeavors (Rogoff,

2003), and the use of culturally available tools. In formally structured programs based on these principles (e.g., the Laboratory of Comparative Human Cognition's Fifth Dimension), the availability of tools like computers and games is woven together with social arrangements of novices and experts and the relationship they build over time (Cole & Distributed Literacy Consortium, 2006). In the experiences reported by Rita, Rafael and Miguel, the nature of their relationship with potential mentors was not conducive to the type of scaffolding they felt they needed to utilize a cultural tool available in their household.

Further resources beyond material equipment and mentoring opportunities have been incorporated in conceptualizations of access; for instance, the presence of relevant content in users' languages, and the societal structures (community, institutional) that facilitate technology use (Servon, 2002; Warschauer, 2003). Nevertheless, from a perspective that regards digital literacies as socially and culturally situated (Barton & Hamilton, 2000; Snyder, 2009; Street, 2000), it is important to understand the socialization processes in which individuals participate, and the conditions that shape this participation. Within households, for example, work and leisure may be distributed along gender, age or ability (Marshall, 2008), including the use of ICTs along these same social identities. Therefore, understanding the affordances or constraints of these social identities for ICT learning is a crucial aspect to consider in the definition of access to new technologies.

In addition to understanding structural forces and conditions that shape ICT access, participants' meaning-making of ICT tools are also instrumental in their decisions to invest in their efforts to learn how to use them. From a view of literacy as socially constructed, understandings of "what counts" as literacy, and "what counts" as competence, are constantly negotiated and reconstructed in the various settings where

literacy is used (Luke, 1994, Street, 1993). Historical influences and present-day circumstances both inform participants' construction of ICTs in particular ways. In the next section, I focus on the meaning-making process and values that participants attribute to digital literacies, and analyze how they frame their interactions, engagement and participation in technology use.

Constructing Digital Literacy: Meanings and Understandings

In order to fully understand participants' emergent digital literacy practices—the cultural ways in which participants appropriated and constructed literacy—it is necessary to document the ways in which they talked about and made sense of these tools (Barton & Hamilton, 2000; Street, 1993). Since literacy is shaped and used in institutional sites and events, its use in practice is constructed by individuals and communities in everyday life, even while it *constructs* everyday practices (Luke, 1994). In their interactions at the community center with peers and instructors, with family members at home, and in their lived experiences with technology use, participants build models that define the role of technology in their lives, their own competences as technology users and the competences of others. The analysis of the values they attach to technology allow us to see the ways they negotiate, appropriate or challenge larger societal discourses about the need to acquire ICT skills.

In participants' talk, the following themes emerged as relevant, with particular, divergent and sometimes competing views among participants. The first one refers to the construction of digital literacies as necessary for survival, given the changing nature of everyday demands in technology domains. The second one describes the competing discourses regarding the ability of young and old users to learn and appropriate these tools. This refers to whether digital literacy practices come "easier" to youth, and are not

meant for older learners to engage in, or whether they can be tools for lifelong learning, no matter the user's age.

"It's Basic that You Know:"A Skill to Survive and Succeed

Coming to the center and enrolling in a "basic" computer's skills course was an experience that allowed participants to gain a skill they deemed crucial to survive in their everyday life tasks, where technology was becoming more and more common. For Marisa, it became crucial to both survive and succeed in her life in a new country, where access to computer equipment and Internet connectivity was dramatically different, compared to the conditions of access in her country of origin. Rafael describes learning how to use a computer as "*básico,es… es elemental ahorita. El saber la computadora.*" [It's basic, it's elementary now. To know how to use the computer.] (interview, 5-13-10). Marisa emphasized the development of society towards the use of these tools, and the need to learn these skills to stay on top of these developments: "*Es el desarrollo humano. Tú tienes que ir a la par de la sociedad. Donde quiera que estés*" [It's human development. You have to keep up with society. Wherever you are] (interview, 4-9-10).Similarly, Rita explained how knowledge of computer skills had become visible and dominant in her everyday life: "*La computadora es importante, hasta para tu vida diaria. Porque, como por ejemplo, cualquier cosa es la computadora, te dice, vete al* dobliu, dobliu*, bla-bla-bla*." [The computer is important, even for your daily life. Because, for example, for every single thing, they tell you, go to *doble u, doble u,* bla-bla-bla] (focus group, 11-7-09). Rita, Rafael and Marisa stressed how computer knowledge had become a mainstream expectation in everyday practices; and as Rita noticed, people were often referred to website URL addresses for further information. This was the case of her unemployment application; when she went to the government offices to ask for help, she was told she needed to submit her reports electronically through an online platform.

In addition, for Marisa, learning computer skills was an important goal when she first arrived in the U.S., along with improving her English language skills. As she explained in the following quote, she deemed these skills as a gateway to better opportunities: "*eso era un objetivo mío cuando yo llegué a Estados Unidos. Lo primero, la computación y el idioma. Porque eso es lo que te abre las puertas donde quiera. Tú tienes que sentirte útil donde quiera."* [that was a goal of mine when I arrived in the United States. First, computer and language learning. Because that's what opens you the door everywhere. You need to feel useful everywhere] (focus group, 6-10-10). In addition, she stressed the opportunities to learn that she and her husband gained upon arrival in the United States, contrasting their professional expertise with their lack of knowledge of computer skills: "*Mira por ejemplo, permiso, nosotros llegamos a este país. Pablo, un abogado, y experimentado allá y que… casos ganados. Sin embargo nosotros vinimos a aprender computación aquí."* [Look, for example, excuse me, we arrived to this country. Pablo, a lawyer, with experience and that… (he had) won cases. Nevertheless, we got to learn computer skills here"] (focus group, 6-10-10). Although it is clear they viewed computer skills as necessary for succeeding, Marisa referred to the structural conditions that created a different milieu for learning in their country of origin.

In a similar way in which autonomous models of literacy (Street, 1993) assumes automatic benefits for the acquisition of literacy skills, Marisa's views of digital literacy skills placed immediate benefits of "opening doors" in her new life in the United States, as she was making sense of a society to which she was a recent immigrant. Rita, who had been in the U.S. for longer, witnessed the migration of practices that were usually carried out in paper—e.g., filing unemployment forms—to digital spaces, and reported she needed to expand her repertoire of practices in order to fulfill everyday transactions. For her and for Rafael, their existing print-based literacy practices were no longer enough to

meet everyday demands. These constructions of use of technology as a skill needed for survival and success informed their decisions to join the computer course. Although they saw the importance of these new skills, their views about learning and appropriation of digital literacy practices were also shaped by their perspectives on age, lifelong learning and the "generational" divide, described as follows.

"If I Were Young Like You…" Constructions of the Generational Divide

The notion of a generational divide, where digital "natives" and digital "immigrants" (Prensky, 2001) have different dispositions and attitudes to the use of new technology, may oversimplify the complexities of digital literacy socialization of adult learners. Buckingham (2008) draws attention to the limitations of this approach, when it obscures the conditions of inequality that young learners may experience. Hence, it limits our perspectives in the expectations and understandings of technology use by adults and youth. An instance of this complexity is found in Miguel's, Rita's and Marisa's understandings of their ability and potential to learn computer skills that later shaped their own participation in digital literacy practices.

Although Miguel was the youngest student in the class, he expressed feeling embarrassed about not knowing much about computers at his age, especially when a friend of his was surprised by his limited knowledge. He remembered her saying "*¿Cómo? Eres tan joven y ¿no tienes conocimiento de eso?*" ['What? You are so young and you don't know about that?"] (interview, 2-28-10), and her comments and encouragement were one of the reasons he decided to go back to school. At age 22, Miguel said he had wasted valuable years when his education was interrupted. He described the power of his friend's comments to help him decide to enroll in adult education courses, "in spite" of his age:

> *Aunque estoy muy joven, mmmh, considero que ya perdí muchas oportunidades. Y…. y nunca nadie me había dicho que…. Que yo también podía hacerlo, aunque, con los años que tenía, y cuando esa persona me lo dijo, dije, nunca, nunca nadie antes me había dicho eso. Y bastó que ella me lo dijera para reflexionar. Yo lo puedo hacer.*
>
> Although I am very young, mmmh, I consider that I have already lost many opportunities. And… and nobody before had told me that… that I could be able to do it too, that, even with my age, and when that person told me, I said, never, nobody had ever told me that. And it was enough for her to say it for me to think about it. I can do this.
>
> (Miguel, interview, 2-28-10)

The way Miguel frames his experience and abilities is not necessarily based on his age compared to his peers in the classroom, but on the opportunities of learning he had missed by dropping out of school at a young age to join the workforce. Although he had been away of school for less time than the other participants, it took encouragement from a peer to make him realize it was not too late to go back to school. Miguel also reported that being young did not necessarily make things easier at the center, since he had not had the experience of using laptop computers before, and he felt confused with manual operations, like handling a mouse. In fact, he regarded his older peers at the learning center (especially Rita) as a motivation to make an effort to learn, appreciating their enthusiasm and interest in the course:

> *Lo dije en algún momento, más, una de las cosas que más aprendí yo aquí era la voluntad, que las demás personas tenían porque…. Porque a veces me daba un poquito de pena porque yo era el más joven de todos. Y… cómo es posible de que estas personas que tienen 30, 40 años, quieran aprender. Y yo que tengo 22, no, no, pueda hacerlo. Y eso, fue una de las cosas que más me motivó a seguirlo haciendo.*
>
> [I said this some time before, though, one of the things I learned here was about their will, that others had because… Because sometimes I was a little embarrassed, because I was the youngest of all. And… how is it possible that these people who are 30, 40 years old, want to learn. And that I, at 22 years old, am unable to do it. And that was one of the things that motivated me to keep it up.]
>
> (Miguel, interview. 2-28-10)

Miguel constructed his ability to learn computer skills as something that is directly related to his will power and motivation to seek opportunities to learn, which he had lacked in his home country. However, he did report feeling shame that he did not know what he was "supposed" to know about technology at his age. These feelings also contributed to his decision to enroll in computer courses. Miguel's trajectory and meaning-making of his lack of knowledge of computer skills provide a valuable counter example of assumptions about the millennial generation's "natural" dispositions to engage in digital literacy practices. His account makes visible the structural forces that had prevented him from receiving formal ICT instruction or allowed access to computers and Internet connectivity (in the U.S. and in Mexico). They also highlight the agency he exercised to go back to school and gain these skills, and the relevance of his interaction with older students, promoting intergenerational values to construct lifelong learning.

Another participant who expressed strong beliefs about her ability and will to learn at all ages was Marisa. In the first Web Design class session, Marisa and her husband introduced themselves to their peers quoting Cuban philosopher José Martí: "*siempre se aprende, hasta la tumba*" [you always learn, until the grave] (field notes, 1-23-10). Marisa recalled some struggles in her initial computer use, juxtaposing her high educational level (as a physician) with her beginning computer skills: "*porque me creía que nunca iba a aprender. A pesar de mi nivel, yo decía, no, ¡nunca voy a aprender!"* [because I thought I was never going to learn. In spite of my level, I said, no, I am never going to learn!] (interview, 4-9-10). However, she was proud to learn in spite of her struggles, and was interested in attending as many courses as she could, related to computer skills and English. For her, the Internet had become a "lifetime" tool that she was intending to develop as much as she could:

Imagínate, la Internet es para toda la vida, para mí, para mi desarrollo. Yo para toda mi vida hasta que me muera. Que Dios me de salud. Porque gracias al Internet yo puedo conocer todo el día muchas cosas, y me puedo desarrollar. Y puedo entrar en cursos, y tengo más habilidades. Ahora me siento que he crecido más. Como ser humano.

> Imagine, the Internet, for me, is for my whole life, for my development. For my whole life until I die. If God gives me enough health. Because thanks to the Internet I can learn a lot of new things throughout the day, and I can develop. And I can take classes, and have more skills. Now I feel that I have grown more. As a human being.

(Marisa, interview, 4-9-2010)

As presented in previous sections, Marisa's background allowed her to develop a strong academic and professional identity in her life in Cuba, that she had the institutional support to maintain as a full-time community college student in the U.S. In her view, age was not an obstacle for her to continue learning, and like Miguel, she described the limited ICT resources in her country and region of origin, where she did not have the opportunity to learn computer skills.

Marisa's constructions of her ability to learn were very different from Rita's, in spite of the fact they were very close in age. At age 60, Rita found herself negotiating contradicting discourses: sometimes she positioned herself as able to navigate digital spaces in spite of her age, but other times she distanced herself from practices, arguing that she was "too old" to learn. During a focus group at the end of the fall course, she argued it was still possible for adults to learn (compared to children), stating firmly "*sí aprendes. Si yo, con 60 años, estoy aprendiendo*" [you do learn. If I, with 60 years of age, I'm still learning]. However, later in this conversation, as we discussed the affordances of video and voice-chat communication, she expressed a sense of disappointment and regret that she did not know about these technologies earlier:

A mi todo eso se me hace tan importante, tan bonito pero…pero digo, ya que… […] Yo digo que, por qué no hice esto, por qué no hice, es lo único que digo. Y

si lo estoy haciendo, y lo voy a seguir haciendo, lo voy a seguir haciendo, pero lo que me refiero yo, es que, tan bonito… y que desperdicio [no saber].

I think all of that is so important, so beautiful, but… but then I say, "what's the point" […] What I'm saying is… why didn't I do this, why didn't I do…. That's all I'm saying. And I am doing it now, and I will continue to do it, I will continue to do it, but what I mean is… it is so beautiful, and what a waste [not to know].

(Rita, focus group, 11-7-09)

In this excerpt, Rita highlighted the relevance of new technologies that seemed attractive to her. Nevertheless, she regarded not knowing about these communication tools before as a "waste," and regretted not being able to engage in these practices before, expressing doubt about the possibility of taking up these practices at this point of her life. Interestingly, her views on "making up" for the lost time paralleled Miguel's statements on the importance of going back to school. In another instance, however, Rita restated these views of her age as an obstacle for learning when she compared her practices to Joselyn's. In class, she was able to open her email account with my support. She saw several of Joselyn's messages, and praised her progress, saying:

Joselyn ha aprendido bastante, ¿eh? […] Me está mandando muchos monos, y cosas [laughter]. Está aprendiendo bastante la chamaca […] Está joven… está joven… uno cuando ya está más viejo, ya no.

Joselyn has learned a great deal, huh? […] She is sending me all these cartoons and things [laughter]. This girl is learning a great deal […] She is young… she is young… when you are older, no more.

(Rita, class audio recording, 3-20-10).

As mentioned in the previous section, Rita's access to ICTs in her household was more limited than it was for Joselyn, but her decision to distance herself from online communication practices was also shaped by her views about the limitations of her age. In contrast, Marisa—who did not have a computer at home—checked her email very frequently, whenever she had access to a computer. Rita's views on the purpose of the

skills she was learning were also related to her experience as a newly "retired" worker. Towards the end of the Web Design course, Rita and I discussed her thoughts about the content of this class, to what she responded the following:

> *Se me hace bien interesante, bien bonito. Eh quisiera [laughter] quisiera saber hacerlo, y, este, tener pues más facilidad para, pues solamente, no creo que algún día lo voy a… como te dijera, este….para algún trabajo o algo, no creo que lo voy a, que lo voy a… porque ya, ya por la edad. Estuviera joven, como tú, manita, todo lo echaría, eso, eso lo voy a tener que, a lo mejor lo voy a usar, puedo buscar trabajo en esto y en otro. Pero no, nada más, para… algo, que se me hace bieeeen interesante. Bien bonito se me hace.*
>
> I think it is really interesting, really nice. Uhm, I wish [laughter] I wish I knew how to do it, and uhm, have more ease to, just only, I don't think someday I will… like I told you, uhm… for some job or something, I don't think I'm going to, that I'm going to… because now, because of my age. If I was young like you, girl, I would put it all in, that, that, I have to, I may be able to use it, I can find a job in this and that. But no, only… [it is] something that I find soooo interesting. I think it is very nice.
>
> (Rita, interview, 4-20-10)

Rita's description of the value she saw in knowledge of web design parallels her statement above, constructing online communication as "beautiful" and "interesting"—but as a practice that she did not envision in her everyday routine, at her age and her social positioning as a retired employer. She stated that she does not have the same ease than those who are younger (like Joselyn), and for this particular practice (online publishing), she did not see herself having a particular use in the future.

Rita's negotiation of contradictory discourses about age and learning, along with Miguel's construction of his youth as relative to his lack of educational opportunities, provide evidence of the complex nature of "generational" practices in adult education. They challenge simplistic views of the generational divide, turning our attention instead to issues of cultural capital and structural forces that shape the educational opportunities of individuals in their migration trajectories.

Summary

When survey reports point to the gap between Latinos' use of digital technologies, they identify certain trends in the Latino community regarding frequency and location of Internet use. These trends indicate lower frequency of home Internet use for Spanish-dominant, foreign-born Latinos who have been in the U.S. for longer than 20 years, who are 60 years or older, and who have less than a high school diploma (Livingstone, 2011), compared to younger Latinos with higher educational attainment. These data align with the unequal access for participants like Rita, whose profile fits these characteristics. However, her trajectory and understandings of the nature of new technologies illustrate various forces that shape the complex ecologies where individuals are able to adopt computers as cultural tools. As explained in the beginning of this chapter, these include macro social structural forces, community and family dynamics, and individual . These parallel some of the key themes and factors explored by Hawisher et al. (2004) in their study of literacy narratives, to understand the culturally and socially situated nature of the adoption of new technologies across the lifespan.

The understanding of the histories, resources and constructions of digital literacy of the focal participants provides a context to make sense of their experience at the computer courses they attended in the research site. The following chapters present the ways in which their participation in a wide range of digital literacy practices was scaffolded, and the types of support they found useful—especially when compared to the lack of support they reported in their household, and that made them turn to formal instruction. They focus on the process that supported their emergent technology use as newcomers to these practices, and the resources that were mobilized in order to support their access to resources, practices and information

Chapter 5

PROMOTING ACCESS TO DIGITAL LITERACIES: APPRENTICESHIP IN A TRANSNATIONAL CLASSROOM

In this chapter, I follow the trajectories of the five focal participants as they enrolled in the Basic Computer Skills and Web Design courses at the research site. In order to understand instructional practices that support adult immigrant learners, I explore the scaffolding process that facilitated transparency in their navigation and use of ICTs. Given the transnational dimensions of this space, this process also involved participants and resources that were located beyond nation-state borders. Hence, the transnationalism dimension is part of a learning ecology in which multiple languages and modalities were utilized to facilitate instruction. The research questions guiding the analysis of activities and events in this classroom are the following: How are immigrant Spanish-speaking adults socialized into digital literacies in a transnational classroom space? What tools mediate this process? How are roles distributed among community members?

Drawing on socio-cultural perspectives to learning—in particular, activity theory (Cole & Engeström, 1993) concepts of mediated action (Wertsch, 1993), and communities of practice (Lave & Wenger, 1991)—this analysis describes how a curriculum was designed and implemented for online and remote instruction purposes. Findings demonstrate that this transnational curriculum was appropriated locally in ways that facilitated understanding of online environments. In these environments, several semiotic and linguistic means were part of the specialized discourse necessary to navigate software and online interfaces. Classroom and interview data illustrated that the following mediating tools were utilized during instruction: (a) step-by-step lists and linear procedures; and (b) brokering of icons, metaphors and specialized discourse in two languages. These two tools were utilized in face-to-face interaction between local

instructors and students, but were also shaped by the design of the online learning platform (created in Mexico).

Regarding the division of labor, the analysis shows the ways roles were divided in this transnational learning community, where local instructors (in the community center) were positioned as the main actors since they scaffolded and demonstrated practices, while distant tutors (in Mexico) had a more peripheral role, through their participation in authentic online communication practices for feedback and encouragement. The analysis also illuminates how students attending the center—including the five focal participants—contributed to this learning community. It shows how students also engaged in mentoring and scaffolding of tasks with each other, which involved sharing material and online resources. All together, these practices and interactions helped build the social and cultural capital that supported students' participation and understanding of a wide range of digital literacy practices.

The Classroom as an Activity System

In order to better understand the various actors and tools in this classroom as a learning space, I draw on activity theory (Cole & Engeström, 1993; Engeström, 1993) to identify how different elements work together to shape the classroom practices. Figure 4 presents a diagram outlining the mediating structure of the classroom activity system, following Engestrom's model. The focal activity in this setting—the use of information and communication technologies—comes with a history of social and cultural ways of participation, and various mediational tools. I focus on the *subjects*, adult immigrant learners who utilized a wide range of *tools* to mediate the *object* of instruction—the mastery of various digital literacy practices. Based on the content of the online curriculum, I focus on the following types of practices, drawing from Warschauer's (2003) categories: (a) computer literacy, or the ability to navigate and interact with basic

interfaces and tasks; (b) information literacy, or the use of tools like search engines to use the Internet as a large database; (c) online communication practices (mainly related to the use of email); and (d) media and document production, such as the use of Microsoft Office applications to create documents, spreadsheets and slide shows.

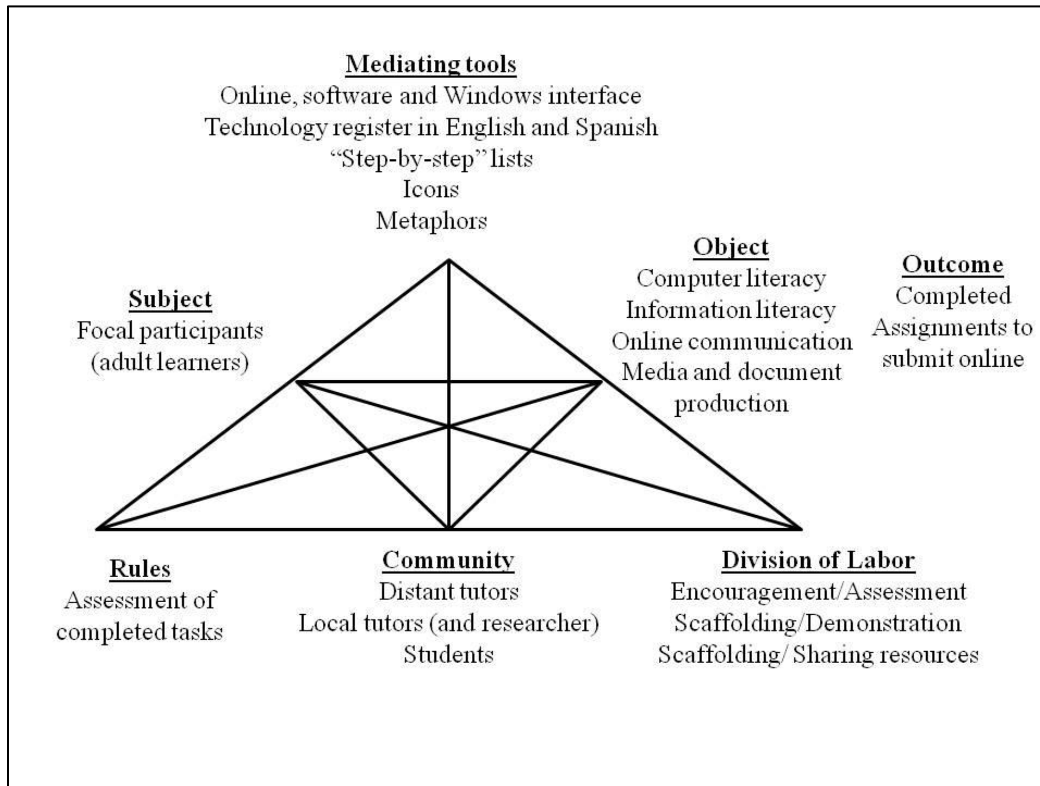


Figure 4. The transnational classroom as an activity system. This figure shows the different elements that mediated the learning and teaching of digital literacies at the community center.

Focusing on mediational tools between the subject and object of the activity, however, only provides a partial view of the elements that shape and mediate the activity. Engestrom's model depicts the rest of the layers that illuminate the historically and culturally situated nature of tools in the bottom part of the diagram. In this particular system, the use of an online platform for learning allowed for the extension of the learning *community* beyond national borders. This way, it includes local tutors and

students who meeting face-to-face at the center, and distant tutors in Mexico who interacted with students via this platform. However, given the structure of this online curriculum, *rules* regarding assessment and completion of tasks required students to submit their completed assignments (the *outcome*) to the distant tutors for grading. This arrangement not only shaped the focus of instruction; it also resulted in a particular *division of labor:* (a) local tutors scaffolded and demonstrated practices; (b) distant tutors provided feedback and encouraging comments to students; and (c) classmates supported each other through informal mentoring.

This structure provides a context to situate particular instances of classroom practice where the tools described above were used to mediate instruction. As mentioned in Chapter 3, all the local tutors were bilingual undergraduate students who shared a cultural and linguistic background with the students, and who were also foreign-born. Most instances presented came from the Basic Computer Skills course; however, a few examples and excerpts took place during the Web Design class, where I was the primary local instructor. In addition to providing details on the mediation processes, I also document the role of my observation and analysis of patterns in classroom practices in my planning and instruction for the Web Design course.

Mediating Tools to Facilitate of Digital Literacy Practices

The nature of information and communication technologies (including computer equipment, software or Internet applications) as mediating and cultural tools has been explored in research informed by socio-cultural theory (e.g., Cole & Distributed Literacy Consortium, 2006; Jewitt, 2006; Kaptelinin & Nardi, 2006; Vásquez, 2003; Wang & Ching, 2003). Issues of human-computer interaction or affordances and shifts in practice with new cultural tools have been addressed in this research. In this particular research site, the focus is on the use of ICTs as the *content* and *object* of instruction, and on the

ways in which instructors facilitated the navigation and understanding of interfaces and applications for novice ICT users. The following sections describe how two mediational tools were used frequently in classroom practice, in ways that had very distinct implications for participants' independent use and understanding of electronic environments: the use of step-by-step directions, and the brokering of icons, metaphors and specialized language.

Step-by-Step Directions

At the end of each unit, students were required to submit a set of culminating activities to their distant tutor. For instance, for a unit focusing on the creation of spreadsheets, students needed to submit a spreadsheet with specific content, formatting, and formulas. Example 1 shows the directions that were available in the online platform, listing the steps of this particular assignment, and specifying a particular type of formatting. Since activities like these were the main way that distant tutors assessed students' performance in the class, a great amount of time was spent by the local tutors (and myself as a participant observer and aid in instruction) in making sense of these assignments and demonstrating the tasks.

Example 1*:* Instructions for the online platform: Spreadsheet assignment

1. *Abra el programa de Excel.*
2. *En la Hoja 1 cambie el nombre a "Venta del día" y cambie el color a azul.*
   - *Seleccione 5 columnas en el primer renglón y combínelas en un solo renglón.*
   - *Escriba de título con letra Comic Sans MS, tamaño 22. "Abarrotes de todo un poco", con el fondo sombreado de la celda en amarillo claro.*

1. Open the program Excel
2. In Sheet 1, change the name to "Sales of the day" and change the color to blue.
   - Select 5 columns in the first line, and combine them into one single line
   - Write the title with Comic Sans MS font, size 22 "Convenience store a little of everything," with background shading for the cell in light yellow.

These lists of steps became mediating tools that students printed and kept at their sides while they engaged in a new activity. Although listing the steps to complete a process was a part of these task-oriented assignments, this practice also became a tool that influenced how students engaged in other tasks that emerged during the class. These included (a) navigating menus and finding functions in Microsoft Office or other types of software; (b) using formatting functions in documents; (c) demonstrating the use of key combinations (e.g., Ctrl+C for "copy" or combinations to insert special characters), and (d) breaking down steps in the composition process (when students needed to write a paragraph or a list of items in a Word document), as part of an assignment.

In another instance, students needed to modify the options in Microsoft Word, so that they could measure margins in centimeters and not in inches. This conversion was necessary because one of the assignments required they set documents' margins to 2.5 centimeters, following the metric system that is used in Mexico. In these particular non-scripted practice, which required exploring the word processor's toolbar, Lalo, one of the instructors, demonstrated the steps to be followed on the classroom projector. While he did this, Humberto, one of students, created a list of steps in front of the classroom on a board that the rest of the students started to copy:

Example 2: Humberto's notes on the white board

Click

- Office button
- Word options
- Advanced
    - Advanced Options for Working with Word

(Field notes, 8-22-09)

Having these guiding notes as mediational tools allowed students to ask questions and make annotations on the meaning of the different icons and menus they needed to navigate to complete tasks. When a new process or task was introduced,

students often requested these directions, and some of them (like focal participants Rita and Joselyn) took copious written notes. Towards the end of the fall semester, as students explored programs and toolbars on their own, one of them requested that we create "*un acordeón*" [a cheat sheet] explaining how to insert Spanish diacritics (like the letter *ñ*), or how to troubleshoot a frozen browser, as the following excerpt describes:

Example 3: Request for a "cheat-sheet"

> As Clara browses an adult education site in search for more online courses, she tells me that her own computer sometimes "freezes" [*se me congela*]. She asks me what she is supposed to do in cases like that. I tell her that when that happens to me, I open the Task Manager, pressing the keys Ctrl+Alt+Del, and I show her how to do it in her keyboard. Clara hands me her pen and her notebook, and requests I write the steps, for her to have "*un acordeón*" [a cheat sheet] to remember.
>
> (Field notes, 10-31-09)

During the months in the Web Design course, when I took the role as an instructor, the online platform also contained assignments with steps or questions for students to follow. However, the steps were not as procedural, since they merely indicated the types of formatting or tags that students were expected to use, recommending that students explored design colors or content on their own. However, I used the same demonstration techniques to find items in toolbars or navigation menus. I also created lists of step-by-step instructions when I noticed students got "lost." This tended to happen for certain students when we used multiple applications or windows. In one instance, students were copying text from a word processor to the file where they had marked the text with html tags, and then they viewed the HTML file in Internet Explorer. Marisa had a very hard time switching across windows, and so did her husband, so I wrote the "steps" and the programs on the board, and they copied these directions down. Figures 5 and 6 show these directions, and the accompanying translation:

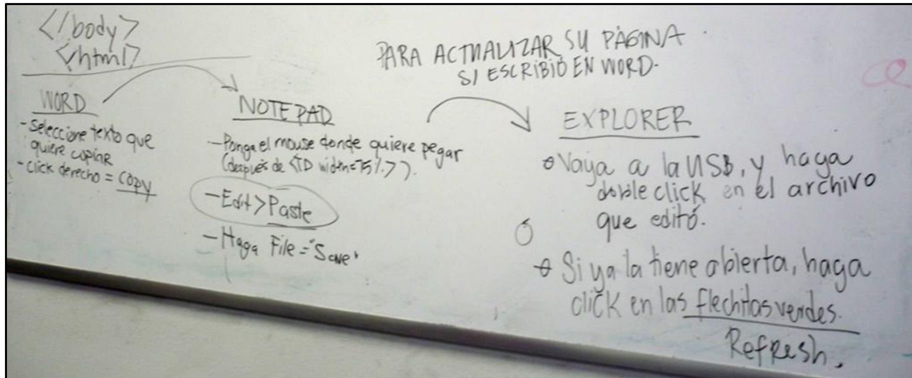
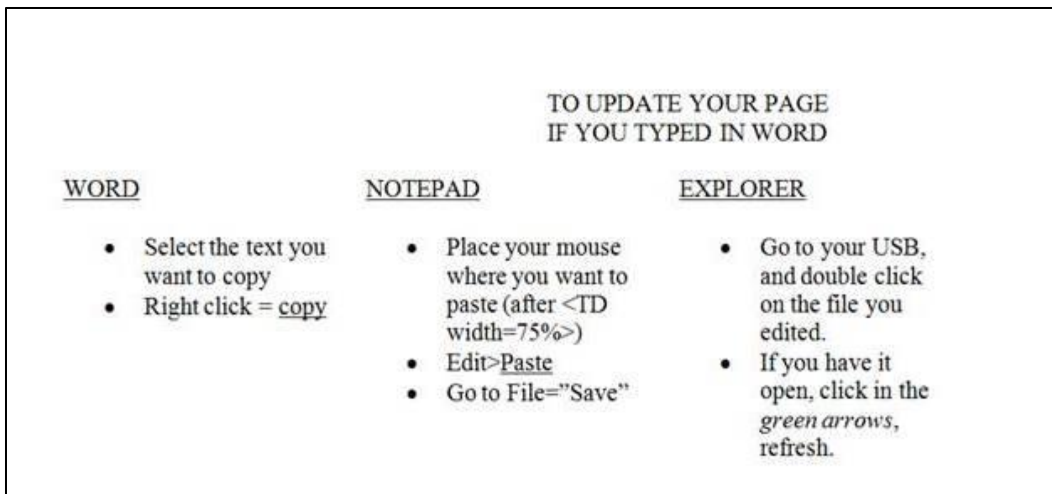


Figure 5. Directions to copy and paste HTML content. List created by researcher-instructor to illustrate process to copy and paste website content from word processor to Notepad (Web Design class, 3-27-10). Photo taken by the author.



TO UPDATE YOUR PAGE
IF YOU TYPED IN WORD

WORD

- Select the text you want to copy
- Right click = copy

NOTEPAD

- Place your mouse where you want to paste (after <TD width=75%>)
- Edit>Paste
- Go to File="Save"

EXPLORER

- Go to your USB, and double click on the file you edited.
- If you have it open, click in the *green arrows*, refresh.

Figure 6. Translation of Figure 5. Directions to copy and paste HTML content. (Web Design class, 3-27-10)

Focal participants found this type of support useful, because they sought explicit and detailed instruction. For Rita, these notes helped her work on her own in the classroom and at home. As reported in Chapter 4, Rita valued it when instructors broke down information in steps, something her 32-year old at son did not do when she asked him: "[*Le digo] 'dime, explícamelo,* step by step.*' Y ya es cuando entonces le, le, yo tomo notas, yo soy una persona que toma notas*." [(I tell him) tell me, explain it to me, *step by step*. And that's when I, I take notes, I am a person who takes notes.] (focus

group, 11-7-09). Rita appreciated the pace and detail of the classes when we took this step-by-step approach. Although she had taken computer courses at a community college she felt the pace was rushed and instructors assumed they were able to complete tasks without explicit instruction. She stressed the fact that they did not have a chance to take notes, and without notes, as Rita explained, it was hard to understand: "*no agarro nada*" [I don't get anything].

For Joselyn, this step-by-step approach was helpful for her to "find her way" in the navigation of the interface. She described the importance of having a tutor as follows, highlighting the need of a guide in an unfamiliar "setting:"

> *Pienso que un tutor, para mí, es importante. Porque muchas personas no hemos agarrado una computadora, y no sabemos para qué... Y si te equivocaste aquí, ya no sabes cómo regresarte. Entonces por eso es necesario un tutor, para que nos vaya guiando paso por paso.*
>
> I think that a tutor, for me, is important. Because many of us have not used a computer, and we don't know how to… And if you make a mistake here, you don't know how to come back. That's why a tutor is necessary, so he can guide us step by step.
>
> (Joselyn, interview, 11-3-09)

Like Joselyn, students found the guidance in navigating various new interfaces valuable. It helped them feel comfortable in their emergent digital literacy practices. Although having directions and lists of steps helped clarify navigation paths in various computer applications (e.g., finding a USB drive in the operating system), students and instructors negotiated a contrasting approach: the notion that *exploration* of software, programs, and the Internet would facilitate learning. On various occasions, instructors encouraged students to "try things out," "explore" and "play" with the programs, and praised the students who did so. This approach contrasted with the linear process they were following in the assignments. This contrast became evident in one of the last assignments in the fall. The assignment required students to browse for content in an

educational site listing adult education courses online. The purpose of the unit was to make students familiar with web browsing. The steps, listed below, in Example 5, guided students in to open programs and directed navigation to a particular website.

Example 5: Instructions in online platform: Web browsing assignment

1. *Abra el navegador de Internet de su computadora.*
2. *Abra el buscador www.google.com*
3. *Ingrese a la página de Centros de Aprendizaje www.mx.centrosnit.org*
4. *En un documento de Word, mencione 3 de los cursos que se ofrecen en la página de diferentes áreas.*

1. Open the Internet browser of your computer
2. Open the search engine www.google.com
3. Enter the page of the Learning Centers www.mx.centrosnit.org
4. In a Word document, mention three of the courses offered in the page in different areas.

The development of information literacy—the ability to search critically for information (Warschauer, 2003)—was not a goal in this list of directions. However, local instructors took it upon themselves to provide an explanation of the context and purposes of conducting research online. For instance, Lalo modeled his own searches, showing how he got to visit certain websites just by exploring his own interests.

Students' desire for linearity in instruction was disrupted at other times. When instructors or students found alternative ways to perform the same task, there was discussion about the many different paths to activate a function. For example, the use of key combinations to copy and paste (Ctrl + C) can be used instead of command icons to copy and paste content. In another instance, participants worked on an assignment where they had to create multiple sheets of a sales inventory for a convenience store. Lalo encouraged them to use the copy and paste functions as shortcuts to save steps. The directions in the assignment guided students to type a list of grocery items in three separate sheets. While a few students preferred to follow the steps listed over and over

"to practice," others realized that the affordances of copying and pasting functions could save them time.

For students like Rita, who followed their notes and lists of steps closely, the notion of exploring and trying new things in a non-linear fashion was sometimes frustrating. For her, this happened with her attempts to "practice" HTML codes at home. She shared in class how she found it hard to work by herself, and this had even discouraged her at times for staying in the class:

> Rita: *Ay Silvia, yo por eso a veces digo, "ay ya ni voy a ir…."*
> Silvia: *¿Pero por qué?*
> Rita: *Y ya cuando vengo, aprendo, y luego estoy allá [en casa], y [digo] "¿cómo, y cómo?" ¡Y luego ya se me olvida!!!" […] me desespero. ¡Ya quisiera saberrrrr!*
>
> Rita: *Ay* Silvia, this is why I say sometimes think, "I'm not going to go [to class] anymore…"
> Silvia: But why?
> Rita: When I come, I learn, and when I'm there [at home], and [I say], "how, and how?" And then I forget it! […] I do get desperate. I wish I knew it already!!!
>
> (Rita, classroom interaction, 2-27-10)

Even though Rita kept notes with her, and relied on the overview of steps during class, she found it confusing and hard to "memorize" in the same way she had completed tasks in the first course in the fall. However, she mentioned in the last focus group interview that she felt safe in the classroom space to ask for help, and the support of this learning community prevented her from abandoning the class.

Given the wide range of digital literacy practices that participants explored throughout two courses, there were instances in which they benefited from the transparency of directions in formal assignments—such as during the navigation of interfaces. But they also came to realize that the affordances of electronic literacies did not follow a linear approach, and that operating systems and applications allowed for different paths to achieve the same result—for example, formatting a document, finding a

website, or copying and pasting content. As course content covered fewer linear practices—such as internet browsing or HTML programming—following directions from a list no longer made the process easier for some participants; especially when working alone at home.

Overall, step-by-step directions in the course assignments and in the classroom instruction were beneficial for students who needed explicit instruction in the affordances of operating systems and toolbars. These included "wayfinding" practices for navigation of electronic environments (Lawless & Schrader, 2008) that were not transparent in the tools they were using. The steps involved in formatting, creating a slide show, or creating a spreadsheet allowed students to "find their way" in the multiple and interactive toolbars in the systems, so that they knew "where to go back to" if they got lost, as Joselyn explained in the quote above *"ya no sabes cómo regresarte"* [you don't know how to go back]. However, in the paths outlined by directions for creating documents or navigating toolbars, there were "shortcuts" that were not linear, and this highlighted the need for flexibility and exploration in electronic environments. As instructors demonstrated multiple ways to copy and paste, to format, or to find a website through keywords or typing an URL address, students came to realize that linear steps were not always the best or only path to achieve a particular purpose.

Metaphors, Icons and Translations as Semiotic Resources

An alternative way instructors used to guide students in navigating online spaces and new interfaces was by scaffolding and brokering the specialized discourses of technology. Step-by-step instructions helped student as "guided routes" to know where to go in their finding interfaces. However, instructors also needed to scaffold and make transparent the meaning of various "signposts," icons and specialized language that students found in their way, to help them make sense of these spaces. As these signposts

rely on multiple semiotic systems that are not transparent to novice users, an important task that instructors took upon was to become "brokers" of the specialized discourse of technology.

The transparency of technologies of practice (Lave & Wenger, 1991) influences how newcomers to a community might become full participants. Newcomers must understand not only the ways artifacts are used, but also their significance and in some cases, their history of practice. In the case of new technologies, the user-friendliness of graphic interfaces or toolbars has been questioned, pointing to the cultural bias in these tools. Their ease of use is assumed for those who possess a certain knowledge of the world and educational background (Warschauer, 2003), and for whom the icons and functions on a desktop make sense as cultural references (Barbatsis, Camacho & Jackson, 2004). From a critical perspective, computer interfaces and navigation paths can be conceptualized as linguistic contact zones (Selfe & Selfe, 1994), spaces where "values of our culture—ideological, political, economic, educational—are mapped both implicitly and explicitly, constituting a complex set of material relations among culture, technology, and technology users" (p. 485). For instance, the graphic interface of the Windows operating system relies heavily on an office metaphor to understand the functions of a desktop—and this is more transparent for users immersed in a corporate or professional/academic environment.

In this particular site, bilingual and bicultural instructors used the meanings behind icons, metaphors, and translations to unveil their functions. This assisted students in navigating interfaces and applications. The different strategies that instructors utilized to help students make sense of the different operations in the interface were the following: (a) making the metaphors behind icons and practices visible; and (b) linking relationships between icons, functions, and specialized terms in English and Spanish.

These interactions allowed students to understand the provenance of icons and functions. They made visible the rationale behind the design of electronic environments,

Metaphors and practices. When introducing the functions and contexts of certain types of practices, instructors made reference to the social and literacy practices represented or embedded in digital spaces, and metaphors that could help organize thinking about these practices. Operating systems are heavily based on a "desktop" metaphor, where files are organized in hierarchical order, copies of files can be made, and file folders create this structure—a metaphor that is culturally biased and not transparent for every user (Gaver, 1995; Warschauer, 2003), as further explained in the next section. The use of the World Wide Web is also informed by a metaphor of connectivity, as well as by navigation of spaces that exist electronically, where hyperlinked text and the layout of sites are meant to help users find their way in a non-linear fashion (Lawless & Schrader, 2008).

According to the seminal work of Lakoff and Johnson (1980), metaphors are not only literary devices, but they are also mechanisms that organize the way we think about certain entities and the ways people perceive reality. A metaphor links two domains that we might not conceptualize as mapped together—such as "love" and "journey"—and then a conceptualization of "love as a journey" frames our thinking about romantic relationships. In the case of electronic environments like the World Wide Web, videogames, or operating systems, a navigation metaphor has become crucial in both the design and engagement with users' interactions with these tools (Lawless & Schader, 2008). In addition, the ways in which users understand these spaces have implications for their use, as users create schemas of their trajectories and actions in their emergent navigation practices. For example, as Maglio and Matlock (1998) found, novice and experienced Web users conceptualized themselves differently in active or passive

information-seeing roles: whether they saw themselves moving toward information, or whether they considered information was supposed to move towards them.

Instructors at the center worked hard to make these metaphors explicit, and also used them as tools to introduce new applications. One example is the introduction of the extensive nature and affordances of the World Wide Web, where Lalo explained it was a space that made searches for reference purposes within reach, and that contained categories of resources, like a library:

Example 6: Internet as a library

> Lalo tries to explain to the class the meaning behind the top-level domains .gov, .edu, or .com: *"¿Qué tipo de libro? Gobierno, comercial, educativa, como tenemos ficción, atlas, enciclopedias, también en Internet hay categorías.*" [What type of book? Government, commercial, educational, as we have fiction, atlas, encyclopedias, in the Internet there are categories as well].
>
> (Field notes, 10-6-09)

He revisited this metaphor when explaining the work that a search engine like Google does, analogous to the reference cards in a library: "*en la biblioteca buscabas en las tarjetas donde está Romeo y Julieta. Eso es lo que Google es*." [in the library you used to search in cards where Romeo and Juliet were. That's what Google is.] (field notes 10-3-09). Making these metaphors transparent allowed students to understand the purpose of search engines as an extension of information literacy, a concept they could associate with library skills. However, it is important to note that in order to make sense of this metaphor, students' needed to be familiar with the social and literacy practices involved in finding information and materials in a library. These experiences may only be accessible for students with certain educational level or experiences; as a result, the metaphor may have still remained unfamiliar for students who lacked these library experiences.

In other instances, he clarified the provenance of specialized discourse that made reference to processes or functions. For example, in a discussion of questions about virus and malware, Lalo scaffolded the meaning of the label "Trojan horse," eliciting knowledge from the class about the tale of the Trojan War, and the analogy of downloading a song file that can turn out to be a virus instead. He also utilized binders and folders to demonstrate the embedded nature of windows and folders in the navigation of the Windows graphic interface, and to make it explicit what the purpose of a USB flash drive was: a space for storage of documents, in the same way a binder holds and organizes papers. This particular explanation was crucial to support students' wayfinding within the system, since the default location in which files were saved was on the local disk's "My Documents." Because students were working on laptops for public use, they needed to store data on an external disk.

The role of the metaphors behind the rationale and provenance of applications provided a larger schema for students to contextualize their design and navigation paths. Although the organization of interfaces to mirror familiar spaces and literacy practices were actually unfamiliar to students, metaphors served as scaffolds to support students' understandings of their navigation paths.

Icons, representations, and functions. In addition to the metaphor behind the rationale of online practices, instructors also made transparent the meanings behind icons, words, and functions within a wide range of applications and interfaces. For instance, this involved describing the appearance of icons and buttons that were not always transparent or clearly representative of their everyday or real-world analog. In addition to this explanation, instructors faced the task of translating the meaning of words between English and Spanish, since all the operating systems and software were installed with English as their default language. Consequently, students had to negotiate multiple

semiotic systems; the languages and language varieties within a classroom community of students with various levels of expertise in Spanish literacy, English proficiency and academic instruction made this a challenging task.

The following instance demonstrates the use of the relationship between an icon, a function, and the translation of a term as a tool to mediate its function. One of the instructors was facilitating an activity in which students were expected to send a group of files to their online tutors, and to do so, they needed to compress them in a "zip" file (field notes, 8-22-09). She used a linear demonstration of the process, explaining each step and demonstrating it on the projector before asking students to select the folder they were going to compress. Pointing to the icon in Figure 7 (see below), she explained to students: "*para mandarlo, hay que ponerle el zipper*" [in order to send this, we need to zip it up]. The size of the icon made it very hard to notice the folder icon had a zipper, but she pointed it out and explained the nature of this function, using the "zipping up" metaphor—that all the files would be able to be sent within a folder that was "zipped up." In her explanation, she highlighted: (a) the appearance of the icon and the function it represented; and (b) the translation of the word "zipped" to Spanish, as "*ponerle el zipper*."

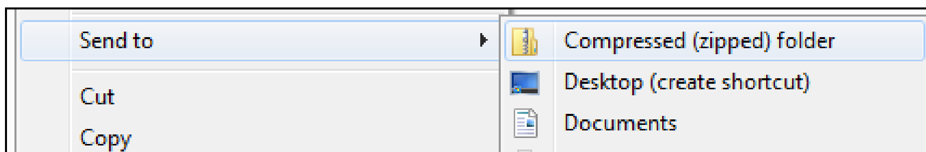


Figure 7. Zip (compressed) folder icon. The instructor made reference to the zipper embedded in the folder icon.

This was especially helpful for icons that relied heavily on the English language, such as the term "homepage" and the icon that represents it, a picture of a house. Lalo brought students' attention to this icon, explaining: "*Hay una página que se llama*

homepage, que es la página principal." [There is a page called *homepage*, that is the main page]. He then pointed to the home icon, asking: *"¿Ven el ícono donde está la casita? El* homepage *de estas computadoras es la de la universidad*." [See the icon with the little house? The *homepage* of these computers is the university's] (field notes, 10-3-09). He further explained how clicking on the home icon in his own laptop took him to Yahoo! and how homepages changed in different computers. Through this example, Lalo tried to clarify the relationship between the icon and the word "home," which is not transparent, as it relies on the literal translation of homepage as "*página principal.*" This is just one example of a shortcoming in computer icons based on English words (Millán, 2001). This instance provides an example of the way that "signposts" or guides for this particular interface—an Internet browser—were not transparent for speakers of languages other than English, if students relied solely on the literal translation of the icon and the English word.

When students were not proficient in English, Lalo encouraged them to become familiar with icons, instead of memorizing the words in English: "*Es mejor aprender el ícono antes de las palabras porque es universal.*" [It is better to learn the icons than the words because they are universal] (field notes, 10-3-09). He would draw the symbols on the board, or would point to them on the projector, elaborating their meaning or representation. For students like Miguel, this was very helpful, as he identified icons before words in his own computer use, pointing out: "*cómo lo decían ustedes [en el centro], cuando uno ve el ícono sabe que es… es para eso… ya, el nombre ya, como que a veces no es tan importante, pero sí se lo memoriza uno.*" [as you used to say (at the center), when one looks at the icon you already know what it is… that's what it's for… the name, it's not so important at times, but you memorize it] (interview, 2-28-10).

Further descriptions were prompted by icons representing print and/or academic literacies, such as formatting tools (bullets, alignment) or reviewing (spelling and grammar). Consequently, instructors needed to scaffold the meaning of icons that assumed certain knowledge and skills from users. In these instances, concepts like margins, indentation, reviewing, and formatting were new to students who had not composed documents for professional or academic purposes (or had not even used a typewriter). Consequently, the scaffolding of the icon and the function became also an introduction of an academic literacy practice.

Overall, instructors took time to use icons as tools related to functions, specialized discourse in two languages, and social contexts of practice. These instances help us understand how users with a particular cultural and linguistic background make sense of seemingly "neutral" representations that are meant to be scaffolds, but that are not necessarily transparent for all. Gaver (1995) explains that these iconic representations create third layers of meaning beyond their everyday counterparts in electronic environments. For instance, an icon for a file folder represents in appearance something that can be "opened," but its function, once it is double-clicked, is to help a user navigate within different levels of organization in a storage drive. In addition, Gavin explains that for some entities, icons are supported by their labels, such as the icon and word "file:" levels of mapping incorporate an iconic representation (a picture of a file) plus the symbolic representation users already associate to the word "file." As a consequence, it was important for instructors to explain the various layers of meaning and semiotic representation, linking them to the items, practices or metaphors of provenance.

Translations of specialized discourse. In addition to the transparency of icons, instructors also used translations of words for tasks and functions in English as an opportunity to scaffold their specialized meaning and functions. In this particular

classroom space, this translation became crucial to facilitate the online curriculum designed in Mexico, which was also written in academic Spanish. While the lists of steps for assignments used Spanish to describe commands, programs and functions, all the computers at the center had interfaces and software installed in English. In this way, instructors became brokers between specialized and everyday language (Gee, 1996), socializing students into the Discourse of technology; but they also had to carry out this task in two languages, given the transnational nature of the curriculum.

Local tutors often relied on literal translations to guide students, especially as they switched back and forth between the step-by-step lists in Spanish and the projections of the computer screen in English. For instance, they translated the word "rename" as it showed up in the context menu that appears when an icon or a file is right-clicked, explaining: "*luego escoger* rename*, que es nombrar, y le hacen click.*" [you choose *rename*, which is naming" and then you click] (field notes, 8-22-09). They also frequently translated and explained the word "browse," since it appeared in the message system that students used to communicate with their online tutors. Students often used the button/tool "browse" to attach files onto their messages. Lalo not only provided an English translation for *navegador* (browser), but he also explained its situated meaning within the World Wide Web (browse for information) and within the operating system drives (browse for a file):

> *Cuando están buscando se dice "*I'm browsing the web*" navegando, por eso cuando ponemos un archivo ponemos "*browse." *También se dice "*surfing, I'm surfing the web.*" Que estás explorando. Navegador, explorador, es casi lo mismo. Como estudiante es el primer lugar que uno va para buscar información. Cómo hacer un ensayo. Cómo abrir un negocio. Luis Miguel.*
>
> When you are searching, you say "*I'm browsing the we*b" navigating, that's why when we upload a file we use "*browse."* You can also say "*surfing, I'm surfing the web.*" That you are exploring. Navigator, Explorer, that is almost the same.

> As a student, that is the first place you go to find information. How to write an essay. How to open a business. Luis Miguel.
>
> (Field notes, 10-3-09)

In this explanation, Lalo contextualized the terms in a larger social practice, searching for information as a college student while also incorporating potential browsing interests of adult learners (how to open a business) and shared popular culture references (Luis Miguel, a Mexican singer) within the Spanish-speaking community. As a result, he not only provided single literal translations for the terms he translated, he expanded them to incorporate the larger social practices where these terms were used, both within and outside online environments.

In these examples, instructors' roles included translation of terms and icons, brokering between several discursive communities new to students: (a) the multimodal discourse of graphic user interfaces, which relied heavily on iconic representation of functions and a "desktop" metaphor strongly related to professional and academic literacies; (b) the specialized discourse of software applications and Internet browsing, in which terms like "browse," "copy" or "paste" had situated meanings and affordances within electronic environments, and (c) the discursive communities of technology register in two languages: English, present in the installed operating system and applications, and standard Spanish, in the online curriculum created in Mexico.

For students, these translations were useful in interpreting the assignments and navigating the interfaces in English while following directions in Spanish. For Miguel, learning this specialized language allowed him to increase his English vocabulary, and to make sense of these words within digital literacy practices, with the understanding that they also had situated meanings in other fields:

> *Pues la palabra* file*, pues yo ya sé que es un archivo. Y... antes no le daba tanto uso. Pero ahora se me quedó, se me quedó, y ya es, mmm, muy, muy seguido le*

doy uso a esa palabra. Y al mismo tiempo que sé, para qué se usa dentro de esto, y fuera de esto, que significa para que se usa.

Well, the word *file*, well I already know it means file. And… before I did not use that (word) very much. But now I picked it up, I got it, and it is, mmh… I use that word very, very often. And at the same time I know, I know how you use it within this [computer use] and outside of this, what it means, how you use it.

(Miguel, interview, 2-28-10)

In the Web Design course, I too relied on translations of specialized vocabulary to support students' understandings of assignments and concepts related to course content. For instance, the first activity students needed to submit to their online tutors was a questionnaire providing definitions of the words listed in Figure 8: the meaning of the HTML acronym, webpage, tags, link, and the functions of a browser. All of the words (except HTML) were presented in Spanish in the assignment and in the online platform; but as we conducted some online research to find further information about their meaning, we came across their translations. In addition, students were more familiar with the words "link" and "browser," because they were terms they had used frequently in the Basic Computer Skills course. Although it was helpful to have materials and directions in the primary language of students, the standard translations of particular vocabulary items were not necessarily as transparent or as common as their English counterparts.

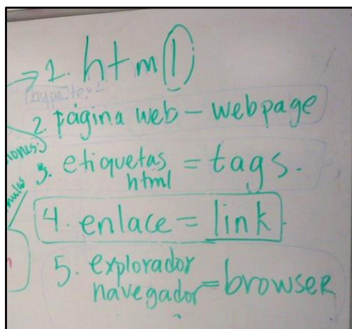


Figure 8. Translations of concepts related to HTML. (Web Design class, 2-15-10). Photo taken by the author.

This issue of accuracy and transparency of translations in standard Spanish varieties emerged in other occasions. When they opened online accounts, students were able to choose the language of the interface when this option was offered and could be customized. Students also this decision when they opened an email account in the Basic Computer Skills course, since they used a free webmail service (like Yahoo or Google). Some students, like Rita, preferred to use Spanish to make sure she was not making mistakes as she filled out the forms. However, as she explained in the following quote, she did not consider that translations were always good, and this led her to believe that using English was "better:"

> *Cuando algo me piden* steps *o me piden alguna cosa, entonces digo yo, mejor en español. [...] Aunque muchas veces, es mucho mejor, también, mira, muchas veces que el español, algunas palabras no son iguales y es mejor que lo vayas, te vayas al inglés.*
>
> When they ask me for *steps*, or ask me for something, then I say, better in Spanish […]. Although many times, it is much better, look, many times in Spanish, some words are not the same, and it is better that you go to, that you go to English.
>
> (Rita, focus group, 11-7-09)

Students discussed this dilemma in the Web Design course, when they were able to choose the language of the interface for a free blog account. Some students argued that choosing English as the language interface was a good idea "to practice" the language, while others preferred to use Spanish for better comprehension. In the following example, however, Rita pointed to the shortcomings of the translated version, which utilized a vocabulary item in a variety of Spanish that she did not recognize. This incident happened while I was working with students on the various features of a blogging interface in wordpress.com (class audio recording, 2-10-10). When a person creates a blog in this platform, a "sample" post is generated, with an automatically generated comment to show users an example of posting and commenting. I showed

students how to delete the sample comment by directing them to the comment menu in the interface. My interface was set in English, and I had not realized that Rita and Rafael had selected Spanish for the language of their interface. I explained that they would see the word "trash" as one of the commands, and that clicking on this would delete the comment:

However, as students looked for the word "trash," some of them did not find it, like Rita and Rafael:

Rita: *A mí no me salió la trash.*
Rafael: *A mí tampoco…*
[class laughter]
Silvia: *Póngale ahí mire [points to word on screen]. Ahí, papelera.*

Rita: I did not get the [word] trash.
Rafael: I did not either…
[class laughter]
Silvia: Get it there, look [points to Word on screen]. There, papelera.

This was when I realized that they had chosen Spanish as the language of their interface when they opened their accounts, and that the choice of translation was the word "*papelera*" [wastepaper basket]. This word is also used in the Spanish translation of "recycle bin" in various versions of the Windows operating system (XP, Vista), translated as "*papelera de reciclaje."* This word, however, is not very common in all Spanish language varieties; the most common translation of trash, for speakers of some Mexican varieties of Spanish would be "*basura," "bote de basura"* or "*basurero.*"

After we identified "*papelera*" as the translation for "trash," other students pointed to each others' screens, while some giggled at the choice of this word. Rita, however, expressed her thoughts about the use of this unfamiliar Spanish word, explaining how "trash" made a lot more sense to people like her, whom she referred to as "us:"

Rita:	*Es que es totalmente diferente, Silvia, porque* trash*, para nosotros, es basura. Y pues aquí dice papelera… papelera…*
Mónica:	*Nomás porque está desechando, como si estuviera desechando esto, [grabs and shakes sheet of paper], por eso dice papelera.*
Silvia:	*Papelera es como la basura, ¿no?*
Mónica:	*Bueno, la… la basura, en español es algo general. Pero, como aquí estamos hablando de documentos, entonces por eso… es que nada más es cuestión de, de pensar.*

Rita:	It is totally different Silvia, because *trash*, for us, is basura. And well, here it says… papelera… papelera…. [wastepaper basket]
Mónica:	It's because you are throwing something away, like if you were getting rid of this [grabs and shakes a sheet of paper], that's why it says papelera.
Silvia:	Papelera is like trash, isn't it?
Mónica:	Well… trash, in Spanish is something general. But, since we are talking about documents here, then that's why… it's just a matter of, of… putting some thought into it.

In this interaction, Rita argued that the word "trash" was a more appropriate word for her speech community, in part because the meaning of the English word "trash" was more common than the Spanish version of that term—even among native Spanish speakers. Mónica, a Mexican middle-aged business owner who attended the class, had very strong Spanish literacy skills. She suggested to Rita that she should put the word in context, thinking about the handling of documents and the metaphor of an electronic "paper." In this explanation, she relied on the office metaphor that many operating systems and word processors rely on, as described above. However, for Rita, the use of an English word made more sense for her; as explained in Chapter 4, codeswitching was part of her everyday life and a common practice in her family.

Overall, the use of various semiotic and linguistic resources was a crucial tool to mediate the various practices in which students engaged. The transnational nature of this classroom space created a complex layer of meaning-making during the process of brokering that instructors engaged in. In this context, brokering not only referred to translation, interpretation, or paraphrasing practices that bilingual youth engage in to

support monolingual adults' understanding of texts, interaction, or cultural systems (Orellana et al., 2003; Orellana, 2009; Valdés, 2003). It also referred to the use of various modalities (such as icons or metaphorical representation) and the negotiation of texts mobilized for distant and local audiences (such as the directions and assignments utilized in the online platform).

This finding points to the ways that instructors' strategic use of two types of tools allowed students to make sense of various practices and online environments that were not initially transparent to them. Although in this particular online curriculum students were expected to use tutorials and distant tutoring to guide their own learning, local instructors took on the role of demonstrating and scaffolding content through direct instruction. In the following section, I describe the ways in which roles were distributed in this learning space, and how students received support from local tutors, distant tutors, and from each other.

Division of Labor in a Transnational Space: Making Sense of Local and Distant Support

Within the particular complex structure of the courses at the center, students had the opportunity to receive face-to-face instruction from local, bilingual, and bicultural tutors, while also receiving guidance from distant tutors—undergraduate students in Mexico. As mentioned in Chapter 3, local and online tutors did not communicate with each other; local tutors accessed the assignments from the online platform and guided students to complete them, while online tutors graded them and gave students feedback on their assignments. In the rationale of their program model, as explained by the Mexican institution that created the online curriculum, online tutors were expected to provide support throughout the duration of the course, as well as effective feedback on the submitted assignments. Consequently, participants were simultaneously being

socialized into the practices and platforms of an online course while receiving direct instruction in a "traditional" classroom with peers and a local tutor. Based on observations and participants' accounts, I explain how members of this transnational community constructed and valued each mode of delivery, and the values they attached to each one of the roles taken up by various members.

The Role of Local Tutors: Meaningful and "Real" Instruction

Since students were able to receive tutoring in a "traditional" classroom format, where applications and assignments were explained in detail, some of them described the role of online tutors in the teaching and learning process as minimal or redundant. As Rita explained: "*él mandaba los steps, 'sí, esto te va a ayudar, bla, bla bla.' Siempre te ponía. Pero pues aquí Lalo nos ayudaba, así que no era necesario*" [he sent us the steps, 'yes, this will help you, blah, blah, blah.' He wrote that all the time. But here Lalo helped us, so it was not necessary] (interview, 4-20-10). Students considered any restatement of directions or support superfluous to local tutors' explanations. Consequently, when students described their thoughts on the online support they received, they tended to compare it unfavorably with their face-to-face instruction.

Miguel confirmed these views of local tutors as the "actual" teachers. His attitude towards the submission of assignments to the online tutor was more oppositional; in the excerpt below, he mentioned his lack of interest in submitting assignments on time, constructing the tutor as someone who only cared about his compliance to the system. He regarded Lalo and the other local tutors as those who were best able to support his learning efforts. He also constructed the face-to-face learning site—the center—as the space where actual learning took place in interaction with others.

> *Te lo digo sinceramente. Me daba lo mismo hacer una actividad y mandársela o no. Yo solamente quería aprender a hacerla, aprender de Lalo, de ustedes, nada más. [...].A él solalmente le interesa que yo le cumpla... que le cumpla y...yo así*

lo veía, decía yo quiero aprender, yo quiero aprender y… y lo voy a aprender aquí.

> I am telling you this honestly. It was the same for me to do an activity and sending it in or not. I only wanted to learn to do it, to learn from Lalo, from you, that's it. […] He only cares about me complying. That I comply and… that's how I saw it, I said (to myself) I want to learn, I want to learn, and…. And I will learn here.
>
> (Miguel, interview, 2-28-10)

Given the distribution of tasks and roles in online and offline settings—e.g., online tutors in charge of grading, local tutors providing step-by-step support—some students like Miguel constructed their online responsibilities as merely making sure they complied. However, Joselyn, was more at ease with this distribution of roles. She was one of the students that progressed the most in both courses, and she considered the online grading as a way to "save face." This was because she received feedback from somebody who was geographically distant. She considered it to be a disadvantage that they could not "get to know him" in face-to-face interaction, but she also preferred a *more distant relationship with the tutor in charge of grading her work:*

> *Bueno, desventajas [del tutor en línea], que no pudimos contactarlo personalmente, no poder, pues a lo mejor, conocerlo, tener más cercas, la actividad y todo. Y las ventajas, pues, es que el estar lejos, y calificarnos el, pues está bien también. Pienso que estuvo… bien. La ventaja fue, que no lo podemos ver* [laughter from her and her sister], *que no lo podíamos ver y si la regábamos no nos regañaba. Pero no, no… para mí estuvo bien, que él estaba allá.*
>
> Well, the disadvantages [of the online tutor], was that we could not contact him personally, not being able, well, to get to know him, having him closer, the activity and everything. And the advantages, well, by being far, and grading us, well that was good too. I think that was… fine. The advantage was that we could not see him [laughter from her and her sister], that we could not see him, and if we messed up he would not scold us. But no, no… for me it was a good thing, that he was over there.
>
> (Joselyn, focus group, 11-3-09)

Another way that face-to-face interaction supported students in ways that online tutoring did not was through explicit instruction and demonstration. Students like Rita

viewed the explicit demonstration of steps as crucial, saying that she would not have learned so many basic computer skills without face-to-face support. She gave the following example, explaining how parts of the computer/the body needed to be shown in interaction: "*No es lo mismo a que te expliquen exactamente, mira, aquí está la cabeza y acá están los ojos* [points to her head and to her eyes]. *No es lo mismo*." [It is not the same that somebody explains exactly, look, here is your head, and here are your eyes (points to her head and to her eyes). It is not the same] (interview, 4-20-10). Her niece-in-law, who was pregnant in the spring and living in her household, took online classes for her GED, but Rita did not consider herself capable of doing the same: "*mucha gente toma las clases en line [sic], aquí así, pues yo pienso que yo nunca podría hacer eso*." [a lot of people take classes *in line* (sic), like here, but I don't think I could ever do that] (interview, 4-20-10).

In spite of the preference that most students had for face-to-face interaction, other students seemed to appreciate the additional support provided by the online tutor. Marisa agreed with Rita about the value of face-to-face instruction. She also considered the online tutoring to be part of the system in place to make the course successful. She found it interesting and "nice" to communicate with distant tutors and deemed their guidance as an extra support:

> *Porque nosotros con ustedes estamos contentos. Fuéramos solo así. Pero como es el método, que lleva la universidad, hay que respetarlo. Pero que a la vez, los, los, los tutores, pues, te comunican, y te dicen que te comuniques con el profe y que esto, y que esto. Es una asesoría.*
>
> Because we are very happy with you. If it was only like that. But this is the method the university follows, we need to respect it. But at the same time, the, the, the tutors, well, they communicate with you, and tell you to communicate with the teacher, and this and that. It's a type of help.
>
> (Marisa, interview, 4-9-10)

Juan, one of the students who participated in focus groups (but not a focal participant) said that having distant tutors gave them an opportunity to engage in online communication for real purposes. This meaningful correspondence was an important element of the requirements of the class; for him, it was helpful to have a tutor who was located remotely, and with whom they needed to share files using the function "browse" to attach files to their messages in the online platform:

> *Si, te voy a decir, o sea, este, si te ayuda. Te voy a decir por qué. Porque si lo hubiéramos mandado (tareas) con Lalo, no hubiéramos usado mucho el* browse, *ni todas esas cosas ¿me entiendes? Entonces, el tener un tutor allá, tenías que hacer otro procedimiento, otro más. O sea, aunque no esté allá, aunque estuviera aquí contigo, por ejemplo. Mandar cosas de aquí a aquí, con cualquier persona, pero estás practicando más, ¿me entiendes?*
>
> Yes, I'm going to tell you, uhm, this really helps you. I am going to tell you why. Because if we had sent (assignments) with Lalo, we wouldn't have used *browse,* or all those other things, you know? Then, having a tutor there, you had to engage in another procedure, another one. I mean, even if he were not there, even
>
> if he was here with you, for example. Sending things from here to here, to somebody else, but you are practicing more, you know?
>
> (Juan, focus group, 11-7-09)

As Juan explained, having to submit assignments online to a distant tutor allowed students to become familiar with online communication for authentic purposes—and importantly, this occurred in their first language. He entertained the possibility of doing the same with local peers, in spite of the geographical proximity, just to "practice." But having to reach distant tutors to establish a student-tutor relationship created a context for communication that mattered to him.

As shown in the previous examples, the way the course was set up and the way that responsibilities were distributed led students to compare their online and local tutors and the type of support they received from them. For some students, having their grade depend on a distant instructor created a tension in their virtual student-teacher

relationship. These students considered the "real" teaching was by local instructors who they got to know and who answered their questions. Students like Rita and Miguel also discussed their preference for face-to-face interaction versus online-only courses, especially since they were novices to computer use. However, students also valued the affordances of these distant relationships, since it helped them "save face" and set up an authentic context for transnational online communication.

The Role of Distant Tutors: Encouragement and Feedback

For many students, distant tutors were the first people they communicated with through online communication. The distant tutors were also persons the students had not met, so their online interaction was real and meaningful to get to know each other. Although students did not take this course entirely online; they seemed to appreciate the encouragement and support they received from their distant tutors. Rita was especially glad for her tutor's communication and referred to him as "*mi amigo David*" [my friend David]. She read aloud his emails and praised how well he wrote: "*él siempre es bien educado, quisiera conocerlo para darle un abrazo, bien bonito que escribe*" [he is always so polite/well educated, I wish I could meet him to give him a hug, he writes so nicely] (field notes, 9-29-09). She considered both of her tutors (in the spring and the fall semester) to be "*muy buenas personas*" [very good persons], and used to read aloud their messages at the beginning of class. In the following instance, Rita read aloud an inspirational quote sent by her spring tutor, Roberto:

Rita:	*Dice: "Esta frase se los dejo de, ah, la motivación es como el alimento para la mente. No puedes tener suficiente en una sola comida. Necesitas ser alimentado continua, y regularmente."*
Mónica:	*¡Pues si!*
Silvia:	*Que curioso. Yo creo que cada mensaje que les pone les manda una frase, ¿no?*
Rita:	*En todos, en todos les está poniendo algo.*

Rita:	It says: "I leave you with this phrase of, uh, motivation is like food for thought. You cannot get enough in one meal. You need to be fed continuously and regularly."
Mónica:	Well, yes!
Silvia:	That's interesting. I think he sends you phrases in every message, right?
Rita:	In every one, in every one he is writing something.

(Class audio recording, 3-24-10)

Rita's read-alouds prompted other students to have conversations about the messages they received from their tutors or to comment on the phrases that Rita's tutor sent. Rita added that her tutor David sent her notes encouraging her to keep up with her work, saying things like "*ánimos, espero que sigas adelante*" [cheers, I hope you keep it up] as well as encouraging her to ask him questions if she had any, when he sent her the steps of an assignment (interview, 4-20-10). Joselyn also appreciated the encouraging messages, especially as she noticed that other students fell behind in their assignments when the tutors sent group messages asking student to submit pending work:

> *La tutora que tengo es una tutora que se está preocupando, que está mandando mensajes, "chequeen, miren, mándenme la actividad que no me han mandado, eh, ya, vamos a llegar a la recta final, échenle ganas" el correo que te enseñé ayer, porque muchos no están mandando, no están mandando el trabajo, deben de, que aprovechen. Y siempre con una nueva frase cada día.*
>
> The tutor I have now is a tutor who is concerned, who is sending messages, check here, look, send me the activity you have not sent me, come on, we are almost to the finish line, keep it up" the message I showed you yesterday, because many are not sending, are not sending the work, they should, they should make the most out of it. And always with a new phrase everyday.

(Joselyn, interview, 4-15-10)

These kinds of interactions (though never face-to-face) helped Joselyn feel as if the distant tutor was caring and nurturing. In the Web Design course, Joselyn also appreciated her tutor's feedback on the content and design of her website assignment. Her tutor praised her efforts, and her positive comments helped her feel proud:

Joselyn: *Cuando dijo que era una de sus mejores, me hizo sentir muy bien.*
Silvia: *Que bonito…*
Joselyn: *Y le gustó, es algo que te hace sentir bien, que, me costó trabajo, nos costó trabajo, pero es algo que tengo satisfacción de decir, "ay sí, quedó muy bien" […]. Sugerencias, siempre son bienvenidas, yo creo que las sugerencias siempre van a ser una cosa que me van a ayudar a mejorar lo que ya hiciste, porque en vez de tomarlo de la manera "ay no, me salió mal, o me dijo, me criticó esto" yo creo que siempre deben de "ay no, que bueno, me gustan las sugerencias porque eso me va ayudar."*

Joselyn: When she said I was one of her best (students), that made me feel really good.
Silvia: That's nice….
Joselyn: And she liked it, that is something that makes you feel good, that, it was hard work, it was hard work, but it is something I have the satisfaction to say "oh yes, it ended up looking good" […]. Suggestions, they are always welcome, I think suggestions will always be something that will help me improve what is already done, because instead of taking it like "oh no, it was all wrong, or she said this, she criticized this" I think it should be like "oh no, that's good, I like suggestions because they will help me.

(Joselyn, interview, 4-15-10)

In their emergent communication practices with their online tutors, students appreciated the possibility of establishing an academic relationship with a person they had not met face-to-face. More importantly, perhaps, was the fact that all of the online tutors lived in Mexico, the birthplace and former home of many students in the class. Although the students expressed a preference for direct face-to-face instruction, some still valued the support and encouragement made possible through an electronic medium. In these ways, their online interactions helped to socialize them into the practices and tools of online instruction.

The Role of Classroom Peers: Developing a Learning Community

Over time, face-to-face instruction helped students develop networks and resources within the community center that supported their learning, engagement and

participation. Given the small class size (around 15 students) and the set-up of laptop computers, students could sit close to each other and were able to look and point at each other's screens. In close contact for two semesters, students got to know each other well as they shared the process of becoming socialized into digital literacies together. Students also shared a cultural and linguistic background, with many identifying themselves (and their instructors) as Latinos, and as immigrants with strong affiliations with their home countries. These ties led students to help one another: students with more expertise tended to share their knowledge and provided ongoing support to those who struggled.

In the next section, I describe the various interactions and forms of support that peers provided to one another during the academic year. This included guidance and scaffolding in tasks and assignments, and sharing of media and material resources related to their own digital literacies. Students encouraged one another to succeed in their technology use, and as they increased their participation in local and transnational communities of practice through their use of technology, and as they mobilized knowledge acquired in other communities of practice with their peers at the center.

Guidance and scaffolding in tasks and assignments. At the beginning of the Basic Computer Skills course, students received step-by-step instructions to navigate electronic environments. During sessions, I observed that newly acquainted peers started to help each other, particularly the students who were "behind" as everyone followed instructions to complete certain sequential tasks. This was especially helpful when somebody had been absent and missed steps of an assignment that most of the class had completed. Instructors encouraged students to help each other, since it was hard for an instructor and an aid (like myself, in the first semester) to provide one-on-one support to all the students who were behind.

Joselyn was one of the students who provided a lot of support and guidance to her peers, in large part because she attended class regularly. She often helped Rita who usually sat by her, because Rita felt comfortable asking for her help. In one instance, Rita was dragging image files from a drive to a folder in front of the class, and Joselyn and another student, Juan, gave her directions to find her way (field notes, 11-17-09). When they started to write HTML codes in the spring and Rita had forgotten to bring her glasses to class, Joselyn sat by her and helped her type and find items in her screen (field notes, 3-10-10). Although Rita usually received support from Joselyn, she reciprocated by helping Joselyn crop images for her website by using her notes with steps that she took down when I explained the process to her (field notes, 4-7-10).

Rafael also shared his knowledge of hardware and maintenance of his own computer at home. He was familiar with some specialized terms, and provided support and advice to peers when he noticed they were struggling. He explained to peers how he installed and uninstalled programs from his computer, and gave advice on hard drive specifications to a student who was thinking of buying a computer. He also showed me and several other students how to insert Spanish diacritics in a laptop keyboard, using a combination of the Function key, the embedded numeric keyboard and the Alt key (field notes, 2-22-10). Since this was a complicated task that involved pressing various keys sequentially and then simultaneously, he stood up and showed each one of us in our keyboard how to do it.

For Marisa, providing support to others was something she felt qualified to do, because she had been an instructor in her home country, where she had mentored medical students. When she described her appreciation for the local teachers, she mentioned: "*Son personas dedicadas, les gusta la docencia, como a mí.*" [You are dedicated people, you enjoy teaching, just like me] (interview, 4-9-10). In fact, since she had completed

the Basic Computer Skills course prior to the rest of the participants, she volunteered for a few days as a local tutor in the center, working with another group of students. In one instance during the Web Design class, I saw Marisa and her husband stay after class to help one of the other students open an email account. The student had forgotten the password and username of her older account, and Marisa enthusiastically guided her through the process of signing up for a new one.

One advantage of the step-by-step approach to instruction was that it allowed students who "mastered the process" to support others. They were thus positioned as knowledgeable of a particular discrete task—such as Rita, who paid attention and took careful notes that allowed her to help others. Sharing and mentoring practices created spaces for apprenticeship among students, where they were able to share their expertise in specific applications, websites, or other types of online resources. In addition, these interactions provided opportunities for other students to share alternative ways to achieve a task. As described in earlier sections, instructors encouraged exploration of alternative paths, and were glad when students shared suggestions with the class. Since instructors often waited for the whole group to "catch up" when assignments were being directed step-by-step, it was in the best interest of the group for students to help one another so that everyone could keep up with the pace of instruction.

Sharing media and material resources. This learning space also allowed students to share resources that supported their participation in digital literacies, both in class and in other contexts, including splitting the cost of expensive software for new computer owners. As mentioned in Chapter 4, Joselyn and Miguel purchased brand new laptop computers, and brought them to class to get support customizing them and installing software. Miguel, who needed to install antivirus software, asked me for software recommendations. I told him I had a coupon with a store discount, and Juan,

who was also interested in an antivirus, told Miguel he would go buy it using the coupon and then share the license with him (field notes, 11-9-09). Since this particular software came with a license for up to three home computers, they were able to install it in both computers and share the installation disc and the costs. Another example of sharing material resources included USB drives that students were expected to bring with them to store their work. When new students arrived in the class at the beginning of December, Miguel and Juan shared their spare USB drives with two new students.

In addition to sharing material resources, students also discussed the media and online resources they came across with each other. This allowed students the chance to be exposed to a wider range of practices beyond those in the online curriculum. This was helpful for students because they found new resources useful or interesting. In one instance, Joselyn shared with the class a site where she looked up ratings for physicians in her area (healthgrades.com) and pointed out the various types of information she could retrieve about their services in the site (field notes, 4-28-10). Students also discussed their views and practices on social networking sites like Facebook, MySpace or Twitter. This allowed participants like Rita to become familiar with the purpose of these sites. Questions from her like "*Por qué dicen 'sígueme en Twitter?'*" [Why do people say 'follow me on Twitter'] (field notes, 10-8-09) prompted instructors (including myself) and peers to explain and make transparent the nature of social networking online versus face-to-face. In this way, students' inquiries shaped the content of the curriculum to be inclusive of practices they may had noticed or heard of, but did not fully understand.

Students also shared media files they found online or that they had created themselves. Rafael, for example, brought a video he created with pictures of his daughter using Windows Movie Maker, for the class to see. In one of the last sessions, towards the end of May, a student called Leticia joined the HTML class for a few sessions and shared

with the group a slide show she had created titled "*El Valor de una Mujer*" [The Value of a Woman]. The video showed text and images related to the sacrifices women make as mothers, friends, and daughters. We played it in the projector for students to see; after viewing it, students praised Leticia's work and asked about her multimodal design process. Rita and other students were very interested in this genre of "inspirational stories," which prompted Leticia to show more videos and files that she received from friends via email, as well as files with humorous content, such as wedding bloopers and jokes. At the end of this class, several students exchanged email addresses with Leticia, hoping she could send them similar videos (field notes, 5-22-10).

Interactions like these allowed students to feel safe asking questions, learning from peers, and sharing their interests. Miguel acknowledged this community-based sharing at the end of the fall semester (field notes, 12-10-09). In the last class, Lalo asked students to reflect on what they had learned and to share their thoughts. Miguel gave me his digital camera and asked me to video record him as he stood in front of the class and gave a speech. He narrated his story and experiences both before joining the class and after coming back to school. He thanked Lalo, whom he described as an excellent teacher, and told his peers he had learned from them all, and that they would always be in his heart and mind. Looking at Rita, he thanked her for her enthusiasm, saying *"y con todo respeto, sin faltarle al respeto, a pesar de su edad, tiene tantas ganas de aprender."* [with the utmost respect, without meaning to be rude, in spite of your age, you have such a will to learn].

As evidenced by Miguel's short speech, this learning community that supported learning in ways relatives and children at home did not, became a powerful space for this group of adult learners. This type of sharing and scaffolding practices allowed for the creation of a space where content was shaped by students' knowledge and experiences.

In addition, students were able to openly discuss their questions and needs regarding ICT use, hence expanding the repertoire of digital literacy practices. For example, Rita's asking questions in class helped her make sense of the specialized discourse of online social networking ("following" someone on Twitter) In addition, the sharing of media in face-to-face interactions allowed novice email users to build a social network of acquaintances with whom they could communicate electronically. Through the combination of face-to-face interactions and online communication, students built their social capital aligned with ICT use (Warschauer, 2003). They expanded heir social networks to include other ICT users who shared their interests, and were able to received support from peers in a safe space.

Summary

Findings discussed in this chapter illustrate the different practices, tools, and types of interaction that supported participants' socialization into various digital literacies. The data presented shows the ways in which various elements of the activity system interacted and shaped the ways in which the content of the course was scaffolded. The course content, online platform, tools, and rules (assessment) were designed by an institution located in a different nation state, resulting in a transnational learning space that was facilitated by the use of ICTs. Given the backgrounds and social and language practices of all participants in this space, the community's transnational nature was supported by both top-down, structural conditions: the binational institutional agreement that permitted the use of the online curriculum. In addition, the learning practices were also shaped by ground-up conditions: specifically, the community transnational practices with Spanish-dominant, foreign-born adult learners who held strong family and social ties with their home countries, along with bilingual, bicultural local tutors.

These findings capture one type of transnational context that fosters language and literacy socialization of multilingual communities. This socialization process builds competence in various cultural, linguistic, discursive and semiotic systems (Duff, 2010). Jacquemet (2005) coined the term *transidiomatic practices*, defined in Chapter 2, to describe the communicative practices of members of transnational communities in interaction with both local and distant audiences, where both multilingual talk and electronic media use are present. Data analyzed in this chapter demonstrates how instructors negotiated these multiple semiotic systems to scaffold the various "signposts" and specialized terms involved in the use of ICTs, in more than one language. This process facilitated participants' socialization into particular Discourses (Gee, 2004)—ways of speaking, thinking and behaving—that expert technology users value and appropriate when they become members of a community of practice of digitally literate individuals.

By focusing on the distribution of roles and the social interactions in this site, we gain a better understanding of the types of practices that promote meaningful access to ICTs for novice adult technology users. Because scaffolding and mentoring opportunities in participants' households were limited, participants valued the explicit demonstration of practices they received at the center. In addition, by building networks with other students who had a wide range of levels of expertise and access to ICTs, participants observed and developed a useful repertoire of practices over time. Support from social networks strengthened the promotion of social capital, in ways that enhanced opportunities for using ICTs to foster social inclusion (Warschauer, 2003). Not only did students gain sets of skills needed to operate particular tools, but they built relationships and coalitions that supported this type of learning. They became members of a larger discursive community of technology users with transnational affiliations. In the next

chapter, I focus on the ways that participants in the study mobilized the knowledge acquired in this research site for the maintenance of transnational ties. Because digital literacy socialization took place in a space that relied on ideas, people, tools, and resources located in more than one nation-state, transnational affiliations became both a *tool* and a *product* of the engagement of participants in digital literacy practices.

Chapter 6

(RE)CONSTRUCTING TRANSNATIONAL IDENTITIES THROUGH DIGITAL LITERACY PRACTICES

In the previous chapter, I examined how new technologies mediated membership and participation in a transnational community of practice. I also explored how these mediational tools supported participants' learning. In interactions with peers, online tutors and local tutors (including myself) who shared a cultural and linguistic background with them, students were exposed to a wide range of digital literacy practices. These practices were part of the content of the curriculum (e.g., Microsoft Office applications) and were also shared by peers and instructors (e.g., media sharing). This chapter describes and analyzes how participants' appropriated the practices and knowledge of these classes in their everyday routines. In particular, I focus on the relationship between students' participation in digital literacy practices and their maintenance of transnational affiliations. This analysis demonstrates that transnationalism and use of digital technology are mutually influential processes. Just as transnational affiliations support engagement in digital literacies, the use of these tools reaffirms and maintains transnational ties.

In order to explore these issues, I consider the situated nature of literacy in participants' lives in relation to identity construction and practice (De Fina, Shiffrin & Bamberg, 2006; Lee & Anderson, 2009). In this approach, macro and micro-social processes operate in combination to influence identity work: identity construction is influenced by structural forces that ascribe particular roles, but also by individuals' ability to craft agentive selves through practice (Bartlett & Holland, 2002; Barton et al., 2007; Holland et al., 1998). For participants in this study, structural forces situate them in social categories that may limit their participation in the workforce or in the

educational system. For instance, their status as English language learners complicates their access to adult education in the community college system. In addition, as "foreign-born" individuals, the lack of transferability of their degrees from their home countries may prevent them from continuing the professions they held prior to migration. However, participants' social practices that connect them with ideas, people, and texts located beyond geographical boundaries may open spaces where they may be able to exercise agency in their learning and professional pursuits. As they incorporate new technologies in their repertoire of practice, I document how these tools support the exchange of transnational flows of information, and their identity (re)construction as transnational citizens.

In this chapter, I explore how focal participants mobilize and utilize their transnational resources to develop their emergent use of ICTs for purposes of communication, learning, political participation and online publishing. The analysis highlights the nuanced ways that media and cultural tools are employed in the maintenance of transnational affiliations, while also demonstrating the ways in which the use of these tools facilitated participants' maintenance of transnational ties. Overall, the evidence in this chapter shows how their ICT use supported (and was supported by) their simultaneous membership in local and transnational communities (Levitt & Glick Schiller, 2004) in their everyday lives.

Overview of Digital Literacy Practices across Cases

As described in Chapter 5, students at the community center shared with peers and instructors the digital literacy practices they engaged in at home, or that they had questions about. From observations at the center during the fall and spring semester, interviews and recording of Internet activity that students were willing to share, I compiled an inventory of the *observed* and/or *reported* digital literacy practices they

collectively engaged in. I present a categorization of the practices related to transnational resources in Table 8. It is important to point out that this is a *partial* view of their repertoire of practices, based on what participants felt comfortable sharing with me. Our relationship in a formal education setting and my positionality as a researcher/instructor may have influenced what they shared. For instance, the list does not include many "leisure" activities that emerged in my interviews with their younger family members, like searching for games or music. In addition, this list includes some of the practices that were part of the content of the courses at the community center. As a result, for some participants, this was the first place where they became familiar with these practices.

The table indicates that most participants engaged in some form of online communication practice, but Joselyn and Marisa were the participants that appropriated this practice on a regular basis. They also shared with me instances of their use of web-based communication for purposes of political participation, in matters related to expressing their views about state policies and political parties. All participants utilized search engines as a way to obtain information related to topics of their interest, such as the content of adult education courses. In addition, all participants who enrolled in the Web Design course in the spring semester chose a topic to address for their website assignment. Miguel did not continue with this class, because his work schedule did not allow him to continue attending courses at this location and schedule. In the sections below, I describe each type of digital literacy practice, their contexts of use and access, the language choice participants made when they engaged in this practice, and their relation to maintenance of local and transnational connections.

Table 8

Categories of Digital Literacy Practices per Participant

	Online Communication	Online learning and reference	Political participation	Online publishing
Rita	Skype Checked email* (limited)	Google searches on recipes		Biography of former Mexican President*
Marisa	Email* Media sharing (photographs)*	Google searches on travel and research for ESL report Online component of ESL class	Email updates from Organizing for America Google searches on world and U.S. news	Advice on dog training and care*
Rafael	Email (limited)	ESL site YouTube searches on technology tutorials		Autobiographical account on technology use*
Joselyn	Email* Media sharing (photographs)* Social networking sites* Instant messaging	Google searches on health, news, parenting and her hometown YouTube searches on children's media	Blog on immigration experiences*	Advice for new parents*
Miguel	Email (limited)*	YouTube searches on ESL and math tutorials		N/A

*Practices learned at the community center's courses

Online Communication: Maintaining Local and Transnational Relations

Online communication tools have been studied as promising resources for creating or maintaining transnational affiliations for immigrant communities. These tools were appropriated by Joselyn and Marisa, who stood out as the participants who engaged in communication practices with the most frequency. For both of them, a wide network

of relatives with access to ICTs supported their appropriation of email use. After a few months in the fall course, Joselyn explained she had relatives in Mexico with access to computers at work or school, and she was interested in ways to use a computer or a camera to reach them (focus group, 11-3-09). When she customized her laptop, she developed a wide range of communication practices, with the support of both local and transnational networks of family members. Locally, Joselyn's sister and nieces in Phoenix became some of her first online contacts in her email and Facebook accounts, as well as in her use of instant messaging software:

> *Tenemos un Facebook con las sobrinas de aquí, de un correo que me mandaron, le respondo a alguna* request. *No siempre les, no me gusta responderles todo porque es mucho. Con ellos es comunicación de correo electrónico, "como estás," o "va a haber algo aquí, nuevo," o "vamos a ir a algún lado," ponernos de acuerdo ahí. O incluso a veces estoy así en línea, y mi hermana está en línea, y la encuentro, y nos ponemos como estás, y pues nos ponemos a platicar.*
>
> We have a Facebook with our nieces here, from an email they sent me, I respond to some *request*. I don't always do, I don't like to respond to everything because it is too much. With them, it is email communication, "how are you," or "will there be anything new," or "are we going somewhere," we organize our plans there. Or even when I'm online, and my sister is online, and I find her, and we are like "how are you?" and then we start talking.
>
> (Joselyn, interview, 4-15-10)

In addition to communicating online with her local relatives, Joselyn used email and instant messaging to reach her Mexican relatives. Joselyn was aware of the widespread use of the MSN Instant Messenger platform in Mexico, so she opened an account with Hotmail in order to be able to use it. She also learned how to upload photographs and attach them to email messages, in order to share photos of family events with them. As a result, Joselyn was able to capitalize on her network of female relatives to become socialized in various forms of computer-mediated communication.

As opposed to Joselyn, who had several relatives living in the same city, most of Marisa's family had stayed in Cuba, and a few lived in the U.S., in a different state.

Hence, she spent a considerable amount of time using email to maintain communication with family members. She checked her email in various locations, and brought her camera to the center, asking us for directions on how to upload photos to her email account. In every one of our interactions uploading photos, she conveyed an urgency to share the photos in a prompt way. She documented thoroughly her new life in Arizona through photography: the place where she lived, her classroom in the community college, or the events she and her husband attended. Although there were restrictions on Internet use in Cuba, she considered email a convenient form of communication. One of the reasons email was relevant to her was that it reduced the costs of frequent phone calls, since her siblings and nephew were able to pass on messages to her mother:

> *Y entonces yo le comunico, yo cualquier cosa, yo quiero mandar un recado, y enseguida hago un email para Cuba, para mi hermana, mi cuñado, mi sobrino, "dile a mi mamá esto y lo otro" porque las llamadas para nosotros son muy caras.*
>
> And then I communicate, anything, (if) I want to send a message to Cuba, for my sister, my brother-in-law, my nephew, "tell my mom this and that" because phone calls are so expensive for us.

(Marisa, interview, 4-9-10)

Given Marisa's need to maintain frequent communication with family members, she actively sought public spaces where she and her husband could check their email as frequently as possible. For both Marisa and Joselyn, their access to ICTs and their desire to share media and messages with distant relatives were conditions that shaped their appropriation of email communication on a regular basis. Consequently, their online communication practices developed quickly. It is relevant to note that most of their interactions took place in Spanish, as this was the primary language of the members of their local and transnational social networks.

On the other hand, Rita, Miguel and Rafael were not frequent users of email or other tools of online communication, in spite of the fact that all of them had relatives living outside of the U.S. Although the three of them were interested in keeping in touch with relatives in their home country, they relied on other forms of communication (like the telephone) to do so, instead of adopting email use. For Rita, the possibility of communicating with her niece Carmen, who lived in Spain, was initially one of the reasons she joined computer classes. She highlighted this as one of her accomplishments during the fall semester, when she was able to send her an email message with the support of the instructors at the center. Prior to taking this class, Rita mentioned that Carmen had asked her about photos she had shared with Rita's son: "*Mi sobrina me dice 'Tía, miro las fotos que mandé?' Y le digo, no, entonces se las mandó a Ernesto.*" [Mi niece tells me: 'Aunt, did you see the photos I sent you? And I say, no, then she sent them to Ernesto] (focus group, 11-7-09). Rita's lack of understanding of email use excluded her from these online interactions, so she valued acquiring this knowledge in the fall semester. During the spring semester, she logged on to her email account with my support, or support from her peers. However, as explained in Chapter 4, her access to a shared computer in her household was limited. She was not comfortable with checking her email at home, and hence did not follow up in email communication with Carmen by herself.

Later in the spring semester, Rita shared with her peers in the classroom that she was using Skype (an Internet application to make voice and video calls) to talk to Carmen. She received support from her nephew Carlos (Carmen's brother), when he moved into Rita's house in the spring. By sharing his own transnational communication practices, Carlos engaged Rita in computer use for these purposes, when he invited her to join him by the computer: "*me dice: 'venga tía, vamos a hablarle a la Carmen*'" [he tells

me “aunt, come here, let’s call Carmen”] (interview, 4-20-10). Their use of Skype became one of their shared family practices, and allowed Rita to see and hear her niece through video. However, her communication with relatives in Mexico remained primarily over the telephone. These examples show how she used online resources to communicate transnationally, but only when she was prompted and supported by somebody else (at her home, by her nephew, and at the center, by her peers and instructors).

In our interviews and classroom conversations, Rafael and Miguel indicated that they were not very interested in participating in online communication practices. However, this reported lack of interest was shaped by different reasons. Miguel reported that many of his friends and relatives did not have email, and as a result, he did not have online “contacts.” Most of his family members lived in his hometown in central Mexico, and he communicated with them through the phone. He had the interest to reach them, but their access to ICTs was limited. In the case of Rafael, he had tried to engage in email communication with peers and relatives in the past, but he considered that technology use for these purposes was less valuable than other types of practices. Both Miguel and Rafael deemed instant messaging and email as less important practices, and they invested more of their time in using the computer for learning purposes. As a result, in spite of the existence of family networks in their home countries, they described their use of online communication tools as minimal.

Miguel’s lack of experience using ICTs for communication made him disregard these practices as a valuable use of his time. When he shared his thoughts on the nature of online communication, he regarded them as unimportant:

Miguel: *Porque también, las personas con quien compartía la computadora solamente la usaban para eso, para cosas… que yo, consideraba que no tenían mucho sentido.*

Silvia: *Ok… ¿cómo qué?*
Miguel: *Como…. Como lo que tú decías de, usar el programa este para estar comunicándose por medio de video.*
Silvia: *OK.*
Miguel: *Y más que nada porque tampoco yo tengo muchas personas con quien usarlo. Pues no es como tan, no era tan importante eso para mí. Yo dije, pues yo voy a aprender primero como usarla, un poquito mejor, y ya después que tenga tiempo, o que sea necesario, le doy uso a eso.*

Miguel: Because the people I used to share the computer with only used it for that sort of… for that kind of stuff… that I considered, that it did not make any sense.
Silvia: Ok… like what?
Miguel: Like… what you said about using this program to be communicating through video.
Silvia: OK.
Miguel: And more than anything, because I don't have many people to use it with. Because, it's not so, not so important for me. I said, well I am going to learn first how to use it, a little bit better, and then later when I have time, or that it is necessary, I will give some use to that.

(Miguel, interview, 2-28-10)

In this interaction, Miguel points to a number of reasons why he did not engage in online communication practices: (a) his construction of these practices as unimportant and "not making sense;" and (b) his lack of social networks with access to email who could communicate with him. These two factors were related and influence each other. Miguel made sense of the potential of communication tools based on his needs for transnational communication on both sides of the border. Although he had access to a brand new laptop with internet connectivity and had received instruction to use an email account, there were no members in his social network who could engage in frequent and meaningful communication with him.

In contrast, Rafael's social network of acquaintances and relatives were knowledgeable in ICT use. In his household, he pointed to the ways in which expertise was distributed differently in various digital literacy practices. In this instance, he

describes how his wife was more knowledgeable than he was in the use of the video camera for online communication:

Rafael:	*Le digo "aprende a bajar tus fotos de tu cámara, para que no estés preguntando."*
Silvia:	*Ah, ella tiene su propia cámara*
Rafael:	*Pues ella la usa. Tengo una, pero nunca la usé, por otras cuestiones. Pero le digo, "mira, así se baja" y empieza. Y ya la siguiente vez, me dice "¿me bajas las fotos? Es que ya se me olvidó todo" pero como que no, no pone atención ni le interesa. Entonces, lo que hago todo yo, yo siempre bajo las fotos; si tomo un video lo bajo, yo lo organizo, o sea, ella nomás el Messenger.*
Silvia:	*Oh…*
Rafael	*Pero si sabe… ella usa la cámara, y está hablando. Y yo no sé cómo se hace.*

Rafael:	I tell her "learn how to download photos from your camera, so that you are not asking me."
Silvia:	Oh, she has her own camera.
Rafael:	She is the one who uses it. I have one, but I never use it, for other reasons. But I tell her, "look, this is how you download" and it starts. And then the next time she tells me "can you download the photos? I forgot everything" but it's like she does not, she does not pay attention or cares. Then, I am the one who does everything, I always download the photos, if I record a video I download it, I organize, I mean, she's just in the Messenger.
Silvia:	Oh…
Rafael	But she knows… she uses the camera and talks. And I don't know how to do that.

(Rafael, interview, 5-13-10)

In this excerpt, Rafael explained that he had to be responsible for downloading and organizing media in their home computer. He described how the only thing she spent time on was instant messaging, recognizing this was an area of her expertise that he did not have. Rafael explained that one reason he was not interested in instant messaging was the fact that he could not type quickly enough. He noticed that this made his interlocutors grow impatient, the few times he tried instant messaging. In other instances, he questioned the meaning of "communicating online" in social networking sites like Facebook, wondering "*si a eso se le puede llamar comunicación*" [if you could call that

communication]. He had the same perspective on the use of email to reach friends in Mexico. For instance, he narrated how he became disappointed in their constant sending of boilerplate messages (e.g., jokes, email chain letters):

> *Lo que pasa es que cuando yo hice mi cuenta en Yahoo…comencé a investigar lo de mis amigos. Pero mis amigos son unos burros igual que yo. Entonces pa' lo que lo usan…. ¡Siempre me mandan fregaderas! [laughter]. No… yo conseguí el correo de un amigo, y [pregunté] "como estás, y como te ha ido"… y ahí te va que [el chiste] de la monjita.*
>
> What happened is that when I created my Yahoo account… I started to investigate my friends' [addresses]. But my friends are dumb like me. Then the things they use [email] for… They are always sending me junk! [laughter]. No… I got this friend's email, and [I asked] "how are you, how are you doing?" … and there he sends me the nun [joke].
>
> (Rafael, interview, 5-13-10)

As Rafael explained, his expectations for communication with his friends included personalized messages. These expectations were not met in practice, when he started to receive boilerplate messages as a member of a mass email list. He also linked these practices to a lack of competence among his friends and himself, when he labeled them as "*burros como yo*" [dumb like me]. In spite of having friends with Internet and email access, Rafael disregarded their use of technology for communication as an indicator of their ICT competence. Like Miguel, he distanced himself from email use, influenced by his constructions of what "proper" communication and "proper" computer use should look like. His rejection of instant messaging was also influenced by his difficulties in previous attempts to type as fast as his interlocutors. His experience points to the complex nature of appropriation of practices for transnational purposes: Rafael had transnational contacts with Internet access, and had a computer at home, but his meaning-making of these tools did not facilitate meaningful communication with those contacts and potential friends.

Just as Miguel's and Rafael's views on online communication shaped their appropriation of this practice, Marisa's stance on the relevance of instant messaging revealed a similar pattern. In our interactions, she valued and stressed her determination to improve herself through education, with "leisure" activities like "chatting" being peripheral:

> *Pero yo empleo mucho el tiempo en cuestiones de estudio, saber, eh, me comunico pero no me gusta mucho, yo no soy muy amiga de… no me gusta chatear.*
> *[…]*
> *Pablo es el que sí se comunica mucho. Yo no. Yo mando correos esporádicamente a mi hermana un día, mi sobrina en La Habana, pero no es la… Lo mío es, eh, buscar sobre temas que a mí me interesen.*
>
> But I use my time in matters of studying, knowing, uhm, I communicate, but I don't like it that much. I am not a friend of… I don't like instant messaging.
> (…)
> Pablo is the one who communicates the most. I don't. I send emails, sporadically to my sister one day, to my niece in Havana, but it's not… My thing is, uhm, to search for topics of my interest.
>
> (Marisa, interview, 4-9-10)

In these quotes, we see that Marisa has little interest in participating in "non-academic" activities like instant messaging. Like Rafael, she described her spouse as the person who spent more time in these activities, positioning herself as invested in academic pursuits through technology use. However, in my observations of their practices in the classroom, Marisa checked her email every session, and she was often very vocal and concerned about her ability to send photographs to her relatives. When she was unable to upload a file, she became very distressed, expressing urgency to reply to emails with photos at that very moment. Although she reported uses of technology mainly for academic purposes, she used it to communicate as frequently as she could.

From the experiences reported by Marisa, Rita, Joselyn, Miguel and Rafael, it is noticeable that female participants were more likely to engage in online communication

practices with relatives. This is a trend identified in research studying the gendered nature of this type of practice (Marshall, 2008), especially in the maintenance of geographically distant relationships (Boneva, Kraut & Frohlich, 2001). In particular, Joselyn and Marisa appropriated the use of instant messaging and the sharing of photographs with relatives living in their home countries: Joselyn documented family events (such as birthday parties) and Marisa photographed the new area where she lived and went to school. In the case of Rita, her initial interest in using a computer was prompted by her desire to connect with her niece living abroad. However, her communication practices were limited to contexts where she engaged in ICT use with support from others. Although online communication tools were generally used for the maintenance of transnational affiliations, their appropriation in everyday practice differed according to participants' access to material resources, social networks of computer users, and meaning-making of the value of these practices, compared to others.

Online Learning and Reference: Access to Multiple Texts and Viewpoints

The use of search engines was another type of practice that had the potential to connect participants with ideas, texts and resources from their home country. Through their engagement in online searching practices, participants were able to access learning resources in their first language (Spanish) and in their second language (English), and utilize them to access texts and media aligned with educational, cultural and linguistic practices in their country of origin while also developing skills that could support their educational and career goals in their local community. The use of ICTs for these purposes expanded zones of possibility for Rafael and Miguel, whose work schedules and family responsibilities restricted their opportunities to attend school full time or find a different job.

Transnational Practices and Household Practices

For Rita and Joselyn, who were the primary caregivers in their families, the use of online searches in English and Spanish supported their household roles and responsibilities. For Rita, the main use she found for online searches was looking up recipes. Her son taught her how to conduct searches for recipes from their laptop in the kitchen. Rita used both languages in her searches; in one instance, she shared with me examples of her search terms, such as "*como cocinar pollo*" [how to cook chicken] and "turkey meatloaf" (interview, 4-9-10). Rita noticed there were usually more search results when she used English key words, but she still used both languages to search, depending on what she wanted to cook.

In another instance, she shared her excitement with her classmates about finding recipe videos in Spanish for a shrimp dish. I observed she paid close attention to photographs of the dishes to determine if they looked healthy, or if they were "authentic," in the case of Mexican food. On one occasion, when she was searching for an image of an enchilada dish to illustrate a PowerPoint slide, she dismissed several images, until she came across a photo that resembled what she considered to be a dish she would prepare. Not only did Rita rely on two languages to find information related to food preparation, but also on the multiple modalities (e.g., video, images) that she encountered in her search results. As a result, she established practices that connected her with knowledge and resources produced in her home country, and that were helpful in her everyday routine.

Joselyn also utilized online searches to support various practices related to child care and household matters. Her first searches in YouTube with her new computer included online media to support Spanish language maintenance efforts in her household. As explained in Chapter 4, Joselyn and her husband tried to enact a one-parent, one-

language policy at their home, where Joselyn was assigned the role as the Spanish-only speaking parent. As a result, she started to search for media in Spanish for her daughters to listen in YouTube. She noticed her husband visited this site, and she looked up songs she had listened to while growing up in Mexico:

> *De México, la música, como te dije. Infantil, de aquellos años, de Cepillín, Topo Gigio [laughter]. Mi niña ya se lo estaba enseñando porque no los conoce. Me gustó que a ella le haya gustado, eso me agradó.*
>
> From Mexico, the music like I told you. Children's music, from those years, from Cepillín, Topo Gigio (laughter). My daughter, I was showing these to her because she does not know them. I liked that she liked them, I found that nice.
> (Joselyn, focus group, 11-3-09)

As the primary caregiver of two young daughters, Joselyn's emergent ICT use was influenced by her role as mother, and she started to conduct online searches related to topics of health and child rearing. Like Rita, Joselyn's use of two languages in search engines was a way to access texts published in Spanish-speaking nation-states, including her home country. This allowed her to expand her reference sources to multiple viewpoints, especially those that aligned with practices, beliefs, and ideas produced in her nation (and culture) of origin. When I asked Joselyn about her language choices in searches on child care advice, she commented on the different content of the sites depending on the language. She also pointed out to the different cultural frames of reference about the topic of child rearing:

> *En inglés es pura consejería, pero una consejería bien difícil, bien difícil, para uno de padre, te lo hacen como que todo es fácil. […] Y en español, es como más abierto… […], y en inglés está como un poquito más, como que más psicología, lo que te encuentras. Y en español yo lo he leído, como que es más realista.*
>
> In English it's only advice, but a very difficult kind of advice, for you as a parent, they make it seem like everything is so easy. […] And in Spanish, it's more open… […], and in English it's a little bit more, like psychology, what you find. And in Spanish, I've read it, like it's more realistic.
> (Joselyn, interview, 4-15-10)

In particular, Joselyn referred to the diverse views that different cultures have in disciplining children, and she aligned with what she deemed to be the more "practical" and real-world experience represented in the texts she found in Spanish. By commenting on the multiple viewpoints available in different languages, Joselyn was adopting comparative perspectives or "bifocality" in both the host nation and her nation of origin (Lam & Rosario-Ramos, 2008). Hence, she was able to discern and adapt the practices and viewpoints that made sense to her, based on her lived experiences. This is one example of how her interest in consulting child-rearing resources fostered her participation in digital literacy practices. Her bilingualism and bifocality together enabled her to engage with texts originating in two different nations. As she evaluated the information she had gathered, Joselyn maintained and strengthened her transnational views on parenting, when the texts she had access to were aligned with her beliefs. Through this process, Joselyn developed *both* her digital literacy practices and her transnational affiliations. In addition, she reported that consulting texts in two languages helped her "practice" her English reading skills. Overall, she constructed an identity of an informed parent who relied in transnational knowledge to raise children in a bicultural/bilingual household.

Joselyn continued to build and strengthen these transnational ties by conducting additional searches about her hometown. She found videos in YouTube that showed photographs of the capital of her state. She also looked up online maps of the place where she was born. She described this experience as beautiful: "*En Google Maps, busqué por satélite el lugar donde nací yo, si lo encontré.* […] *encontré las carreteras, donde yo viví. Bueno, donde yo pasaba por ahí.*" [In Google Maps, I searched by satellite the place where I was born, I found it. I found the roads, where I lived. Well, where I used to walk by.] (interview, 4-15-10). Since most of Joselyn's extended family

lived in Arizona, she had not been able to travel to her hometown in years. Through her access to information and tools that allow her to reconnect with people, ideas, places, and worldviews from her home country, Joselyn was able to strengthen an already complex set of practices that connected her to more than one nation state.

Primary Language Support and Transnational Learning Resources

Marisa, Miguel and Rafael also reported the use of online ESL resources that provided support in their native language, Spanish. Although Marisa and Miguel attended ESL courses at the time of the study, they found online resources very useful. For instance, Marisa received daily lessons in her email account from a site called mansioningles.com. These lessons provided grammar drills with directions in Spanish, and links to resources in their site. They also included advertisement for their paid products, such as a "Savings Pack:" "*Si quieres mejorar tu inglés nuestro Pack de ahorro avanzado puede ayudarte*." [If you'd like to improve your English, our Advanced Savings Pack can help you]. Marisa was aware of these products and told me that an *English for Business* package was around thirty dollars. However, since she was already taking courses full-time, she believed she got enough support from the free lessons. She explained they seemed somewhat basic to her because she was placed at an advanced level in her ESL courses, but she still found them to be a useful review.

In addition, Marisa shared this online resource with her relatives back home, as she explained: "*Y esto está buenísimo, yo se lo he pasado hasta Cuba, se lo pasé a mi hermana."* [This is great, I have sent it to Cuba, I sent it to my sister] (interview, 4-9-10). As a result, her online communication practices also involved the sharing of learning resources and texts to support her relatives' language learning efforts in Cuba. Not only did she use digital literacies to send economic remittances (to her mother), she used this technology to send *social* remittances, which Levitt (2001) describes as "ideas, behaviors,

identities, and social capital that flow from host- to sending-country communities" (p. 54). This illuminates the ways in which learning resources are mobilized beyond physical borders, and the conditions in which these flows take place. Marisa was able to foster her own learning practices through her exploration of free ESL resources, where she also received explanations in her native language, Spanish. Moreover, she was able to use technology to mobilize resources and facilitate connections with people still living in her sending nation. As a result, her engagement in digital literacies to support her English learning goals were connected to (and indeed influenced by) her efforts to maintain transnational affiliations. Digital technologies facilitated her consideration of the potential of these resources for her Spanish-dominant relatives back home.

The online resources that Rafael used also provided some form of Spanish support. He found a website called yappr.com a very useful tool to learn English "the way he liked it:" *[Tiene] videos de canciones, y tu le pones, y te sale aquí, el video, lo que está hablando en inglés, y acá en español. Lo está traduciendo.* [It has videos of songs, and you play them, and the video shows up here, whatever they are saying in English, and here in Spanish. It is translating it] (interview, 5-13-10). Yappr.com relies on user-generated translations of viral clips, commercials, songs and news. In this way, it provides first-language support and English close-captioning of authentic media clips. Rafael discovered that this was the way to learn English that worked for him, through music and songs. This was a strategy that a former ESL teacher told him was not good, because, in her view, they contained "words that are rarely used." Rafael enjoyed using this resource for some time, but then abandoned it when it restricted its content to members who paid a subscription fee. This points to the temporary nature of the availability of digital spaces for learning, considering the ways sites like Yappr.com or mansioningles.com (Marisa's resource) offered products for profit, limiting their free

content. Although there is a tendency to think about the Internet as a democratic space, the use of ICTs is situated within the context of capitalist industrialized society, where texts and tools are commodified (Gounari, 2009).

The limitations of content under this corporate approach had implications for Rafael, whose access to ESL instruction was limited. This was different from Marisa's situation, since she was able to study English full time at a community college. As explained in Chapter 4, Rafael's interaction with native English speakers at work was very scarce, and his work schedule was very demanding for him to enroll in ESL courses. For him, the use of ICTs for this purpose was one of his only opportunities to develop his English language skills. Although multimodal approaches to literacy situate online spaces as zones of opportunity for minority learners (Hull et al., 2009), cases like Rafael's point to the necessary conditions to make these zones visible and available for ESL instruction, when learners are not affiliated with an academic institution. Rafael had heard about Yappr.com through word of mouth, when a neighbor shared the link with him. In spite of the quality of the site, the primary language support he received, and the catalogue of authentic media texts, Rafael's decision to abandon the use of this site was influenced by the limitations of content for non-paying members.

For Miguel, finding learning resources in his first language was an extremely valuable resource, and he appropriated the use of YouTube for searches of ESL lessons. He provided the following reading of primary language support while learning and studying English: "*si lo que estoy aprendiendo es inglés, y mi idioma principal es el español, pues debo usar mi idioma principal para aprender un segundo idioma.*" [if what I am learning is English, and my main language is Spanish, then I should be using my main language to learn a second language] (Interview, 2-28-10). In examining his own learning process, he valued his knowledge of Spanish as a resource he could rely on. As

a result, Miguel benefited greatly from user-generated content shared in YouTube in his first language. As an example, he shared with me some videos in the *unodostresingles*[2] series. These videos were created by a young Chilean man, who started posting short English lessons in Spanish, presenting grammar rules, translations and dialogues in his own YouTube channel. This channel grew in popularity, being accessed by Spanish speakers in various countries—including the United States. Like the sites visited by Marisa and Rafael, there was content available for sale, such as DVDs and CDs; however, the main series of lessons were still available for free on YouTube.

In spite of living in a context where English was the majority language, Miguel found himself benefitting from texts created in a Spanish-speaking country. His use of ICTs facilitated his access to a transnational language learning resource. His online language learning practices provide insights to understand the relationship between transnationalism, technology use, and learning. Miguel's investment in online searches helped him develop uses of media-sharing sites for learning purposes, and utilize transnational support for his language learning efforts. During the spring months of the study, he had abandoned ESL evening courses because of his demanding work schedule. As a result, his viewing of the *unodostresingles* series in YouTube became one of the few resources he had to ESL lessons. Because of the constraints of his work schedule and his interruption of ESL formal instruction, online spaces opened a zone of possibility to pursue his learning goals.

Specialized Knowledge and Academic Content

Rafael and Miguel reported using ICTs for purposes of learning English, a skill they needed for social participation and inclusion in their local community. In addition, they extended their use of search engines to resume their academic preparation and

[2] See ESL video at http://www.youtube.com/user/undostresingles

support their educational or professional pursuits, interrupted by their migration. For Rafael, his lack of opportunities to re-establish his identity as a well-prepared professional in the hard sciences was frustrating. However, by using technology in particular ways, he was able to expand and reaffirm his knowledge of technology, strengthening and expanding his digital literacy practices. For instance, after he tried to create his own videos in Windows Movie Maker using Lalo's guidance at the center, he started to search for tutorials in YouTube to explore more on his own. He showed me some of the videos he found in Spanish, by entering the search terms "*como uso el Movie Maker*" [how can I use Movie Maker]. Not only did he learn the procedures to use the program; he was also able to infer the characteristics of the tutorials as a genre and the specialized language of video tutorials' creation:

> *Hay dos métodos para hacer tutoriales. Eso lo deduje viendo estos. Loqueando, y narrado. Loqueando es cuando tu usas el cursor, y estás escribiendo. Estás, dices, escribes en tu computadora. "Vete al menú de esto" sin hablar. Así como está ese.*
>
> There are two methods to create tutorials. I deducted that by watching these. Loqueando [subtitled] and narrated. Loqueando [subtitled] is when you use the cursor and you are typing. You are, saying, writing in your computer. "Go to this menu" without speaking. Just like this one.
>
> (Rafael, interview, 5-13-10)

Rafael shared some of his discoveries in class, mentioning he was intrigued by tutorial authors. He wondered how much free time they had to create these videos (field notes, 2-22-10). At the end of one of our last sessions, he asked me if I knew of any way he could study information systems online in Spanish, in a similar way the Basic Computer Skills and Web Design courses were offered (field notes, 5-12-10). His exploration of tutorials, together with his attempts to create videos, sparked his interest in media production practices. Although he was not able to enroll in other adult education courses in English at a community college because of his limited English proficiency, his

online searches directed him to texts produced in Spanish-speaking countries. Because of the use of his first language in online searches, Rafael was able to benefit from transnational resources produced in Spanish. He appropriated the use of platforms like YouTube for learning purposes, where transnational networks of technology users share their knowledge through multimodal and multilingual texts. This practice points to the affordances of spaces that aggregate user-generated content, like YouTube, where any user with access to media production software can upload media to share with a worldwide audience. For viewers like Rafael, this site became a valuable pool of information from "experts" who shared his first language, in spite of the fact they were geographically distant.

Miguel also shared his amazement at the amount of learning tutorials he found in YouTube that could support his academic learning: "*Tengo una duda y ¡zaz! Ahí está la computadora y se me resuelve*." [I have a question, and zaz! There's the computer and it gets solved] (interview, 2-28-10). He continued searching for other topics related to his evening GED courses, when he conducted searches on math content. He shared with me a video (see Figure 9) that he found using the search terms "*que es una raíz cuadrada*" [what is a square root]:

Figure 9. Square root explanation in YouTube. Miguel entered the following search terms in the YouTube search engine: "What is a square root."

In this video[3], a narrator speaking a Castilian variety of Spanish explains step-by-step how to solve a square root, demonstrating the process on the screen. Miguel praised the content of this video, telling me: "*mira, si vieras cuanto aprendí de esto*" [look, if you could see how much I learned from this] (interview, 2-28-10). Although Miguel had expressed dissatisfaction with the online tutoring he received at the community center, he found this multimodal approach to instruction very effective: "*para mí, eso es lo mismo, prácticamente lo mismo que tener a un maestro enfrente. Porque… o sea ellos, buscan la manera de que su explicación sea clara, sin que surjan preguntas*."[to me, this is the same, practically, the same than having a teacher in front of you. Because… I mean, they find ways to make their explanation clear, without questions coming up] (interview, d-28-10). At the community center course, online tutors relied on email messages to remind students of assignments due, bulleted lists of steps to complete them, and written feedback for submitted work. On the other hand, the videos that Miguel found in YouTube were multimodal screen recordings that *demonstrated* processes (instead of listing them in written steps). Miguel reported they made him feel like he was seeing an

[3] See square root video at http://www.youtube.com/watch?v=sDkW46acMlE

instructor in front of him, teaching a class. The square root video had a lined background and handwritten numbers to resemble a notebook. This familiar environment, in addition to the use of Spanish, made this resource attractive for Miguel.

Through his strategic and frequent searches of media that transcended nation-state borders, Miguel was able to reinforce the content of his GED lessons. These searches became part of his efforts to make up for the time he lost being out of school. Like Rafael, he appropriated YouTube as a resource for learning, and to access multimodal tutorials produced in Spanish-speaking nations. Both of them valued the use of ICTs for this purpose, especially when they compared them with tools for online communication. Although they did not express interest in the use of email to reach transnational contacts, they engaged in searches of texts related to their academic interests in their first language.

Through their active use of ICTs for academic purposes and their bilingualism and biliteracy skills, Marisa, Rafael and Miguel were able to construct online spaces as sites for learning. They created opportunities to continue their lifelong learning in ways that their current positions as immigrants, full-time workers in the service industry or English language learners did not allow. The examples above demonstrate the different ways in which online spaces provide possibilities for adult learners to access resources in their first language, and in modalities that facilitate understanding of content and skills of their interest (e.g., video tutorials in YouTube). Since they lived and worked in a context where English was the majority language, their emergent digital literacy practices had the affordances to connect them with transnational resources in their primary language.

Making Sense of Political Participation: Use of Email and Blogs

Another function of ICTs that connected participants with local and transnational practices was their engagement in digital literacies for political purposes. This involved

communication with organizations and publication of opinions on issues related to policies and government decisions. Within the group of focal participants, Marisa and Joselyn appropriated the use of ICTs for this purpose. They did so in very different ways, given their immigration trajectories and their affiliations with particular groups and communities. Although I focus on Marisa and Joselyn's use of ICTs, at the end of this section I briefly describe how Rita mobilized resources and other forms of media that were not covered in the course. Her particular choices align with her limited appropriation of the practices described above. Rita preferred the use of tools and means she felt familiar with, and digital literacies were still not the central or most frequent practices in her repertoire of practice.

Marisa and her husband used the Internet mainly to stay informed of national and international news. They followed closely the political situation of their country, mainly to understand the lived experiences of their relatives and friends who stayed there. Email communication also became a relevant tool for them, and they used it to participate in the democratic process in their nation of settlement. Marisa and her husband had signed up to be volunteers for Organizing from America, a community organizing project from the Obama administration. They shared with me some of the messages they had received from members of this organization. They received these messages frequently, and they were signed by Michelle Obama and other members of the Democratic Party. As Marisa told me:

> *De todo nos envían mensajes. De la Casa Blanca. […] Nos mandan muchísimos mensajes. A Pablo consistemente le llegan. Y avisos, invitaciones, de* Organizing for America *nos invitan por Internet.*
>
> They send us all kinds of messages. From the White House. […]. They send us a lot of messages. Pablo consistently gets them. And announcements, invitations, from *Organizing for America*, they invite us over the internet.

(Marisa, interview, 4-9-09)

Becoming politically involved in the democratic process was something Marisa and her husband appreciated, and it contrasted with political repression they experienced in Cuba. According to Marisa and her husband Pablo, receiving email updates from the Obama administration helped them feel as if they were more involved in their status as U.S. residents. Pablo even replied to some of the messages in Spanish, giving advice to the President. Pablo said he admired and followed President Obama's trajectory, because he was too a lawyer in Cuba. In a focus group interview conducted with Pablo and Marisa at the end of the course, I heard them describe the relevance of this correspondence in their understanding of a democratic government:

Marisa: *Pablo se mete al internet….*
Pablo: *Sobre el… sobre el… esa montaña que el libró para la reforma de salud, porque estuvimos apoyando eso. También.*
Silvia: *Ay que bueno.*
Pablo: *Y parece que ellos tienen un recuento ya, mandaron un diploma así grande.*
Marisa: *Y entonces coge tooodas las ideas que tú le puedes mandar también, todas las ideas, y él, eso en todos los lugares, aquí, en este país que estamos ahora, esa es, esas ideas, que en el país de nosotros eso no se puede hacer. Porque el único que piensa es el dictador. Pero aquí tú le mandas las ideas y él toma las ideas que, sabes, las analiza…*
Pablo: *Del equipo de asesores…*
Marisa: *Del equipo de asesores… y por eso que el país progresa.*

Marisa: Pablo goes in the Internet…
Pablo: Regarding… regarding… that hill he faced for the health reform, because we were supporting that. Too.
Silvia: Oh, that's great.
Pablo: And it seems they do have a summary now, they sent a big diploma.
Marisa: And he takes aaaaaall the ideas that you can send him too, all the ideas, and he, that, in all places, here, in this country where we are no, that is, these ideas, that in our country you cannot do that. Because the only one who thinks is the dictator. But here, you send the ideas and he will take the ideas, you know, he analyzes them…
Pablo: His team of advisor
Marisa: From the team of advisors… and that's why the country progresses.

(Focus group, 6-10-10)

In this excerpt, Marisa and her husband discussed their support of the current administration's reforms, following updates they received via email. Marisa described the feedback her husband sends through email as one way in which the President's team of advisors gathers and honors citizen's participation. She contrasted this mechanism of communication with the lack of civil participation in their home country. In addition to this online correspondence, Marisa and Pablo also volunteered in the local office of Organizing for America, making phone calls to Spanish-speaking households. Through their participation in online groups (as members of a listserv) and local organizations (by attendance to events), Marisa and Pablo actively sought ways to be politically involved in their nation of settlement. These practices supported their involvement with a political community in their receiving country. As a result, their use of technology helped them build connections locally, in addition to the connections they maintained transnationally. Their practices provide evidence of the simultaneous memberships that immigrants build in more than one nation-state, and how new technologies support both connections.

Joselyn, on the other hand, used her knowledge of technology to become more involved with different political issues. In the first class of the Web Design course, Joselyn expressed interest in writing a blog or a website addressing the topic of immigration. It was late January of 2010, a few months prior to the passing of Senate Bill 1070 in the state of Arizona. Since Pablo was a lawyer in his home country, he was also interested in creating a blog where he could discuss the different social and judicial implications of migration:

> *El tema de inmigración porque parte, de… del aparato jurídico que norma los movimientos humanos en el mundo. En todas partes del mundo, para entrar a un país, o salir, tienes que pasar por inmigración. Y si estás de visitante, como turista, o, residente, o…. invitado, como quiera que fuera, debes de, de respetar las leyes que hay en ese país. Hay que respetarlas. Y respetar a las autoridades también, que están ahí. Y eso es importante, es muy útil para cualquier ciudadano del mundo que conozca, las reglas migratorias del lugar donde está.*

> The topic of immigration because [it is part] of the judicial apparatus that norms the human movements in the world. In every part of the world, to get into a country, or leaving, you need to go through immigration. And if you are a visitor, a tourist, a resident or… a guest, anyway it is, you should respect the laws that exist in this country. It is important to respect them. And to respect the authorities that are also there. And this is important, it is very useful for every citizen in the world who should know, the migratory rules of the place where he is.
>
> (Pablo, interview, 4-9-10)

As he explains in this excerpt, Pablo thought immigrants should become familiar with immigration laws. He explained that he and Marisa had read and become familiar with the regulations of the U.S. Constitution. Given their migration history, they considered this type of information to be valuable for other immigrants. Pablo only drafted one entry for this blog, addressing the global nature of migration, and its impact on urban development. After that, he switched topics for his website project.

Joselyn, on the other hand, was interested in using the blog platform to document the immigration experiences of people she knew, and to include news and resources for an audience she described as mostly her relatives" and "Hispanics in the U.S. and in Mexico." From January through mid-March, Joselyn started to search for videos on the topic, and created an outline of sections to include media and narratives of people's experiences. She wanted to showcase the existence of both "good" and "bad" immigration experiences. After reading other persons' blogs on the same topic, she became interested in the power of sharing personal experiences and resources for the immigrant and transnational community. However, she decided to switch her topic in the middle of the course, after she spent some time looking for content. She describes her decision to switch topics as follows, based on her emotions at a time in which the political context of Arizona was becoming increasingly difficult for the Hispanic community:

> *[Y]o había escogido un tema que también me llamaba mucho la atención, está muy popular en este, Estados Unidos, la migración, ah, pero también…. sentí yo que estaba leyendo muchas cosas que no me gustaban, me hacían sentir como deprimente. Entonces eso de bebés en apuros se me ocurrió un día que, yo dije, bueno pues, eso es un tema que también es muy concurrido. Todos los niños, hay muchos niños en el mundo, y todo el tiempo va a haber niños y yo, tengo mis dos niñas y eso me ayudó a decir, porque no escribo algo así, que estoy ahorita en esta etapa de mi vida teniendo mis niñas, entonces, va a ser un poquito más fácil para mí, dejar salir algo que tienes dentro.*
>
> I had picked a topic that also got my attention, it is very popular in uh, United States, immigration, but uhm, but too…. I felt that I was reading a lot of things that I did not like, that made me feel like, depressed. Then this, babies in trouble idea came up one day that, I said, well, this is a very popular topic too. All children, there are many children in the world, and there will be children all the time, and I, I have my two daughters now and that helped me say, why don't I write something like this, now that I am in this stage of my life having my daughters, then, it will be easier for me, to let something within me out.
>
> [Joselyn, interview, 4-15-10]

In some class sessions, Joselyn shared these feelings of concern about the negative emotions she was feeling in her online research on immigration. For instance, she came across videos posted in YouTube that documented generous actions toward immigrant workers, like helping them communicate with their families in Mexico. But she also came across videos that depicted acts of discrimination and mockery. For instance, one video showed filmmakers pretending to offer work to day laborers waiting in parking lots, to later tell them they were lying (field notes, 2-1-10). Joselyn said it was painful to watch all these videos, and decided to move away from these topics, to focus on something that came "naturally" to her at that point in time, since she was expecting her third daughter: her desire to share parenting advice.

In spite of the fact that Joselyn abandoned the theme of immigration as a topic to write in a blog, this issue continued to be discussed in the classroom space, as Senate Bill 1070 was signed into law that spring. The participant who was invested the most in protesting these developments was Rita. Although she was not utilizing digital literacies

in the same way that Marisa, Pablo or Joselyn did, Rita learned about events like rallies or marches from word-of-mouth, and she attended most of them. At the beginning of every class, she shared with classmates the latest news on immigration raids that she had heard on the Spanish-speaking radio, or in television news in Spanish. She also shared information she had heard about politics in Mexico, like meetings Mexican President Felipe Calderón had attended. Rita's access to and appropriation of ICTs was very different from those of the other participants; nevertheless, she mobilized different means of information sharing to keep herself informed of events and news related to politics in two nation-states that affected immigrant communities. For instance, she listened to the news in Spanish-speaking radio and television channels, and attended rallies.

It is clear that the appropriation of ICTs as mediational tools is relevant for minority groups to express opinions on policies affecting their community. Marisa and Joselyn used digital literacies to follow current events related to political participation, but with very different outcomes. Marisa's and Pablo's interest in democratic participation after living under a dictatorship was facilitated by the use of online communication. For Joselyn, online publishing offered a venue for voicing experiences and concerns affecting the immigrant community. However, the emotional toll of the developments in the state prevented her from completing this project.

It was disheartening for me as a researcher/ practitioner to hear Joselyn's reasons to abandon her immigration blog project. Her decision demonstrates the impact of access to online content that promotes discriminatory practices, when an individual attempts to compose a counternarrative. For Joselyn, this led her to find instances of media that showcased discrimination toward immigrants. Her experience brings attention to the complex interaction between structural and ideological forces and the efforts of individuals to exercise agency to counter deficit discourses. Joselyn attempted to create a

text that would expose different types of immigration experiences, but these efforts were abandoned when she came across information she found hurtful. While digital literacies allowed Marisa and Pablo to feel they were a part of a democratic government, they made Joselyn aware of hate discourse in user-generated media, which discouraged her from an opportunity to "write" back.

The Online Publishing Process: Drawing on Transnational Experience

In this section I examine how the online publishing process that focal participants engaged in during the Web Design course was influenced by their transnational experiences. In particular, I focus on how transnational connections became sources of knowledge for their website projects. During the Web Design course, most of the participants selected topics of interest that somehow connected them to their lived experiences prior to migration. Many positioned themselves during classroom interaction as experts on a particular topic related to their academic or professional trajectory. In addition, they chose to represent themselves in particular ways that indexed their transnational knowledge in the texts they composed. To demonstrate the ways in which their process and products in Web Design were related to their transnational affiliations, I present below the stages of the composition process for Rafael and Rita. Their texts were strongly influenced by their academic experiences in their home country.

During our early sessions in the Web Design course, participants completed a handout brainstorming their topics, and the types of information that they were planning to include and to obtain (field notes, 2-22-10). Questions asked in the handout and discussed in class included: (a) what topic or topics do I want to address? (b) what type of information will I include? (c) what type of information do I need to obtain? (d) what type of information do I already have? And (e) what people do I expect will read me? For Rafael and Rita, it was hard to find a topic they could develop and feel confident sharing.

The following section describes the process that helped them get past these initial challenges and highlights how transnational affiliations allowed them to establish themselves as authors with unique experiences.

Rafael's Site: Crafting an Agentive Self as a Transnational Chronist

In the early stages of brainstorming topics for the site, Rafael struggled with the idea of writing on a topic without being a "legitimate author." He made the following comments in class, wondering about the "right to write" for people who did not have a degree in some field, or who had not taken courses in professional writing:

> *Hacemos una página, pero una página ¿para quién o qué?*
> *Tienes que ser experto en algo… tener un doctorado por ejemplo, para escribir sobre un tema.*
>
> We create a [web]page, but a page, for whom or for what?
> You have to be an expert in something… having a doctorate, for example, to write about a topic.
>
> (Field notes, 2-1-10)
>
> *Se nota que son profesionales… son personas que estudiaron para escribir, que saben cómo hacerlo, que tienen preparación.*
>
> You can tell they are professionals… they are people who studied to write, they know how to do it, they have preparation.
>
> (Field notes, 2-8-10)

Although Rafael had spent ten years in the U.S. working in the service industry, he often referred to this period of time as "wasted time" in his life. He had a strong academic preparation background, but he did not believe he was "knowledgeable" enough to publish information on a topic of interest. He said he lacked time to write, as well as easy access to a computer at work. For all of these reasons, he felt it would be hard for him to write a blog. He mentioned that blogging was only for "certain kinds of *people:"*

> *Pues escriben, "lo que me pasó cada día." Yo llego a mi casa muy cansado, ¿qué voy a escribir?*

> *Esto es para personas que tienen computadora en su trabajo. Mi amigo trabaja en un dealer, y a cada rato me habla y me dice, '¿no viste esto en el YouTube?' porque está en la computadora, y pues uno no"*
>
> Well they write, "what happens to me every day." When I get home I am very tired, what am I going to write?
> This is for people who have computers at work. My friend works at a dealer, and he calls me every now and then and tells me 'did you see this in YouTube?' because he is in the computer, and one is not.
>
> (Field notes, 2-8-10)

In addition to struggling with notions of legitimacy, Rafael viewed his employment circumstances as limiting, compared to those of his friend, who had the type of job where he used a computer every day. Rafael found it hard to envision himself writing a journal-style blog, like one of the sample blogs we browsed. In my response to his comments, I emphasized that writing improved when it was done frequently, but Rafael insisted on the relevance of professional preparation. At that time, Joselyn also tried to encourage him with her own plans for her blog, in which she was going to draw from the immigration experiences of people that she knew.

Rafael continued to struggle in the following sessions and to hold back when other students shared ideas for their topics. He approached me at the end of one class meeting, saying that he was initially interested in writing about extreme sports, but that there was an idea he was strongly considering, based on his experience with computers in college. He remembered taking programming classes with early models of computers that used punching cards and that were the size of a room (field notes, 2-24-10). He told me he wanted to talk about his experiences with technology throughout his life. He still considered himself a novice in technology use, and was fascinated by all the technological advances he had witnessed in Mexico and in the U.S.

In the end, Rafael decided to describe and reflect on his opportunity to experience various stages in the evolution of technologies and communication in two

nation-states. Although he considered he had limited knowledge of the use of computers, his stance as a lifelong learner constantly amazed by new developments is established in the homepage. Organized chronologically, his narrative is broken down in four stages of his life, in which he witnessed various changes in equipment and its use, and in which his access and interest in learning how to use communication technologies also shifted. On the homepage for his personal website, he describes the site's content, narrowing it to computer's evolution from his viewpoint: "*En esta página hablare de mi experiencia en la evolución de las computadoras y algunos aspectos generales de los cambios tecnológicos que me ha tocado vivir.*" [In this page I will talk about my experience in the evolution of computers and some general aspects of the technological changes I have had the chance to go through].

In his text, Rafael positions himself as an engaging and reflective storyteller that is also making sure he educates his audience on the various specialized terms that he uses to narrate his story. For instance, he frames his explanations as memories, adding further clarification or alternate names for technologies used in different periods of time: "*aun recuerdo mi primer disco LP en acetato (33 revoluciones), después cassette de 8 trk, y así hasta llegar ahora tarjetas de memoria, MP3, (música comprimida).*" [I still remember my first LP in vinyl (33 revolutions), then cassette of 8 trk, until now, memory cards, MP3 (compressed music)]. In addition, he relies on his memories as a university student in Mexico, where he was able to access early computer models, describing them in a similar way he had shared this information with me and peers in class: "*La primera computadora que conocí fue cuando yo era un estudiante, la computadora era de un gran tamaño un poco más grande que yo, (una sola computadora para toda la Universidad).*" [The first computer that I knew was when I was a student, the computer was really big, a little bigger than me (one computer for the whole university]. He was

able to find images online that showed the computer he remember from college, and included them in this section of his site.

Throughout this narrative, Rafael described his access to and interest in learning to use computers, aligning his participation in digital literacy practices with each of the eras of computer technologies he describes. When he moves on to describe personal computers, he explains his reasons for distancing himself from them, although noticing the changes in the types of machines used at the time, and comparing them to current technology, as follows:

> *El tiempo paso y la evolución de las computadoras seguía a toda velocidad, llego el ratón para incorporarse a la P.C. (no era láser, mucho menos inalámbrico). Todas las P.C. eran en blanco y negro, monitores de gran tamaño y C.P.U. también. Por alguna razón yo me aparte de ellas totalmente. Tal vez porque en aquellos tiempos eran realmente caras, o porque mi tiempo libre siempre lo dedique al deporte en el cual tuve muchas y muy bonitas experiencias a nivel nacional e internacional (U.S.A.).*
>
> Time went by and the evolution of computers kept going at full speed, the mouse arrived to be incorporated to the P.C. (it was not laser, much less wireless). All P.C.s were black and white, with big screens and C.P.U. as well. For some reason I distanced myself from them totally. Perhaps because in that time they were really expensive, or because I always spent my free time in sports, in which I had very nice and beautiful experiences at the national and international level (U.S.A).

In this excerpt, Rafael utilizes specialized language to describe the different technologies from each stage, such as *monitors, PC* (personal computer) and *CPU* (central processing unit). Then he reflects on his distancing of them, and mentions his lack of access due to economical reasons, but also positions himself as an athlete with transnational experiences. At the end of this segment, he makes the only reference in his whole site about his mobility across national borders, without using the terms migration/immigration. He describes his personal experiences of mobility as "national and international" travel. Towards the end of his narrative, in the section he titles

"Conclusion," Rafael describes his involvement in the use of computers again, and mentions his appropriation of digital literacy practices in his everyday life:

> *Ahora, después de muchos años de apatía a las computadoras comienzo a conocerlas un poco y encuentro una herramienta muy útil para la vida diaria, pago todos mis servicios públicos a través de ella, también puedo elaborar algunas cosas que me gustan mucho en fotografía y música.*
>
> Now, after several years of apathy towards computers I am starting to get to know them a little and find them a very useful tool for daily life, I pay all my bills through it, I am also able to elaborate some things I like very much in photography and music.

In this excerpt, Rafael lists his incorporation of technology in his household practices (paying bills) and as tools to support his personal hobbies, like editing photography and managing music files. Although other students (e.g., Rita) considered Rafael a very knowledgeable student, Rafael still viewed himself as a learner who was barely "getting to know computers a little." He elaborated on his efforts to pursue learning opportunities through online resources, concluding "*Y aquí estoy aprendiendo por medio de tutoriales, tratando de seguir y seguir estudiando*" [And here I am learning through tutorials, trying to continue and continue learning]. He situates his use of online tutorials as a resource, describing himself as a self-guided and motivated learner. This confirms the value he placed on the use of ICTs for reference and learning, especially when he could access resources in his first language.

In spite of his lack of access to a computer at work and his initial resistance to write a text without having a degree in writing or in a particular topic, Rafael ultimately composed a written narrative in which he chronicled his unique experiences witnessing the shifts in computer technology evolution. As mentioned in the previous section, his educational experiences prior to migration allowed him to access technology in ways he could not in his current job in the U.S. Drawing on these experiences, he was able to craft multiple identities as a learner, a designer and a historian/chronist with perspectives

of his own in the evolution of technology. His transnational knowledge and experiences informed his engagement in the online publishing process and were represented in the final product of his work. This reified and validated his experiences prior to migration as they connected to his past and future trajectory as a user (and learner) of digital literacies. As a consequence, his engagement in online publishing both shaped and was shaped by his identity construction as a technology user with transnational experiences.

Rita's Site: Making Sense of Transnational Social Justice

In the early stages of the process, Rita was initially interested in exploring the topic of politics in Mexico. As mentioned above, Rita often shared in class the latest she had heard about violence in Mexico, as well as rallies and raids in the county area. When she brainstormed topics for her website, she described it in her notes as "*la vida de un niño que cuida borreguitos en México*" [the life of a little boy who takes care of sheep in Mexico] (brainstorming handout, 2-22-10). Here she was referring to Benito Juárez, President of Mexico during the 1800s. Rita describes the origin of her interest in Juárez' childhood from one of her memories of schooling in Mexico:

> *[Y]o sabía que él era pastorcito, y, inclusive yo mire en unas fotos cuando yo estaba chiquilla que el andaba con una flautita. Tocando. En los, en los, uhm, en los llanos, o sea, en el cerrito. En el cerro con los borreguitos, cuidando los borreguitos. O sea que cuando yo estaba chiquilla fue donde yo leí lo de él. Y ahí en el libro que nos daban, el texto que nos daban, tenía su, su foto de él y una, él traía una flautita, y cuando andaba tocando con los borregos.*
>
> I remember that he was a shepherd, and even I saw him in some pictures when I was a little girl, that he was around with a flute. Playing. In the, in the, uhm, in the fields, I mean, in the little hill. He was in the hill with little sheep, taking care of the sheep. I mean, when I was a little girl that's when I read about him. And in that book they gave us, the text they gave us, it had its, its photo, and he had a little flute, and he was playing with the sheep.
>
> [Class audio recording, 6-9-10]

For Rita, it was this childhood memory of her school textbook that prompted her to research the topic of this boy's childhood. Rita was concerned about her lack of

schooling in Mexico, and often narrated her struggles growing up in poverty. Like Benito Juárez, she grew up in a rural area with many limitations, and was interested in learning about the difficulties of his childhood as a member of an indigenous community in the state of Oaxaca. She was impressed that he was able to become a lawyer, and later, the President of the Nation. Drawing on the parallels between her life and Benito Juárez' humble beginnings, Rita decided to focus on conducting online research on his life to write about it.

During our time writing drafts of the site content, Rita printed and read a Wikipedia entry in Spanish, focusing only on his childhood, the topic of her interest. I observed she was taking copious notes in her notebook, and suggested to her to tell the story in her own words, as if she was talking to me. In a class in March (field notes, 3-20-10), she started typing her handwritten notes using a word processor; they were divided in four sections. When I read her first draft, I noticed she was using the same sentences from her source, but she assured me she had done what I told her, "getting the most important information." I worked with her on segmenting the biography, creating headings/section titles for each of the events she was describing: (a) the beginning of Benito Juárez' schooling; (b) the discrimination he suffered in schools; and (c) his fleeing his hometown. The only piece of original writing that was not a summary of her source text was the following draft of her introduction:

> *bienvenidos a esta pagina,abla acerca de los primeros años de la vida de benito juarez cuando era niño:porque la trayectoria de benito juarez fue bastante complicada pero muy interesante porque de niño fue pastor, seminarista, abogado y asta precidente de la republica mexicana*
>
> welcome to this page it talks about the first years of the life of benito juarez when he was a child: because benito juarez' trajectory was very complicated but very interesting because as a child he was a shepherd, seminarist, lawyer and even president of the Mexican republic.

In this introduction, Rita describes her page, without making reference to herself as an author, but instead stating as a fact that Benito Juarez' life was complex and interesting. She then highlights the various steps in his path to the presidency. When looking at Rita's website and her original sources, the differences were minimal, since she simply "lifted" sentences and events that she found relevant. However, the website project required Rita to conduct research on a historical figure that mattered to her, so she found herself retelling and sharing what she had learned from the Wikipedia entry. Towards the end of the spring semester, we were discussing in class the fact that she only chose to narrate his childhood and not the rest of his life. During our conversation, Rita pointed out that one of her sections described the discrimination that indigenous children suffered in school:

Rita: *Lo, lo interesante fue de, lo que sufrió desde que nació hasta que [inaudible]*
Silvia: *Pues anduvo de casa en casa… de pueblo en pueblo*
Rita: *Como todo un pobrecito pues.*
Silvia: *Pero fíjese, llegar a presidente.*
Rita: *Y fue abogado, y fue… y como él hay muchas gentes. [inaudible] Si sabes. Se supera, una vez que los… él y ya ves que los otros, de los mismos que eran indígenas. No les daban ayuda.*
Silvia: *En la escuela*
Rita *En la escuela. Y a los, a los que decían, como les decían a los, a los que eran educados y eso, les decían de otro nombre, y les ponían ayuda. Y eso fue lo que a él le molestó y mejor se salió de la escuela, y se puso a aprender por sí mismo.*

Rita: The, the interesting thing was that, all that he suffered until… [inaudible]
Silvia: He wandered from home to home… from town to town.
Rita: Like a poor little boy…
Silvia: But see, to make it to be president….
Rita: And to become a lawyer, and he was… there are a lot of people like him [inaudible]. You know. They get better, once they… he and the others you saw, like him, indigenous people. They did not help them.
Silvia: At school.
Rita At school. And those, they called them, how did they call them, those who were educated, and that, they called them a different name, and

> they gave them [special] help. And that's what bothered him and he preferred to leave school, and he started to learn on his own.

[Class audio recording, 6-9-10]

Rita's admiration of Benito Juárez is influenced by the fact he was able to overcome various life struggles as a young boy. Her concern about injustice and discrimination is evident as she recalled an excerpt of her website that describes the poor treatment of indigenous children in schools: mainstream children were called "decent" and received instruction from the teacher, while indigenous children were not given this label and worked with the teacher's assistant. Her focus on discrimination was consistent with her comments in class, where she also often shared news about raids in the valley targeting undocumented workers, as well as her own participation in rallies where she considered authorities were overreacting and purposefully mistreating protesters. And even though she never made a connection explicitly, her narratives of her own life struggles mirrored what Benito Juárez endured. Rita mentioned in this conversation that there are many other persons just like Juárez, who better themselves in spite of injustice and discrimination. As described in Chapter 3, Rita bitterly remembered the fact that her mother made her and sister work instead of going to school, and how she had to send money to her brother to pay for his college education. Towards the end of these narratives of struggle, however, she often ended with a coda, evaluating how her past experience has shaped her current identity as a humble person:

> *Y, y, no, es muy duro. Es muy duro. Y por eso te digo, así que, te sientes mal, te sientes a veces frustrada, que dice híjole. Pero bueno, te digo, mira, Silvia, de todas maneras, en el final tengo que darle gracias a Dios porque ni ando en la calle, y no he pasado hambre. Gracias a Dios, tenemos comida suficiente, y tenemos lo necesario. Por eso yo soy una persona bien sencilla. Me entiendes, yo soy bien sencilla. Y, si, yo veo a alguien que necesita ayuda, que yo le puedo ayudar, yo le ayudo. Y, pero así, es todo.*
>
> And, and, no, it is really hard. Really hard. That's why I'm telling you, like, you feel bad, you feel frustrated, thinking, "oh my." But well, I'm telling you, look

> Silvia, anyway, in the end I have to thank God because I am not in the streets, and I have not been hungry. Thanks God, we have enough food, and we have what we need. But that's why I am a very humble person. You see, I am very humble. And if I see somebody who needs help, that I can help, I will help that person. And, but that's it, that's all.
>
> (Rita, interview, 4-20-10)

Rita juxtaposed the frustration she feels about her lack of opportunities and the struggles she faced growing up with a positive ending note, positioning herself as a humble and generous individual, who has all that she needs. The theme of overcoming struggle was present in both her personal narrative and in the periods of Juárez' biography she focused on. She stated her meaning by making transnational connections to her selected topic in classroom interaction with me and her peers—as she negotiated and selected the content, and retold what she had learned from her online research to others.

Through the composition and design process, Rita mobilized knowledge from her limited schooling in Mexico, and used the biography of a main figure in Mexican history to make sense of her own immigration path. Digital literacies allowed her to connect with a text in her first language (in Wikipedia in Spanish) to document her research about Benito Juárez. She then was able to use ICTs through an online platform to retell and validate her transnational knowledge. In these ways, her experiences in Mexico guided her online searches and her composition process. In her talk and her text, her concerns about social justice for minorities extended to her sending country (for indigenous people like Benito Juárez), and her receiving country (for immigrants). Through her composition and design practices, she represented her transnational knowledge and made sense of prior and present conditions of struggle and injustice taking place locally and transnationally.

Even though the focal participants of this study had diverse immigration trajectories and educational opportunities prior to and after migration, they drew from their knowledge and experiences of transnationalism. In contrast with the constraints they faced in their everyday circumstances and their ascribed identities as immigrants and English language learners, this process allowed them to establish themselves as designers with expertise in a particular area. For Rita and Rafael, this meant drawing on their academic experiences in their home countries, and utilizing these memories as seed ideas to construct biographical accounts. These biographies described life trajectories in which obstacles were overcome and subjects were successful in particular ways. Their process demonstrates the ways in which their online publishing practices and their transnational experiences mutually supported each other, resulting in the crafting or transnational and agentive selves in electronic texts.

Summary

In this chapter, I explored the relationship between the use of information and communication technologies by adult immigrants and their connection to ideas, people, and resources beyond national borders. Findings in this chapter show how transnational affiliations might become a resource for novice technology users, and how those affiliations were supported by their participation in digital literacy practices. Importantly, the adoption of ICTs for transnational purposes took place when certain conditions of access to ICTs and understandings of their value and potential were in place. Students, as social agents, appropriated cultural tools —in this case, the use of new technologies—in ways that made sense to them (Wertsch, 1998), and rejected them if they considered them foreign or not aligned to their construction of social practice.

Regarding the appropriation of tools for online communication, conditions of access to material and social resources are interrelated and depend on each other to

materialize technology use. For instance, Miguel had full access to physical equipment and Internet connectivity, but lacked the social networks of digitally literate peers to engage in communication with. On the other hand, Rita had relatives like her niece living abroad, but her own conditions of access to her household computer were limited by family dynamics and sharing of household resources. For participants like Joselyn and Marisa, who had relatives abroad with access to email and ICTs, and who were interested in maintaining frequent contact, email and instant messaging tools became part of their repertoire of communication practices.

In addition, participants' emergent use of technology allowed them to access texts and resources that supported household practices related to their transnational affiliations. Participants' efforts to maintain children's use of their first language, to see maps of their hometowns, to cook Mexican recipes, or to follow news on their hometown politics were facilitated by their use of new technologies. Search engines also connected them with texts and resources in their first language, Spanish. At the same time, participants engaged in practices that facilitated their connections to their local community in Arizona (e.g., learning about political organizations and supporting English language learning goals). All these practices regularly connected them to "daily activities, routines, and institutions located both in a destination country and transnationally" (Levitt & Glick-Schiller, 2004, p. 1003). Moreover, the use of search engines, online tutorials, email platforms and online publishing tools allowed students to maintain their simultaneous affiliations with their home country and their nation of settlement. Through their use of English and Spanish in online searches, they were able to access texts that represented multiple perspectives and viewpoints, such as Joselyn's searches on child rearing. Some of these texts were produced by authors in their home countries or other Spanish-speaking nations; for instance, the tutorials that Rafael and

Miguel consulted with technical support and math content. These uses of online reference, together with their lived experiences prior and during migration, informed their crafting of electronic texts in which these transnational identities were represented.

Finally, participants appropriated digital literacy practices in ways that fostered transnational connections that reified or strengthened desirable identity positions and influenced their academic or professional trajectories. For participants like Rafael and Marisa, their engagement in online searches in their first language allowed them to reconnect with professional and academic communities that they were part of prior to migration. For students like Miguel, who had abandoned school, these tools supported his efforts to resume his education, and invest in the construction of an academic identity. Finally, the analysis shows how immigrant writers and composers construct transnational identities through their design of digital texts (e.g., websites, personal profiles) in ways that challenge the deficit perspectives in discourses about culturally and linguistically diverse learners (Hull, et al., 2009; Vasudevan, 2006). Through the composition and design process that participants engaged in, they were able to draw from their transnational funds of knowledge, and craft texts that represented their expertise, and honored the transnational resources they brought to the classroom. This demonstrates how identities are fashioned, lived and enacted through social practice (Barton et al., 2007; Holland et al., 1998) and through design of agentive selves (Hull & Katz, 2006).

Chapter 7

CONCLUSION

I approached this study with the hope of understanding practices that promote access to the use of new technologies for adult immigrant learners. As I entered the process of data collection, I wanted to document participants' views and perspectives as newcomers to technology use. I focused on the ways in which their transnational connections, relationships, and affiliations were a resource for them as they participated in digital literacy practices. Conversely, I studied how digital literacy practices fostered the maintenance of their transnational ties. Throughout this journey, my own roles and participation shifted in ways I had not anticipated, but which ultimately enhanced my knowledge and understanding of learning processes and ICTs. For instance, after I became involved as one of the agents of socialization into participants' use of digital tools, I was able to better understand the challenges that participants faced in appropriating new technologies, and the ways in which a learning community was fostered and supported.

The research questions I pursued in this study addressed issues of access in relation to learning, transnationalism, and digital literacies. Through participant observation, interviews, and document collection, I analyzed how participants used technology, the nature of their classroom experiences, and the situations in which their transnational knowledge was a resource. I was also able to examine how participants appropriated digital literacy practices in ways that fostered transnational affiliations. This analysis of data yielded five sets of findings, which I review and synthesize below.

The first main finding is that multiple layers of forces shaped the conditions of access in participants' life histories. I described the nature of these forces by presenting three structural layers. The first layer refers to structural conditions at the macro social

level, which included participants' institutional affiliations, or the ICT infrastructure in immigrants' sending nation-states. For instance, Marisa's and Miguel's access to ICTs prior to migration was shaped by ICT limitations in their communities of origin. The second layer refers to participants' relationships with members of their social and family networks—some of which extended beyond national borders. Through their interactions with friends, relatives, and household members experienced in ICT use, some participants had many opportunities to be mentored. However, other participants regarded support from family members or acquaintances as rushed or minimal. The third layer refers to participants' constructions of technology and learning that shaped their decisions to engage in digital literacy practices (or not to). These constructions defined the types of practices participants regarded as valuable and the importance they ascribed to factors like age in their learning process. These different conditions shaped participants' experiences at the community center, where they were exposed to a number of opportunities to engage in digital literacy practices.

The second finding described the mediational tools instructors used to help adult learners navigate the graphic and English-based nature of online environments. Instructors used step-by-step lists to guide students through several applications and processes. These step-by-step lists were part of the online curriculum designed by a Mexican university. Their appropriation in the classroom demonstrates the ways transnational flows of information, rules, and norms shape local educational practices. In addition, instructors acted as cultural mediators between languages and semiotic systems, translating specialized discourse from English to Spanish (and vice versa), and breaking the "code" behind icons and metaphors embedded in the use of information technologies. Because of the hybrid nature of language practices in this transnational learning

community, these brokering practices were crucial to mediate students' understanding of digital spaces and tools.

The third finding is that participants considered face-to-face interaction crucial to their navigation of interfaces and their understanding of electronic environments, especially when compared with the online instruction they were simultaneously receiving. They also valued the support they received from classmates; for instance, Joselyn, Rafael and Rita were open to helping each other and their peers who "got lost" during activities. This support consisted of demonstrating missing steps, giving technical advice on hardware, and sharing online and material resources. All of the female participants in this study (Rita, Joselyn, and Marisa) also valued the authentic purpose of online communication with their distant tutors, and appreciated their feedback, comments, and encouraging notes. However, they claimed that their local tutors helped them the most. This was consistent with Miguel's views, who regarded online support as mostly grading, while the "real" teaching took place in the classroom.

The fourth finding is that participants appropriated digital literacies as part of their everyday repertoires of transnational practice, for purposes of online communication, online learning, and political participation. This appropriation, however, was shaped not only by participants' conditions of access but also by their institutional affiliations and constructions of technology. For instance, some participants had full access to material resources (e.g., a computer of their own). However, their choice to engage in online communication with distant relatives was influenced by the value they assigned to practices like the use of email or instant messaging, and also by their relatives' access to ICTs in their home countries.

Through their participation in digital literacy practices, most participants were able to access texts, media, and people in their home countries. This allowed them to

strengthen their transnational ties and maintain cultural and linguistic practices in their families. In addition to the incorporation of digital literacies in their repertoires of practice, participants also made sense of their transnational selves through the design of electronic texts. They drew from academic, professional, and personal experiences prior to migration to craft a website. For some of them, these authoring acts became an opportunity to construct agentive selves in biographical/autobiographical narratives. Taken together, these findings show that adult immigrant learners draw from a range of transnational resources to participate in digital literacy practices, while these very resources are a support for their socialization into digital literacies.

A focus on the connections between participants' histories of migration and their learning trajectories details the complex ecology where their socialization into digital literacies took place. Selfe et al. (2006) remind us that a case study focus can illuminate the relationships between people's literacy practices, their access to ICTs, and larger structural forces. In Figure 10, I provide a conceptual model incorporating the different dimensions of the findings presented above. Following Barton et al. (2007), I situate participants' life trajectories at the center of the diagram and analyzed these in relation to factors that facilitated or constrained their access to ICTs—one of the central foci of the study. Participants' educational and professional experiences prior to and after migration shaped their access to ICT instruction and equipment. These experiences comprised their cultural capital associated with digital literacy: for instance, both Marisa and Rafael graduated from college in their sending countries, and worked in their professions prior to migration.

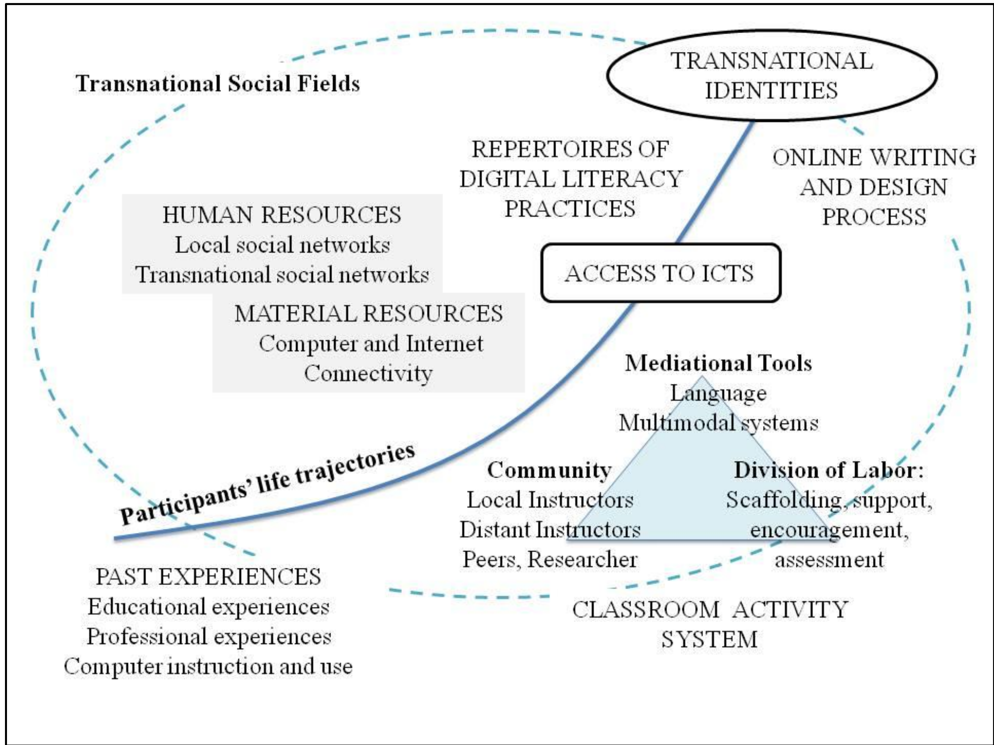


Figure 10. Model of access to ICTs. The model depicts the relationship between life trajectories, access to ICTs and construction of transnational identities.

At the center of the diagram, I locate the kinds of resources that supported participants' access to ICTs during the time of the study. I situate these practices and interactions within transnational social fields (Levitt & Glick-Schiller, 2004). This concept illuminates the way that participants' social networks, everyday practices, and participation in the computer courses connected them with ideas, people, and texts located beyond national borders. At the community center, participants worked in a learning space with local instructors and peers who shared a cultural and linguistic background. They also interacted with distant tutors in Mexico, and utilized learning resources created by a Mexican higher education institution. Participants had access to material ICT resources (computer equipment and Internet connectivity) within their households, schools, or other public spaces. Equally important, they also had access to relatives, friends, and instructors who had expertise using technology. In these various

contexts, participants mobilized knowledge and resources related to their own appropriation of digital literacy practices.

The top part of the diagram captures the relationship between access to and appropriation of ICTs, particularly in relation to the construction of transnational identities. Through interactions with expert users at the center, at home, and in a variety of transnational spaces, individual access to computers and Internet connectivity were increased. This access to particular participation structures shaped the ways in which students appropriated digital literacies in their everyday practices (for purposes of learning, reference, communication, or political participation). Further, this access and participation constantly evolved and changed, depending on a range of social and economic factors, such as educational and professional backgrounds, or institutional affiliations. As an example, Marisa had a strong professional and academic background from her life in her home country. This background prompted her efforts to engage in academic practices. She also received support to be a full-time ESL student at a community college. All of these conditions influenced *how* she appropriated digital literacies for academic purposes.

In addition, participants' transnational identity construction process was also shaped by their engagement in the production of electronic texts during their time at the community center. Together with the repertoires of practice (Gutiérrez & Rogoff, 2003) that students possessed and expanded with technology use, participation in digital literacy and online publishing practices allowed adult immigrants to (re)construct transnational identities. Overall, the diagram depicts the evolution of learning processes over time, the situated and emergent nature of those processes, and the influence of participants' backgrounds and practices prior to migration.

Contributions of the Study

My study makes several contributions to the examination of digital literacies in relation to transnationalism. First, it sheds light on the mobility of knowledge and resources in an understudied community of learners—adult immigrants who are novice users of technology. It illuminates the complicated and situated ways in which individual learners rely on multiple networks, languages, and modalities to make sense of digital spaces. It also expands our notion of learning spaces beyond geographical boundaries, suggesting important methodological and pedagogical implications. Additionally, my study uses a critical lens to explore the relationship between power structures and individual and community efforts to exercise agency. It does this by focusing on the tensions between micro- and macro-social forces that shape technology appropriation. Finally, my study illustrates the benefits of using methodological approaches that allow the researcher to hold multiple roles (in this case, observer, designer, and implementer of ICT instruction).

Investigating the Relationship between Digital Literacies and Transnationalism

This work makes important contributions to the field of New Literacy Studies (Street, 1993; 2000; Barton & Hamilton, 2000; Baynham & Prinsloo, 2009) by bringing together diverse theoretical perspectives and methodological approaches. This study documents the first-hand experiences of adult immigrants by applying multimodality frameworks (Kress, 2003; Jewitt & Kress, 2003; New London Group, 1996) to explore semiotic means in the use of new technologies. It also draws on activity theory (Engeström, 1993) to theorize the ways these digital spaces are mediated in a transnational learning community.

The present study also examines the locally situated ways that learners access and appropriate digital literacies through interactions with members of multiple

communities of practice. These include, but are not limited to, interactions with face-to-face tutors (living in the U.S.), online tutors (living in Mexico), and family members, friends or relatives (from both countries). The analysis situates participants' lived experiences in transnational spaces, and it examines empirically how adult learners make sense of their prior and current access, their recent and current learning experiences, and their emergent patterns of technology use. In these ways, this study helps us investigate the "life spans" (Hawisher et al., 2004; Selfe et al., 2006) of literacy practices within the complex ecologies where they develop. This approach highlights how technology use is culturally and historically situated in adults' lives. It also highlights how their gender, class, past instructional experiences, and relationships with family and friends shape their current practices (Hawisher et al., 2004). These case studies also illuminate how many kinds of transnational relationships, practices, and affiliations shaped participants' conditions of access both prior to and after migration.

This study also contributes to work that has extended the field's understanding of literacy "beyond the local," (Brandt & Clinton, 2002; Baynham & Prinsloo, 2009; Street, 2005). By tracing the mobility of texts and their appropriation by individuals whose lives are connected to several localities, I have conceptualized transnational practices as both a *resource* and a *product* of the participation of digital literacies. This analytical move is aligned with recent work that examines transnational processes in relation to situated practices (Warriner 2007, 2009; Lam 2006a) as well as work that is concerned with the mobility of knowledge across multiple contexts (Leander et al., 2010). As such, this study extends our conceptualization of learning spaces beyond geographical boundaries in new and valuable ways.

Participants in this study drew from the knowledge of persons or sites located remotely in formal and informal learning spaces. For instance, Rafael received computer

advice from his brother who lived in Mexico, Miguel relied on math tutorials created by a teacher in Spain, and the students at the community center appropriated an online curriculum designed by a Mexican university. By accessing and appropriating particular kinds of digital literacies, individuals mobilized resources that helped them pursue educational or work-related goals. The directions of these flows was not unidirectional; through participants' appropriation of tools for online communication and publishing, they also exchanged digital "social remittances" (Levitt, 2001) with their relatives living in their home countries. Within online publishing efforts, participants also developed a sense of a transnational audience, beyond the persons they interacted with in their everyday routines.

These findings are consistent with studies that examine the use of ICTs among immigrant adolescents. Particularly, this study confirms research findings that document the importance of immigrants' use of email communication to maintain affiliations with their home countries, and their access to texts, news, and websites in their first language (Lam & Rosario-Ramos, 2008; Lam, 2004; Yi, 2009). This study also supports previous research documenting the affordances of online spaces for immigrant youth to design transnational selves and engage in multilingual interaction practices with a global/transnational audience (Lam, 2000; Lam, 2006b; McGinnis et al., 2007). However, one notable difference in my study is that participants used their first language (Spanish) to mediate most of their design processes and to create their final text, because they had a Spanish-speaking local and transnational audience in mind. In addition, participants used multiple languages and language varieties to mediate their navigation of online environments that were new to them. Within the classroom, students' use of hybrid language practices (e.g., codeswitching) and translation between languages and specialized vocabulary made transparent the navigation process of online environments.

Through these multilingual practices, participants made sense of the various interfaces that rely on standard language varieties of English and Spanish, and that were occasionally different from immigrants' everyday language use.

This study also makes a number of important methodological contributions. With regard to the use of ethnographic methods that focus on multiple sites (Marcus, 1995) and the practices that connect these sites (Leander, 2008), this study demonstrates the role of digital literacies in facilitating connections and flows across geographic (physical) and virtual (electronically mediated) contexts. Online spaces were mediating tools in the community center, which allowed participants to reach instructors and texts located in more than one nation state. Such connections also facilitated their simultaneous enrollment as virtual students in courses offered by a Mexican higher education institution, and as students in face-to-face courses at the local community center. It is also important to point out that the *separations* between these two sites of learning (Leander, 2008) also had implications, since some students distinguished between face-to-face support as "real" teaching and online instruction as an additional support.

Other instances of connections between the local and transnational took place when primarily female participants (Marisa, Joselyn, and with less frequency, Rita) used email and instant messaging to reach family members in their home countries, and interact on a frequent basis. However, as Wilding (2006) cautions, ICTs are adopted within already-existing relationships with certain expectations, intimacy, or distance. In the case of Rafael and Miguel, who did not engage in online communication like the female participants did, they reported some distance in relationships with siblings. The complexity of these relationships in families living apart should be an important

consideration in studying and theorizing connections and separations between individuals and sites.

Finally, this study has important pedagogical implications. First, it demonstrates why teachers might want to recognize the value of transnational literacies in classrooms that serve immigrant learners. Within this particular research site, the structure of instruction utilized a curriculum designed in Mexico, which valued the use of Spanish literacy as a medium of instruction. As a result, local instructors (who shared a cultural and linguistic background with students) were able to utilize examples and topics related to students' needs and interests. For instructors who are outsiders to the immigrant community, learning about the potential of transnational knowledge, networks, and practices can enable them to use this knowledge as resources for teaching and learning. These findings align with recommendations that Jiménez et al. (2009) make about the potential uses of transnational literacies in the classroom. When teachers draw from students' transnational literacies, they can learn more about their students' backgrounds, resources, and everyday practices. This fosters intercultural understanding in classrooms with students of diverse background, honors students' funds of knowledge (González, Moll & Amanti, 2005), and promotes further engagement with the content of instruction.

This study also demonstrates the potential of capitalizing on the life histories of adult learners. The information participants shared about their appropriation of technology (or lack thereof) for their needs was helpful in shaping and informing instructional content. From social practice and critical pedagogy perspectives on adult education (Barton et al., 2007) and family literacy (Auerbach, 1989), content draws from various forms of meaning-making that are relevant in learners' lives, because it is based on their complex histories, identities, and circumstances.

Studying Digital Literacies from a Critical Perspective

One of the main goals of this study was to investigate whether and how adult immigrants had access to ICTs. The study was designed to apply Street's (1993) ideological model of literacy to the empirical investigation of digital literacy practices (Warschauer, 2009). This model allowed me to explore the potential of ICTs to expand social inclusion opportunities for minority students (Warschauer, 2006; Warschauer & Ware, 2008), and to document and analyze the lived experiences of immigrant learners with ICTs. Findings of this study align with efforts to redefine access in ways that include both material resources (computers and Internet equipment) and social networks of digitally literate peers, relatives, or acquaintances. These findings also nuance the claims made by large-scale survey work on the digital divide with immigrant communities (Fox & Livingstone, 2007; Livingstone, 2011; Ono & Zavodny, 2008). This study makes it clear that the presence/absence of relevant resources is insufficient to grant access. It also points out the importance of focusing on the conditions, affordances, and interactions that mediate socialization processes for newcomers into the specialized discourse of new technologies (Warschauer, 2003; Gounari, 2009).

The cases presented in this study highlight the methodological complexities of obtaining access to situated practices, when adult learners appropriate those practices in meaningful ways. They demonstrate the various social factors that shape participants' use of ICTs. The cases also evidence participants' interactions with potential mentors in their trajectories both before and after migration. The analysis links the study of literacy as it relates to factors influenced by local and global ecologies and conditions of development within nation-states. It highlights the role of income, education, and prior experience with using technology in creating opportunities to acquire and develop digital literacies. Findings demonstrate that participants' strong first language literacy skills and

professional experience shaped their access to and appropriation of digital literacies. For example, Marisa and Rafael were able to pursue higher education degrees in their home communities and attend universities funded by the state government (in Rafael's case) or supported by the national government structure (as in the case of Marisa, who lived in Cuba). The differences between Rita's experience and Marisa's experience are instructive: although they were close in age, Rita's limited formal schooling experiences in Mexico prior to migration constrained her access to and appropriation of digital literacies, compared to Marisa.

To understand transnational processes, this study shows that it is also important to look at factors that are external to the individual. I described the macro- and the micro-social processes involved, including institutional agreements, community coalitions, and family practices that shaped individuals' practices. Drawing on the notion of transnationalism "from above" (Guarnizo & Smith, 1998), I examined the binational, bi-institutional agreement that made available this particular online learning experience for the Spanish-speaking immigrant community in Arizona. The structure of the online platform and the rules established by its developers in Mexico shaped some of the instructional practices in the local classroom—such as following step-by-step procedures to demonstrate practices the same way they were listed in the assignment directions. However, members of the local community appropriated this curriculum in ways that made sense to their particular needs. This demonstrated a transnationalism "from below" perspective, evident in the ways students often inquired about other applications, online spaces, or practices that were not part of the curriculum (e.g., YouTube, Twitter). I found activity theory (Engeström, 1993) to be a useful heuristic as a mid-level theory to explore the ways mediational tools were used within community, along with the larger institutional practices that shaped and were shaped by one other.

This study also demonstrates the ways that technology might be used to build immigrants' social capital for social inclusion (Warschauer, 2003). Warschauer mentions three spheres of support toward this goal: the micro, macro, and meso-level. At the micro-level, relationships with peers, relatives, or colleagues can lead to shared goods, services, and opportunities for community development. From a micro-level perspective, the center allowed students to develop further networks with other students and with an online distant tutor, further providing them with tools to establish contact with existing transnational networks. At the macro-level, Warschauer refers to the relationships that ICT use can facilitate with government institutions for democratic participation. Since the structure of the course was facilitated through a binational partnership, participants were able to benefit from resources created in their sending country. In addition, the center became a "safe space" for students to attend classes and discuss their concerns about the educational opportunities of Hispanics in Arizona; especially throughout the different events that led to the signing of Senate Bill 1070 into law. In this way, the center supported students in building cultural capital at the meso-level, because it allowed students to form alliances based on common interests. This included practices such as the sharing of videos and news during classes, and word-of-mouth information about rallies, events, and potential immigration raids by the city sheriff. These practices shaped class conversations about digital literacies, media, and its potential for political participation.

Contributing to work that takes a critical approach to the study of technology, I argue that the design of interfaces and tools in digital literacies may marginalize culturally and linguistically diverse learners. My study also points to the way in which the "intuitive" processes and cultural references of online environments are not always transparent to minority users (Barbatsis, Camacho & Jackson, 2004). It illustrates the

ways that ICTs' are designed for a target audience with a certain educational level, familiarity with metaphors in a graphic interface, and mastery of English—the dominant language in electronic environments (Warschauer, 2003). As Selfe and Selfe (1994) point out, computer interfaces are based on the needs of modern capitalism, which shape the electronic environment as a desktop, a metaphor endemic to corporate culture. Laguerre (2010) labeled this condition of marginalization as *excluded-embedded design*, with regard to the ways in which profit-driven design may not benefit diasporic communities:

> The making of a tool requires and presupposes a number of alternative choices as design is a choice of one shape against other possibilities: a design that will suit some people (educated elite) more than others (illiterates) those who can speak some languages (standard European languages) more than others (patois speakers), and those who have a need for the machine (the need to communicate with friends who have a computer or the need to access information from elsewhere) more than others (the poor and homeless who are more involved in securing their daily food and shelter). (Laguerre, 2010, p. 53)

This condition of inequality in ICT design points out that newcomers to technology need to receive scaffolding and "brokering" of a code of access that is not overt in online spaces. This also draws attention to the language varieties found in these interfaces. Even with the growth of Internet content in other languages and the sophistication of translation engines (Maurais, 2003) mastery of English has remained one of the key factors facilitating the code of access to participation in digital literacies (Gounari, 2009). Participants in this study were caught between the use of software and operating systems in English, and instruction materials written in standard Spanish. As described in Chapter 5, for individuals whose language practices are hybrid and who utilize non-standard varieties of Spanish or English in their everyday lives, the use of Castilian Spanish terms was not helpful to them. For instance, recall Rita's struggle to recognize the word "*papelera*" as a translation for "trash" in a blog interface. An

important pedagogical implication in the digital socialization of immigrant communities is the need to analyze, interrogate, and discuss the provenance of specialized terms in the Discourses (Gee, 2004) of new technologies.

These findings about the role of power in access and appropriation of digital literaces can inform adult education efforts in various ways, especially in terms of course design and delivery. The curriculum described in this study incorporated both online and face-to-face support for students, which was crucial given the content and purposes of the course on Basic Computer Skills. Since the main goal of the course was digital literacy socialization for new technology users, participants sensed that face-to-face interaction was necessary to interact with the interfaces. In addition, the participants (and instructors) recognized the need for extensive scaffolding to help learners make sense of the multimodal and multilingual nature of such interfaces.

For adult multilingual learners, the success of distance education requires and relies on teaching computer literacy in face-to-face environments, when possible. Imel and Jacobson (2006) suggest assessing the potential students' familiarity with technology, and holding orientation sessions where students can meet each other face-to-face where the curriculum and technology requirements are broken down. They also recommend the use of hybrid models that blend face-to-face and online instruction, to support students' strengths while building confidence in their navigation of online platforms. This study provides evidence of students' learning that aligns with these recommendations. In addition, experiences of students like Miguel illuminate our understandings of the quality and philosophy behind interfaces and materials used in online instruction. He did not consider useful the step-by-step written directions he received from the distant tutors, which made him disregard online support as a proper way of instruction. However, he found multimodal tutorials in sites like YouTube to be

useful pedagogical tools. Not only is the face-to-face interaction critical for novice adult computer users to succeed; we also should pay attention to the quality, user-friendliness and multimodality of the interfaces and materials that comprise online instruction modules.

Findings also demonstrate that distance education programs for multilingual learners should take into account the principles that promote community building in adult education programs. The sense of belonging to a community where students develop relationships and social support (Prins, Toso & Shafft, 2009) is one of the main benefits for adult learners. In these spaces, they are able to build coalitions and networks that can support their learning endeavors (Warschauer, 2003). In addition, programs for adult learners focused on successfully supporting bilingualism and biliteracy should strive to incorporate the following practices: making connections between both languages, modeling and applying reading comprehension strategies, and using languages in culturally relevant activities (Rivera & Huerta-Macías, 2007).

As the findings from this study also show, sometimes the participants constructed their distant instructors as caring individuals, through their online interaction that involved sharing of inspirational quotes and encouraging messages. Based on this study's results, I recommend that the design of online environments for multilingual adult learners should incorporate these principles, and scaffold the nature of interfaces that do not align with texts, practices, and language use familiar to the target community.

Teaching and Researching Digital Literacies

Given the increasing use of ICTS in classrooms and after-school, community-based, and family literacy programs, multiple ways to investigate digital literacy practices in formal learning contexts have emerged. Different methods of inquiry and levels of participation between researchers, practitioners, and institutions include the qualitative

study of already existing community-based programs that add ICTs to their instructional tools (Lankshear & Knobel, 2005; Sandoval & Latorre, 2008), the design of learning environments through university-community partnerships (Cole & Distributed Literacy Consortium, 2006; Vásquez, 2003), and collaboration between researchers and teacher-researchers in K-12 classrooms (Egelson, 2009; Skinner & Lichstenstein, 2009). Each of these approaches involves multiple degrees of researcher participation.

However, participatory action-research approaches have the additional potential of engaging community members and researchers in collaboration to question and reflect on issues that matter to the community, to design and implement plans of actions that improve participants' lives (McIntyre, 2008). Drawing from participatory approaches, Vasudevan (2004) conceptualized and engaged in a *researching with* stance, where she collaborated with youth in the production of digital media to craft stories and counternarratives. Within this approach, researchers document their multiple positionalities and critical perspectives in using and learning new media practices alongside participants. In my own study, I found the principles of these approaches useful to my work, as my positionality as a researcher shifted during the study towards a more participatory stance.

My initial study design incorporated ethnographic perspectives and some form of collaboration with the center instructors' and director, with the design of family-centered workshops. This design was not based on participatory action research perspectives but intended to document participants' meanings and understandings of technology. However, as described in Chapter 3, my relationship *to* and *with* the participants shifted when I became the sole local instructor of a Web Design class. Although this role provided a whole different perspective from which to observe the phenomena I was studying and the relationships I was building, it also demanded that I interact with the

participants in a qualitatively different way—as their teacher, rather than as an observer. I found that the more I tried to remain distant from engaging in activity with the group, the more distant I became from students' concerns and struggles. I discovered that when I engaged in interactions with them, or looked at their participants' screens and their handling of the equipment, I was better able to document the nuances in the obstacles they encountered interacting with interfaces and tools.

However, when I became the instructor facing the whole class, I experienced many of the concerns, frustrations, and dilemmas that the instructors I observed during the first four months of the study had encountered. I hoped to facilitate students' independent computer use and to support them in their first language. In addition, I tried to scaffold their interaction with interfaces in their second language, while contextualizing specialized discourse in a way that was accessible—e.g., relying on translation and making metaphors visible, mediating tools I described in Chapter 5. I realize that my positionality as an instructor shaped the ways in which participants learned the craft of web design and online publishing. However, in this role, I was able to examine more closely the complexities of this medium and genre, and to modify my instruction in response to the various types of data I was collecting. In addition, observing and documenting students' and participants' experiences also made me rethink and reflect on my own meaning-making and understanding of the production of online content.

Working on the design of instructional activities also made me aware of the differences in our constructions of digital literacies. As reported in Chapter 6, at the onset of the spring semester, Rafael questioned the point of creating a blog or a website; he stated that this was a practice for people who had time, or people who had computers at work. I tried to gather as many resources to display the multiple uses of blogs and

websites for personal and professional purposes. Within this process, I realized that although blogging as a practice may have started as an alternative form of journalism or an "online diary" (Hookway, 2008), the use of blogging platforms could be shaped in different ways by the users' goals and purposes. This made me think of the way in which my own institutional and professional affiliations influenced my understandings of digital literacy practices, and I noticed that these differed from students' understandings and priorities.

Future Directions

The conclusion of this study brought me to several lines for future inquiry that I believe would continue to inform the complexities of digital literacy socialization. One potential research direction would involve a binational perspective and methodology to explore this phenomenon from both sides of the border. Ethnographic fieldwork conducted in two or more sites could make it possible to consider the multiple sites where participants have family relationships, better informing the nature of access for participants on both sides of online communication. This would allow for a comparison between the cultural capital and access to resources for family members who migrated and those who stayed. I was intrigued by the descriptions of Rafael's and Marisa's relatives in their home countries, who were able to support their digital literacy socialization even when they were distant. For instance, Rafael's brother had a job where he needed to use a computer on a daily basis, and Marisa's nieces had computer and Internet access in spite of the restrictions for technology use in their country. Reports about the digital divide at a global scale tend to focus on the economic differences between "developing" and "developed" nations. However, this divide perspective may obscure the different strategies and practices of individuals who live on both sides of the border. Joselyn, for instance, reported that her Mexican relatives used a computer at

work or at cyber cafes, even when they did not own a computer in their household. A binational study of conditions of access could help explore these differences in terms of positionality, cultural capital, and community support for ICT users in both nations.

Another potential area of inquiry would examine the nature of the interaction between older and younger family members in the household. I am interested in exploring practices similar to language brokering (Valdés, 2003) or paraphrasing (Orellana et al., 2003) with technology use in immigrant households. However, in my observations at the center, I rarely saw any collaborative instances between parents and children, even when several students brought their children to class with them. Findings in this study indicate the complexities of families' roles and interactions in household practices, and the way they shaped participants' access to ICTs. However, these findings are described from the perspective of the adult learners, as they recall particular instances. Observing and recording these interactions in a systematic way will better inform this line of research, especially in regard to the multiple languages and modalities mobilized in these exchanges.

A Final Note: Power in Online and Offline Spaces

I came to this study with a deep concern for equity and educational opportunities for adult immigrant learners, fueled by my background as an adult ESL teacher. Throughout the duration of fieldwork, I kept wondering about and documenting the potential of ICTs for participants' social inclusion and expanded learning possibilities. However, as events related to the political and ideological context of our community unfolded, I noticed the different ways in which participants engaged in political participation—as reported in Chapter 6. Throughout the developments of Senate Bill 1070, we talked about the news and the rallies that I had heard about from Facebook posts, while Rita had heard about them from her neighbors, news in Spanish, or radio

announcements. We shared anecdotes about changes we were noticing in schools and neighborhoods, and tried to figure out ways to voice our concerns outside of the classroom. These were difficult times, and I was deeply saddened when participants' emerging efforts to use new technologies to form coalitions did not materialize—such as the case of Joselyn's building of an immigration blog, a project she abandoned because of its emotional toll.

I completed fieldwork in mid June 2010, a month prior to the day that Senate Bill 1070 would go into effect on July 29. I kept thinking about the students in the center and their communities, as we were all uncertain of the way things would unfold in the next months. On July 27, I attended a screening of *9500 Liberty*, a documentary that presented the rise and fall of a similar piece of legislature in Prince William County, Virginia in 2007. In the opening scenes, we learned about Greg Letieqc, an anti-illegal immigration blogger, who formed a coalition that supported the efforts of a county board to pass legislation that would require law enforcement officers to verify the legal status of those they suspected were in the country illegally— similarly to S.B. 1070. As a response to the development of this legislature, the Hispanic community in the county started posting hand-made billboard signs on a wall located at 9500 Liberty. The filmmakers took this address as the title for their documentary, indicating its importance as a physical space where the community gathered in protest.

I was intrigued and concerned by the contrast of the mediums that both groups used to organize themselves and voice their viewpoints. Anti-immigrant groups interacted through a blog platform and in face-to-face meetings, while the first-generation immigrant community relied on a physical, public space to respond. I could not help thinking about the social, cultural, and political implications of the choices that each group made to engage in action to defend their points of view. Not only is the inequality

of access to ICTs a matter of educational or employment opportunities: it also makes a difference in what voices are heard and read by a larger audience, and which are not. Web 2.0 tools like blogs, wikis, or social networking sites allow for the collaboration and organization of groups and coalitions, constituting a tremendous influence on the cultural and socially situated nature of literacy in contexts of political participation. Participants in my study mobilized certain resources and practices as a response to political events. Although word-of-mouth and radio were effective means to reach community members with limited access to ICTs, I wondered about the affordances of texts, messages, and protest beyond the signs carried during marches or rallies. How might their impact grow, if these messages were published in online spaces?

In spite of these larger questions of power, online spaces, and digital literacies, there was great satisfaction when the courses finalized in June 2010. When I attended the graduation ceremony for the students, I noticed their sense of pride in their accomplishment, especially given the difficult times. There were several speeches by authorities supporting the Hispanic population in the area, all of them highlighting the importance of lifelong education and the mastery of new technologies. I sensed that the courses at the center not only contributed to the development of digital literacies for this group of learners, but to the development of a community where their first language skills and transnational experiences were valued and appreciated, and where shared experiences and a sense of common struggle motivated them to keep studying. This confirmed for me that the implementation of programs that promote access for social inclusion do not start with the technologies (Warschauer, 2003); they start with the community.

REFERENCES

Appadurai, A. (1996). *Modernity at large: Cultural dimension of globalization*. Minneapolis: Public Worlds/University of Minnesota Press.

Ardichvili, A., Maurer, M., Li, W., Wentling, T. & Stuedemann, R. (2006). Cultural influences on knowledge sharing through online communities of practice. *Journal of knowledge management, 10*(1), 94-107.

Arnold, P. & Smith, J. (2003). Adding connectivity and losing context with ICT: Contrasting learning situations from a community of practice perspective. In B. V. Kluwer (Ed.), *Communities and technologies*. The Netherlands: Deventer.

Auerbach, E. (1989). Toward a social-contextual approach to family literacy. *Harvard Educational Review, 59*(2), 165-181.

Barab, S., Schatz, S. & Scheckler, R. (2004). Using activity theory to conceptualize online community and using online community to conceptualize activity theory. *Mind, Culture & Activity, 11*(1), 25-47.

Barbatsis, G., Camacho, M. & Jackson, L. (2004). Does it speak to me? Visual aesthetics and the digital divide. *Visual Studies, 19*(1), 36-51.

Bartlett, L. & Holland, D. (2002). Theorizing the space of literacy practice. *Ways of Knowing Journal, 2*(1), 10-22.

Barton, D. & Hamilton, M. (2000). Literacy practices. In D. Barton, M. Hamilton & R. Ivanic (Eds.). *Situated literacies: Reading and writing in context* (pp. 7-15). New York: Routledge.

Barton, D. & Tusting, K. (2005). Introduction. In D. Barton & K. Tusting (Eds) *Beyond communities of practice: Language, power and social context.* Cambridge: University Press.

Barton, D., Ivanic, R., Appleby, Y., Hodge, R. & Tusting, K. (2007). *Literacy, lives and learning*. New York: Routledge.

Basch, L., Glick Schiller, N. & Szanton Blanc, C. (1994). *Nations unbound: Transnational projects, postcolonial predicaments and de-territorialized nation-states*. New York: Routledge.

Baynham, M. & Prinsloo, M. (2001). New directions in literacy research. *Language and Education, 15*(2-3), 83-91.

Baynham, M. & Prinsloo, M. (2010). Introduction: The future of literacy studies. In M. Baynham & M. Prinsloo (Eds.), *The future of literacy studies* (pp. 1-20). New York: Palgrave MacMillan.

Beavis, C. (2008). Critical review: L2 literacy and the design of the self: A case study of a teenager writing on the Internet. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.) *Handbook of research on new literacies* (pp. 1215-1228). New York: Lawrence Erlbaum.

Benítez, J. (2006) Transnational dimensions of the digital divide among Salvadoran immigrants in the Washington DC metropolitan area. *Global Networks, 6*(2), 181-199.

Black, R. (2006). Language, culture and identity in online fanfiction. *E-learning, 3*(2), 170-184.

Black, R. (2007). Fanfiction writing and the construction of space. *E-learning 4*(4) 384-397

Boneva, B., Kraut, R., & Frohlich, D. (2001). Using E-Mail for Personal Relationships: The Difference Gender Makes. *American Behavioral Scientist, 45*(3), 530-549.

Brandt, D. & Clinton, K. (2002). Limits of the local: Explaining perspectives on literacy as a social practice. *Journal of Literacy Research, 34*(3), 337-356.

Bruce, B. & Bishop, A. P. (2008). New literacies and community inquiry. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.) *Handbook of research on new literacies* (pp. 699-742). New York: Lawrence Erlbaum.

Buckingham, D. (2008). Introducing identity. In D. Buckingham (Ed.), *Youth, identity and digital media* (pp. 1-22). Cambridge, MA: The MIT Press.

Coiro, J., Knobel, M., Lankshear, C. & Leu, D. (2008). Central issues in new literacies and new literacies research. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.) *Handbook of research on new literacies* (pp. 1-21). New York: Lawrence Erlbaum.

Cole, M. & Engeström, Y. (1993). A cultural-historical approach to distributed cognition. In G. Salomon (Ed.) *Distributed cognitions: Psychological and educational considerations* (pp. 1-46). Cambridge: University Press.

Cole, M. & Distributed Literacy Consortium (2006). *The fifth dimension: An after-school program built on diversity*. New York: Russell Sage.

Consejo Nacional de Educacion para la Vida y el Trabajo (2007). *Plazas comunitarias: ¿Qué son las plazas comunitarias y que servicios ofrecen?* Retrieved from http://www.conevyt.org.mx/plazasc/index.htm

Cook-Gumperz, J. (Ed.) (2006). *The social construction of literacy*. Cambridge: University Press.

Cope, B. & Kalantzis, M. (2000). *Multiliteracies: Literacy learning and the design of social futures*. London: Routledge.

Danet, B. & Herring, S. (2007). Introduction: Welcome to the multilingual internet. In B. Danet & S. Herring (Eds.), *The multilingual Internet: Language, culture, and communication online* (pp. 3-42). Oxford: University Press.

Daniels, H. (2001). *Vygotsky and pedagogy*. New York: Routledge.

De Fina, A. (2003). *Identity in narrative: A study of immigrant discourse.* Philadelphia, PA: John Benjamins.

De Fina, A., Schiffrin, D. & Bamberg, M. (2006). Introduction. In A. De Fina, D. Schiffrin & M. Bamberg (Eds.), *Discourse and identity* (pp. 1-26). Cambridge: University Press.

De la Piedra, M. T. (2011). 'Tanto necesitamos de aquí como necesitamos de allá': Leer juntas among Mexican transnational mothers and daughters. *Language and Education, 25*(1), 65-78.

Dewan, S. & Riggins, F. (2005). The digital divide: Current and future research directions. *Journal of the Association for Information Systems, 6*(12), 298-337.

DiMaggio, P. & Hargittai, E. (2001). *From the 'digital divide' to 'digital inequality': Studying Internet use as penetration increases.* Working Paper #15, Center for Arts and Cultural Policy Studies. Retrieved on March 15, 2009, from: http://www.princeton.edu/~artspol/workpap15.html

Duff, P. (2008). *Case study research in applied linguistics.* New York: Lawrence Erlbaum.

Duff, P. (2010). Language socialization. In N. Hornberger & S. L. McKay (Eds), *Sociolinguistics and language education* (pp. 427-452). Bristol: Multilingual Matters.

Egelson, P. (2009). Vignettes of successful middle school teachers who use new literacies. In M. Hagood (Ed.), *New literacies practices: Designing literacy learning* (pp. 156-172). New York: Peter Lang.

Engestrom, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Helsinki: Orienta-Konsultit Oy.

Engestrom, Y. (1998). Reorganizing the motivational sphere of classroom culture: An activity-theoretical analysis of planning in a teacher team. In F. Seeger, J. Voigt & U. Waschescio (Eds.) *The culture of the mathematics classroom* (pp. 76-103). Cambridge: University Press.

Engestrom, Y. (1999). "Learning by Expanding: Ten Years Later." Introduction to the German Edition of *Learning by Expanding* (Lernen durch Expansion). Marburg: BdWi-Verlag.

Engestrom, Y. (2007). From communities of practice to mycorrhizae. In J. Hughes, N. Jewson & L. Unwin (Eds.) *Communities of practice: Critical perspectives*. New York: Routledge

Erickson, F. (1986). Qualitative methods in research on teaching. In M. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.). New York: Macmillan.

Fairlie, R. W. (2007). Explaining differences in access to home computers and the Internet: A comparison of Latino groups to other ethnic and racial groups. *Electronic Commerce Research, 7*, 265–291.

Fjeld, M., Lauche, K., Bischsel, M., Voorhorst, F., Krueger, H., Rauterberg, M. (2002). Physical and virtual tools: Activity theory applied to the design of groupware. *Computer Supported Cooperative Work, 11*, 153-180.

Fox, S. & Livingstone, G. (2007). *Latinos online: Hispanics with lower levels of education and English proficiency remain largely disconnected from the internet*. Washington, DC: Pew Hispanic Center and Pew Internet Project. Retrieved from http://pewhispanic.org/reports/report.php?ReportID=73

Frank, F. (2001). Empowering literacy learners and teachers: The challenge of information and communication technology (ICT). In J. Crowther, M. Hamilton & L. Tett (Eds.) *Powerful literacies*. Leicester, England: National Institute of Adult Continuing Education.

Gándara, P. (2007). A preliminary evaluation of Mexican-sponsored educational programs in the United States: Strenghts, weaknesses and potential. In E. Szecsy (Ed.), *Second Binational Symposium: Resource Book*. Tempe, AZ: Southwest Center for Education Equity and Language Diversity.

García, O. (2008). *Bilingual education in the 21st century: A global perspective*. Wiley, John & Sons.

Gaver, W. W. (1995). Oh what a tangled web we weave: Metaphor and mapping in graphical interfaces. *Proceedings of ACM CHI '95*. Denver, CO.

Gee, J. P. (1996). *Social Linguistics and Literacies*. New York: Routledge Farmer.

Gee, J. P. (2004). *Situated language and learning: A critique of traditional schooling*. New York: Routledge.

González, N., Moll, L. & Amanti, C (2005). Introduction: Theorizing practices. In N. González, L. Moll & C. Amanti (Eds.). *Funds of knowledge: Theorizing practices in households, communities and classrooms* (pp. 1-24). Mahwah, NJ: Lawrence Erlbaum.

Gounari, P. (2009). Rethinking critical literacy in the new information age. *Critical Inquiry in Language Studies*, *6*(3), 148-175.

Graves, D. (1983). *Writing: Teachers & children at work.* Portsmouth, NH: Heinemann.

Graves, D. (2004). What I've learned from teachers of writing. *Language Arts, 82*(2), 88-94.

Guarnizo, L. E. & Smith, M. P. (1998). The locations of transnationalism. In M. P. Smith & L. E. Guarnizo (Eds.) *Transnationalism from below* (pp. 3-34. New Brunswick, NJ: Transaction Publishers.

Guba, E. & Lincoln, Y. (1994). Competing paradigms in qualitative research. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-117). Thousand Oaks, CA: Sage.

Gutierrez, K & Rogoff, B. (2003) Cultural Ways of Learning: Individual Traits or Repertoires of Practice, *Educational Researcher, 32*(5), 19-25

Gutierrez, K. (2008). Developing a sociocritical literacy in the third space. *Reading Research Quarterly, 43*(2), 148-164.

Haneda, M. (2006). Classrooms as communities of practice: A reevaluation. *TESOL Quarterly, 40*(1), 807-817.

Hargittai, E. (2003). Informed web surfing: The social context of user sophistication. In P. Howard & S. Jones (Eds.), *Society Online* (pp. 257-274). Thousand Oaks, CA: Sage Publications.

Harré, R. & van Langenhove, L. (1999). The dynamics of social episodes. In R. Harré & van Langenhove (Eds.), *Positioning theory: Moral contexts of intentional action* (pp. 1-13). Malden, MA: Blackwell.

Hawisher, G. & Selfe, C. (2000). Introduction: Testing the claims. In G. Hawisher & C. Selfe (Eds.), *Global literacies and the world-wide web* (pp. 1-18). New York: Routledge.

Hawisher, G., Selfe, C., Moraski, B. & Pearson, M. (2004). Becoming Literate in the Information Age: Cultural Ecologies and the Literacies of Technology. *College Composition and Communication, 55* (4), 642-692.

Heath, S. B. (1980). The functions and uses of literacy. *Journal of Communication 30*(1), 123-133.

Heath, S. B. (1983). *Ways with words: Language, Life and Work in Communities and Classrooms*. Cambridge: University Press.

Heath, S. B. & Street, B. (2008). *On ethnography: Approaches to language and literacy research. New York*: Teachers College Press.

Herr, K. & Anderson, G. (2005). *The action research dissertation.* Thousand Oaks, CA: Sage.

Hine, C. (2000). *Virtual ethnography*. Thousand Oaks, CA: Sage

Holland, D., Lachicotte, W., Skinner, D. & Cain, C. (1998). *Identity and agency in cultural worlds*. Cambridge, MA: Harvard University Press.

Hookway, N. (2008). 'Entering the blogosphere': Some strategies for using blogs in social research. *Qualitative Research, 8*(1), 91-113.

Hornberger, N. (2007). Biliteracy, transnationalism, multimodality, and identity: Trajectories across time and space. *Linguistics & Education,* 325-334.

Hull, G. & Katz, M. L. (2006). Crafting an agentive self: Case studies of Digital Storytelling. *Research on the Teaching of English, 41* (1), 43-81.

Hull, G. & Nelson, M. E. (2005). Locating the semiotic power of multimodality. *Written Communication, 22*(2), 224-261.

Hull, G. & Nelson, M. E. (2009). Literacy, media, and morality: Making the case for a aesthetic turn. In M. Prinsloo & M. Baynham (Eds), *The future of literacy studies*. Palgrave Macmillan.

Hull, G., Zacher, J. & Hibbert, L. (2009). Youth, risk, and equity in a global world. *Review of Research in Education, 33*, 117-159.

Hurtig, J. (2005). Resisting assimilation: Mexican immigrant mothers writing together. In M. Farr (Ed.), *Latino language and literacy in ethnolinguistic Chicago* (pp. 247–275). Mahwah, NJ: Lawrence Erlbaum Associates.

Imel, S. & Jacobson, E. (2006). *Distance Education and E-Learning: New Options for Adult Basic and English Language Education*. Research Digest No. 4. California Department of Education.

Instituto Nacional de Estadística y Geografía (2009). *Estadísticas sobre disponibilidad y uso de tecnología y comunicaciones en los hogares*. Retrieved from http://www.inegi.org.mx/prod_serv/contenidos/espanol/bvinegi/productos/encuestas/especiales/endutih/ENDUTIH_2009.pdf

Issroff, K. & Scanlon, E. (2002). Using technology in higher education: An activity theory perspective. *Journal of Computer Assisted Learning, 18*, 77-83.

Jacobs-Huey, L. (2002). The natives are gazing and talking back: Reviewing the problematics of positionality, voice, and accountability among "Native" anthropologists. *American Anthropologist, 104*(3), 791-804.

Jacquemet, M. (2005). Transidomatic practices: Language and power in the age of globalization. *Language & Communication, 25*, 257-277.

Jewitt, C. (2006). *Technology, literacy and learning: A multimodal approach*. New York: Routledge

Jimenez, R., Smith, P. & Teague, B. (2009). Transnational and community literacies for teachers. *Journal of Adolescent & Adult Literacy, 53*(1), 16-26.

Kanno, Y. (1999). "Breaking them up, taking them away': ESL students in grade 1: The use of community-of-practice perspective in language minority research. *TESOL Quarterly, 33*(1), 126-132.

Kaptelinin, V., & Cole, M. (2002). Individual and collective activities in educational computer game playing. In T. Koschmann, R. Hall, & N. Miyake (Eds.), *CSCL2: Carrying forward the conversation.* NJ: Erlbaum. (pp. 297-310).

Kaptelinin, V. & Nardi, B. (2006). *Acting with technology: Activity theory and interaction design.* Cambridge, MA: MIT press.

Khagram, S. & Levitt, P. (2008). Constructing transnational studies. In S. Khagram & P. Levitt (Eds.), *The transnational studies reader: Intersections and innovations* (pp. 1-22). New York: Routledge.

Kress, G. (2003). *Literacy in the new media age*. New York: Routledge.

Kress, G. & Jewitt, C. (2003). Introduction. In C. Jewitt & G. Kress (Eds.), *Multimodal literacy* (pp. 1-18). New York: Peter Lang

Kress, G. & Street, B. (2006). Multi-modality and literacy practices. In K. Pahl and J. Rosswell (Eds.) Foreword to *Travel notes from the New Literacy Studies: Case studies of practice* (pp. vii-x). Clevedon: Multilingual Matters.

Kuttan, A. & Peters, L. (2003). *From digital divide to digital opportunity*. Lanham, MD: Scarecrow Press.

Laguerre, M. (2010). Digital Diaspora: Definitions and models. In A. Alonso & P. Oiarzabal (Eds.) *Diasporas in the new media age: Identity, politics and communities* (pp. 49-64). Reno: University of Nevada Press.

Lakoff, G. & Johnson, M. (1980) *Metaphors We Live By.* London: University of Chicago Press.

Lam, W. S. E. (2000). L2 literacy and the design of the self: A case study of a teenager writing on the Internet. *TESOL Quarterly, 34*(3), 457-482.

Lam, W. S. E. (2004). Second language socialization in a bilingual chat room: Global and local considerations. *Language Learning & Technology*, 8(3), 44-65.

Lam, W. S. E. (2006a). Culture and learning in the context of globalization: Research Directions. *Review of Research in Education*, 213-237.

Lam, W. S. E. (2006b). Re-envisioning language, literacy, and the immigrant subject in new mediascapes. *Pedagogies, 1*(3), 171-195.

Lam, W. S. E. & Rosario-Ramos, E. (2009). Multilingual Literacies in Transnational Digitally-Mediated Contexts: An Exploratory Study of Immigrant Teens in the U.S. *Language and Education, 23*(2), 171-190.

Lankshear, C. & Knobel, M. (2004, December). *New literacies: Research and social practice.* Plenary address presented at the 2004 National Reading Conference. San Antonio, Texas. Retrieved on December 8, 2007 from http://www.geocities.com/c.lankshear/Oslo.pdf

Lankshear, C. & Knobel, M. (2005) Paulo Freire and digital youth in marginal spaces. In G. Fishman, P. McLaren, H. Sunker, & C. Lankshear (Eds.), *Critical theories: Radical pedagogies, and global conflicts* (pp. 293-307). New York: Rowman & Littlefield Publishers Inc.

Lantolf, J. P. (2000). Introducing sociocultural theory. In J. P. Lantolf (Ed.) *Sociocultural theory and second language learning* (pp. 1-26). Oxford: Oxford University Press.

Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.

Lave, J. (1991). Situating learning in communities of practice. In L. Resnick, J. Levine & S. Teasley (Eds.), *Perspectives on socially shared cognition* (pp. 63-82). Washington DC: American Psychological Association

Lawless, K. & Schrader, P. (2008). Where do we go now? Understanding research on navigation in complex digital environments. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.) *Handbook of research on new literacies* (pp. 267-296). New York: Lawrence Erlbaum.

Leander, K. (2008). Toward a connective ethnography of online/offline literacy networks. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.) *Handbook of research on new literacies* (pp. 33-65). New York: Lawrence Erlbaum.

Leander, K., Phillips, N., & Taylor, K. (2010). The changing social spaces of learning: Mapping new mobilities. *Review of Research in Education, 34*, 329-394.

LeCompte, M. & Preissle, J. (1993). *Ethnography and qualitative design in educational research* (2nd. Ed). New York: Academic Press.

Lee, J. S. & Anderson, K. (2009). Negotiating linguistic and cultural identities: Theorizing and constructing opportunities and risks in education. *Review of Research in Education, 33*, 181-211.

Levinson, B. & Holland, D. (1996). The cultural production of the educated person: An introduction. In B. Levinson, D. Foley & D. Holland (Eds.), *The cultural production of the educated person* (pp. 1-56). Albany, NY: State University of New York.

Levitt, P. (2001). *The transnational villagers*. Berkeley, CA: University of California, Press.

Levitt, P. & Glick Schiller, N. (2004). Conceptualizing simultaneity: A transnational social field perspective on Society. *International Migration Review, 3*, 1002-1039.

Lewis, T. (2009). *Family literacy and digital literacies: A redefined approach to examining social practices of an African-American family*. Unpublished doctoral dissertation. State University of New York.

Lim, C. P. (2002). A theoretical framework for the study of ICT in schools: *A proposal. British Journal of Educational Technology, 33*(4), 411-421.

Livingstone, G. (2010). *The Latino digital divide: The native-born versus the foreign born*. Pew Hispanic Center. Retrieved from http://pewhispanic.org/reports/report.php?PreviewID=123

Livingstone, G. (2011). *Latinos and Digital Technology, 2010*. Pew Hispanic Center, Washington, D.C. Retrieved from http://pewresearch.org/pubs/1887/latinos-digital-technology-internet-broadband-cell-phone-use

Livingstone, G. Parker, K. & Fox, S. (2009). *Latinos online, 2006-2008: Narrowing the Gap*. Pew Hispanic Center. Retrieved from http://pewhispanic.org/files/reports/119.pdf

Luke, A. (1994). *The social construction of literacy in the primary school*. South Melbourne: Palgrave Macmillan.

Luke, A. (2004). On the material consequences of a literacy. *Language and Education, 18*(4), 331-335.

Maglio, P. P. & Matlock, T. (1998). Metaphors we surf the web by. In *Workshop on Personal and Social Navigation in Information Spaces* (pp. 138-149). Stockholm: Sweden.

Mahler, S. J. (2001). Transnational relationships: the struggle to communicate across borders. *Identities, 7*, 583–619.

Marcus, G. (1995). Ethnography in/of the World System: The emergence of multi-sited ethnography. *Annual Review of Anthropology, 24*, 95-117.

Marshall, J. P. (2008). Gender in online communication. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.) *Handbook of research on new literacies* (pp. 491-519). New York: Lawrence Erlbaum.

Maurais, J. (2003). Towards a new global linguistic order? In J. Maurais & M. A. Morris (Eds.), *Languages in a globalising world* (pp. 13-36). Cambridge: University Press.

McGinnis, T., Goostein-Stolzenberg, A. & Costa Saliani, E. (2007). "indnpride": Online spaces of transnational youth as sites of creative and sophisticated literacy and identity work. *Linguistics and Education 18*, 283-304.

McIntyre, A. (2008). *Participatory action research.* Thousand Oaks, CA: Sage.

Menard-Warwick, J. & Dabach, D. B. (2004). "In a little while I could be in front": Social mobility, class and gender in the computer practices of two Mexicano families. *Journal of Adolescent & Adult Literacy, 47*(5), 380-389.

Merriam, S. (1998). *Case study research in education: A qualitative approach* (2nd.Ed). San Francisco, CA: Jossey-Bass Publishers.

Miles, M. & Huberman, A. (1994). Data management and analysis. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 428-444). Thousand Oaks, CA: Sage.

Millán, J. A. (2001). *Internet y el español*. Madrid: Fundación Retevisión.

Miller, D. & Slater, D. (2000). *The internet: An ethnographic approach*. New York: Berg

Minick, N., Stone, A. & Forman, E. (1993). Integration of individual, social and institutional processes in accounts of children's learning and development. In E. Forman, N. Minick, & C. Stone (Eds.), *Contexts for learning: Sociocultural dynamics in children's development* (pp. 3-16). New York: Oxford University Press.

Moll, L. (1992). Introduction. In L. Moll (Ed.) *Vygotsky and education: Instructional implications and applications of sociohistorical psychology*. Cambridge: University Press.

Nardi, B. (1996). Studying Context: A comparison of activity theory, situated action models, and distributed cognition. In B. Nardi (Ed.), *Context and Consciousness: Activity theory and human-computer interaction* (pp. 69-102). Cambridge, MA: Massachusetts Institute of Technology.

Nelson, M. E. (2006). Mode, meaning and synaesthesia in multimedia L2 writing. *Language learning & Technology, 10*(2), 56-76.

New London Group (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review, 66*(1), 60-92.

Nia, I. T. (1999). Units of study in the writing workshop. *Primary Voices, 8*(1), 3-9.

Norton, B. (1997). Language, identity and the ownership of English. *TESOL Quarterly*, *30*(3), 409-429.

Norton, B. (2000). *Identity and language learning: Gender, ethnicity and educational change*. Essex, England: Pearson Education Limited

Ono, H. & Zavodny, M. (2008). Immigrants, English ability and the digital divide. *Social Forces, 86*(4), 1455-1479.

Orellana, M. F. (2009). *Translating childhoods: Immigrant youth, language and culture*. Piscataway, NJ: Rutgers University Press.

Orellana, M. F., Reynolds, J., Dorner, L. & Meza, M. (2003). In other words: Translating or "paraphrasing" as a family literacy practice in immigrant households. *Reading Research Quarterly, 38*(1), 12-34.

Panagakos, A. & Horst, H. (2006). Return to Cyberia: Technology and the social worlds of transnational migrants. *Global Networks, 6*(2), 109-124.

Park, A. & Byler, E. (2009). *9500 Liberty*. United States: Interactive Democracy Alliance.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology, 24*, 1-24.

Prenksy, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9, 5, 1–6.

Prins, E., Toso, B. & Schafft, K. (2009). "It feels like a little family to me:" Social interaction and support among women in adult education and family literacy. *Adult Education Quarterly, 59*(4), 335-352.

Rivera, K. & Huerta-Macías, A. (2007). Adult bilingualism and biliteracy in the United States: Theoretical Perspectives. In K. Rivera & A. Huerta-Macias (Eds.), *Adult biliteracy: Sociocultural and programmatic responses* (pp. 3-28). New York: Lawrence Erlbaum.

Robinson, S. & Labardini, A. (2005, June). *Cybercafes in Mexico: Reconfiguring digital inclusion: Proposals for the next sexenio*. Paper presented at the 2005 CIDE Conference: Internet in the Americas. Mexico City. Retrieved on April 2, 2009 from http://telecom.cide.edu/include/internet_conference_2005/SRobinson_Cybercafes.pdf

Rogoff, B. (2003). *The cultural nature of human development*. Oxford: University Press.

Rubinstein-Avila, E. (2007). From the Dominican Republic to Drew High: What counts as literacy for Yanira Lara? *Reading Research Quarterly, 42*(4), 568-589.

Sánchez, P. (2007). Cultural authenticity and transnational Latina youth: Constructing a meta-narrative across borders. *Linguistics and Education, 18*, 258-282.

Sandoval, C. & Latorre, G. (2008). Chicana/o artivism: Judy Baca's digital work with youth of color. In A. Everett (Ed.), *Learning race and ethnicity: Youth and digital media* (pp. 81-108). Cambridge, MA: MIT Press.

Scanlon, E. & Issroff, K. (2005). Activity theory and higher education: Evaluating learning technologies. *Journal of Computer Assisted Learning, 21,* 430-439.

Scribner, S. & Cole, M. (1981). *The psychology of literacy*. Cambridge, MA: Harvard University Press.

Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences* (3rd. ed). New York: Teachers College Press.

Selfe, C., Hawisher, G., Lashore, O. & Song, P. (2006). Literacies and the complexities of the digital divide. In L. Van Waes, M. Leijten & C. Neuwirth (Eds.), *Writing and digital media* (pp. 253-286). Oxford: Elsevier.

Selfe, C. & Selfe, R. (1994). The politics of the interface: Power and its exercise in electronic contact zones. *College Composition and Communication, 45*(4), 480-504.

Servon, L. (2002). *Bridging the digital divide: Technology, community and public policy*. Oxford: Blackwell Publishing.

Skinner, E. & Lichtenstein, M. (2009). Digital storytelling is not the new PowerPoint: Adolescents' critical constructions of presidential election isssues. In M. Hagood (Ed.), *New literacies practices: Designing literacy learning* (pp. 91-112). New York: Peter Lang.

Smith, M. P. (2003). Transnationalism, the state and the extraterritorial citizen. *Politics & Society, 31*(4), 467-502.

Smith, R. (1998). Transnational localities: Community, technology and the politics of membership within the context of Mexico and U.S. migration. In M. P. Smith & L. E. Guarnizo (Eds.) *Transnationalism from below* (pp. 196-238). New Brunswick, NJ: Transaction Publishers.

Snyder, I. (2009). Shuffling Toward the Future: The enduring dominance of book culture in literacy education. In M. Baynham & M. Prinsloo (Eds.), *The future of literacy studies*. New York: Palgrave MacMillan.

Snyder, I. Angus, L. & Sutherland-Smith, W. (2002). Building equitable literate futures: home and school computer-mediated literacy practices and disadvantage. *Cambridge Journal of Education, 32*(3), 367-383.

Soliday, M. (1994). Translating self and difference through literacy narratives. *College English, 56*(5), 511-526.

Stake, R. (1995). *The art of case study research*. Thousand Oaks, CA: SAGE.

Steinkuehler, C. (2004). Learning in massively multiplayer online games. Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon, & F. Herrera (Eds.). *Proceedings of the Sixth International Conference of the Learning Sciences*, (521–528). Mahwah, NJ: Erlbaum.

Strauss, A. & Corbin, J. (1990). *Basics of Qualitative Research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Street, B. (1984). *Literacy in theory and practice*. Cambridge: University Press.

Street, B. (1993). Introduction: The new literacy studies. In B. V. Street (Ed.), *Cross-cultural approaches to literacy* (pp. 1-21). Cambridge: University Press.

Street, B. (2000). Literacy events and literacy practices: Theory and Practice in the New Literacy Studies. In M. Martin-Jones and K. Jones (Eds.), *Multilingual Literacies* (pp. 17-29). Philadelphia: John Benjamins.

Street, B. (2003). What's "new" in New Literacy Studies? Critical approaches to literacy in theory and practice. *Current Issues in Comparative Education, 5*(2), 77-91.

Street, B. (2005). New literacies, new times: How do we describe and teach the forms of literacy knowledge, skills and values people need for new times? In *54th National Reading Conference Yearbook,* (pp. 21-55). Oak Creek, WI: National Reading Conference.

U.S. Census (2009a). *Characteristics of the foreign-born population by world region of birth.* Retrieved from http://www.census.gov/population/www/socdemo/foreign/cps2009.html#birth

U.S. Census (2009b). *Table 1156. Internet Access and Usage: 2009.* Retrieved from http://www.census.gov/compendia/statab/2011/tables/11s1156.pdf

Valdés, G. (2003). *Expanding definitions of giftedness: The case of young interpreters from immigrant communities.* Mahwah, NJ: Lawrence Erlbaum.

Valverde, C. K. L. (2002). *Making transnational Viet Nam: Vietnamese American community—Viet Name linkages through money, music and modems*. Unpublished doctoral dissertation, University of California, Berkeley

Vásquez, O.A. (2003*) La Clase Mágica: Imagining Optimal Possibilities in a Bilingual Community of Learners*. New Jersey: Lawrence Erlbaum Associates.

Vasudevan, L. (2004). *Telling stories differently: The possibilities of counterstorytelling with African American adolescent boys*. Unpublished doctoral dissertation, University of Pennsylvania.

Vasudevan, L. (2006). Making known differently: Engaging visual modalities as spaces to author new selves. *E-Learning, 3*(2), 207-216.

Villenas, S. (1996). The colonizer/colonized Chicana ethnographer: Identity, marginalization, and co-optation in the field. *Harvard Educational Review, 66*(4), 711-731.

Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wang X. C. & Ching C. (2003). Social construction of computer experience in a first-grade classroom: Social processes and mediating artifacts. *Early Education & Development, 14*(3), 335-361

Warriner, D. S. (2007). Transnational literacies: Immigration, language, learning and identity. *Linguistics and Education, 18*, 201-214.

Warriner, D. S. (2010). Transnational literacies: Examining global flows through the lens of social practice. In M. Baynham & M. Prinsloo (Eds.) *The future of literacies* (pp. 160-180). New York: Palgrave Macmillan.

Warschauer, M. (2003). *Technology and social inclusion: Rethinking the digital divide*. Cambridge, MA: The MIT Press.

Warschauer, M. (2010). Digital literacy studies: Progress and prospects. In M. Baynham & M. Prinsloo (Eds.) *The future of literacies* (pp. 123-140). New York: Palgrave Macmillan.

Warschauer, M., & Liaw, M.-L. (in press). *Emerging technologies in adult literacy and language education*. Washington: National Institute for Literacy.

Warschauer, M. & Matuchniak, T. (2010). New technology and digital worlds: Analyzing evidence of equity in access, use and outcomes. *Review of Research in Education, 34*, 179-225.

Warschauer, M. & Ware, P. (2008). Learning, change and power: Competing frames of technology and literacy. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.) *Handbook of research on new literacies* (pp. 215-240). New York: Lawrence Erlbaum.

Wenger, E. (1990). *Toward a theory of cultural transparency: Elements of a social discourse of the visible and invisible*. Palo Alto, CA: Institute for Research on Learning.

Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. Cambridge: University Press.

Wenger, E., White, N. & Smith, D. (2009). *Digital habitats: Stewarding technology for communities.* Portland, OR: Cpsquare.

Wertsch, J. (1988). *Vygotsky and the social formation of the mind*. Cambridge, MA: Harvard University Press.

Wertsch, J. (1993). *Voices of the mind: Sociocultural approach to mediated action.* Cambridge, MA: Harvard University Press.

Wilding, R. (2006). 'Virtual' intimacies? Families communicating across transnational contexts. *Global Networks, 6*(2), 125-142.

Wolcott, H. (2008). *Ethnography: A way of seeing* (2nd. Ed). Lanham, MD: Altamira Press.

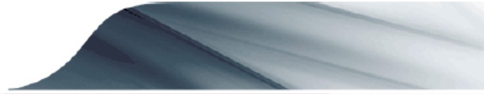
Wortham, S. & Gadsden, V. (2006). Urban fathers positioning themselves through narrative: an approach to narrative self-construction. In A. De Fina, D. Schiffrin & M. Bamberg (Eds.), *Discourse and identity* (pp. 314-344). Cambridge: University Press.

Yi, Y. (2009). Adolescent literacy and identity construction among 1.5 generation students: From a transnational perspective. *Journal of Asian Pacific Communication, 19(*1), 100-129.

APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL FORM

ARIZONA STATE UNIVERSITY
RESEARCH AND ECONOMIC AFFAIRS



Office of Research Integrity and Assurance

To:	Doris Warriner
From:	Mark Roosa, Chair Soc Beh IRB
Date:	08/14/2009
Committee Action:	**Exemption Granted**
IRB Action Date:	08/14/2009
IRB Protocol #:	0907004191
Study Title:	Spanish-speaking Immigrant Families' Participation in Digital Literacy Practices: Learning and Interaction in Local and Transnational Networks

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(1) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.

APPENDIX B

INDIVIDUAL INTERVIEW GUIDE WITH FOCAL PARTICIPANTS (ENGLISH)

Individual Interview Guide: Focal Participants

Schooling experiences

- What were your earlier experiences attending school?
- Until what grade level did you attend school? Was it in English/Spanish?
- Have you attended courses/formal schooling in recent years? What has been your experience like?

Past experiences in computer classes

- Have you ever taken computer classes before?
- How would you describe your experience so far in the computer classes?
- Are there any particular aspects you have found more difficulties? What are those?

Experiences with computer class at research site

- What has your experience with the computer classes been so far?
- Have you found any challenges or problems?
- What things have you found helpful to learn?

Opportunities to use the knowledge acquired in class

- Have you found any opportunity to practice what you have learned?
- What difficulties have you found?
- Have you learned anything new?
- Have you talked/shared what you learned with someone?

Computer use at home

- Have you had the chance to use a computer at home?
- If you have, do you request any help from other at home?
- What kind of activities do you do when you use the computer by yourself?
- What kind of activities do you do when you use the computer with others?

Use of computers for transnational and local communication

- In your use of e-mail or the Internet, what kind of information do you look for?
- Do you use English or Spanish? Why?
- Do you communicate with people who live here?
- Do you communicate with people who live abroad?
- Is it different to communicate using the Internet than using the phone or regular mail? How is it different?

Use of other types of literacy

- People use the Internet for several purposes, like e-mail or searching information. Before taking this class or using the computer, how did you communicate with relatives? Do you still do it that way?
- How did you search for information? Do you still do it that way?

Goals in learning computer skills

- What else would you like to learn about computers?
- What are your educational goals, in general?
- How do you plan to achieve them?

APPENDIX C

INDIVIDUAL INTERVIEW GUIDE WITH FOCAL PARTICIPANTS (SPANISH)

Guía de Entrevista: Participantes Principales

Experiencias escolares

- ¿Cuáles fueron sus primeras experiencias asistiendo a la escuela?
- ¿Hasta que grado asistió a la escuela? ¿Fue en inglés o en español?
- ¿Ha tomado clases recientemente? ¿Cómo ha sido su experiencia?

Experiencias con clases de computación anteriores

- ¿Había tomado clases de computación antes?
- ¿Cómo describiría su experiencia hasta ahora con las clases de computación?
- ¿Hay algunos aspectos en particular que usted encuentre más difíciles? ¿Cuáles?

Experiencias con clase de computación durante el estudio

- ¿Cómo ha sido su experiencia con las clases de computación hasta ahora?
- ¿Ha encontrado algunos retos o dificultades?
- ¿Qué cosas le han ayudado a aprender?

Oportunidades para utilizar el conocimiento adquirido en esta clase

- ¿Ha tenido la oportunidad de practicar lo que ha aprendido?
- ¿Que dificultades ha tenido?
- ¿Ha aprendido algo nuevo?
- ¿Ha platicado/compartido lo que aprendió con alguien?

Uso de computadora en casa

- ¿Ha tenido la oportunidad de utilizar la computadora en su casa?
- ¿En ese caso, ha pedido ayuda a otra persona en su casa?
- ¿Qué clase de actividades hace cuando usa la computadora solo/a?
- ¿Qué clase de actividades hace cuando usa la computadora con otras personas?

Uso de computadoras para comunicación local y transnacional

- En su uso de e-mail o del Internet, ¿qué tipo de información busca?
- ¿Utiliza inglés o español? ¿Por qué?
- ¿Se comunica con personas que viven aquí?
- ¿Se comunica con persona que viven fuera del país?
- ¿Es diferente comunicarse utilizando el Internet que utilizando el teléfono o correo regular? ¿Cómo es diferente?

Uso de otros tipos de alfabetización

- La gente usa el Internet para distintos propósitos, como el correo electrónico o la búsqueda de información. Antes de tomar esta clase o de usar la computadora, ¿cómo se comunicaba con sus parientes? ¿Aún lo hace de esta manera?
- ¿Cómo buscaba información? ¿Aún lo hace de esta manera?

Metas en el aprendizaje de habilidades de computación

- ¿Qué más quisiera aprender sobre computadoras?
- ¿Cuáles son sus metas educativas, en general?
- ¿Cómo planea lograrlas?

Metas/motivación para aprender a utilizar computadoras

- ¿Qué lo hizo asistir a estas clases de computación?
- ¿Qué le gustaría aprender?
- ¿Cómo le ayudará este curso?

APPENDIX D

INTERVIEW GUIDE FOR SCREEN RECORDING INTERVIEW (ENGLISH)

Individual Interview for Screen Recording: Focal Participants

1. What activities do you find more interesting doing in the computer? Could you show me any that you feel comfortable sharing?

2. What activities do you find more difficult? Could you show me any that you feel comfortable sharing?

3. What activities are you interested in learning how to do?

4. For what activities have you used mostly Spanish? Could you show me any you feel comfortable sharing?

5. For what activities have you used mostly English? Could you show me any you feel comfortable sharing?

APPENDIX E

INTERVIEW GUIDE FOR SCREEN RECORDING INTERVIEW (SPANISH)

Entrevista Individual para Grabación de Pantalla: Participantes Principales

1. ¿Qué actividades encuentra más interesantes de la computadora? ¿Podría mostrarme alguna que se sienta cómodo/a para compartir?

2. ¿Qué actividades se le hacen más difíciles? ¿Podría mostrarme alguna que se sienta cómodo/a compartiendo?

3. ¿Qué actividades le interesaría aprender?

4. ¿Para qué actividades utiliza más el español? ¿Podría mostrarme alguna que se sienta cómodo/a para compartir?

5. ¿Para qué actividades utiliza más el inglés? ¿Podría mostrarme alguna que se sienta cómodo/a para compartir?

APPENDIX F

FOCUS GROUP INTERVIEW GUIDE (ENGLISH)

Focus Group Interview Guide

1. These months you have spent here, what has helped you learned computer skills?
2. What made it easy to learn?
3. How did you feel using Spanish? What do you think about spelling?
4. With your children or grandchildren, do you feel it is different to interact around the computer?
5. If you had to recommend to Latinos to study computers, what would you tell them?

APPENDIX G

FOCUS GROUP INTERVIEW GUIDE (SPANISH)

Guía de Entrevista Grupal

1. En estos meses que han estado aquí, ¿qué les ha ayudado a aprender computación?
2. ¿Qué les facilitó a aprender? ¿Qué cosa hizo que fuera más fácil?
3. ¿Cómo se sintieron usando el idioma español? ¿Qué piensan sobre el uso de la ortografía?
4. Con sus hijos, o con sus nietos, ¿sienten que es diferente cómo interactúan con la computadora?
5. Si tuvieran que recomendarle a los latinos que aprendan computación, ¿qué les dirían, que cosas, que recomendaciones le darían?

APPENDIX H

INTERVIEW GUIDE FOR FAMILY MEMBERS (ENGLISH)

Interview Guide for Family Members

Experiences and practices with family members

- Do you talk about your use of technology with family members?
- Are there rules for computer use at home? What are they?
- Do you ever use a computer with __________________(focal participant)? What for?
- What languages do you use when you use the computer? When do you use English? When do you use Spanish?
- Do you ever use the computer to communicate with people who live here in the U.S.?
- Do you ever use the computer to communicate with people who live abroad?

Goals/expectations

- What expectations do you have about your own use of technology/computers?
- What would you like to learn?

APPENDIX I

INTERVIEW GUIDE FOR FAMILY MEMBERS (SPANISH)

Guía de Entrevista para Familiares

Experiencias y prácticas con familiares

- ¿Usted alguna vez platica con sus familiares sobre tecnología?
- ¿Hay reglas en su casa para usar la computadora? ¿Cuáles son?
- ¿Quién en su casa utiliza más la computadora? ¿Con que motivo?
- ¿Qué idiomas utilizar cuando usa la computadora? ¿Cuándo utiliza el inglés? ¿Cuándo utiliza español?
- ¿Alguna vez utiliza la computadora para comunicarse con personas que viven aquí en los Estados Unidos?
- ¿Alguna vez utiliza la computadora para comunicarse con personas que viven fuera del país?

Metas/expectativas

- ¿Qué expectativas tiene sobre su propio uso de tecnología/computadoras?
- ¿Qué cosas le gustaría aprender?

APPENDIX J

PARTICIPANTS' BACKGROUND INFORMATION

Participants' Background Information

	Rita	Marisa	Rafael	Joselyn	Miguel
Age at the time of the study	60	56	45	30	22
Time in the U.S.	40+ years	3 years	10 years	10 years	4 years
Country/ region of origin	Mexico	Cuba	Mexico	Mexico	Mexico
Household and family networks in the U.S.	Lived with son (32), two grand-daughters and elderly mother. Siblings in California.	Lived with husband Relatives in Florida	Lived with wife and daughter.	Lived with husband and two daughters. Siblings mother, and grandmother in AZ.	Lived with roommate; siblings in California.
Family networks in country of origin	Relatives in Mexico	Siblings, parents in Cuba	Parents and siblings in Mexico.	Husband's family in Mexico	Parents and siblings in Mexico
Education in country of origin	Sixth grade	Physician, Hematologist	B.S. in Geology	2 years of college in Mexico	1.5 years in high school
Education in the U.S.	Took ESL courses, before taking care of grand-daughters	Full-time ESL student at comm. college	Took ESL courses before daughter was born	Took ESL courses in comm. college before having children	Student in evening ESL & GED courses
Previous computer instruction	One month in basic skills class at comm. college, in English	No instruction in Cuba	Computer programming courses in Mexican university in the 1980s	Basic skills in high school; basic course at public library	Basic skills in high school in Mexico