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Acknowledging attitudes and accessibility: Motivational characteristics of deaf college students studying English and the potential of computer-mediated communication

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Acknowledging attitudes and accessibility: Motivational characteristics of deaf

college students studying English and the potential of computer-mediated

communication

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Dedication

This is dedicated to my daughters; may they always know the joy that is found in

working hard and following their dreams.

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This dissertation would not have come to fruition if I were not surrounded by people who could offer wisdom, guidance, patience, strength, and support throughout this journey. I am deeply grateful for all the support I have received.

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Acknowledging attitudes and accessibility: Motivational characteristics of deaf college students studying English and the potential of computer-mediated communication

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Deaf individuals' relationship with English has historically been problematic, in large part because of the lack of full accessibility to the language. However, language takes up not only communicative space, but also psychological space in our lives. The psychological dimensions involved with English language learning for deaf individuals are largely unknown. This study addressed this gap by exploring psychological dimensions involved with language learning for deaf individuals while concurrently exploring the role of computer-mediated communication in enhancing direct and interactive accessibility of English. The psychological dimensions of interest in this study originate from self-efficacy theory (Bandura, 1977), possible selves (Markus & Nurius, 1986), and the L2 Motivational Self System (Dörnyei, 2005, 2009a).

This study had three main goals: 1) to examine the motivational characteristics of deaf language learners, 2) to assess whether those characteristics would change over time, and 3) to assess the role of CMC in language learning experiences. This study took place

over the course of a semester in college classes designed for deaf students studying English. Selected classes were asked to use online chat as an instructional tool. Measures were administered at the beginning and the end of the semester, and students were asked to participate in focus groups to discuss their experiences. A mixed methods approach that made use of quantitative and qualitative methods was used to capture the complexity involved in second language learning for the deaf student, including contextual influences.

Overall findings indicate that deaf students' self-images, self-efficacy beliefs, attitudes, and motivated behaviors about English were positive, but significantly influenced by the context in which language use occurs. When the environment was seen as accessible, beneficial, and enjoyable, deaf students were able to utilize greater levels of individual agency towards the aim of learning English. Computer-mediated communication emerged as an affordance that enabled "*seeing English*," indicating dynamic, interactive engagement with English when ideal conditions were met. Thus, CMC appears to allow for a language learning experience that is available and accessible for deaf learners, and can provide opportunities to prime possible selves as English language users.

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Chapter 1

Introduction

Researchers working in the field of deaf education are incessantly bombarded with dire statistics. The failure of the deaf education system has been cited numerous times by researchers and federal commissions (i.e., Commission on Education of the Deaf, 1988; Johnson, Liddell, & Erting, 1989). Deaf students demonstrate weaknesses in school-based English literacy, as evidenced by one of the most often cited statistics in deaf education research that 50% of deaf 18-year-olds in the United States read at the fourth-grade level or lower (Traxler, 2000). More recent reports show that deaf students score below basic levels on the Stanford Achievement Test (Qi & Mitchell, 2007) and that only 25% of students enrolled in postsecondary educational programs actually graduate (Marschark, Sapere, Convertino, & Pelz, 2008). These are only a sampling of the statistics that initiate much of the dialogue surrounding the current state of deaf education, and give a sense of urgency to the research work aimed at strengthening the field.

Deaf students' challenges are more apparent when we examine the area of English literacy in particular. Generally, research suggests that most students with severe to profound hearing impairment do not read English text as well as their hearing counterparts upon graduation from high school (Allen, 1986; Paul, 2003; Schirmer & McGough, 2005; Traxler, 2000). Two persistent general patterns are found in literacy research, as reported by Trezek (2010) in a discussion on reading achievement for deaf students: "average 18- to 19- year old students with severe to profound hearing

impairment are reading no better than average 9- to 10- year old hearing students, and there seems to be an annual growth rate of less than a half grade per year with a leveling off or plateau effect occurring at the third- or fourth- grade level for most students" (p. 7). Deaf students' inadequate functional literacy levels in reading and writing are frequently cited to be an impediment for career preparation, technical skills development, and collegiate success (Marschark, Lang, & Albertini, 2002).

Many of the findings presented above derive from the unique challenges faced by the deaf student in the area of language and literacy. Language, after all, is the channel through which learning happens in the educational system. The nature of deafness presents an impediment to acquisition of the spoken language in the hearing environment and thus interferes with literacy development in that language, in the majority of situations, as will be explicated further in the literature review.

However important it is to acknowledge how the experience of being deaf may impede, or, more precisely, *interact*, with language acquisition, it needs to be recognized that much of the research in literacy and deaf students has taken place from a deficit perspective, with the idea that deaf individuals should be measured against native users of English (for a review: see Cline, 1997). In such comparisons, deaf individuals have been found lacking. When one moves beyond viewing deaf individuals as "should-be" native users of English, the question becomes about the broader experience those deaf individuals may have when engaging with English. After all, language encompasses many complex dimensions: cognitive, psychological, and social. A narrow lens of literacy that only allows for a pen and paper measurement of language proficiency to

equalize achievement outcomes does not capture the complexity involved with engaging with a particular language, and is more so the case for deaf individuals (Garberoglio, Cawthon, & Bond, 2013). The study reported here attempted to investigate this broader, more complex context for the experiences deaf individuals have when engaging with the English language.

Viewing the deaf learner's English language learning through a second language acquisition lens as suggested by previous researchers (i.e., Antia, Reed, & Kreimeyer, 2005) allows us to capitalize on the dense research base that addresses the complexity in acquiring, learning, and using a second language. It has become clear that acquiring a second language is not as simple as making it accessible and available (Genesee, 1987; Harley, 1994; Swain, 1984) or ensuring sufficient opportunities to express oneself in the language (Swain, 2006). The actual process of second language acquisition is much more complex than simply making the language available, and the socioconstructivist framework allows for this complexity, bringing attention to social factors that may help or hinder language acquisition and to collaborative learning and meaningful interaction as essential components in successful learning (Lantolf, 2000; Swain 1995, 2000).

As Salomon and Perkins (1998) stated, a socioconstructivist framework emphasizes that "knowledge, understandings, and meanings gradually emerge through interaction and become distributed among those interacting rather than individually constructed or possessed" (p. 9). The learning of a language necessitates this active interaction, as it is not only the negotiation of meaning that is enhanced through interactional exchanges, but also the development of second language proficiency (Long, 1996). For many language

learners, this seems to be accomplished through active engagement with users of the target language. However, for deaf learners of a language, the playing field is different. The experience of engaging with English for the deaf person who does not utilize audition to enter conversational discourse is most often one-dimensional: that of reading or writing text. How can direct, meaningful interaction in the target language happen for the deaf language learner who uses a different language modality to engage in the language, that of written text?

Deaf learners have historically faced struggles in engaging in direct, collaborative learning and meaningful interaction in educational settings (Antia, 1985; Garrison, Long, & Stinson, 1994; Foster, Long, & Snell, 1999; Long & Beil, 2005; Saur, Popp-Stone, & Hurley-Lawrence, 1987; Stinson, Liu, Saur, & Long, 1996). The challenges to collaborative learning and meaningful interaction that they encounter are not limited to settings where directed language learning happens, but include a wide range of environments where the learning contexts differ. Yet, the acknowledgement that direct, active engagement in learning environments for deaf students is not effortlessly achieved is important to make.

For deaf students, the usual accommodations that are offered in non-separate classrooms, such as ASL interpreters and CART transcribing, lack the clarity and immediacy of direct communication (Foster, Long, & Snell, 1999; Long & Beil, 2005). The barrier faced when direct communication is not available often makes group participation difficult for the deaf student, even with an interpreter (Antia, 1985; Garrison, Long & Stinson, 1994; Saur, Popp-Stone, & Hurley-Lawrence, 1987; Stinson,

Liu, Saur, & Long, 1996). Without engaged, active responsiveness, deaf students are not likely to remain active participants, neither engaging directly with speakers of the language, nor participating in the negotiation of meaning using the language from an interactionist perspective.

Indeed, in a study of continuing education training to deaf adult professionals, Long and Beil (2005) found that the courses taught by hearing instructors, with appropriate accommodations provided, created unequal access to communication. The deaf students asked fewer questions, did not feel confident about their understanding of the material, and did not feel a part of the class setting. Long and Beil contrasted these findings with results from direct instruction workshops provided by teachers who signed and were sensitive to the pace of instruction required. In those settings, "participants felt free to ask questions and were engaged, active learners…learned from each other…led to sharing of information" (p. 10).

The studies discussed above refer to settings in which deaf and hearing students or instructors interact in the same classroom, and describe the difficulties therein in discourse community building where engaged, interactive learning ideally occurs. It is important to consider that the deaf student is in a second language setting in the above studies, engaging with English speakers while using ASL. In the study I conducted, I was interested in interactive language learning through direct engagement with English as the target language, not necessarily with English speakers, but with fellow ASL users. This direct engagement with English can be achieved through the written text modality, utilizing technological affordances that computers and other tools enable.

In this study, I proposed that synchronous computer-mediated communication (CMC) could be used as a technological affordance that would increase opportunities for deaf students to engage in direct, collaborative learning and meaningful interaction in English. Studies have shown that CMC shares characteristics with face-to-face conversation, among numerous other benefits, which is beneficial from an interactionist perspective of language acquisition (Murray, 2000; Smith, 2003; Sotillo, 2000). The most robust finding in CMC research in second language learning, and other settings, is that CMC encourages increased quantity and quality of L2 production (i.e., Beauvois, 1992, 1995, 1998; Chapelle, 1994; Chun, 1994; Kelm, 1992, Kern, 1995, Warschauer, 1996). Of particular importance when considering the population of interest in this study are findings that indicate that students talk more, and have higher quality conversations, especially those students who may talk less often in the classroom due to the impact of personality, cultural traits, gender, power, language proficiency, and socioeconomic status (i.e., Kitade, 2000; McGuire, Kiesler, & Siegel, 1987; Tan, Wigglesworth, & Storch, 2010).

It is apparent that using CMC in the classroom creates potential spaces in which greater interactive engagement with the target language can happen, especially for those students who may be otherwise reluctant to participate in classroom discussions in the target language. The overarching point of interest for my study was to explore the processes that occured when deaf individuals were able to have greater interactive, direct engagement with English in an ongoing manner in a language learning environment.

Although the possible outcomes of interest of such a study were many, outcomes of

English language proficiency were not the foci of my interest, for two reasons. First, the timeframe of my study (one semester) was not sufficient to discern clear differences in outcomes of language proficiency. In particular, when considering the population of interest in my study, adult students who do not possess the English skills to enroll in transferable college-level coursework, noticeable improvements in language proficiency outcomes in short timeframes are rare (Bochner & Walter, 2005). Second, outcomes of language proficiency that are measured with direct assessments of English literacy are problematic for the deaf learner (i.e., Martin & Mounty, 2005). Standardized assessments of language proficiency assume that the test takers have a certain level of proficiency in the target language, which is not always the situation for deaf individuals. Specific issues that may be confounding assessment results for deaf individuals aside from deficiencies in language proficiency are those of item bias, cultural difference, figurative or colloquial language, linguistic difficulty, test validity, and test reliability (Martin & Mounty, 2005). Rather, I was exploring the psychological experiences of deaf individuals' engaging with English as outcomes of interest, focusing on variables that have previously been shown to be mediators of language proficiency.

Psychological experience is a broad umbrella term under which I attended to specific dimensions that are particularly relevant when considering essential psychological factors involved in learning and using a second language. This study examined some general areas of psychological experiences: that of motivation, attitudes, and beliefs about the self. Beliefs about the self were explored through two different frameworks, self-efficacy theory (Bandura, 1977) and the L2 motivational self system in

which motivation is conceptualized within a "self" framework (Dörnyei, 2005, 2009a). I explored contextual influences, drawing from a person-in-context perspective of motivation (Ushioda, 2009) in an attempt to capture the complexity involved in learning and using language in a mixed method approach using quantitative and qualitative methods.

Previous research findings supported my initial premise that increased engagement with the target language through CMC would influence motivation, beliefs about the self, and attitudes toward language learning. Second language learning settings that incorporate CMC have resulted in increased motivation (Beauvois, 1992, 1997, 1998; Kelm, 1992; Kern, 1995). Studies of language learning using virtual environments and specific tools have shown that students' self-efficacy in language learning is malleable, and has been shown to increase (Chularut & deBacker, 2004; Zheng, Young, Brewer, & Wagner, 2009). Other settings that have used computer-assisted language learning have shown that attitudes towards learning language are also malleable (Cai, 2011; Csizér et al., 2010).

This study posited that CMC could serve as an affordance that would allow for increased opportunities for deaf students to engage in direct, collaborative learning and meaningful interaction in English that would then allow for increased motivation, improved visualizations of the self, attitudes, and self-efficacy in English language learning. My research questions examined deaf students' motivational characteristics, including self-images, learning attitudes, and self-efficacy beliefs. The potential changes in characteristics, attitudes, and beliefs were examined with particular attention being

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paid to the influence that participating in CMC might have on deaf learners' L2 motivational self system, self-efficacy beliefs, and motivated behaviors when engaging with English. The nature of students' experience in terms of motivational, attitudinal, and identity issues when engaged in a class that made use of computer mediated communication was also explored. Following the review of relevant literature I present in the next chapter, I delineate my research questions and hypotheses more precisely in Chapter 3 where I describe the details of the methods used to gather data.

Chapter 2

Literature Review

In this literature review, I begin with providing background on literacy and the deaf, discussing pertinent issues and patterns found in this population. This background will provide rationale for the use of a second language acquisition framework to discuss specific issues that influence language learning for the deaf learner. The next section reviews the literature on synchronous computer-mediated communication (CMC) as it is used in language learning settings, and discusses the benefits of CMC in those settings, particularly how CMC can be used to enable direct, interactive classroom discussion using English, and the benefits thereof. To bring in the psychological experiences of second language learning, especially those that may be influenced by the interactive discussion that is enabled by CMC, I move to a discussion of motivation and beliefs of the self as applicable to second language learning. In this section, I first provide a background overview of motivational research in second language learning, then move to a discussion of two theoretical approaches to motivation: the L2 Motivational Self System and self-efficacy. I conclude the literature review with a section that discusses language learning within a person-in-context framework that I used to capture the complexity involved with language learning for deaf individuals.

Language Acquisition, Literacy, and the Deaf

The possible reasons for deaf students' low achievement levels are complex, and are not within the scope of this paper to cover in detail. However, with a focus on literacy

challenges, the unique linguistic situation of deaf individuals is an important consideration. Severe to profound prelingual hearing loss obviously impedes natural, incidental acquisition of the language spoken in deaf children's surroundings. Spoken language is of emphasis here, as this is of interest when considering English literacy, because written English uses a code that represents the sounds of words.

The deaf learner, however, is able to experience natural, incidental language acquisition through visual, signed languages when these languages are available and accessible. In America, the signed language of the deaf community is American Sign Language (ASL). Deaf children born to deaf parents are in a setting that allows for natural language acquisition through the constant exposure to accessible language and incidental language learning, but this population makes up less than 10% of deaf children, and closer to 4.4%, according to the latest numbers (Mitchell & Karchmer, 2002). It needs to be acknowledged that for the approximately 92% of deaf children born to hearing parents (Mitchell & Karchmer, 2002), there is minimal, if any, natural language acquisition at all happening in their early years.

Even when the setting allows for natural language acquisition and use of ASL, the path towards successful literacy for the deaf learner is not clear. By nature of the unique modalities of ASL and English, deaf individuals are expected to be continually bilingual, and this is inherently complex when considering future literacy outcomes. Kraskow and Hanson (1985) helped explicate this challenge below:

> … the use of ASL and of written or fingerspelled English by deaf bilinguals is quite different from the use of spoken languages by hearing bilinguals. For a

deaf person, learning the orthography of English means learning an

orthographic visual system derived from a primary form to which he or she

does not have normal access. In contrast, hearing bilinguals do have normal

access to the primary forms of both languages that they use. Moreover, the

significant structural differences between ASL and English at the lexical and

grammatical levels require the ASL-English bilingual to know two radically

different forms of linguistic structuring. (p. 266)

Theories and approaches to counteracting this lack of access to language,

generally, and more specifically, to the English language, abound. Yet, there is limited,

but most often, no strong evidence of efficacy of any one approach to English literacy

development for deaf individuals. Luckner, Sebald, Young, and Muir (2005) conducted a

thorough analysis of literacy research in deaf education. The research team initially

collected and reviewed 964 articles, with only 22 meeting the selection criteria: being

published in a peer reviewed journal between 1963 and 2003, having deaf participants

between 3 and 21 years, utilizing the necessary statistical information, and having a

control group. Such few numbers is unfortunate and reveals a serious paucity of strong

empirical research in deaf education. In this comprehensive review of 40 years of

literacy research, Luckner et al. concluded by suggesting that "the field of deaf education

does not have what the U.S. Department of Education, (2003, pp.10-11) refers to as

'strong evidence of effectiveness' or even 'possible evidence of effectiveness' about any

specific educational intervention for promoting the literacy development of students who

are deaf or hard of hearing" (p. 452).

Because deaf students' challenges with English reading and writing share similar traits to other English language learners (Antia, Reed, & Kreimeyer, 2005), a theoretical framework of second language acquisition will be beneficial in examining instructional approaches designed to increase language proficiency and literacy outcomes.

Second Language Acquisition and the Deaf Learner

In second language acquisition theory, it is traditionally thought that language input is the most important determinant of language competence (Krashen, 1985). In this framework, the deaf student obviously lacks accessible, consistent input in English until some level of reading competence is achieved or the auditory channel is accessible through technological aids. However, input alone is not sufficient to achieve high levels of proficiency in a second language, as has been shown in research on immersion programs (Genesee, 1987; Harley, 1994; Swain, 1984). Swain (1985, 1993) and Swain and Lapkin (1995) argued that output in the second language is actually the essential component that triggers the cognitive processes needed for successful second language learning. In contrast to Krashen's Input Hypothesis, Swain proposed the Output Hypothesis, identifying explicit processes that occur when the L2 is produced, triggered by the noticing of linguistic problems, or gaps in understanding, that will push the learner to modify the L2 output. Pica (1989) asserted that when learners actively modify output, they "test hypotheses about the second language, experiment with new structures and forms, and expand and explore their interlanguage resources in creative ways" (p. 64).

However, the current discourse in language learning has moved beyond a simplistic focus on the input/output conundrum. With his discussion of *languaging,*

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Swain's (2006) more current work has shifted from a conduit metaphor, as in language serving as a mere conveyor of meaning, toward a more activity-based network. Swain defined *languaging* as a "process of making meaning and shaping knowledge and experience through language" (p. 98). The concept of languaging is closely related to the interactionist perspective on second language acquisition, which was introduced by Long in 1996 as an expansion of the Output Hypothesis. In his most recent version of the Interaction Hypothesis theory, Long (1996) posited that interactional exchanges that promote negotiation of meaning allow for development of second language proficiency. The role of output is also significant in this interactionist perspective, in that the learner is engaged in an interactional relationship between continually modified input and output. In this process, learners notice input features and compare them with their own output, a necessary step to transforming input into intake (Schmidt, 1990, 1994, 1995). From a review of research on negotiation of meaning and second language acquisition, Pica (1994) concluded that "negotiation contributes to conditions, processes, and outcomes of L2 learning by facilitating learners' comprehension and structural segmentation of L2 input, access to lexical form and meaning, and production of modified output" (p. 493).

Research on second language acquisition from a sociocultural framework, drawing from the work of Vygotsky (1978), provides a theoretical perspective of the importance found in this interactional relationship between input and output, the negotiation of meaning that Swain (2006) defined as languaging, when language is the tool of choice in this negotiation. Vygotsky's general genetic law of cultural development allows us to perceive knowledge construction as continually negotiated between the

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interpsychological and intrapsychological planes, constructing meaning through internal and external models. Languaging is an important part of this process, viewing language as a tool that allows inner thought to become external ideas to be communicated with others and those external ideas to then become internal cognitive activity. For deaf students, the process of learning English through reading, writing, or the use of accommodations such as ASL interpreters, without the direct interactional experience that conversational dialogue allows, may not be sufficient for authentic language acquisition.

Historically, attempts to address the fact that deaf students are not always able to access the target language in a direct, interactional, accessible manner have often focused on utilizing the auditory channels through focused speech and listening training or technological advances such as hearing aids, amplification devices, and cochlear implants. These interventions are not effective for all deaf individuals, and if they are effective, it is arguable whether or not they provide full, equitable access to language. Instead of using technological interventions to provide auditory access to the target language, I used technological interventions in this study to provide equitable, direct access to the target language in another modality: namely, that of text.

Computer-Mediated Communication and Language Learning

Broadly, there are two ways that computers can be used to enable conversational dialogue in the target language in language learning classroom settings: asynchronous (e.g., discussion boards, e-mail) and synchronous communication (real-time discussion over local area networks). Synchronous computer-mediated communication (CMC) can

be used inside and outside of the physical classroom, using a variety of software programs allowing for immediate, real-time dialogue in text. I was interested in the use of synchronous CMC in my study, as a potential affordance allowing for interactive, real-time dialogue in English text. Interestingly, synchronous computer mediated communication was first used in the 1980's for language instruction at Gallaudet University, the world's only liberal arts university for deaf students, where it was used as a tool to help deaf individuals communicate in English (Beauvois, 1997).

Research has shown that synchronous computer-mediated communication (CMC) has similar characteristics with face-to-face conversations that have been argued to be necessary for second language acquisition, and have been problematic for the deaf learner who is unable to engage in conversational interactions via spoken English. In particular, the quantity and types of discourse functions used in synchronous discussions (Sotillo, 2000) were found to be similar to interactional modifications that are endemic to face-to-face conversations and support second language acquisition. From an interactionist perspective, the similarity of CMC to face-to-face discussion is considered to be beneficial (Murray, 2000; Smith, 2003).

Computer-mediated discussion can promote the type of specific interactional features in the negotiation of meaning that facilitates L2 development, according to second language acquisition theories (Blake, 2000; Kitade, 2000; Lee, 2001; Pellettieri, 1999; Salaberry, 2000; Smith 2003). Kitade (2000) pointed out three specific features of synchronous CMC, in particular, which create opportunities for L2 development: there is no turn taking, the interaction is text-based, and non-verbal cues are reduced. A recent

study comparing face-to-face communication with synchronous communication in a beginner Chinese class found that CMC allowed for greater collaborative dyadic interaction patterns, showing greatest benefit, in particular, for the ESL members of the pair (Tan, Wigglesworth, & Storch, 2010).

Several studies on synchronous computer-mediated communication have shown numerous positive benefits for the second language learner (Abrams, 2003; Beauvois, 1992, 1995, 1998; Blake, 2000; Chapelle, 1997, 1998; Chun, 1994; Kelm, 1992; Kern, 1995; Pellettieri, 1999; Salaberry, 1996, 1999; Warschauer, 1996, 1997). Specific benefits include reading and writing outcomes (Sullivan & Pratt, 1996), increased L2 discourse functions (Chun, 1994; Herring, 1996; Kern, 1995), greater L2 syntactic and lexical complexity (Kern, 1995; Warschauer, 1996), equalization of student/teacher roles (Beauvois, 1998; Kern, 1995), conversational communication skills (Chun, 1994; Kitade, 2000), morphosyntactic development (Pellettieri, 1999; Salaberry, 2000), improved motivation (Beauvois, 1992, 1997, 1998; Kelm, 1992; Kern, 1995), and reduction of communication anxieties (Kern, 1995).

In particular, the most commonly reported CMC benefit is increased quantity and quality of L2 production (Abrams, 2003; Beauvois, 1992, 1995, 1998; Chapelle, 1994; Chun, 1994; Kelm, 1992; Kern, 1995; Warschauer, 1996). Kitade (2000) specified that quiet speakers are more expressive in CMC settings, and McGuire, Kiesler, and Siegel (1987) found that gender and socioeconomic levels were less influential in CMC discussions when compared to face-to-face discussions. The increase in total and equitable participation that is enabled when engaging in CMC increases opportunities for

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output and interaction in the target language. This increase in quality and quantity of discussion in the target language enabled by participation in synchronous CMC has been proposed to contribute to other communication outcomes in the target language that have resulted from CMC use such as reading and writing (Coniam & Wong, 2004; Sullivan & Pratt, 1996) and conversational skills including oral proficiency (Chun, 1994; Kern, 1995; Kitade, 2000; Payne & Whitney, 2002). As a whole, research findings appear to indicate that computer-mediated communication has the potential of facilitating a range of beneficial linguistic processes involved with language learning.

Psychological experiences and computer-mediated communication. It is apparent that CMC can accrue linguistic benefits to the language learner, but the specific factors involved in this process are not clear. Researchers have identified psychological factors that may be playing a role in this process, serving as mediators that may then enable linguistic benefits. In a study of second language learners using online chat programs, the students using online chat reported higher levels of positive attitudes along with more use of complex sentence structures (Conaim & Wong, 2004). The researchers posited that the students using online chat had greater opportunities to use English in an ongoing, informal manner, creating positive attitudes towards using CMC to engage in and practice the language, and a higher likelihood of using English to express more complex ideas.

Numerous research studies have revealed that the use of CMC in the classroom also decreases the anxiety that is often associated with language learning (Beauvois, 1998; Kern, 1995; Warschauer, 1996). A recent study exploring the carry over effects of

CMC on communication apprehension revealed that regular student-centered discussion in the target language has the potential of making lasting positive effects on communication apprehension, whether it is in synchronous CMC or face-to-face discussion (Arnold, 2007). No significant difference was found between the synchronous CMC and face-to-face groups in long-term influence on communication apprehension, and Arnold posited that synchronous CMC can serve as a practice mode for oral communication. For the deaf student, face-to-face discussion in English is not possible if the auditory channel is not utilized, thus this finding supports the proposal that synchronous CMC can facilitate the student-centered discussion that appears to be a critical aspect of language learning, and reduce the communication apprehension involved with language learning.

Critical factors in computer-mediated communication. It is important also to consider what features of CMC may best support the effectiveness of implementation in the classroom. Tolmie and Boyle (2000) reviewed the CMC literature to suggest eight factors that may influence CMC effectiveness: size of group, knowledge of participants, student experience, clarity about task, ownership of task, need for system, type of system, and prior experience with CMC. Through this review and an implementation case study, they posited that "the critical factors are those which provide a context and rationale for online communication by helping users to establish a *shared purpose"* (p. 119), consistent with Activity Theory (Leont'ev, 1978). The factors identified as potential facilitators of effective CMC such as smaller groups, personally knowing the people

involved, and tasks involved having clarity, purpose, and personal ownership may be underlying the larger scale factor of "shared purpose."

Design principles posited by Doughty and Long (2003) for successful computer-assisted language learning also recommend that task-based learning be used in an interactionist paradigm. The literature on task-based learning in CMC is mixed, albeit emergent findings show that the type of task that is used in second language interaction may quantitatively and qualitatively affect the type of interaction (Pica, Holliday, Lewis, & Morgenthaler, 1989). The negotiation of meaning in computer-mediated communication appears to be facilitated when the tasks are goal-oriented and task-based as opposed to casual conversation (Pellettieri, 1999).

Computer-mediated communication and deaf learners. Research on the use of computer-mediated communication in deaf education is lacking, despite the origins of CMC in college instructional settings for deaf students (Beauvois, 1997). The few studies done that discuss CMC use with deaf students will be briefly summarized below.

A qualitative study of computer-networked conversations in seventh-grade classes of deaf students and their reading teacher gives us some areas of insight as to how CMC can benefit the deaf learner. Lissi and Schallert (1999) reported that, "although they were reading under grade level, students had meaningful conversations in written English, addressing questions posed by the teacher, posing their own questions to the teacher or other students, reacting to other participants' messages, sharing information, and generally having fun" (p. 373). The teacher reported that students continually participated in the CMC sessions, especially those students who were not active participants in the

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regular classroom. These findings are in line with previous research that have shown students participate more in online discussions, especially those who are not likely to participate in class (Beauvois, 1992, 1995, 1998; Kitade, 2000)

Online chat can be used as a tool that would allow for the use of dialogical activities that would theoretically support language learning, and potential instructional strategies that could be used through CMC were proposed to support deaf students' language development (Schirmer & Ingram, 2003). The students in these studies were middle school and high school deaf students, engaging in online chats with hearing students and online instructors who were using recasting as a specific instructional strategy designed to facilitate greater uses of descriptive words and conjunctions. These studies took place over a short period of time, had limited time available for online chats, and measured specific language outcomes, which all contributed to the lack of significance found in the results. Tentative findings suggested that older students (i.e., high school students) demonstrated increased use of descriptive words as a result of the intervention, but several possible issues confounded the findings. However, students generally reported positive attitudes about the online chat experience.

A study of blended learning (online and traditional) at the Rochester Institute of Technology surveyed four groups of students on their perceptions of communication in blended learning classroom settings: hearing, deaf, hard-of-hearing, and English as a second language (ESL) (Long, Vignare, Rappold, & Mallory, 2007). The results showed that the deaf and hard-of-hearing students, in particular, felt that the "quality and quantity of their interactions with the professor and other students was greatly improved by the

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online component" (p. 1). In general, all four groups of students reported positive experiences with the inclusion of an online component, but this was especially true for the deaf and hard-of-hearing students. In fact, over 75% of the deaf and hard-of-hearing students felt that classes with online components should be offered to other students in the future.

In a Taiwanese study utilizing a wireless technology-enhanced classroom environment with deaf students that increased the interactivity of communication between students and teachers through the use of written text via Tablet PCs and interactive whiteboards, deaf students participated significantly more often than in settings without wireless technology enhancement (Liu et al., 2006). The wireless technology-enhanced environment reduced communicative difficulty and deaf students' distracting behaviors while in class. The students reported their experience to be relaxing, helpful, and desirable, and that it supported their understanding of content. However, taking a closer look at this study, it is apparent that the deaf students were not able to understand their teacher most of the time, as the teacher relied on spoken language. The positive results found in this study cannot be directly attributed to the technological affordances, but the fact that communication was enabled, or enhanced.

However, returning to the idea that interaction is a critical factor in language learning, not merely making language accessible, a recent study took a closer look at the *quantity* of interaction in online courses as a predictor of achievement (Long, Marchetti, & Fasse, 2011). This study of academic achievement of hearing and deaf students enrolled in 432 online courses at NTID, the National Technical Institute for the Deaf,

found that those students enrolled in online courses with more interaction received higher GPAs than those enrolled in online courses with less interaction. The quantity of interaction also influenced student perceptions of ease of communication, with students reporting that they were able to communicate better, and more, than in other courses.

From the initial investigation of literature on CMC in deaf education settings, it appears that deaf students may engage more in conversational discourse, especially those who may be less inclined to engage in face-to-face discussion (Lissi & Schallert, 2009; Liu et al., 2006). Deaf students also report their experiences with CMC to be positive (Schirmer & Ingram, 2003), especially in the "quality and quantity of their interactions" (Long et al., 2007; Long, Marchetti, & Fasse, 2011). These reports of increasing engagement and positive experiences with the language led me to consider that CMC can play a beneficial role in deaf individuals' psychological experience of learning and engaging with a language.

Motivation and Beliefs about the Self as a Language Learner

The psychological experience of learning and engaging with a language encompasses multiple dimensions. In my study, I attempted to capture two dimensions of this psychological experience, that of motivation and beliefs about the self. The nature of the deaf individual's relationship with the spoken language of the environment is unique among bilinguals, in that their L1 is primarily used for conversational discourses and their L2 is primarily used for print discourses. It may be the case that deaf individuals' experience with engaging with the L2 has motivational purposes, self-beliefs, and influencing factors thereof that are unique to this population.

Motivation in second language learning. Language learning research has recently paid more attention to the motivational factors involved, as it is not sufficient merely to provide opportunities for language input and output for second language learning to happen successfully. Dörnyei (2005) discussed the importance of motivation as providing "the primary impetus to initiate L2 learning and later the driving force to sustain the long and often tedious learning process; indeed, all the other factors involved in SLA presuppose motivation to some extent" (p. 65). More than 30 years ago, Gardner and Lambert (1972) initiated the discussion on the social context and motivation for second language learning, acknowledging that motivational factors may play a greater role than aptitude and that a broad range of sociocultural factors affect second language learning.

Dörnyei (2005) characterized Gardner and Lambert's (1972) work as part of the *social psychological period* (1959-1990) of L2 motivation research. This period moved away from traditional motivation research that focused on the individual, and toward recognition of the social context within which L2 learning happens. Gardner and Lambert acknowledged the unique nature of second language learning, pointing to the influence of a multitude of sociocultural factors such as language attitudes, cultural stereotypes, and the relationship between L1 and L2 communities. Gardner's theory of second language acquisition, the Socio-Educational Model of Second Language Acquisition (see Gardner, 2001 for most recent version) outlined how language achievement is influenced by integrative motivation, along with other factors. Gardner broke down the concept of *integrative motivation* into three subsections: integrativeness, attitudes towards the

learning situation, and motivation. Gardner's theory and the assessments often used with this model, the Attitude/Motivation Test Battery (AMTB; reprinted in the Appendix of Gardner, 1985), has been the dominant force in SLA research over the last three decades. However, Dörnyei (2005) argued that SLA researchers have often erroneously interpreted Gardner's motivational framework as consisting of two components: that of integrative orientation and instrumental orientation, which can be thought of, simplistically, as the motivational distinction between intrinsic and extrinsic motivation.

The need for "reopening the motivation research agenda" was initiated by Crookes and Schmidt (1991) and is often considered the starting point of the *cognitive-situated period* in motivation research (Dörnyei, 2005). One major impetus of this period that clearly reflects a different framework than the social psychological period of earlier motivational research is the focus on the microperspective, as opposed to a macroperspective of the social context. This research period was also heavily influenced by the motivation psychology work done in the 1980's with a more cognitive focus. Whereas the social psychological research had captured the broad social context within which L2 learning happens, looking at whole communities of language users and learners, the cognitive-situated period shifted toward a focus on the individual and the cognitive processes involved in specific, situated learning settings. Three research areas, in particular, are reflective of this intertwining of the learning setting and the cognitive variables involved: the applying of *self-determination theory* (Deci & Ryan, 1985, 2002) in L2 learning, the examination of *attribution theory* (e.g., Weiner, 1992), and the

exploration of *task motivation* (e.g. Dörnyei, 2002; Dörnyei & Kormos, 2000; Julkunen, 1989, 2001; Kormos & Dörnyei, 2004).

However, as Dörnyei (2005) pointed out, the cognitive-situated approach neglected to account for two crucial aspects of motivation: its *dynamic character* and *temporal variation*. Dörnyei (2000, 2001) argued that a *process-oriented approach* is needed to allow for a more thorough examination of the ongoing changes in motivation over time, while still acknowledging specific learner behaviors and the learning setting. Second language acquisition is, after all, a lengthy process throughout which motivation is expected to ebb and flow. A process-oriented approach allows for the recognition of this ongoing fluctuation over time. Research that actively acknowledged the role of process in language learning includes Williams and Burden's (1997) continuum of motivation: "Reasons for doing something" → "Deciding to do something" → "Sustaining the effort, or persisting" (p. 121). In a qualitative study of language learners in Ireland, Ushioda (2001) reported that the "varying temporal frame of reference shaping their thinking" (p. 117) seemed central to the participants' reported motivation. Dörnyei and Otto (1998; further elaborated by Dörnyei, 2000, 2001) developed a process model that separates the motivational process into three stages: the preactional stage, actional stage, and postactional stage.

The L2 motivational self system. Addressing weaknesses in Gardner's (2001) integrative motivation framework in the areas of globalization, social identity, and cognitive foundations, Dörnyei (2005, 2009a) proposed the L2 Motivational Self System, thereby conceptualizing L2 motivation within a "self" framework. This L2 motivational

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self system brings together the complex dimensions involved with motivation in a systematic and comprehensive way that connects these dimensions, and is supported by research and theory. Dörnyei's L2 motivational self system built on, and was compatible with, previous conceptualizations of motivation in L2 learning by Gardner (2001), Noels (2003), and Ushioda (2001). The three components of this system, defined further below, are: the *Ideal L2 Self*, *Ought-to L2 Self*, and *L2 Learning Experience*.

Dörnyei's (2005) motivational self system draws from work in psychological research on the self (Higgins, 1987; Markus & Nurius, 1986) that Dörnyei (2009a) described as then allowing for "a convergence of self theory and motivation theory in mainstream psychology" (p. 10). The idea of *self* is one of the concepts most frequently referred to and utilized in psychology, but from a motivational perspective, one area that is particularly relevant is the study of *possible selves*. In Markus and Nurius' (1986) words, "possible selves represent individuals' ideas of what they might become, what they would like to become, and what they are afraid of becoming, and thus provide a conceptual link between cognition and motivation" (p. 954). Of particular interest here is the idea that possible selves represent future images of the self, as opposed to current images of the self, and thus recognize the power of imagination.

Dörnyei (2005) defined the *Ideal L2 Self* as "the L2-specific aspect of one's ideal self" (p. 106). This ideal self is a future-oriented, aspirational image of one's self as it could be. This component of the self system utilizes the power of imagination to picture one's self as a fluent L2 user, and is motivational in that it recognizes and aims to reduce the discrepancy between the actual self and this imagined, ideal self image. Dörnyei

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(2005) posited that this component aligns with traditional conceptualizations of integrative and internalized instrumental motives. Current research shows that this dimension "not only significantly correlates with integrativeness but also explains more variance in learners' intended efforts" (Papi, 2010, p. 469). It appears that the ideal self is malleable, and may be strengthened over time through direct, interactive engagement with the target language, as found in a study abroad immersion experience (Hsieh, 2009).

Dörnyei (2005) defined the *Ought-to L2 Self* as "referring to the attributes that one believes one *ought to* possess (i.e., various duties, obligations, or responsibilities) in order to *avoid* possible negative outcomes" (p. 105-106). Dörnyei proposed that this ought-to self is related to the extrinsic components in Noels (2003) and Ushioda's (2001) taxonomies. This can be thought of as a less-internalized idea of the self that includes an avoidance focus, or prevention. Supporting the idea that the ought-to L2 self is connected to extrinsic motivation, the factor of parental encouragement has been found to have a positive relationship with the ought-to L2 self (Csizér & Kormos, 2009). Studies have reported that this ought-to L2 self has less of a relationship with learners' intended efforts and motivated behaviors than does the ideal L2 self, however (e.g., Csizér & Kormos, 2009; Taguchi, 2009). Research conducted in a variety of settings has shown that this aspect of the self appears to be stable over time, especially in the postsecondary student (Kormos, Kiddle, & Csizér, 2011).

As for the *L2 Learning Experience,* Dörnyei (2009a) defined it as "situated, 'executive' motives related to the immediate learning environment and experience (e.g., the impact of the teacher, the curriculum, the peer group, the experience of success)" (p.

29). The situation-specific, immediate learning environment has an ongoing influence on learners' experience with, and attitudes towards, L2 learning. To garner the initial motivation for language learning, successful engagement with the actual language learning process is required (Dörnyei, 2009a). This component has links with the actional phase of Dörnyei and Otto's process-oriented model (1998, further elaborated by Dörnyei, 2000, 2001), Noels' (2003) intrinsic category, and the first cluster of Ushioda's (2001) motivational facets (Dörnyei, 2005). The L2 learning experience was found to have the strongest impact on motivated behavior (Csizér & Kormos, 2009; Taguchi et al., 2009). Research has shown that language learning experience and attitudes, when measured within the L2 Motivational Self System, are dynamic and subject to change over time, even in short periods of time (Cai, 2010; Csizér et al., 2010).

Deaf individuals' language learning motivation. Using the L2 Motivational Self System in my study will allow me to capture potential factors involved with motivation on the psychological plane that may be especially relevant for deaf individuals. The deaf community has a long, complicated history with language. Sign languages have long been considered subpar communicative systems, often considered pantomime or visual codes for the spoken language. It was not until 1960 that American Sign Language was demonstrated to have formal linguistic structure and recognized as a language (Stokoe, 1960), albeit not widely accepted until many years later. Deaf education settings have long held up English proficiency as a measure of success, of a level of achievement that many deaf individuals do not reach. There is a growing movement in the deaf community against using English proficiency as a measure of

success, recognizing the history of language marginalization and oppression (i.e., Ladd, 2003; Lane, 1992). Indeed, it has been found that school-based English proficiency measures do not comprehensively predict future achievement for deaf young adults (Garberoglio, et al., 2013). This leads to the question as to what the motivational factors behind learning and engaging in English are for deaf individuals, and if those factors may manifest differently in this population than in other language learners.

The focus on the self that is found in the L2 motivational self system also allows for an exploration of how deaf individuals see themselves as English language users, whether aspirational and/or obligatory (ideal self and ought-to self, respectively). The L2 motivational self system may be more appropriate for studying deaf individuals' motivational characteristics than an integrative perspective of motivation (Gardner, 2001) that indicates higher levels of integrativeness with the community of language users as a key factor contributing to reaching language proficiency. For the deaf community, the "community of English language users" may not be clearly delineated as a community that is not already their own, and thus integrativeness may be less of a factor. Despite lower English proficiency levels, deaf individuals *do* engage with English in their daily lives, particularly when demonstrated through studies of technology use (Akamatsu et al., 2006; Lissi & Schallert, 1999; Newman et al., 2011) or informal literacy activities (Herzig, 2009).

Very little research has been conducted on deaf students' language learning motivation, and of the studies that exist, the majority focus on motivation for *reading*. However, there are a few relevant points to be discussed here. Small-scale qualitative

studies reveal that deaf Latino youths did not see English as having value, relevance to their daily lives, or immediate interest (Herzig, 2009). Latino deaf youths' reading motivation was highly context-sensitive and said to be influenced by peers, social relevance, and content of reading (Herzig, 2009). Research conducted with deaf college age students who were reading below grade level revealed a different picture of their motivational profiles, demonstrating high levels of overall motivation compared to hearing peers reading at grade level (Parault & Williams, 2010). Specific dimensions of reading motivation were also found to be high for these deaf students, namely challenge, curiosity, efficacy, involvement, and intrinsic motivation (Parault & Williams, 2010). The high levels of intrinsic motivation found for these deaf students were predictive of greater amounts of reading activities (Parault & Williams, 2010), and supports the assertion that motivation *is* an important factor in literacy development for the deaf individual.

  Self-efficacy in language learning. A different influence on motivation and second language learning comes from the work of social cognitive theorists who have posited that *self-efficacy* has a strong direct effect on performance, often more so than other motivational variables (Bandura, 1997; Pajares & Urdan, 2006). *Self-efficacy* as conceptualized by Bandura (1977) is a prominent aspect of social cognitive theory that allows for a closer examination of how beliefs come into play when looking at learning. Bandura defined *self-efficacy* as the belief that one has of his or her capabilities for successfully completing a task in a specific context. Self-efficacy beliefs take into account the interplay between personal, behavioral, and environmental influences that

make an impact on individual behavior. Bandura (1997) maintained that self-efficacy beliefs are often the strongest predictor of behavior, not actual ability, and his prediction has been supported across numerous studies. Students with a strong sense of self-efficacy have been found to take on challenging tasks willingly (Bandura & Schunk, 1981), show increased persistence (Bandura & Schunk, 1981; Locke & Latham, 1990; Schunk, 1982), exert greater effort (Salomon, 1984), have lower anxiety (Meece, Wigfield & Eccles, 1990; Pintrich & DeGroot, 1990), use learning strategies with greater flexibility (Bouffard-Bouchard, 1990; Pintrich & DeGroot, 1990), self-evaluate their academic performance accurately (Bouffard-Bouchard, 1990), and self-regulate better than others (Zimmerman, Bandura, Martinez-Pons, 1992; Zimmerman & Martinez-Pons, 1990).

Self-efficacy beliefs are domain-specific, so this work takes a focus on the context of engaging with English as a second language. Prior research has demonstrated that self-efficacy measures of learners' capacities for writing and reading in English are powerful predictors of language performance outcomes (Pajares & Johnson, 1994; Prat-Sala & Redford, 2012; Shell, Murphy, & Bruning, 1989; Woodrow, 2011). For the deaf learner, assessing direct engagement with English is difficult if we consider that this direct engagement with English traditionally takes place audio-verbally. For deaf students, the direct engagement with English is most likely to occur via written text. Of special interest in this study is the idea that CMC allows for increased opportunities for language interaction for the deaf learner, framed in terms of reading and writing. Hence, it follows that the self-efficacy context of particular interest is self-efficacy in reading and writing.

Self-efficacy perceptions are formed from four sources: mastery experiences, vicarious experiences, social persuasion, and physiological and emotional states (Bandura, 1995). Bandura (1995) posited that mastery experiences are the most effective way of creating a strong sense of efficacy, through "acquiring the cognitive, behavioral, and self-regulatory tools for creating and executing appropriate courses of action to manage ever-changing life circumstances" (p. 3). Vicarious experiences also come into play when successful actions, skills, and attitudes are observed being utilized by social models who are perceived as similar, and as acting in similar contexts. Social persuasion also serves as an effective way to increase beliefs in one's capabilities, and more specifically, increase the likelihood to exert greater effort and sustain it (Bandura, 1995). Finally, physiological and emotional states influence self-efficacy beliefs through the interpretation of physical status, stress, and emotional reactions.

Computer-mediated communication used in deaf education settings has the potential of strengthening the sources of self-efficacy beliefs. Synchronous CMC, by its nature, allows for mastery experiences, vicarious experiences, and social persuasion. The physiological and emotional states experienced by deaf learners when engaging in English are an uninvestigated area, but other language learners have reported less anxiety when engaging in CMC (e.g., Kern, 1995). A study of self-efficacy and anxiety in college English students identified self-efficacy to be a powerful predictor of writing performance, supporting previous studies (Pajares & Johnson, 1994; Prat-Sala & Redford, 2012; Shell et al., 1989) and further identified that students' self-efficacy was informed by their writing anxiety (Woodrow, 2011). This finding supports the hypothesis

that the reduction in anxiety when using CMC to engage in language use can strengthen students' self-efficacy beliefs.

My study investigated the hypothesis that the affordances inherent in using synchronous CMC in the deaf education classroom would increase deaf students' self-efficacy in using English. Self-efficacy beliefs have been found to be malleable, especially with the introduction of specific tools (Chularut & deBacker, 2004). A study of a language learning virtual environment that used communication tools such as synchronous CMC, among others, found that the non-native users of English using those tools rated themselves higher in self-efficacy towards advanced use of English and e-communication (Zheng, Young, Brewer, & Wagner, 2009).

Deaf individuals' self-efficacy beliefs about English. It is important to consider that considerations about self-efficacy about English are especially critical for deaf individuals, who may find themselves stuck in a deficit thinking model of teaching and learning: that deaf students struggle with English literacy (Cline, 1997). Previous negative experiences in a domain do influence the greater likelihood of developing lower self-efficacy beliefs in that domain (Schunk, 1991). Hence, it is beneficial to look at deaf learners' beliefs about their capacities to succeed in this specific domain: direct engagement with English through writing. As discussed earlier about motivational factors, I anticipated that examining deaf individuals' beliefs about their capacities in English literacy may present findings unique to this population.

Very little research has been conducted that directly assessed deaf individuals' self-efficacy beliefs; instead, the self-efficacy beliefs of adults in the environment, such

as parents (DesJardin, 2006) or teachers (Garberoglio, Gobble, & Cawthon, 2012) have been assessed. Only one study was found that directly examined deaf individuals' self-efficacy beliefs in the reading or writing domains (Gutierrez-Cacares, 2011). This study of over 100 students in grades 7-10, of which only 15 were deaf, showed no significant differences in self-efficacy beliefs about writing between the deaf and the hearing students. However, the sample size was not equally distributed, and there was large variation in the characteristics of the deaf students, which reduces the generalizability of these results.

Self-efficacy measures offer a lens through which deaf individuals' self-perceptions as English language users can be assessed, but it is not the only measure of self-beliefs about English. It is of interest to consider how deaf individuals perceive themselves as English language users, whether or not self-efficacy was measured directly. It has been found that deaf youth who do read English texts, albeit not "school-based" text (i.e., newspapers, websites, comics), had low perceptions of themselves as "readers" and instead defined "readers" as those who read in a school context (Herzig, 2009). This finding may indicate that deaf individuals' self-efficacy beliefs about English literacy are strongly related to academic contexts.

Language Learning in Context

Language learning is continually influenced by a complex set of influences, ranging from cognitive, social, and environmental, and always subject to change. Research in second language acquisition is gradually shifting to a more dynamic, evolving conceptualization of these processes. Ushioda (2006, 2009) suggested that a

more complex accounting of motivation in second language learning is enabled by a

person-in-context relational view. Ushioda (2009) made the argument that "we need to

take a relational (rather than linear) view of those multiple contextual elements, and view

motivation as an organic process that emerges through the complex system of

interrelations" (p. 220). Those contextual elements may play a larger role in language

learning processes for deaf individuals in particular, when considering the highly variable

learning contexts and cultural landscapes that influence their relationships with English

(Bruggemann, 2004). Indeed, contradictory findings about deaf students' motivations for

language learning (Herzig, 2009; Parault & Williams, 2010) support the proposition that

context plays a large role when considering motivational characteristics of deaf

individuals.

Dörnyei (2009b) outlined the challenge facing second language acquisition

researchers, to "adopt a dynamic perspective that allows us to consider simultaneously

the ongoing multiple influences between environmental and learner factors in all their

componential complexity, as well as the emerging changes in both the learner *and* the

environment as a result of this development" (p. 229). A number of current researchers

studying second language acquisition have proposed that this challenge can best be met

by utilizing *dynamic systems theory* (DST) (e.g., Dörnyei, 2009b; Ellis, 2007). Ellis

(2007) argued that from this dynamic view, "language can be seen as a complex dynamic

system where cognitive, social, and environmental factors continuously interact" (p. 23).

Context-sensitive approaches allow for the social and cognitive motivational

dimensions to be combined in one study and their interrelatedness to be captured, as

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suggested by dynamic systems theory (de Bot, 2007; Larsen-Freeman, 2002) or a person-in-context relational view of motivation (Ushioda, 2009). My study combined two differing theoretical perspectives on motivation: self-efficacy and the L2 motivational self system, and hence, was set to benefit from an approach that captures how multiple factors interact within a complex, context-sensitive system of language learning. When self-efficacy is examined in a cognitive motivational framework, the usual outcomes of interest take a focus on achievement. However, in this study, the outcome of interest was behavioral, and included a temporal component: intended effort and its change over time.

Dörnyei (2009b) proposed that some research methods allow for questions to be addressed within the dynamic systems theory lens, including mixed methods research, that "offers a radically different new strand of research methodology that suits the multilevel analysis of complex issues, because it allows investigators to obtain data about both the individual and the broader societal context" (p. 242). A focus on change over time, as opposed to a focus on variables constrained in a specific time point, is another methodological approach that supports an examination of language learning within a dynamic systems approach (Dörnyei, 2009b). Ushioda (2009) also suggested that qualitative research methods allow for greater in-depth exploration of language learning processes that acknowledge people as "necessarily located in particular cultural and historical contexts" (p. 216). Along those lines, this study took a mixed methods approach to accounts for variations within individuals, groups, and across contexts in order best to capture the complex dynamics involved in second language acquisition of deaf college students.

Conclusion

A brief summary of this review of the relevant literature that has ranged widely must begin with the point that collaborative, interactive language use has been shown to facilitate the acquisition of a second language (i.e., Lantolf, 2000; Long, 1996; Swain 1995, 2000) and that this interactive language use is especially problematic for the deaf learner due to the lack of direct engagement with the target language (i.e., Antia, 1985; Long & Beil, 2005; Stinson, Liu, Saur, & Long, 1996). This direct engagement with the target language is enabled through technological affordances, most namely computer-mediated communication, and has been used in a variety of settings with deaf students and other language learners.

Another critical aspect of language acquisition is the psychological experience of learning and engaging with the language. Motivational factors and beliefs about the self play a large role in the processes involved with initiating, persisting, and succeeding in learning a second language. Psychological processes involved with language learning for deaf individuals are a largely unexplored area, and thus present as a significant gap in the literature. Computer-mediated communication has been found to facilitate positive psychological experiences in language learning, including increasing motivation, greater positive attitudes, and lessening anxiety (i.e., Beauvois, 1998; Conaim, & Wong, 2004; Kern, 1995).

In sum, the literature appears to suggest that computer-mediated communication can serve as an affordance that enables greater direct, interactive engagement with the target language and positive psychological experiences in language learning

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environments. It is clear that direct, interactive engagement with English has historically been problematic for the deaf learner, but it is less clear what the psychological experiences involved with learning English are for the deaf learner, as this is an area largely unexplored in the literature. This study addressed this gap by capturing psychological dimensions involved in language learning for the deaf learner, and concurrently explored psychological processes that occur as a result of increased direct engagement with English that computer-mediated communication enabled.

Chapter 3

Methods

Statement of Purpose

The purpose of this study was, broadly, to investigate the learning of English as a second language of deaf college students within a socioconstructivist framework, exploring the following factors involved with language learning: motivation, visualization of the self as a user of English, learning experience, and self-efficacy in English language learning. This study had three main goals: 1) to examine the motivational and self-belief characteristics of deaf language learners, 2) to assess if those characteristics change over time, and 3) to assess how CMC influences or interacts with these characteristics, whether or not change happens. A mixed methods approach that made use of quantitative and qualitative methodological approaches was used in order to allow for a multilevel analysis of the complexity involved in second language learning for the deaf student. The quantitative component included data from Likert-style scale items and questionnaire instruments measuring the variables of interest and the change thereof over time. The qualitative component made use of data from student interviews to support and triangulate the quantitative results.

Preliminary investigation. A pilot study was conducted at the same college in which the dissertation study took place. As the literature on CMC in this specific population, deaf college students, is not necessarily robust, a pilot study seemed a necessary step in my design process. This pilot study took a close look at two sections in the English for Speakers of Other Languages (ESOL) program, designed for deaf

students. The same instructor taught these two classes and introduced CMC throughout the semester. There were a total of 20 students enrolled in these classes. I was able to observe online discussion sessions, examine transcripts of online discussions, and engage in informal, ongoing conversations with the teacher about these online discussions. A comprehensive interview with the instructor was done at the end of the semester.

The initial findings from this pilot study helped guide my design for the main study, specifically in how to ensure consistent data collection and address the potentials for inconsistency in instructor approach to online discussion. First, it became clear that it would be necessary to approach systematically how transcript data of online discussions would be accessible to me. Second, the addition of a professional development session for all instructors before the semester began was a clear area of need to support treatment fidelity, in that such training would help all instructors have more likelihood of being consistent with how to approach online discussions in their classrooms.

Research Questions and Hypotheses

Question 1. What are the motivational characteristics of the deaf language learner, as conceptualized within the L2 Motivational Self System?

Hypothesis 1. I hypothesized that the self-level beliefs (Ought-to L2 Self and Ideal L2 Self) would be less significant direct predictors of motivation while language learning attitudes would be more significant direct predictors of motivation.

The rationale behind this hypothesis included that the participants in this study are adult language learners, and thus may have more stable self-beliefs (Kormos et al., 2011),

and that language learning attitudes have a strong impact on motivated behavior (Csizér & Kormos, 2009; Taguchi et al., 2009).

Question 2. What are the self-efficacy beliefs of deaf English language learners?

Hypothesis 2. I hypothesized that deaf students' self-efficacy in English would be above the midpoint of the scale, and that students would report varying self-perceptions of their self-efficacy in English that were influenced by variations in student experiences.

The rationale behind this hypothesis was that deaf English language learners, in most cases, have been immersed in English language for most of their lives, as it is the language of the majority in this country, and thus would report self-efficacy beliefs that are somewhat positive. The frequency of exposure to the target language is said to contribute to increased self-efficacy beliefs about the language (Hsieh & Schallert, 2009). Because experience (e.g., mastery experience) is believed to influence self-efficacy beliefs (Bandura, 1995), I expect that students would report varying beliefs that are influenced by variations in their experiences with English.

Question 3. Do the motivational characteristics and self-efficacy beliefs of deaf language learners change over the course of the semester? Can these changes be explained by CMC?

Hypothesis 3a. I hypothesized that there would not be significant changes in the ought-to self over time due to the intervention.

The rationale behind this hypothesis was that research has shown the ought-to self to be stable over time, especially in postsecondary students (Kormos et al., 2011).

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Hypothesis 3b. I hypothesized that there would be significant changes in the ideal self over time due to the intervention.

The rationale behind this hypothesis was that the act of direct and interactive engagement with English through CMC would support the visualizations of self as an L2 user, thereby strengthening the ideal L2 self. A study that looked at the change in the L2 motivational self system over time in a study abroad immersion experience reported that the ideal self is strengthened through this direct, interactive engagement with the target language (Hsieh, 2009).

Hypothesis 3c. I hypothesized that attitudes toward learning English, what Dörnyei (2009a) referred to as the *learning experience*, would significantly change due to the intervention.

The rationale behind this hypothesis was that CMC would allow for increased potentials of experiencing success in engaging in English, which would then lead to positive attitudes towards learning English. Previous research in a language learning setting using computer-assisted language learning found a significant difference in the L2 learning experience over time (Cai, 2011). Other research studies have also shown that language learning attitudes are, in fact, subject to change over time (Csizér et al., 2010).

Hypothesis 3d. I hypothesized that students' motivated behaviors in learning English would significantly change over time due to the intervention.

One of the most commonly reported benefits of CMC in language learning is that it increases motivation, hence supporting the rationale behind this hypothesis (Beauvois, 1992, 1997, 1998; Kelm, 1992; Kern, 1995).

Hypothesis 3e. I hypothesized that students' self-efficacy in writing would significantly change over time due to the intervention.

The rationale behind this hypothesis was that the sources of self-efficacy, as posited by Bandura (1995), mastery experiences, vicarious experiences, social persuasion, and physiological and emotional states, would be enabled through the use of CMC. Research studies looking at change in self-efficacy over time have shown that self-efficacy increased with the introduction of specific tools such as concept mapping (Chularut & deBacker, 2004). A study of language learning in virtual online environments found that students showed higher self-efficacy toward advanced use of English (Zheng, Young, Brewer, & Wagner, 2009).

Question 4. What is the nature of students' experience in terms of motivational, attitudinal, and identity issues when engaged in a class that makes use of computer mediated communication?

I expected that interviews of students would reveal some common experiences reported by students about engaging in computer mediated communication, but that individual differences would interact with motivational, attitudinal, and identity experiences. These individual differences would then suggest other factors needing to be researched on the relationship of motivation and computer-assisted language learning in deaf education settings.

Participants

The participants consisted of deaf college students enrolled in English for Speakers of Other Languages (ESOL) courses at a large, south-central community college that has a sizeable deaf student population. There were approximately 150 deaf students taking ESOL courses, including reading and vocabulary, writing and grammar, and ASL grammar, each semester. In Fall 2012, there were 12 ESOL classes offered specifically in reading/vocabulary or writing/grammar, with approximately 100 students enrolled in those classes. All of the deaf students enrolled in these ESOL classes during the semester in which this research study was conducted were asked to participate. Table X displays the breakdown of students who participated in this study by type of class in which they were enrolled. Fifty-one participants consented to be part of this study and completed all the assessments at the beginning of the semester. Of these students, many were taking more than one ESOL class, hence the total students in Table X is larger than 51. Of these 51 students, 19 also completed all the assessments at the end of the semester, thus resulting in 19 participant pairs for assessing change over the course of a semester. A smaller subsample of 11 participants volunteered to participate in three focus group interviews.

The ESOL classes of interest were designed for deaf students who were studying English and who were users of another language, which in this case was American Sign Language (ASL). These courses were developmental courses for students whose ESL assessment score results revealed that placement in college-level courses would not be an appropriate fit. The department offered, on average, 14 ESOL courses in reading and

writing designed for deaf students, and placed students in courses based on scores from

ESL assessments. Writing and grammar and reading and vocabulary course offerings

varied in levels from introductory, high beginning, low intermediate, high intermediate,

and advanced (i.e., 1 to 5). These levels of developmental courses, and the proficiency of

the students enrolled, allowed for a wide spectrum of study participants studying

developmental English.

Table 1: Students enrolled in ESOL classes in Fall 2012

Class	N of Students
Reading and Vocabulary 1	8
Reading and Vocabulary 2	2
Reading and Vocabulary 3*	16
Reading and Vocabulary 4	10
Reading and Vocabulary 5	1
Writing and Grammar 2*	13
Writing and Grammar 3*	16
Writing and Grammar 4	3
Writing and Grammar 5	6
Total Classes: 12	Total Students: 51

* *These levels had two sections.*

Setting

The study took place in an ecological framework, allowing for an authentic examination of synchronous computer-mediated communication in the natural setting of college classrooms with deaf students learning English. In this educational setting with deaf students, the primary language used was American Sign Language (ASL). The instructors were fluent in ASL, and all in-class discourse happened using ASL. English was introduced via text forms, through class readings, assignments, or the use of technology that allowed for the use and discussion of English through whiteboards or PowerPoint presentations, among other instructional technologies.

Each class had, on average, 10 students. These small classes allowed for greater potentials of building collaborative discourse communities throughout the semester, an environment that was meant to help students feel sufficiently comfortable to engage in online discussions through CMC. Discussions were a regular and expected class activity, and the only modification in this study, as the study intervention, was to have a selected sample of these classes engage in discussion online, in varying amounts. Classes met two days per week throughout the semester, for 90 minutes at every class session.

Measures

Self-efficacy in writing. A writing self-efficacy scale was administered, the Self-Efficacy in Writing Scale (SWS), developed by Yavuz-Erkan (2004). This 21-item scale was based on Bandura's (1977) self-efficacy construct, and was intended to assesse students' beliefs about their writing ability. Originally, the items used a four-level Likert

scale: Strongly Disagree, Disagree, Agree, or Strongly Agree. All statements on the scale began with "I can…" (see Appendix A).

In psychometric analyses of this scale, Yavuz-Erkan (2004) found five factors: content, design, unity, accuracy, and punctuation. The reliability and validity of this scale was improved by Saban and Yavuz-Erkan (2011) by combining the factors of design and unity to result in a four-factor solution that accounted for 66.16% of the variance. The Cronbach alpha coefficients for the four factors ranged from .72 to .94, reliability indicators that are acceptable for research purposes. For this study, I modified the ratings to six-point scales rather than four, to match the rest of the scales the participants would see. The overall score was used in subsequent analyses as the measure of self-efficacy in writing.

L2 Motivational Self System: Ideal L2 Self, Ought-to L2 Self, and Attitudes towards Learning English. The second questionnaire administered measured components in the framework of the L2 Motivational Self System based on Dörnyei et al.'s (2006) Hungarian studies: the Ideal L2 Self, Ought-to L2 Self, and Attitudes towards Learning English (what Dörnyei referred to as the L2 learning experience), using an established questionnaire developed previously for Japanese learners of English (Taguchi, 2009), shown in Appendix B. This 13-item questionnaire used statement-type items measured on six-point rating scales ranging from "not at all" to "very much." This questionnaire has been found to be reliable and valid, with high Cronbach's alpha coefficient scores for the factors of interest (Ideal L2 Self, 0.89; Ought-to L2 Self, 0.76; Attitudes Toward Learning English, 0.90). Statements were modified slightly to fit the

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population being assessed. For example, any statements that referred to "speaking English" were changed to "using English."

Motivated Behaviors. A section of the L2 Motivational Self System questionnaire referred to above was used to measure learners' intended efforts toward learning English, or their *motivated behaviors*. Dörnyei (2005) delineated *motivated behaviors* in the L2 Motivational Self System framework, in particular, as the "effort expended to achieve a goal, desire to learn the language, and importance attached to the task of learning the language" (p.100). It has been argued that motivated behaviors are actually "one of the most important antecedents of learning achievement" (p. 100).

This four-item questionnaire used statement-type items measured on six-point rating scales ranging from "not at all" to "very much." As reported by Taguchi (2009), the Cronbach alpha coefficient was 0.90, which is acceptable for research purposes.

Measure translation. All measures and questionnaires used in this study were translated to American Sign Language (ASL) to ensure that the language was accessible to those with limited English proficiency. The translations were done by myself, a native and fluent ASL user with a background in ASL linguistics as a student and a college-level instructor of ASL. Each item had an ASL video attached to the text of the item, providing both language modalities to the participants at their choice.

Procedures

Before the beginning of the semester, a workshop was conducted as a part of professional development training for the instructors involved in this study. All the instructors in the ESOL department attended this workshop during the departmental

professional development time already scheduled prior to the beginning of the semester. This workshop provided instructors with guidance on how to implement CMC in their classrooms most effectively, from a technical assistance standpoint as well as a practice standpoint. A review of the best practices in CMC was shared with the instructors, drawing from the literature (e.g., Tolmie & Boyle, 2000). This workshop included an interactive demonstration of a typical chat room discussion session, guided by me, in which the instructors actively participated in the online chat. Instructors received an explicit walkthrough on how to use CMC software in their classes, including instructions on how to troubleshoot for common problems encountered. This walkthrough was meant to ensure that all instructors had the resources and know-how necessary to implement CMC effortlessly in their classes without technical difficulties taking up their class time. The workshop also discussed effective practices for leading online discussions and facilitating peer-to-peer dialogue, and offered instructional design strategies teachers could use to help engage students in CMC.

At the beginning of the semester, participants responded to scales measuring the following variables: self-efficacy in writing and motivated behaviors in learning English. In addition, I administered the measures based on Dörnyei's L2 Motivational Self System for the following variables: Ideal L2 Self, Ought-to L2 Self, and attitudes to learning English. All items were translated to ASL and made available to students in both modalities: English text and ASL video. These assessments were available online using Qualtrics survey software, and the link was emailed to all the instructors teaching an ESOL course in Fall 2012. The instructors were asked to share the link with their students

at the end of a class in the first or second week of the semester and to ask them to consider participating in the survey. These assessments were administered again at the end of the semester to allow for a pre-post test repeated measures design. Instructors were asked to allow time at the end of a class in the last two weeks of the semester for students to complete the online survey. This survey took students no longer than 30 minutes to complete.

Synchronous computer-mediated communication was introduced to a randomly assigned sample of ESOL courses, in which those teachers were asked to utilize synchronous CMC in their courses at least one time per week, for 30 minutes or more. The random assignment included all course levels beyond the first level, as the instructors had expressed that the first level of class would not be a good fit for the CMC activity due to curricular demands and that students with lower levels of English proficiency would experience frustration. One instructor, Nina, had expressed that she planned to schedule the use of CMC in all of her classes, so that was also taken into account. Out of 11 courses, six sections were selected to use CMC in class, as shown in Table 2. All the instructors of courses selected had expressed interest in using CMC in the classroom. Some had prior experience with CMC whereas others had none. The instructors were given leeway in how specifically CMC would be integrated in the class schedule, to fit in their curricular planning as appropriate for the class content and student-level proficiency with English. This approach is appropriate within an ecological systems framework, as it allows the integration of CMC to occur as it would in a natural classroom setting.

Table 2: Classes and Instructors: Fall 2012

Class Level	Instructors	
Reading and Vocabulary 2	Heidi	
Reading and Vocabulary 3	Emilia	Adele*
Reading and Vocabulary 4	Emilia*	
Reading and Vocabulary 5	Nina*	
Writing and Grammar 2	Regina	Adele
Writing and Grammar 3	Emilia	Adele*
Writing and Grammar 4	Nina*	
Writing and Grammar 5	Nina*	

Note: Classes with a * were those in which CMC was used. All names are pseudonyms.

The instructors sent me a plan at the beginning of the semester demonstrating how CMC would be integrated in their course schedules. Some instructors chose to have the CMC time consist of class discussions about course readings, whereas others had more structured CMC time that was spent practicing grammar structures. In Reading and Vocabulary 4, which was taught by Emilia, the proposed CMC plan and schedule was to use online chats on a weekly basis to discuss course readings, for fifteen minutes every Thursday, with every third Thursday being reserved for longer (45 minutes) online chats. As for the two sections taught by Adele (Reading and Vocabulary 3 and Writing and Grammar 3), the instructor planned to do 30 minutes of online chat per week, and the content would vary based on the curricular needs of that week. The data from three

sections taught by Nina (Reading and Vocabulary 5, Writing and Grammar 4 and 5) were not available, as Nina dropped out of the study unexpectedly and did not communicate with me at any point after the first few weeks of the semester. So the qualitative data analysis focused only on three sections in which data were available: the three classes taught by Emilia and Adele.

Despite being asked to schedule online chat regularly and at least once per week, the instructors reported that it took too much time away from course content, and their commitment to online chat declined through the course of the semester as curricular demands increased. In the end, the three course sections that used online chat and about which information was available only used CMC for five or six times throughout the semester. The shortest online chat was 20 minutes, and the longest was 80 minutes. Table 3 outline details for each class that used online chat about when chats were conducted, the length of time spent actively in chat, content, and the number of participants. All the names used in analyses and tables are pseudonyms.

Table 3: Online chat session information for each class

Section	Date	Length	Content	Participants
RV4: Emilia				
	9.6	22m	Discussing novel choices	8
	9.13	70m	Guided Q: reading	9
	10.4	43m	Guided Q: reading	8
	10.25	80m	Guided Q: reading	5
	11.29	63m	Guided Q: reading	5
WG3: Adele				
	9.5	25m	Grammar Practice	10
	9.10	26m	Grammar Practice	8
	9.12	27m	Grammar Practice	8
	10.17	23m	Grammar Practice	6
RV3: Adele				
	9.6	36m	Discussing reading	10
	9.11	24m	Discussing reading	8
	9.13	20m	Discussing reading	10
	9.25	46m	Vocabulary discussion & practice	6
	10.2	21m	Vocabulary discussion & practice	4
	10.11	48m	Vocabulary discussion & practice	4

Transcripts from the software CMC program that was used by the instructors, www.tinychat.com, was used to monitor and record the time spent engaging directly in synchronous CMC. All instructors were asked to save transcripts from each chat, and email these transcripts to me immediately after class had ended. All the transcripts included a timestamp of the times in which participants engaged in chat (e.g., [11:35 AM] adam: I agree with that statement).

Transcript data indicated that the discussion content varied significantly across class types. The WG3 class focused extensively on practicing grammatical structures in online chat, whereas RV3 and RV4 focused on discussing readings and vocabulary. Examples of typical chats from each class are shown in Table 4.

Table 4: Chat Samples from two classes, WG3 and RV3

Class	Prompt	Responses
WG3	Adele [Teacher]: use the past progressive to talk about what you were doing this morning	Selena: I woke up and ate oreo cookie. Frank: while i was still studying a grammar book, my friend was cooking food. Selena: I didn't cooking breakfast because I was lazy.
RV3	Adele: Why does he want revenge?	Eliza: Bec Katrina is very good at game Sean: what is mean revenge? ADELE Eliza: I mean was Alinea: they has won the game and made the accomplish towards the game as has create the game. Adele: Revenge means to get someone back Alinea: he want revange towards to both of them Alinea: as to put them back into the game Xeno: if she die then her family go back old life

Class observations were conducted at regular times throughout the semester when CMC was being used. These observations allowed for capture of dialogue that happened outside of the text transcript, as in ASL side conversations between students or teacher prompts. In particular, three courses were randomly selected for consistent, regular observation, with at least five time points scheduled for each of those courses. However, due to instructor dropout, I decided to observe all three courses that used CMC and in which the instructors allowed me to come and observe. For this reason, observation schedules were not consistently spread out among these three courses. Particular attention was paid to the content expectations of CMC, the teacher's introduction of CMC, any prompts given to the class, and how students actively engaged with CMC use in the classroom setting (e.g., side conversations, attending or tuning out).

In the last week of the semester, focus group interviews were conducted with students in those sections in which CMC was used. Instructors of sections in which CMC was used were asked to invite their students to stay after class for a voluntary interview with me. These voluntary interviews were conducted face-to-face, in American Sign Language, of which I am a native user. Interviews lasted from 30 minutes to an hour. Eleven students participated in these focus groups. Each focus group consisted of members of the same class, in order to get a fuller picture of contextual considerations that might emerge in each class. The participants consisted of three students from Reading and Vocabulary 3, three from Writing and Grammar 3, and five from Reading and Vocabulary 4.

Students were asked to discuss broadly their experiences with active engagement in English through the course, whether it was via CMC or not. Questions were asked that encouraged thoughts about their beliefs about their capabilities to write in English and how they perceived themselves in the future when engaging in English. Students were asked to reflect on their attitudes about learning English, the experience of being involved with online discussions, changing attitudes and beliefs through the semester, motivation for further engagement with English, identity and visualizations of themselves as English users, expectations in learning English, and any other information that students contributed. Specific incidents from online discussions observed over the course of the semester were used in the interview to guide self-reflective thought about specific discussion topics or approaches when using CMC.

These interviews were video recorded in order to capture the visual language modality used. Transcripts of the interviews were typed, translating from ASL to English, following completion of the interviews.

Data Analysis: Quantitative

To take an initial look at the data, I used descriptive statistics that allowed for an examination of the means, standard deviations, and intercorrelations among variables. In order to examine baseline motivational characteristics, using the L2 Motivational Self System as the framework, a path analysis approach was used. As the sample size was not sufficient to use Maximum Likelihood procedures as in structural equation modeling, I instead used simultaneous multiple regressions to develop the path analysis. This path analysis model is descriptive, as multiple regression procedures do not offer fit indices

for testing the model. The path analysis model was determined by theory, previous research, and time precedence. To adjust for multiple testing, the Bonferroni procedure was used, and the level of significance was set at $p < .01$.

To assess potential change over time in motivational characteristics and self-efficacy in writing, paired-sample t-tests were conducted. Because the paired sample size was small (N = 19), the decision was made to do overall tests of significance (t-tests) before attempting to explain changes attributable to CMC. Another consideration was that treatment fidelity could not be ensured due to instructor dropout of the study: one instructor of three courses that I had selected to use CMC did not follow through with sharing transcripts and allowing observations. Due to these two factors (small paired sample size and lack of treatment fidelity), it became appropriate to do an initial overall t-test to assess if there was any significant difference from pre- to post-tests before attempting to explain differences due to CMC. The small sample size and lack of treatment fidelity supported the need for qualitative analysis that would enhance understanding of the role of CMC in deaf students' motivation and self-efficacy, and those qualitative analyses will be explained in the next section.

Data Analysis: Qualitative

To address the qualitative component of this study, data from focus group interviews were used in order to triangulate findings for each research question. To analyze the data from the interviews, I combined several initial coding approaches: in-vivo coding, process coding, and descriptive coding. As I went through all the interviews, I uncovered different dimensions and properties of the concepts in comparative analysis

in an attempt to separate data into categories and codes, looking for similarities and differences by which to group comments and ideas together in broader conceptual categories (Glaser & Straus, 1967). Throughout, I looked for connections and processes that then allowed for initial theoretical development of broader properties of the data. This theoretical development recognized the importance of process, as conceptualized by Corbin and Strauss (2008), as the ongoing action/interaction/emotion in response to situations. This process included peer debriefing to review my coding and analytical processes, particularly attending to thematic development. This process was primarily used to inform my understanding of the quantitative findings, particularly these areas in which there were insufficient data to reach significance. As the research questions touched upon several divergent areas of inquiry, the decision was made to move away from deeper qualitative analysis and towards using the qualitative findings to triangulate and support the quantitative findings. Emergent themes, connections, and processes are reported for each research question.

Ethical issues

This study followed all the procedures and regulations set by the Institutional Review Board at the University of Texas to comply with the ethical standards of research and protect the rights of human subjects. Informed consent was obtained from all participants, and all data were kept confidential and maintained anonymously in a secure location. Participants were informed of their rights to remove themselves from this study at any time without penalty. Although the use of CMC in their instruction was not something for which the students had the right to agree to or not, they had the right to

agree to the use of their responses to questionnaires and postings in the CMC discussions

for research purposes.

Chapter 4

Results

This chapter presents the results of data analysis aimed at answering the research questions. To reiterate, the three overarching purposes of this work were (a) to examine the motivational characteristics of adult deaf English language learners, (b) to assess potential changes over time of those motivational characteristics, and (c) to understand the role that CMC may play in those motivational characteristics. In quantitative analyses, the full sample of 51 students was used to examine the motivational characteristics, whereas the reduced sample of 19 participants who completed both pre- and post-tests was used to examine changes over time. In qualitative analyses, data came from the 11 students who participated in the three focus groups.

Preliminary Analyses

Reliabilities of the Scales

To assess the reliabilities of the measures used in this study, ensuring cross-population reliability, Cronbach's alpha coefficients were computed for each scale at pre-test (see Table 5). Internal reliability was assessed using the full sample of 51 participants. The results revealed strong reliability for each scale used in this study, with Cronbach's alpha close to or above .70: L2 Attitudes (.86), L2 Ideal Self (.74), L2 Motivation (.74), L2 Ought-to Self (.66), and Writing Self-Efficacy (.94). The Writing Self-Efficacy scale had the highest alpha, as the scale consisted of 18 items. The lowest

alpha was found in the L2 Ought-to Self scale, which consisted of only four items.

Table 5: Reliability and Descriptive Statistics for Each Measure

Scales	Means (SD)	Internal Reliability (Cronbach's Alpha)	Number of Items
L2 Attitudes	4.80 (1.05)	.86	4
L2 Ought-to Self	4.77 (1.04)	.66	4
L2 Ideal Self	4.78 (.85)	.74	4
L2 Motivation	4.95 (.91)	.74	4
Writing Self-Efficacy	4.03 (.91)	.94	18

Note. N = 51. Possible range of scale responses is from 1-6.

Descriptive Statistics

Means and standard deviations for each scale are also shown in Table 5. It is of interest that for each scale, the mean scores were above the mid-point of the scale. On these scales, the possible range of responses was from 1 to 6. The lowest mean score

(4.03, SD = .91) was found for the Writing Self-Efficacy measure, whereas the highest

mean score (4.95, SD = .91) was for the L2 Motivation measure. All other mean scores

varied between these values.

Examination of Assumptions

When conducting regressions, as was done in the path analysis to examine

motivational characteristics, it is necessary to address the basic assumptions of the

statistical procedures. The independence assumption is likely to be met if the Durbin-

Watson statistic is close to 2, and in this case it was 1.79 for the first regression and 1.95

for the second regression, both considered as close to 2. To assess collinearity, VIF and

tolerance statistics were examined. The VIF statistics were substantially less than 10, and

tolerance statistics well above 0.2, therefore it can be concluded that the assumption of no

multicollinearity was met (Bowerman & O'Connell, 1990; Menard, 1995).

To compare two means in paired-sample t-tests, used in order to assess

differences between pre-and post-tests in this sample, one should first meet the

assumption that the data are normally distributed. This assumption is particularly more

important in situations where the sample size is small. To test this assumption, Shapiro-

Wilk tests of normality were conducted as the Shapiro-Wilk test is appropriate for

smaller sample sizes (N < 50), and in this case, the full sample in which pre- and post-test

data had a sample size of 19. To conduct this test, a new variable was computed of the

difference between scores at pre-test and post-test. The normality distribution of this

difference was tested, with null results, indicating that the assumption of normality was

met, as shown in Table 6.

Table 6: Tests of Normality

Difference Scores:	Shapiro-Wilk		
Pre and Post-Tests	Statistic	df	Sig.
Writing Self-Efficacy	.96	19	.52
L2 Attitudes	.91	19	.06
L2 Motivation	.91	19	.07
L2 Ought-to Self	.91	19	.06
L2 Ideal Self	.95	19	.35

Intercorrelations

In order to assess the interrelationships between the subscales of the L2

Motivational Self System and self-efficacy in writing, correlational analyses were

conducted. Table 7 shows the bivariate correlations between all scales in the study. All

correlations were significant except for one, and all significant correlations were positive.

All subscales of the L2 Motivational Self System were significantly correlated with one

another, with p-values $< .001$ and correlations ranging from .52 to .71. The writing self-

efficacy measure was not strongly correlated with all aspects of the L2 Motivational Self

System, but it was strongly correlated with with the ideal self ($p < .001$), significantly

correlated with attitudes about language learning ($p < .01$), less strongly but still

significantly correlated with motivation ($p < .05$), and had no relationship with the ought-to self ($p = .10$).

Table 7: Correlations among measures

	Attitudes	Ought-to	Ideal	Motivation	Self-Efficacy
L2 Attitudes	-				
L2 Ought-to Self	.59***	-			
L2 Ideal Self	.65***	.52***	-		
L2 Motivation	.71***	.58***	.63***	-	
Writing Self-Efficacy	.38**	.10	.61***	.28*	-

Note. $* p < .05$, $** p < .01$, $*** p < .001$ (2-tailed).

Primary Analyses

Path Analysis: L2 Motivational Self System

In order to capture the complex interactions of factors involved in the L2 Motivational Self System, a path analysis approach was used, estimating a model through simultaneous multiple regression analyses predicting learning attitudes and motivated behaviors. The sample size was not sufficient to use Maximum Likelihood procedures as in structural equation modeling, and thus multiple regression path analysis was conducted. This path analysis model is descriptive, as multiple regression procedures do

not offer fit indices for testing the model. The path analysis model was determined by theory, previous research, and time precedence. To adjust for multiple testing, the Bonferroni procedure was used, and the level of significance was set at $p < .01$.

Table 8: Regression analysis of the L2 Motivational Self System with motivated behaviors as the dependent variable

	B	SE B	β
Constant	1.054	.526	
Attitudes	.368	.117	.425**
Ideal L2 Self	.262	.137	.245
Ought-to L2 Self	.183	.106	.207
R^2		.574	
F		21.150***	
df 3, 47			

**$p < .01$. ***$p < .001$

The first level of the regression analysis, shown in Table 8, includes the three aspects of the L2 Motivational Self System as independent variables (Attitudes, Ideal L2 Self, and Ought-to L2 Self) and motivated behaviors as the dependent variable. The model at this level was significant ($R^2 = .57$, $F (3, 47) = 21.15$, $p < .001$), indicating that 57% of the variance in motivated behaviors could be explained by the L2 Motivational Self System variables. The second level of the regression analysis, shown in Table 9, had

the Ideal Self and Ought-to Self subscales as independent variables predicting attitudes about learning the language as the dependent variable. The model at this level was also significant, ($R^2 = .50$, $F\ 2, 48 = 24.38$, $p < .001$), indicating that 50% of the variance in language learning attitudes could be explained by the self-belief aspects of the L2 Motivational Self System.

Table 9: Regression analysis of the L2 Motivational Self System with Learning Attitudes as the dependent variable

Variable	B	SE B	β
Constant	.374	.645	
Ideal L2 Self	.580	.147	.470***
Ought-to L2 Self	.347	.121	.341**
R^2		.504	
F		24.384***	
df 2, 48			

**$p < .01$. ***$p < .001$

The regression results showed both models to be significant ($p < .001$), and a closer look confirmed that a path analysis approach would be a promising way to approach the data. The first level of the model, shown in Table 8, showed that language learning attitudes significantly predicted motivated behaviors in English language learning, whereas the ideal and ought-to L2 selves did not significantly predict motivated

behaviors. Because previous research has shown that the ideal and ought-to L2 selves can

interact with, or predict, learning attitudes, the second level of the model used the ideal

and ought-to L2 selves to predict language learning attitudes as the dependent variable, as

shown in Table 9. This regression model showed that the ideal and ought-to L2 selves did

significantly predict learning attitudes. A path analysis approach allowed me to describe

the relationships involved in the L2 Motivational Self System in a final path model,

depicted in Figure 1.
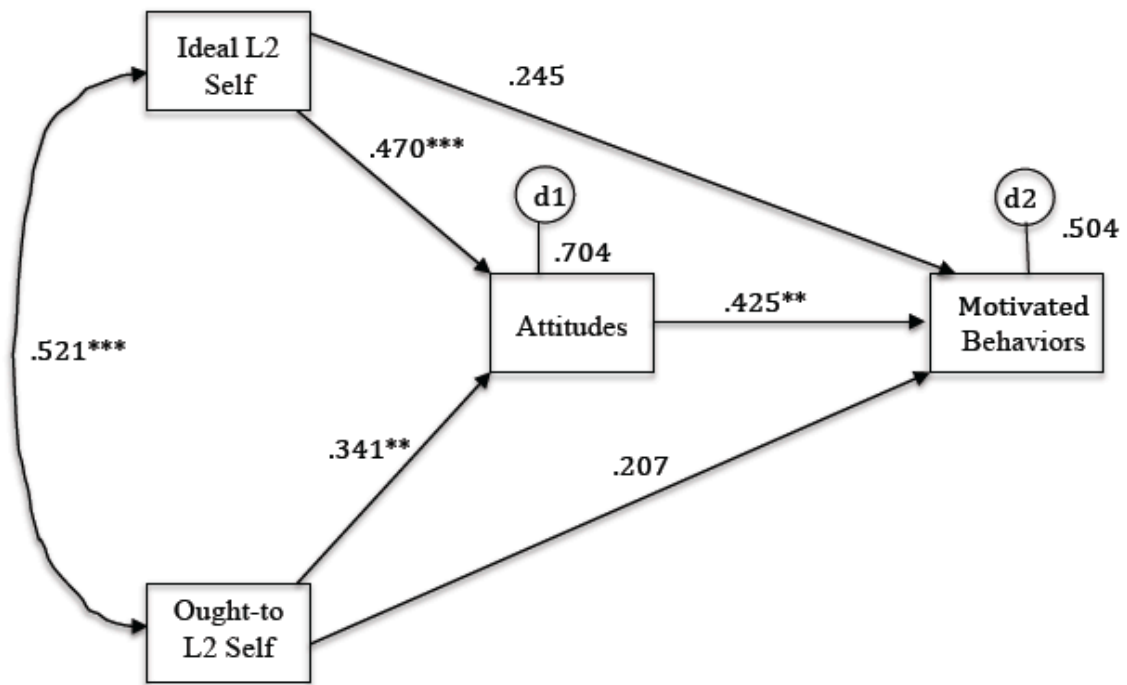
Figure 1: Path model explaining Motivated Behaviors, showing all standardized paths and disturbances. Note. N= 51. Flagged path coefficients are significant at **p <.01. ***p <.001.

The path model provides a visual depiction of the interactions involved in the L2 motivational self system, with significant paths from ideal and ought-to L2 selves to attitudes, and a significant path from learning attitudes to motivated behaviors. The paths from the ideal and ought-to L2 selves directly to motivated behaviors were not significant. However, attending to the indirect effects gave a more complete picture of the interactions involved in this model, as shown in Table 10. The indirect effects of the ideal and ought-to L2 selves, channeled through learning attitudes, did manifest a large role in the L2 motivational self system.

Table 10: Standardized Direct, Indirect, and Total Effects of L2 Motivational Self System on Motivated Behaviors

Variable	Direct Effect	Indirect Effect	Total Effect
Attitudes	.425	-	.425
Ideal L2 Self	.245	.200	.445
Ought-to L2 Self	.207	.145	.352

Assessing Change Over Time

To assess the question as to whether motivation and self-efficacy would change over a period of one academic full semester, paired observations were used. Due to high rates of attrition, there were only 19 pairs of observations (N = 19), representing the responses of participants who had completed the pre- and post-measures of motivation and writing self-efficacy. Means and descriptive statistics of the L2 Motivational Self

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System and the Writing Self-Efficacy scales in the two time points are shown in Table 11. Because the number of participants in this paired sample was small, the decision was made to assess potential change in the participants as a group as an initial step before proceeding with any further analyses capturing explanatory factors (i.e., use of CMC).

Table 11: Motivation and Self-Efficacy Over Time

	Time 1		Time 2	
	Mean	Std. Deviation	Mean	Std. Deviation
L2 Motivation	5.053	.907	5.224	.600
L2 Attitudes	5.118	.800	4.842	1.15
L2 Ought-to Self	4.973	.890	5.118	.890
L2 Ideal Self	4.821	.840	4.937	.709
Writing Self-Efficacy	3.924	.890	4.252	1.040

The distribution of differences in scores from time 1 to time 2 was examined to determine the extent to which the assumption of normality was met. The Shapiro-Wilk test of normality suggested that normality was a reasonable assumption for each set of scores: L2 Motivation (S-W= .910, df = 19, p = .073), L2 Attitudes (S-W= .907, df = 19, p = .064), L2 Ought-to Self (S-W= .906, df = 19, p = .061), L2 Ideal Self (S-W= .947, df = 19, p = .352), and Writing Self-Efficacy (S-W= .957, df = 19, p = .519). Because the assumption of normality was met, statistical analyses were permitted with paired samples t-tests.

Paired samples *t*-tests failed to reveal statistically significant differences in scores between pre- and post-tests, with *p*-values well above .05, suggesting that there was not significant changes in motivation and self-efficacy over a period of one semester for these college students. The statistics from the paired samples *t*-tests are shown in Table 12.

Table 12: Paired t-tests of Difference Between Time 1 – Time 2 on Key Measures

	Paired Differences							
	Mean		SE	95% CI of the Difference				
	Dif	SD	Mean	Lower	Upper	*t*	*df*	Sig.
L2 Motivation Time 1→ Time 2	.171	1.031	.237	-.326	.668	.723	18	.479
L2 Attitudes Time 1 → Time 2	-.276	1.527	.350	-1.012	.460	-.789	18	.441
L2 Ought-to Self Time 1 → Time 2	.145	1.254	.288	-.460	.749	.503	18	.621
L2 Ideal Self Time 1 → Time 2	.116	1.176	.270	-.682	.451	.429	18	.673
Writing Self-Efficacy Time 1 → Time 2	.327	1.23	.282	-.920	.264	1.163	18	.260

Power analysis. Before accepting these results, I wanted to check whether null results were due to a lack of power, and thus conducted power analyses using the G*power statistical program (Faul, Erdfelder, Lang, & Buchner, 2007). I checked the likelihood of finding a small effect (d = 0.2) with alpha at .05 in this study, with a sample size of 19. The power analysis revealed that there was only a 13% chance of detecting a small effect size significant at the 5% level (two-tailed). Upon a visual examination of the differences between Time 1 and Time 2, it is intriguing to notice that all subscales had slight positive increases except for attitudes about language learning, which showed a slight negative difference from Time 1 to Time 2. With a larger sample size, there would have been more power to detect potential significant differences in those motivational characteristics, and what could explain those differences.

Qualitative Analyses

In order to provide a fuller picture of the participants' motivational characteristics, self-efficacy beliefs, and the potential role of CMC in influencing psychological experiences involved with language learning, I report the results of qualitative analyses in this section. These analyses are reported in sections that attend to each research question.

Motivation for Learning English

The deaf students in the focus groups were highly committed to learning English, perceived English to be of high value, and willing to make personal investments in improving skills. Despite students expressing that they felt they

reached a deeper understanding when using ASL, they also emphasized, *"English is important."* The students mentioned often that they wanted to be challenged, to push themselves to improve, conveying that for the students, their intrinsic motivation to learn English was high, beyond obligatory, external purpose-driven reasons. Only one student mentioned transferring to college-level English class as a purpose for being in English classes. This is particularly of interest because the students in my study were taking developmental English classes that were technically designed to prepare students to transfer to college-level English classes.

The students interviewed valued their time in English classes and were willing to make personal and financial investments in their learning. Quite a few students were older than the typical college student who were taking these classes later in life, after their children were grown and time allowed for them to make a personal commitment to improving their English. Students viewed their class time as important and expressed desire that class content be meaningful and have direct, immediate benefit.

> *I come here and I want to take the time to focus on studying English, to focus on grammar and learn. I don't want to just chat in English. It takes up too much time and takes time away from our learning English. (Student, WG3)*

Students showed a commitment to making the most out of their time in the program. One student in particular backed that up with a statement showing a willingness to make a financial commitment as well, by purchasing online tools that supported her learning.

Yeah, I paid for it [visual thesaurus software]. 18 dollars for the year. It helps me make

the most out of my college classes. It's worth it. (Student, RV4)

Overcoming perceived shortcomings. Their motivations for learning

English were often related to overcoming perceived shortcomings, described as

opportunities that were *missed*, or areas of *weaknes*, whether these shortcomings

were personal or systemic. Personal shortcomings involved self-perceptions of their

skills as being low, while systemic shortcomings involved previous negative

experiences in their English learning settings.

Self-perceptions. Deaf students' motivation for learning English often

originated from a perception of their capacities in English to be low, and in need of

improvement. These self-perceptions were triggered in settings where they

interacted with fluent language users, or in previous educational experiences where

they felt that something was *missing*.

I use English with my family, I thought I have good English, but they look at me and tell

me that my English needs improving.

Changing self-perceptions also influenced motivation, particularly through explicit

recognition of weaknesses in English that often emerged via feedback processes

from fluent language users or in situations that were challenging, such as the use of

online chats that required the use of English structure.

When I started going to classes here at ACC, I was told that I used ASL. I didn't think I used ASL, I just signed. But they told me yes, I do. They told me to write something, and I did. Looking at my writing, they told me that I didn't write in English structure but in ASL structure, and I needed to change that, translate that to English. I didn't expect that. I've learned a lot. (Student, RV4)

I think it's easier in ASL. Just to sign. But, it shows us our weaknesses. We're like, how do we type this out? That's something we have to learn. (Student, RV4)

Deaf students' motivation was also tied to a desire to avoid *embarrassment*. This was one of the more consistent themes that emerged across classes and skill levels.

I want to improve my grammar and get better English skills, so I won't feel embarrassed of my English skills. (Student, WG3)

I feel embarrassed of my English skills in large chat rooms. People online think that English is my second language. (Student, RV4)

Learning experiences. Previous educational experiences were a key factor in students' desire to improve their English skills. These earlier educational experiences were often negative, and students expressed a desire to overcome these negative experiences. Students felt that English instruction in their earlier

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educational experiences were *not challenging*, *not beneficial*, not given much importance (particularly compared to speech training), and that they were *missing* something.

> *If I had focused more time on English, I'd have improved my English skills. But I kept being taken out of class for speech- over and over again. (Student, RV4)*

When asked about reasons and motivations for taking English classes, students would often discuss their negative educational backgrounds as serving motivational purposes for their enrolling in these developmental classes, as shown below.

> *I grew up in a SEE (Signed Exact English) program and it did not benefit me. I am weak in grammar and feel embarrassed about it. I feel that the ASL/English program at [this college] will help me improve and understand things that I didn't get in my educational background using SEE. (Student, WG3)*

The context of the current setting in which these students were enrolled also influenced their motivation, because these classes were taught using direct communication (through using ASL as the communication modality), and thus the students were not only motivated to learn English, but also to learn English in this particular setting: through direct communication.

When I have a hearing teacher, sometimes I get confused and sometimes the interpreter

doesn't follow what is being taught, loses accuracy in the interpretation. I'm left thinking,

what did I miss here? What did I miss? You know? ... That's the toughest situation,

number one. (Student, RV4)

Communication. Deaf students' motivation for learning English was also closely tied to their desire to *communicate*, and more specifically, to express themselves *clearly*, particularly with native English language users. Communication was seen to be a driving motivational factor in order to be able to interact in a variety of previous, current, and future settings, from online chat rooms for gamers, to writing back and forth with hearing people, and for future or current work experiences.

I want to improve my writing... I want to be able to communicate with hearing people,

without getting confused- I want to be sure that I can clearly explain things.

Self-Efficacy in English

This section discusses the beliefs reported by the deaf students in the focus groups about their capacities and skills in English. General findings indicate that deaf college students recognized their weaknesses in English, which is perhaps not surprising in this particular segment of the collegiate population: students taking developmental English classes. Students in lower levels of developmental English

classes reported less confidence in their skills. Yet, across the board, students were comfortable using English in their everyday lives in a more informal manner. Thus, it can be seen that the context in which English is used does matter when considering deaf students' self-efficacy beliefs in English. Beyond contextual considerations, self-efficacy beliefs were influenced by factors including native language models and identification with language.

Overall self-efficacy beliefs. Students' overall beliefs about their capacities in English revealed perceptions of English as challenging, that it takes more time, and that their skills were in need of improvement. Quite a few students expressed that they were "*not confident*" in English and that they felt *"embarrassed"* about their skills, particularly those students in lower levels of developmental classes. However, when students were asked to discuss their feelings about English, they often discussed a formal, structured, school-based understanding of English, as opposed to when they discussed how they used English in everyday life.

> *We have to express everything in English on the computer. I find it hard to get started and express what I want to say... I know what I want to say, if I were to sign, but I just don't know how to spell it all out in English. It's hard.*

Self-efficacy: Context matters. These students' descriptions of their English use and capacities appeared different when discussing more informal uses of

English as opposed to more formal and structured uses of English. Students recognized that their use of English was different in informal settings than it was in their English classes.

> *I don't tend to type out full sentences, and I use a lot of abbreviations. Like, instead of saying 'you', I'll type 'u'... that kind of thing. So, that doesn't help me improve my English. But, when we're using tinychat, the teacher doesn't let us use those abbreviations and wants to see us type out full sentences. So that makes me think through things more carefully when I type. I'm not used to that. (Student, RV3)*

> *When I talk to my friends on text, we use more shorter words, you know, acronyms and that sort of thing. But in here, because we're here for studying English, it's important to try to type out full sentences. I notice that my responses are longer* [in class]. *It's important, to be learning the words, and to remember how to spell them too! (Student, RV4)*

> *Of course, you're in school and you have the expectation of the teacher seeing your English. But out on the go... you're talking to your friends, doing whatever you can... walking with your phone texting as you go. Churning out stuff, quickly... unless the person doesn't understand what you're talking about, then yeah, you have to expand on it and use full words and explain in more depth. (Student, RV4)*

All these students used English on a daily basis, and talked about communicating through text as being a significant part of their lives. Electronic communication was

a frequent theme when students described how they used English on a daily basis, as in texting, instant messaging, and emailing. When describing their use of English for communicative purposes, students were comfortable and confident in their use of English with their peers and for communicating with community members.

> *When interpreters aren't around, we easily go and get a paper and pen and communicate, or take out our phones and type up messages on the notepad. (Student, RV4)*

But when students talked about their perceptions of English in a more structured context, they were less confident about their abilities. Students were particularly not confident in their grammar skills, which were explicitly mentioned as an area of weakness throughout the interviews.

> *I am weak in grammar. That makes me feel embarrassed... I want to improve my grammar to show better English skills. (Student, WG3)*

Influences on self-efficacy beliefs. These students' self-efficacy beliefs were influenced by interaction with native language models and identification with language.

Language models. Students mentioned that interacting with native language models triggered self-perceptions of one's capacities in English. Those interactions took place in multiple contexts such as online chat rooms, with the family at home, or communicating with hearing people at work or in the community via text (writing or using technologies such as mobile phones). As an example, one student described how his experience in participating in online chat rooms for gamers triggered recognition that his English skills were in need of improvement because fellow chat participants thought he was from another country.

Identification with language. Two students in particular presented an opportunity for a more finely grained analysis of individual differences that influence perceptions of one's capacities in language. These two students, Elaine and Eli, had roughly comparable language skills in both their languages: ASL and English. Elaine and Eli were in the same developmental reading class, reflecting that their actual English skills should be comparable. My observations in the interviews with Elaine and Eli were that their ASL skills were similar as well. However, they revealed different perceptions of their capacities in those languages. Assuming that these two students' actual language skills were roughly comparable, it is of benefit to examine how individual differences affected *perceptions* of their skills. A closer analysis of their interview data reveals that identification with language may affect beliefs about one's capacities with that language, as these students revealed

differing language backgrounds and expressed different levels of identification with their two languages.

Eli grew up in the hearing community, using English as the primary language, and did not perceive himself as using ASL or having mastery in ASL. In my estimation, Eli did use ASL almost fluently in his interview with me, albeit with some English structures, so this may be more of a matter of self-perceptions than an assessment of actual skill. Eli explained his language background as follows:

> *I'm poor at ASL, really—I'm not good at ASL. I grew up as the only deaf kid in my town, everyone was hearing. I don't have a deaf family or anything, it was just me. So I grew up using English. So, now I see other people using ASL, I want to learn to express myself in ASL but I'm not an expert, not like some other people who are beautifully fluent, experts in ASL. I need to learn, but, yeah... I mainly use English.* (Eli)

Eli was confident in his English skills, expressing that he was "*comfortable with English.*" Eli's greater identification with English in his background, particularly through his family, friends, and community seemed to be influencing his level of integration with the language.

> *I don't see myself.... I mean, I'm good at English. But I don't know how people perceive me, if I'm really as good as I think or not. I don't know. I think to myself, that I do really well.* (Eli)

Elaine attended a deaf school until 9th grade and used ASL. She did use English with her family but to a lesser extent than Eli. Elaine showed less confidence in her

English skills than did Eli. Elaine's beliefs about her English were that her ability "*stunk*" in the past but with commitment and continued effort, "*now it's better.*"

Eli felt that he mainly used English, indicating that English structure influenced his ASL signing. Elaine felt the opposite, and perceived her ASL as influencing her English writing, as she explains:

> *It turns out that I actually use ASL* [in my writing]*. When I started going to classes here at ACC, I was told that I used ASL. I didn't think I used ASL, I just signed. But they told me yes, I do. They told me to write something, and I did. Looking at my writing, they told me that I didn't write in English structure but in ASL structure, and I needed to change that, translate that to English. I didn't expect that. I've learned a lot.* (Elaine)

These two students, Elaine and Eli, reveal how language background may affect beliefs about one's capacity in language as an adult. This is a small segment of the data, however, and is only a tentative start at exploring this idea.

Change over Time in Motivation and Self-Efficacy

This section addresses the qualitative data that considers change over time in the motivational characteristics and self-efficacy of these deaf English language learners. Although there is not sufficient data for an in-depth exploration of this question, there are some starting points. Students did not explicitly discuss changes in motivation, but did discuss changing self-efficacy beliefs and attitudes about the

learning experience. Those attitudes and self-efficacy beliefs appeared to be malleable. It was not demonstrated if motivated behaviors were also malleable, but language learning attitudes are a possible area of malleability within motivation when considered as part of the L2 Motivational Self System.

The available data appeared to indicate that change in self-efficacy beliefs happens over a longer period of time than over the course of an academic semester. Several students felt that years of study would be needed before they would feel confident with using English in chat rooms with native language users (hearing people). When students discussed this idea, multiple students agreed that they could visualize themselves being able to communicate clearly and effectively with hearing people in chat rooms after years of study. This beliefs about their capacities appeared to be related to how they saw themselves in the future.

When students discussed their improvement in English, longer periods of time were used as reference points than semester-by-semester. Changing self-perceptions of English skill were described as gradual, continuing processes.

Well, my English... in the past, oh, wow, it stunk. But with continued work and building upon layer and layer of skills, it continued to improve and now it's better. (Student, RV4)

While change in *motivation* was not indicated in the student interviews, change in language learning *attitudes* emerged as a potentially viable malleable area.

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This area emerged in particular when students were discussing negative experiences in their previous educational backgrounds and their more positive perceptions, or attitudes, about learning in the current educational setting. When Elaine was discussing her negative educational experiences in the past and how she felt that she was *missing something* in educational settings that lacked direct communication, she explained how the current educational setting was a better fit for deaf students' learning styles and indicated more positive attitudes about the learning experience. She described the current setting as follows:

> *This room, here, [where classes are conducted] is wonderful to help us deaf people to learn. You know, hearing people can just talk and students can keep their heads down and keep writing and listening at the same time.... Us deaf people have to divide our attention and keep attending to both things—the teacher and our work. While in this environment, we can view things that are on the screen right there [next to the teacher]. That goes for the online chats too. It helps us understand.*

Yet, that change in attitudes about the learning experience was described as something that was triggered by enrolling in a direct communication environment, as a constrained phenomenon that occurred at one time point and was not necessarily indicative of ongoing, continual changes in attitude from a developmental perspective. Differing attitudes about the learning experience were

highly sensitive to the particular context, particularly whether or not the environment was seen as accessible and beneficial. There was insufficient data to be able to indicate how or if learning attitudes could gradually evolve in the context of one academic semester, or within one class.

Student Experiences with CMC

This section provides an overview of student perceptions, experiences, and attitudes about computer-mediated communication in the classroom. Overall, student perceptions revealed that online chat was a way for them to "*see English*," and that *seeing* appeared to indicate a more active engagement with English as a living, dynamic mode of communication as opposed to the one-dimensional nature of writing and reading English, particularly as a second language. Yet, student perceptions were affected by how online chat was used in their classes and the level of engagement that students experienced during those online chat sessions.

Seeing English. Students often mentioned how online chat enabled them to *"see English"* or for others to *"see my English."* That *seeing* was described as an active, engaged, immediate and reciprocal activity, an activity that often triggered negative emotions as well as causing *learning* and knowledge transformation. A commonly reported negative emotion was that of embarrassment, as shown below when a student was asked about the potentials of using online chat with hearing students.

> *I don't feel confident with my English. I'd be embarrassed. I don't want people to*
>
> *see my English. (Student, WG3)*

Students felt that *seeing* how others use English was beneficial, particularly the kind of seeing that happened while they were also actively engaged in constructing responses as happens in online chat rooms. It appears that specific cognitive processes may be triggered in the process of viewing how others use English while concurrently forming responses in English.

> *I feel like I improved a lot by seeing how others use the English language. I was*
>
> *able to self-monitor and check my writing based on what I saw others doing. I*
>
> *don't mean that I was copying others' writing, no, but... you know? Looking at*
>
> *other classmates. I'm not copying, but... I'm learning something. (Student, RV4)*

When students discussed learning processes, they described learning as a process that was triggered by seeing how others use English, particularly in "*how they use words*." The processes described below did not specifically refer to online chats, but were mentioned in the context of discussing how online chats could ideally support greater direct communication with hearing people in the classroom. The direct communication methods described below were those when text was used in direct communication with hearing people, and thus are relevant.

[If] interpreters aren't around, we easily go and get a paper and pen and communicate, or take out our phones and type up messages on the notepad. That way, sometimes I learn new words that hearing people use. I notice something new in how they use words or whatever... I learn something new and keep that in mind for a later time. (Student, RV4)

A student expanded on the above statement and provided a further understanding of the transformative learning processes that were enabled through direct, active engagement with English.

It's like, we aren't necessarily learning just that one word but we're absorbing a new word, a new idea, and then it goes in our minds for later revision, figuring out what the word means and applying new meanings to it, new ways of using it. (Student, RV4)

It was also acknowledged that the experience of being deaf affected these students' language acquisition processes, and that increased engagement with language was necessary for learning. When discussing the benefits of online chat, one student recognized that "w*e have to read a word repeatedly to acquire the word [compared to hearing peopl*e]." He went on to discuss how the use of online chat and, more generally, text-based electronic chat, enabled learning through active and immediate engagement while constructing meaning in English.

Once it started raining and I had my phone out, ready to text my mom. I said "raining dogs and cats"... am I right in the phrasing? I originally said, it's dogs and cats raining. My mom responded, yeah, it's the other way around. I said, oh yeah, you're right. Sorry. That happened to me. I learned a lot when translating things to English. (Student, RV4)

Engagement. In the section above, it can be seen that students described learning processes that happened when direct and active engagement with English was enabled through conversational interactions using English text as a modality. Through analysis of students' perspectives about learning through text communication, it appears that the act of engaging in active conversational discourse, the give-and-take that happens during discussion when the students are actively involved was perceived as contributing to learning. This theme is supported by an analysis of student perceptions of the efficacy of online chat and how these perceptions were negatively or positively influenced by the type of online chat that occurred.

Type of chat. Students enrolled in classes that used online chat in an interactive manner with greater opportunity for extended discussions had more positive perceptions of online chat than those in classes that used online chat in a more structured manner. Samples from chat transcripts are shown to help provide context about the type of chats that occurred during class time.

Table 13: Sample Chat from WG3

Class	Prompt	Responses
WG3	Adele [Instructor]: I can run five miles. What can you do?	Helen: I can feel music vibuation.
		Adele: What kind of music vibration can you feel best?
		Xeno: bass i guess
		Frank: i could run on the road at everynight
		Dennis: I could climb up the tree
		Adele: 'could' is the past
		Xeno: i could drive over on u if u dont use light with u
		Xeno: haha
		Frank: could you fly on sky?

The excerpt shown in Table 13, above, shows a representative section of a chat

session for WG3. Online chats were used extensively for grammar practice, asking

students to practice specific grammatical structures. Most of these chat transcripts

revealed that students did not engage in highly interactive conversations with turn-taking

and expansion of prior comments, but rather simple and structured responses to the

instructor prompt. Students in WG3 generally did not report positive perceptions of the

online chat, but taking a closer look at their comments, it was apparent that those

perceptions were affected by how online chat was used in that class, particularly in that

structured grammar practice was the main use. A representative student comment

follows:

I don't think there's a lot of benefits in chat rooms.... at least not in here. I feel like we're just typing up simple responses and that's it. Left there. What's the benefit? (Student in WG3)

Students in RV3 and RV4 had more positive perceptions of online chat. The online chat transcripts showed that the chats in those classes were more likely to have higher involvement and extended discussion that covered more depth. A student in RV4 commented, "*We got caught up in the chatting... I don't know, I'm a jokey person, we get talking and I get involved in the conversation.*" These positive perceptions are reflected in the comments below.

I feel like I improved a lot by seeing how others use the English language. I was able to self-monitor and check my writing based on what I saw others doing. I don't mean that I was copying others' writing, no, but... you know? Looking at other classmates. I'm not copying, but... I'm learning something. (Student, RV4)

Yes, I like it [online chat]. I feel like it helps us improve how we write our sentences and that kind of thing.... (Student, RV3) [All other students nod their heads in agreement]

Sample chats from RV3 and RV4 are shown in Table 14 that demonstrate sections of a typical chat on the topic of their readings. These chats were longer, more extended that

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showed students continuing not only to respond to the original prompt, but also to other students' thoughts.

Table 14: Sample Chats from RV3 and RV4

RV3	Adele [Instructor]: What would YOU do if YOU were picked for the Hunger Games?	Sean: i dont know adele
		Alinea: i will be crazy and worried about my llife Sean: life*
		Alinea: but i would do for my family sake that it
		Alinea: instead my younger sibling
		Sean: maybe i will myself get some training and prepare. Adele
		Rain: I will able NOT going to the hungry game.
		Alinea: ugh? whooo with me?
		Allison: i will be scary and crying
		Sean: haa Allison
		Xeno: Adele, i will go for it because i was been living in forest for a while
		Eliza: I would not go to Hunger Game becuase It really scare me to death for sure!
		Xeno: i kinda of like it but not killing each for real
		Sean: Xeno me too
		Alinea: i will have to stuffer the harder and have to deal with it for family
		Alinea: that it
		Rain: Im not good at everything like Katniss.
		Xeno: each other*
		Sean: of course me too
		Alinea: well that why they have training for
		Sean: Rain you can do it1
		Allison: i argee with you Alinea

Number of Students. Beyond how chat was used in the class, engagement was also more likely when there were more students in the class, leading to more ongoing discussion. One of the classes, RV3, started out with ten students and ended up with only three due to student drop-out. Students in that class had less to contribute in the focus group, and felt that discussion was not always beneficial, in part due to the small number of participants.

> *Yeah, if I'm not understanding what happened, I'll ask, like, V, for example, and if she doesn't know, we can ask someone else, maybe M. With more students someone would know the answer. Or keep on adding information, with more people involved in the conversation. With just us three, I feel like I'm limited to my own thinking and find that I need to read the material again to remind me. From there I can add to the conversation. But with ten people, that would be even better. (Student, RV3)*

Conclusion

In sum, the results presented in this chapter provide both a quantitative and qualitative look at deaf college students' motivational characteristics and self-efficacy beliefs about the English learning experience, changes in those characteristics and beliefs over time, and these students' experiences with using CMC in the classroom. These results will be discussed more extensively in Chapter 5.

Chapter 5

Discussion

This chapter will tie together the qualitative and quantitative results to synthesize findings across research questions while making connections to the preexisting literature base on beliefs, attitudes, and motivation about language learning. Findings and connections to the literature will be discussed in response to the research questions. Implications for practice are then suggested, before turning to limitations to the study and suggestions for future research directions.

Motivational characteristics of deaf college students studying English

The first research question asked about the motivational characteristics of deaf college students studying English. Generally, deaf adult college students studying English revealed attitudes and motivational characteristics that were on the high end of the scale, ranging from 4.77 to 4.95 on a scale from 1 to 6. The high values of these subscales reveal that deaf students have generally positive attitudes and motivational dispositions about themselves as English language users and the experience of learning English. The means of the subscales of the L2 Motivational Self System were higher than have been found in some other populations of language learners (Ryan, 2009). High levels of motivated behaviors in particular was generally expected, as these students were adult language learners in college settings, and the literature would suggest that university students and adult language learners tend to exhibit higher motivated behaviors (Kormos

& Csizér, 2008). Another point of consideration is that deaf students experience higher difficulties in language learning, and thus increased intended effort is necessary in order to reach proficiency, as found in other populations of language learners with a disability (Csizér, Kormos, & Sarkadi, 2010).

Yet, it was not expected that all of the motivational dimensions measured would be on the high end of the scale for deaf college students studying English. Similarly high scores across the board were not found in studies with other language learning populations also assessing these dimensions. The high scores across the board led me to further examine the motivational characteristics of these students through qualitative analyses. The qualitative findings reveal that these students were highly motivated to study English and that their motivational goals were more intrinsic, more often aligned with deeper internal desires to master English than for external purposes such as for work or transferring to college level courses. These students talked about being comfortable with using English in their daily lives and indicated that English was a significant part of their lives, despite their experience as less proficient English users.

Differences and relationships among motivational dimensions. The data did not reveal any clear differences in mean values among the subscales, indicating that for these students, there was no motivational dimension that was clearly stronger than another, whether it was language learning attitudes, views of the self as a language user, or motivated behaviors. This is of interest because cross-cultural studies of language learners that capture learning experiences in a wide range of settings including high school, university, and adult learning frequently reveal the ideal self to be the most salient

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dimension of language learning attitudes and motivational dispositions (Csizér & Lukacs, 2010; Kormos & Csizér, 2008). For these deaf students, all dimensions of language learning attitudes and motivation were generally high, and no one dimension emerged as more salient.

Taking a closer look at these scales, the standard deviations reveal the largest variations to be found in language learning attitudes and the ought-to self (1.05 and 1.04, respectively), while the smaller variations were found in the ideal self and motivated behaviors (.85 and .91, respectively). These standard deviations indicate that deaf students were more likely to reveal variable attitudes about the language learning environment, and that their ought-to self was more variable than their ideal self. The variations in the ought-to self could be explained partly because of the varying age ranges in this sample, which is expected for community college students. Some of these students were recent high school graduates whereas others were enrolled in college late in life. The ought-to self appears to be more salient for younger students, as parental and family influences play a significant role in the development and impact of the ought-to self in particular (Taguchi et al., 2009).

For these students, language learning attitudes and beliefs about the self as language users were all highly interrelated, with large correlations from .52 to .65. Such correlations indicate that all three dimensions tap into a similar domain, yet are distinctly separate dimensions, thus lending support for the L2 Motivational Self System theoretical framework. The ideal and ought-to selves shared 27% of their variance, whereas language learning attitudes shared 42% of the variance with the ideal self, and 35%

variance with the ought-to self. The relationship between self-guides and language learning attitudes is expected, and corroborated in the literature about the L2 Motivational Self System (Taguchi et al., 2009; Papi, 2010). However, the large relationship ($r = .52$) between the ought-to and ideal selves found for deaf college students was not found among other language learners, who exhibited small to medium relationships between those self-guides, if relationships were in fact existent (Taguchi et al., 2009; Papi, 2010). Deaf students may reveal less of a distinction between self-internalized desires and external expectations to become proficient English language users, particularly because the majority of these students grew up in the United States and thus have always experienced expectations of becoming proficient English language users. The pressure of "ought-to" becoming proficient in English may be more internalized for deaf students than in other communities of language learners. When these students mentioned a desire to communicate clearly with fluent English users, a distinction was not able to be clearly defined between obligatory, external purposes of communication to meet the expectations of others (e.g., family) or more intrinsic, personal purposes of communicating in their everyday lives (e.g., in chat rooms).

It has also been suggested that more collectivistic cultures have less of a separation between individual desires and expectations of others, that those individuals internalize social standards and expectations of others, as found in studies of the L2 Motivational Self System for students in Iran (Papi, 2010). Crosscultural studies of the L2 Motivational System in Japan, China, and Iran revealed small relationships between the Ideal and Ought-to Selves, ($r = .14, .07, .26$, respectively) but the largest relationship

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was half the size of the relationship in this study (Taguchi et al., 2009). It is possible that the unique cultural dynamics of the deaf community, perhaps more in line with collectivistic tendencies, is influencing the increased overlap between the Ideal and Ought-to Selves for these deaf students. The potential collectivism of deaf culture has been proposed by multiple researchers (e.g., Lane, 2005), but not empirically verified as a whole, although a sampling of collectivistic tendencies have been identified (for a review, see McDermid, 2009).

Modeling the interrelationships of self-images, attitudes, and motivation. To explore the interrelationships of the motivational self system and what motivational and attitudinal dimensions would best predict deaf college students' motivated learning behaviors, a descriptive path model was assessed. The first level of this model included the three dimensions of the motivational self system as predictors for intended effort, and revealed that the L2 Motivational Self System as a whole predicted 57% of the variance in motivated behaviors. A closer look at this model revealed that language learning attitudes had a medium effect on motivated behaviors ($\beta = .425$) when beliefs about the self were held constant. Beliefs about the self did not have a significant direct effect on motivated behaviors. The statistical analyses show that attitudes about the language learning experience play a significant role in predicting motivated behaviors for deaf college students who are also English language learners.

The participants being assessed in this study were all adults, who have been found to have more stable self-beliefs, especially those who are postsecondary students (Kormos, Kiddle, & Csizer, 2011). Thus, those self-beliefs can be viewed as antecedents

that then predict language learning attitudes and motivated behaviors, which align with previous research findings (Papi, 2010). Further analyses revealed that self-beliefs explained 50% of the variation in attitudes about language learning, and that the ideal self played the largest role, with a medium effect size ($\beta = .470$), whereas the ought-to self had a smaller effect size ($\beta = .341$). Looking at the paths in this model, shown on page 65, gives us a broader understanding of how self-beliefs and attitudes interact and influence motivated behaviors. Self-beliefs may not have a direct effect on motivated behaviors, but do have an indirect impact on motivated behaviors, as mediated through learning attitudes. The total effects of self-beliefs on motivated behavior were more significant than could be seen through only assessing direct effects, with total beta values of .445 and .352 for the Ideal and Ought-to Selves, respectively.

Multiple previous research studies have found the ideal L2 self to be the strongest predictor of language learning motivation, particularly for adult language learners (Csizér & Kormos, 2009; Csizér & Lukacs, 2010; Kormos & Csizér, 2008; Kormos et al., 2011). The language learning experience supposedly plays a larger role for secondary school students than for older students, because adolescents' self-images are in fluctuation and the immediate learning experience is more salient for these students' motivational dispositions and learning goals (Kormos & Csizér, 2008; Csizér & Kormos, 2009; Papi, 2010). Yet this was not the case for the students in this study, for whom their attitudes about the language learning experience had the strongest direct effect on motivated behaviors. This leads to a consideration that second language learning for deaf individuals may have unique motivational dimensions that have not been addressed in the

second language learning research that is applicable to hearing individuals learning a new foreign language. For these deaf students, it was whether the learning experience was seen as beneficial, accessible, and enjoyable that had the greatest direct impact on their intended efforts.

The important role of the learning experience. Findings that reveal the importance of attitudes about the learning experience are related to theoretical perspectives and empirical data on the motivational role of possible selves, that the desired future selves trigger motivational processes when these selves are seen as *available* and *accessible* (Norman & Aron, 2003; Ushioda & Dörnyei, 2009). Indeed, in settings where deaf students in other non-English speaking countries learn English as a foreign language, it has also been found that the language learning environment played an important motivating role, particularly whether or not these environments were accessible through the use of sign language (Bajko & Kontra, 2008; Kontra & Csizér, 2013). Students with dyslexia also report similar processes, revealing that the characteristics of the learning experience have a strong influence on attitudes, and, through the mediation of those attitudes, on students' motivated behavior (Csizér, Kormos, & Sarkadi, 2010). The learning environment is a crucial consideration when the dynamics of being deaf are understood to influence the availability and accessibility of desired future states as fluent English language users.

Indeed, the qualitative findings help strengthen a perspective of how attitudes about the learning experience come into play for deaf students. Students frequently cited their previous negative educational experiences as motivating factors in their choice to

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return to college and study English as adults. In most cases, young students are placed in educational settings based on the preferences, attitudes, and beliefs of their parents or the adults in their lives. Placements in educational settings may not be the best fit for these students, and issues of full, direct accessibility and deep involvement with learning are often neglected when considering educational options for deaf children (Stern, 2012). The students in this study described their previous educational experiences in a negative light in many cases, explaining that they were not *challenged*, that they felt like they were *missing* something, and that they did not experience *deep learning*. Several students explained that speech learning was prioritized in their learning experiences, taking away from time that could, and should, have been spent studying and mastering English. Students with dyslexia also mentioned similar factors influencing their language learning attitudes that included teachers' attitudes toward their disability, their teaching methods, and how their specific needs were accommodated (Csizér et al., 2010). Students described their negative previous experiences in contrast with the current experience that was totally accessible and designed for the deaf student, with instructors who were fluent in ASL and used ASL as the primary mode of communication. Students explained that the current classes allowed for more full communication, richer access to information, visual learning support, and thus enabled deeper understanding. These positive attitudes about the current learning experience could also go a long way in explaining the generally high motivational and attitudinal dispositions of the deaf students in this sample.

Ultimately, the role of the learning experience emerged as one of the most salient dimensions of this study. Studies that examine motivational characteristics of other students with disabilities studying languages also reveal that the learning experience plays a significant role, which is important when considering the potential malleability of the language learning setting and how the setting can become one which fully accommodates students' diverse learning characteristics, as opposed to one that works against students. A positive psychology perspective of deaf students brings a spotlight on how instructional settings can increase "recognition of and building of strengths in situations of adversity, rather than an emphasis on the pathological and dysfunctional requiring remediation (Young, Rogers, Green, & Daniels, 2011, p. 18)." Indeed, it is not deafness in and of itself that is a factor contributing to lower outcomes, but proximal factors associated with deafness, including the accessibility of the instructional setting, that can be seen to directly contribute to these outcomes (Young et al., 2011).

The role of the ought-to self. The ought-to self was more salient when considering motivational characteristics for deaf college students who were studying English than in other similar populations of language learners. In analyses of age-related differences that examined motivational dimensions and self-guides of secondary students, university students, and adult language learners, the ought-to self was not found to be a significant dimension in any of these groups (Kormos & Csizér, 2008). The ought-to self has not always emerged as a highly reliable factor or consistently important dimension within the L2 Motivational Self System, and has been said to be a weak link across studies (e.g., Csizér & Kormos, 2009; Kormos & Csizér, 2008). Indeed, in this study, the

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reliability analyses revealed that the ought-to self measure had the lowest reliability, with a Cronbach's alpha of .66. However, the analyses as a whole revealed that the ought-to self played a meaningful role in this population, particularly when attending to the significant relationships between the ought-to self and the other dimensions of the L2 Motivational System, including motivated behaviors, and the qualitative findings.

The ought-to self is *prevention* focused, and manifests as a desire to *avoid* negative outcomes. These negative outcomes of not reaching proficiency in the target language differ according to context in which language interactions occur, and may be unique for the deaf individual in the United States. In other countries such as Iran or China, where studies of the L2 Motivational Self System have been conducted, the negative outcomes most often involved employment opportunities lost, reduction in earnings, or barriers to achieving higher education. By contrast, in the context of the United States, deaf individuals' academic or employment opportunities are, in most cases, not significantly influenced by their school-based English proficiency (Garberoglio, Cawthon, & Bond, 2013). The students in this study, despite lower English proficiency skills, seemed comfortable navigating the world using English across a variety of settings ranging from family, employment, school, in the community, or with their peers. The most salient negative outcome mentioned by these students was that of *embarrassment*. This was one of the most prominent and consistent themes that emerged through analysis of qualitative data in this study, and speaks to the type of negative outcomes that these students wanted to avoid by studying English. This negative outcome appears to be more internalized than negative outcomes that involve employment,

earnings, or academic achievement, as indicated by the closer overlap between the ideal and ought-to selves in deaf students.

Summary of motivational characteristics. To sum up the discussion of motivational characteristics of deaf college students, the findings as a whole reveal that these deaf students generally reported high motivational and attitudinal dispositions about English. They exhibited less of a distinction between expectations of the self and expectations held by others of becoming proficient English users, and seemed to be identifying with English to a greater extent than in other populations of language learners. Yet, those strong future images of the self as an English language user influenced motivated behaviors only when the learning environment was accessible and enjoyable. This is particularly relevant for the deaf student, for whom the learning experience is often not accessible. The context of the learning experience and attitudes about that experience were an important consideration in deaf students' motivational characteristics.

Self-efficacy beliefs of deaf college students studying English

The second research question explored what deaf college students studying English reveal about their self-efficacy beliefs in English. Generally, deaf college students studying English reported high self-efficacy beliefs about their English skills and capacities. A measure that assessed their self-efficacy beliefs specifically about writing English revealed mean scores on the high end of a 5-point scale (4.03), with a standard deviation of .91. The quantitative results show that these students reported high self-efficacy beliefs, which may not have been expected, as these students were taking

developmental English courses and thus were not sufficiently proficient in English to enroll in college level courses. Despite lower levels of school-based English proficiency, these deaf students are engaging with English in their daily lives, and that daily engagement could be what is influencing their positive self-efficacy beliefs. It has been suggested that increased frequency of exposure to the target language makes a positive contribution to self-efficacy beliefs (Hsieh & Schallert, 2008). However, qualitative results suggest a more nuanced perspective of students' self-efficacy beliefs about English.

Before discussing the qualitative results, it is necessary to address the possibility of students overestimating their abilities. Other groups of students with disabilities who have lower English skills than their peers reveal that despite their lower skills, they reveal positive self-efficacy beliefs (Klassen, 2002a, 2002b). Tendencies to overestimate one's competence can be attributed to metacognitive weaknesses such as the reduced likelihood of appropriately assessing skills, capabilities, and resources available (Bandura, 1997; Pajares, 1996). It has been proposed that deaf individuals' lower English capabilities are partly attributable to metacognitive challenges including a lower likelihood for accessible, ongoing, formative feedback from adults in their environment and low expectations of self-regulation of skills (e.g., Borgna, Convertino, Marschark, Morrison, & Rizzolo, 2011). Adults and professionals who over-inflate youths' skills and capacities can also influence those youths' likelihood of misjudging their abilities (Schunk, 1991; Bandura, 1995). This has been said to be a ongoing problem in deaf education, that teachers will be less likely to give deaf students true constructive feedback and instead

shower them with praise and dole out good grades without expecting them to put in hard work (e.g., Smith, 2013).

Beyond quantitative findings demonstrating high self-efficacy beliefs, qualitative reports also indicated that these college students were generally comfortable and confident in their use of English in everyday life. Yet, they did recognize their weaknesses in English, which is to be expected in this population of adult college students, some of whom were returning to college later in life. Adults are expected to have more accurate perceptions of their skills and capacities than are younger students, considering the increasing opportunities to exercise those skills that occur over extended periods of time (Schunk, 1991; Bandura, 1995). These adults discussed a variety of interactions with fluent language users that triggered perceptions of their skills and capacities when using English in a variety of contexts from online chat rooms, school, work settings, family interactions, or in the community. These interactions influenced self-efficacy beliefs in multiple ways. Some influences were implicit, through enabling vicarious experiences or affecting physiological states and some more explicit, serving as mastery experiences and opportunities for practicing English in an authentic and interactive manner. Such influences have been said to be some of the sources of self-efficacy beliefs (Schunk, 1991; Bandura, 1995).

Self-efficacy beliefs in context. These adults revealed self-efficacy beliefs about their English use that took into account contextual considerations, particularly the different expectations of English use between informal and formal contexts. Students were more confident about their English skills as used in informal, everyday settings than

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in formal, structured uses of English. The students described how English was part of their daily lives in multiple ways and across a wide range of settings, but most frequently described how technology enabled direct access to English through instant messaging, texting, and emailing. Indeed, deaf people in the United States are increasingly using technology to communicate, build relationships, and access information, regardless of lower English literacy skills (Akamatsu et al., 2006; Lissi & Schallert, 1999; Newman et al., 2011). However, when these students described their English use in formal settings or when conscious of teacher expectations, their beliefs in their capacities were greatly diminished. They described English as more *challenging*, as *taking more time*, and said that they were *not confident* in their English skills, particularly their grammar skills. Deaf students' perceptions of their capacities differed significantly between informal and formal English skills, as has been indicated in previous studies (Herzig, 2009). Even though deaf students were engaging with English on a daily basis, they did not perceive themselves as holding expertise in that domain, and the same was found when asking deaf students about their perceptions of themselves as readers (Herzig, 2009).

It is important here to acknowledge the historical context in which these students' beliefs and attitudes about English develop. Deaf individuals' English literacy skills, as measured by standardized tests in adolescence, do have a relationship, albeit a small one, with the self-beliefs held as they transition to adulthood (Garberoglio et al., 2013). It is theoretically possible that the experience of being assessed as possessing low literacy skills through school-based assessments negatively influences future self-beliefs. Indeed, it has been suggested that individuals who have had positive past experiences in a

specific domain tend to develop higher self-efficacy than those who have had negative experiences in that domain (Schunk, 1991), and that a persistent sense of failure and lack of success leads to negative attitudes about language learning (Csizér, Kormos, & Sarkadi, 2010). Deaf students appear to have drastically different perspectives of their capacities in English in these two different domains: informal and formal. When deaf individuals use English informally as they go about their daily lives, often mediated via technology (i.e., text, email, and instant messaging), they do not receive negative feedback on their English use as often as happens in more formal settings, and here they show greater confidence in their English use in daily life. Despite a long history of low achievement scores in English, deaf students may actually have higher functional literacy capacities than the literature has us expect (Moores, 2001). These standardized achievement scores do not capture the full picture of how deaf individuals utilize literacy practices to navigate the world (Garberoglio et al., 2013), but may still be influencing deaf individuals' self-beliefs about their capacities as English users.

Relationships between self-efficacy and self-images. The self-efficacy beliefs about English held by these students were related to their attitudinal and motivational characteristics, in general. The largest relationship was found between the ideal self and self-efficacy, which revealed a strong relationship ($r = .61$). An understanding of the theoretical links between self-efficacy and future self-guides helps explain this relationship, as both of these dimensions encompass future-oriented beliefs about one's capacities. This finding helps further strengthen the research base supporting Dörnyei's L2 Motivational Self System (2005, 2009a), particularly its ideal self dimension. The

ought-to self showed no relationship with self-efficacy, which also further lends credence to the theoretical distinctions between these two dimensions of the ideal and ought-to selves. The ought-to self is grounded in a perspective of what others expect whereas the ideal self originates from one's beliefs about their own capacities and the potential of achieving future states (Markus & Nurius, 1986), which is theoretically very closely related to self-efficacy beliefs. To reiterate, the ought-to self is expected to play a smaller role in this population of adult language learners, as family and parental influences are less relevant (Taguchi et al., 2009).

The relationship between self-efficacy and learning attitudes. Self-efficacy was also moderately linked to attitudes about the learning experience ($r = .38$). Students who reported higher self-efficacy also had more positive attitudes about the learning experience. The directionality of this relationship necessitates further exploration, yet an understanding of the sources of self-efficacy helps explain this relationship. Self-efficacy beliefs about foreign language learning have been found to be malleable over time, and influenced by context (Chularut & deBacker, 2004; Zheng, Young, Brewer, & Wagner, 2009). Self-efficacy theory posits that there are four sources of self-efficacy, all of which the learning experience can enable or detract from: mastery experiences, vicarious experiences, social persuasion, and physiological and emotional states (Bandura, 1995). In studies of other foreign language learners, students with stronger self-efficacy reported more positive attitudes, were more interested in learning (Hsieh, 2008), and reported lower anxiety (Meece, Wigfield & Eccles, 1990; Pintrich & DeGroot, 1990). Self-efficacy appears to have a relationship with attitudes about the learning experience, but

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positive attitudes and low anxiety about the learning experience were better predictors of future achievement than self-efficacy (Hsieh, 2008). This ties in with findings discussed previously that revealed attitudes about the learning experience to be the most important component within the L2 Motivational Self System that enabled deaf students' ability to utilize their beliefs about their capacities, or their future selves. Even when deaf students had high self-images of themselves as English language users, these self-images impacted motivated behaviors only indirectly, via attitudes about the learning experience. The link between students' self-efficacy and attitudes about the learning experience needs further exploration, but tentatively continues to support the important role of the learning experience for deaf language learners.

The relationship between self-efficacy and motivated behaviors. These students' self-efficacy also showed a small positive relationship with motivated behaviors ($r = .28$). Students with stronger self-efficacy beliefs about their English writing abilities reported increased intended effort for learning English. The directionality of this relationship was unexplored in this study. Yet, the relationship between self-efficacy beliefs and motivated behavior helps spotlight the potential processes involved in the link between self-efficacy beliefs and future achievement. It has been found that self-efficacy beliefs are robust predictors of future achievement in language learning (Pajares & Johnson, 1994; Prat-Sala & Redford, 2012; Shell, Murphy, & Bruning, 1989; Woodrow, 2011). Students with higher self-efficacy beliefs have been found to take on challenging tasks (Bandura & Schunk, 1981), show increased persistence (Bandura & Schunk, 1981; Locke & Latham, 1990; Schunk, 1982), and exert greater effort (Salomon, 1984). It is

those processes that have been said to contribute to the higher achievement demonstrated by individuals with stronger self-efficacy, as opposed to a direct result of self-efficacy per se. The deaf individuals with higher self-efficacy beliefs in this study also reported increased intended effort for learning English, and this could very likely be a potential aspect of multiple positive engendering processes that could contribute to future achievement in language learning.

Summary of self-efficacy beliefs. In sum, these findings demonstrate that deaf students generally report high self-efficacy beliefs about their English skills and capabilities. However, these self-efficacy beliefs are context-sensitive. Deaf adults feel more confident in their use of English in daily life, particularly through the use of multiple technologies, but are much less confident in their English use in a more structured, formal manner. For these deaf students, self-efficacy beliefs about their English language skills and abilities in writing were strongly positively related to beliefs about their future ideal selves as English language users, lending credence to theoretical underpinnings of these measures of self-guided beliefs about capacities and skills. Students with higher self-efficacy beliefs about writing also reported more positive language learning attitudes, thereby making a connection to results showing that self-guides were related to attitudes about the language learning experience, and further supporting the important role of the learning experience.

Changes in motivational characteristics and self-efficacy across time

The third research question asked the following: Do motivational characteristics and self-efficacy change over the course of the semester, and if so, can these changes be explained by CMC? Paired samples t tests failed to reveal statistically significant differences in scores between pre- and post-tests, indicating that there were not significant changes in motivational characteristics and self-efficacy over a period of one semester for college students, which is supported by the literature on motivation in this specific population: adult language learners. There are several factors that may contribute to the lack of significance in these results. The small number of paired observations, instructor drop-out, participant attrition, the short time frame of the study, the age group of the participants being less malleable, and the lack of strength of the intervention due to this study taking place in an ecological framework and, accordingly, up to what the instructor was willing to accommodate within preexisting curricular demands.

First, it is important to acknowledge the overall high ratings on the motivational and self-efficacy measures at the beginning of the semester, which left less room for noticeable improvements. If positive biases, or overestimation of one's capabilities, were present, overall positive perceptions of self-efficacy, visualizations of the self, attitudes, and intended effort may be less sensitive to change in the environment over time. In addition, the small number of paired samples contributed to a large reduction in the probability of finding significant results. A power analysis indicated that there was only a 13% chance of detecting a small effect size that was significant at the 5% level with a sample size this small. Participant attrition and instructor dropout played a large role in

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the reduced size of this sample. A visual examination of the difference in scores from Time 1 to Time 2 indicates that all subscales except for attitudes showed a slight increase over time. Language attitudes decreased slightly over time. With a larger sample size, it is possible these differences would be in fact, significant, and if the change over time could be explained by CMC or other variables of interest. In fact, the literature does suggest that self-guides may be more stable in the adult language learner (Kormos, Kiddle, & Csizer, 2011) whereas language attitudes are more malleable, even over short periods of time (Cai, 2011; Csizér et al., 2010, Ushida, 2005).

Changes over time of self-images. Dörnyei proposed self-images to be "fairly robust" and "built up over a period of time" (Dörnyei & Ushioda, 2009, pp. 351-352), and this was reflected in my data. Self-perceptions of English skill were described as gradual and continual processes, requiring "*continued work and building upon layer and layer of skills*." Changing beliefs of the self as competent and proficient English users were described as states that would be reached after "*years of study*." Interestingly, students often discussed beliefs about their current capacities as English language users (self-efficacy) concurrently with beliefs about their future capacities as English language users (ideal self), which supports the link that was found between self-efficacy beliefs and the ideal self. The average scores for the ought-to and ideal selves increased very slightly, by .15 and .12, respectively. If this pattern continued over longer periods of time, it could tie in with the slow, but steady, improvement in skill that was described by deaf college students. Yet, increases in the ought-to self may not be expected in this population of adult learners, as expectations from family would not be expected to

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increase. However, it is theoretically possible that the deaf individual could feel greater pressure from friends and community members as they increasingly engage with an English-using community in postsecondary settings such as the workplace, and the outcomes of these interactions increase in perceived value (i.e., earnings, job advancement, degree completion). It has been suggested that the current literacy landscape of the 21st century is significantly more challenging for the deaf individual (Power & Leigh, 2000), and as deaf students transition beyond secondary settings to postsecondary settings, they could encounter increased expectations for English literacy competence than were present in their secondary settings.

Changes over time in attitudes about the learning experience. Attitudes about the learning experience revealed slight decreases (.28) that were not significantly different than what could occur by chance, but are still valid discussion points, partly because of what the qualitative results suggest. The decrease in attitudes could reflect a more realistic perspective of the learning experience that emerges at the end of a semester. Generally, students tend to report more positive attitudes and motivations at the beginning of an academic semester than at the end of the semester, and maintaining deep involvement with learning throughout the semester is a challenging proposition for many students, particularly those enrolled in community colleges who balance work, life, and family responsibilities (Schallert, Reed, & Turner, 2004).

Whether or not attitudes about the learning experience showed a tendency to decline over the course of a semester, specifically, it was clear that attitudes about the learning experience did change over time, albeit through extended periods of time. When

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students described their changing relationship with English, attitudes about the learning experience frequently emerged as an important dimension. Students' attitudes about the learning environment were highly malleable and context-sensitive. They often reported negative attitudes about previous educational experiences, particularly when those experiences were not seen as accessible or beneficial. These negative attitudes were described in contrast to positive attitudes about the current educational experience, which was seen as accessible and beneficial. Accessibility and perceived benefit were influenced by several contextual factors including the availability of direct communication, teacher expectations, time on task, and visual supports. Changes in attitude emerged as a more time-constrained phenomenon that was immediately influenced by changes in the context, as opposed to an ongoing, continual change that evolved over time.

Summary of changes over time in motivation, attitudes, and beliefs. In sum, changes in attitudes about the learning experience were context-sensitive and highly dependent on the accessibility and the perceived benefit of the environment, while changes in perceived ability (i.e., both current and future abilities) emerged as ongoing, continual processes that occurred across contexts and environments. As Csizér et al., (2010) suggested, "motivation and attitude should be reconceptualized not as stable characteristics of language learners but as dynamic variables that are in constant interaction with student internal factors and the learning environment (p. 483)." Changes in intended effort, or motivated behaviors, did not surface in this study.

Student experiences with CMC in English language learning environments

The final research question asked: What is the nature of students' experience in terms of motivational, attitudinal, and identity issues with English when engaged in a class that makes use of computer mediated communication? The most prominent theme in analyses of student experiences with CMC was that online chat was experienced as a way of *"seeing English."* That "seeing" appeared to indicate a more active engagement with English as a living, dynamic mode of communication as opposed to the one-dimensional nature of writing and reading English for these deaf students. As the literature suggests, synchronous CMC appears to be an avenue through which deaf students can engage with English in a way that shares characteristics with face-to-face conversation (Arnold, 2007; Payne & Whitney, 2002).

Face-to-face conversation using languages in which the individual is not fluent often engenders feelings of anxiety or insecurity, and deaf students reported feelings of embarrassment and insecurity when talking about using English specifically in the online context. However, these negative emotions were most often mentioned when students discussed their previous experiences, or potential future experiences, in online chat with fluent English users. In chat settings with fluent users, deaf students anticipated being more insecure than they were in settings with peers who have similar levels of language proficiency. Yet, stronger negative emotions are not always undesirable. Negative emotions such as insecurity and embarrassment can serve as motivating processes, with the goal of avoiding these negative states represented by the ought-to self dimension that Dörnyei (2005, 2009a) proposed in his L2 Motivational System framework.

Deaf students discussed how CMC use created opportunities for them to self-correct and engage in ongoing revisions of their writing. Kitade (2000) suggested that the text-based, no turn-taking nature of CMC creates a context that facilitates ongoing self-corrections. However, deaf students talked about the unique experience of noticing and revising language while using CMC, appearing to indicate by omission that those processes were less likely to happen while reading or writing in English using static text. This remains to be explored in further depth, yet a valid proposal would be that the interactive nature of CMC is what facilitates greater noticing and revising of language than simply the text-based, no turn-taking nature of CMC, as the interactionist perspective may suggest (Murray, 2000; Smith, 2003). Many deaf students rely on text to access English and are not able to access English via auditory-verbal channels. Thus, the dynamic nature of conversational language use was enabled for them through engaging with English via online chat as opposed to through reading and writing static text.

Increased active engagement appeared to be enabled in part because of the immediate nature of synchronous chat. When students described their experiences not only in chat rooms, but also when texting, these experiences clearly had more immediate value for them and thus engendered more active noticing. More active engagement was triggered when the chat was more interactive and revealed more give-and-take, as would occur in a face-to-face conversational dialogue. Students reported negative perceptions of online chat when that interactivity was not present, whether or not it was influenced by the type of task or by the number of students in the chat.

The type of task has been found to influence student attitudes about online chat (Pellettieri, 1999; Pica, Holliday, Lewis, & Morgenthaler, 1989; Tolmie & Boyle, 2000), and that was reflected in this study, in which the type of task strongly influenced student perceptions of online chat. Students in classes that used online chat primarily for grammar practice generally reported less positive perceptions of online chat, whereas those in classes that engaged in more interactive discussion reported positive perceptions. This is related to several possible factors. First, the type of prompts found in reading and vocabulary courses expected students to engage in deeper thinking, to link personal experience with reading content, and to disagree with one another. Those higher-level prompts have been found to facilitate deeper reflective thinking (Chen, Wei, Wu, Uden, 2009). Yet, I believe a theoretical understanding of interaction as a key component that facilitates language learning (Long, 1996; Swain, 2006) allows for a recognition that it may not be the type of task specifically that contributes to positive attitudes, but whether or not authentic interactional exchanges are occurring in that task.

The type of interaction that happens in computer-mediated environments does influence learner satisfaction, achievement, and participation (Long et al., 2011; Jung, Choi, Lim, & Leem, 2002). Interactions that involve more collaborative discussions among peers, or between the teacher and the students, lead to greater satisfaction and participation among students (Jung et al., 2002). Indeed, the students in this study that were engaged in more collaborative discussions in chat rooms reported greater satisfaction with online chat as a tool in English classes, and felt that it should be offered in the future. Opportunities to engage in conversational interaction may be of even more

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critical importance for deaf students, as it has been found that deaf students show achievement gains and positive perceptions of communication ease when enrolled in classes with online components that include high levels of interaction, compared to low levels of interaction (Long et al, 2011). A deaf student in this study clearly stated the key issue as being, "*we're just typing up simple responses and that's it. Left there. What's the benefit?*" Interaction was a key factor influencing student perception of the efficacy of online chats.

Interactivity was also enabled when the number of students in the class allowed for increased perspectives and multiple contributions to discussion. When class size was small, students felt that online chats were less beneficial, as has been found in previous studies (Vrasidas & McIssac, 1999). Students agreed that a class size of three students was not sufficient to engage in beneficial discussions because "*with more students, someone would know the answer... or keep adding on information. With just us three, I feel like I'm limited to my own thinking.*" Students who discussed positive perceptions of online chats emphasized that it was beneficial to see how their peers used language, and those chats most often involved at least five students. A review of the literature suggests, however, that small group sizes *are* beneficial (Tolmie & Boyle, 2000). Yet, a group of three or four students appears not to be conductive to interactive discussion and engagement, and class sizes of five to nine were more likely to engender good discussions.

In sum, analysis of participant data helps provide an understanding of deaf students' experiences in CMC settings, including an exploration of what factors enable

greater interactive opportunities. It was clear that interaction was an important factor influencing student perceptions of the efficacy of CMC in the classroom, and also seen as a key factor in improving English. Students recognized that the experience of being deaf affected their language learning and that increased engagement with language was necessary... "*We* [compared to hearing people] *have to read a word repeatedly to acquire the word.*" Chatting online was often mentioned by these deaf students as a way for them to "*see English,*" and their descriptions suggested that *seeing* indicated a more active engagement with English as a living, dynamic mode of communication as opposed to a one-dimensional nature of writing and reading English, particularly as a second language. Synchronous CMC appears to be an avenue through which deaf students can use English in an interactive manner when ideal conditions are met (i.e., type of task, class size).

Conclusion

This section will tie together all the differing aspects of this study and provide an overview of the motivational processes and experiences of deaf college students who are studying English and the potential role of CMC. Overall findings indicate that deaf students' motivational attitudes, self-images, and self-efficacy beliefs are positive, which offers an optimistic perspective that their beliefs about language learning are not an area of concern. Yet, a closer look demonstrates that deaf students' beliefs about language learning are significantly influenced by the context in which language use occurs, supporting a person-in-context view of motivation (Ushioda, 2009). Possible selves as English language users are activated when those selves are available and accessible

(Norman & Aron, 2003), mediated through attitudes about the language learning experience (Papi, 2010). These processes were clearly demonstrated in this study, in which the deaf student's self-beliefs, motivational characteristics, and possible selves were aligned with the setting in which language was used. The accessibility, level of involvement, and perceived benefit of the environment was seen to influence attitudes about language learning, which then influenced motivated behaviors. Computer-mediated communication emerged as an affordance that would allow for increased engagement with English in an interactive manner when ideal conditions were met. Thus, CMC appears to allow for a language learning experience that is available and accessible for deaf learners, and can serve as opportunities to prime possible selves as English language users (Norman & Aron, 2003).

Implications for Practice

This study contributes to the knowledge base on language learning processes for deaf students. The key implication of this study is that context and the language learning experience significantly influence deaf students' motivation and attitudes about English. The language learning setting is a crucial consideration when examining factors that can facilitate successful language learning for deaf students. This study also spotlights the use of CMC as a technological affordance that enables meaningful, interactive learning opportunities using English as the language modality. Deaf students, a low-incidence population, are often left out of educational research, with a very minimal evidence base for researchers and practitioners to reference when developing educational resources

(Luckner, 2006). It thus becomes more important to examine how CMC, as a low-cost, easily implemented instructional tool, can be utilized in the classroom to provide greater accessibility and equity in educational environments for those deaf students.

Implications for practice for language teachers working with deaf students are suggested here. Language learning attitudes were the strongest direct predictor of motivated behaviors, and these attitudes would seem eminently malleable to change, providing an optimistic perspective of language learning for deaf students. When conditions are conductive to language learning (i.e., accessible, available, and enjoyable), students have greater potentials of taking constructive steps towards successful language learning through intended efforts. The students in this study had positive perceptions of language learning settings that were accessible through direct communication, whether it took place via sign language by the instructor or online chat. Many students mentioned negative previous learning experiences when those experiences were not *challenging*, not seen as *beneficial*, or that they were *missing* something. Language teachers could take that into consideration and ensure that students are challenged, that the learning is seen as beneficial, and that they are not missing content.

Computer-mediated communication allows for direct communication and interactive exchanges using English as the modality, thus further supporting the proposition that CMC can serve as a setting that is accessible and conducive to language learning. Students described their experiences with CMC as "seeing English," appearing to indicate that CMC settings allowed for a higher level of engagement with English as a living, active, and dynamic language. However, there were factors that contributed to the

perceived efficacy and perceptions of online chat. Students had more positive perceptions of online chat when they were engaged and involved in discussions, and that involvement occurred when there were higher levels of interaction. Interaction was enabled when there were sufficient numbers of participants (i.e., five to nine), high-level prompts were used, or the type of task encouraged more deep thinking and interactive dialogue.

Limitations and Future Directions

There are several limitations to this study, some of which were discussed briefly in Chapter 3 and earlier in this chapter. The first limitation is the small sample size, which is not an unusual situation in deaf education research (Luckner, 2006). It is a challenge to garner a sufficiently large sample size to allow for generalizations of findings to the larger population when studying deaf individuals, a highly heterogeneous population that is often distributed unequally in settings across the United States. The sample size for the paired test of effect had insufficient power to discern significant statistical change in the variables of interest through time ($N = 19$), and despite the higher number of total participants ($N = 54$), insufficient power for model testing. Thus, the findings should be considered as descriptive, and not necessary indicative of population characteristics. Yet, the qualitative analyses help strengthen the results beyond a reliance solely on the quantitative findings, engendering more confidence in what was reported.

The second limitation is the characteristics of the deaf students in this sample. These deaf students all communicated primarily in sign language, and thus may be revealing motivational characteristics and preferences specific to this group. Student data

demonstrated that the language learning experience played a significant role in their attitudes about language learning, and this dynamic may be more relevant to those deaf students who use sign language in particular. Yet, a number of the students interviewed explained that they attended oral programs in their youth, suggesting that, at very least, at one point these students were not relying on sign language in the learning environment. Despite the differing language learning backgrounds of these students, they overwhelmingly reported positive perceptions of being able to access direct communication with their instructors in their current language learning environment.

The third limitation is that of self-reporting. It is very possible that deaf students are revealing a positive illusory bias, in that they were reporting overly optimistic attitudes, beliefs, and motivational characteristics than what truly exist. It is yet unknown if deaf individuals may be more likely to reveal positive biases in self-reports due to language barriers which lead to lesser opportunities for ongoing, immediately accessible feedback about their capacities and skills. Previous studies have also discussed this as a concern when measuring deaf students' attitudes about English, in that the students may be reporting socially expected attitudes and beliefs (Parault & Williams, 2010). However, Parault and Williams proposed that higher levels of motivation is needed for the deaf individual to engage with English than would be needed for individuals with higher levels of English proficiency. Yet, it is acknowledged that the measures in this study assess student *perceptions* of their skills, capacities, motivations, and self-images, and thus it remains to be explored as to how such perceptions are related to their *actual* skills and capacities.

Future studies should aim to increase the sample size, and in particular, the heterogeneity of deaf learners within that sample. Ideally, capturing data from deaf language learners across a variety of language learning settings and modalities would allow for the increased generalizability of findings about language learning beliefs, attitudes, motivation, and experiences. Yet, this study makes a significant contribution to the literature base on deaf students' language learning processes. Future studies would benefit from explicitly assessing potential links between those learning processes and achievement outcomes.

Appendices

Appendix A.

Writing Efficacy Scale (Yavuz-Erkan, 2004)

Read each statement below and then use the following scale to indicate various degrees of effectiveness. Of course, there are no right or wrong answers to such questions, so do not spend too much time on any one statement, but select the answer that best applies to you. Thank you for your cooperation.

1= I do it very well   2= I do it well   3= I do not do it well   4= I do not do it well at all

1 I can write interesting and appropriate response to a given topic
2 I can easily cover all the information that should be dealt within a given topic.
3 I can use appropriate style to the task.
4 I can easily match style with topic
5 I can generate ideas to write about easily.
6 I can think of ideas rapidly when given a topic to write about.
7 I can write on an assigned topic without difficulty.
8 I can easily find examples to support my ideas.
9 I can justify my ideas in my compositions.
10 I can write grammatically correct sentences in my compositions.
11 I can use complex language in writing without difficulty.
12 I can produce error free structures.
13 I can spell very well.
14 I can use the punctuation correctly.
15 I can edit my compositions for mistakes such as punctuation, capitalization, paragraphing.
16 I can easily use structures I have learned in my class accurately.
17 I can link ideas together easily.
18 I can use transition words correctly to make my composition a better one.
19 I can use connectors correctly to make my composition a better one.
20 I can use a wide range of vocabulary in my compositions.
21 I can use synonyms in a composition rather than repeating the same words over and over again.
22 I can write a brief and informative overview of a given topic.
23 I can manage my time efficiently to meet a deadline on a piece of writing.
24 I can rewrite my wordy or confusing sentences to make them clearer.
25 I can extend the topic to fit in a given word limit.
26 I can choose and defend a point of view.
27 I can make long and complex sentences.
28 I can fulfill a writing task without difficulty within a given time limit.

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Appendix B.

The L2 Motivational Self System Questionnaire (modified from Taguchi et al., 2009)

Motivated Behaviors
If an English class was offered at university or somewhere else in the future, I would like to take it.
I am prepared to expend a lot of effort in learning English.
I am working hard at learning English.
I think that I am doing my best to learn English.

Ideal L2 Self
I can imagine myself having a discussion in English.
Whenever I think of my future career, I imagine myself using English.
I can imagine a situation where I am using English with fluent English users.
I imagine myself as someone who is able to use English.
The things I want to do in the future require me to use English.

Ought-to L2 Self
I study English because close friends of mine think it is important.
Learning English is necessary because people surrounding me expect me to do so.
I have to study English, because, if I do not study it, I think my parents will be disappointed with me.
My parents believe that I must study English to be an educated person.

Attitudes Towards Learning English (English Learning Experience)
I like the atmosphere of my English classes.
I always look forward to English classes.
I find learning English really interesting.
I really enjoy learning English.

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