

NOTE: Pre-copy edit manuscript version.

Title: Second Language Use, Socialization, and Learning in Internet Interest Communities and Online Gaming

Revised version (June 15, 2009) of article (forthcoming) for publication in the *Modern Language Journal*, volume 93.

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ABSTRACT

In recent years, there has been a great deal of research and pedagogical experimentation relating to the uses of technology in second and foreign language education. The majority of this research has usefully described and examined the efficacy of in-class and directly classroom-related uses of technology. Many important and consistently corroborated findings have emerged from this literature (for recent reviews, see Chun, 2008; Kern, 2006; Kern, Ware, & Warschauer, 2004; Thorne, 2008a; Thorne & Payne, 2005). This article broadens the scope of inquiry to include second and foreign language-related uses of technology that extend into the interstitial spaces between instructed L2 contexts and entirely out-of-school, non-institutional realms of freely chosen digital engagement. Two demographically and sociologically significant phenomena are examined in detail; the first focuses on participation in Internet interest communities such as fan fiction and virtual diaspora community spaces; the second describes a continuum of 3-D graphically rendered virtual environments and online games. A review of research in each of these areas reveals

extended periods of language socialization into sophisticated communicative practices and demonstrates the salience of creative expression and language use as tools for identity development and management. In the final section of the article, we suggest a number of possibilities for synergistically uniting the analytic rigor of instructed L2 education with the immediacy and vibrancy of language use in digital vernacular contexts.

INTRODUCTION

In the forward to a recent book examining knowledge and learning processes using technology, the acclaimed information technologist John Seely Brown (2008) described a number of differences between predictable and relatively static traditional literacies and emergent literacies that accompany new media, Web 2.0 tools, and other digitally mediated practices, stating that:

The world becomes more complex and interconnected at a lightning-fast pace, and almost every serious social issue requires an engaged public that is not only traditionally literate, but adept in a new, systemic literacy. This new literacy requires an understanding of different kinds of feedback systems, exponential processes, the unintended consequences inherent in evolving social systems ... the unrelenting velocity of change means that many of our skills have a shorter shelf life, suggesting that much of our learning will need to take place outside of traditional school and university environments (2008: xi).

In a growing number of world regions and across an increasingly wide range of social classes, technology-mediated life activity has become ubiquitous. In just two decades, the global Internet user population has expanded to approximately 1.6 billion, approaching one-fourth of the world's population (www.internetworldstats.com).¹ Over this time period, Internet users have continued to utilize historically rooted text conventions, but they have also developed a plethora of novel social formations that are mediated by communicative genres and literacy practices that show distinctive features uncharacteristic of conventional print literacies (for discussions, see Coiro *et al*, 2008; Danet & Herring, 2007; Jenkins, 2006; Lankshear & Knobel, 2006; Sykes, Oskoz, & Thorne, 2008; Thorne &

Black, 2007). Witness, for example, the extreme popularity of novels that are produced, distributed, and read on cell phones in Japan (Onishi, 2008), Web 2.0 technologies wherein individuals “curate their online personas” using social networking and micro-blogging utilities like Facebook, Myspace, and Twitter (Thomson, 2008: np; see also Warschauer & Grimes, 2007), or instances where three generations of relatives meet in the popular online game *World of Warcraft* to play together as a form of family recreation (Bainbridge, 2007).² In school, work, social, and recreational settings, new media and communication technologies enable, and indeed require, participants to perform and modify presentations of individual and group identity, a dynamic Thurlow & McKay (2003, p. 98) have described as “the internet as learning and lifestyle resource.” The mercurial rise in digitally mediated communication has radically transformed everyday practices in the areas of relationship development and maintenance as well as information consumption and production. This said, and drawing from Naomi Baron, we acknowledge that “new forms [of language] arise, but more often than not the functions they serve remain surprisingly stable.” (2008: x).

Nearly two decades ago, Nina Garrett (1991) published a prescient article in the *Modern Language Journal* (reprinted in this issue) in which she described a number of computer-based programs and applications with relevance to foreign and second language (L2) education. In 1991, technology at use in foreign and second language (L2) education was specifically bound to educational contexts where it served pedagogical purposes or acted as a practice environment to support subsequent language use in ‘real’ contexts outside of the classroom. Beginning in that period, from the late 1980s through to the present day, there has been a groundswell of research and pedagogical activity focused on

(generally) the promises of technology in support of second and foreign language (L2) use and learning. New journals and conferences have arisen that focus exclusively on technology use in language education, not to mention the advent of numerous acronyms that relate technology to L2 learning and pedagogy, two of the more prevalent of which are computer-assisted language learning (CALL) and network-based language teaching (NBLT), each of which highlights a focus on technology use in and for classroom-based language instruction.

Acknowledging the N. Garrett (1991) piece, this article also examines computer-based resources with relevance to L2 education; however, the research reviewed herein focuses attention on topical online social formations, 3-D virtual world environments, and associated shifts in language socialization and use that did not exist twenty years ago. Indeed, in sharp contrast to computer-assisted language learning as a proxy or practice medium for ‘real’ world communication, computer-mediated communication (CMC) has become a high-stakes, high-frequency context for all manner of professional, academic, and social activity. Acknowledging this state of affairs, this article examines L2 and plurilingual communication occurring in voluntary digital cultures that operate primarily outside of, and in some cases in interaction with, formal L2 educational settings. We have divided our subject matter into two sections. The first addresses Internet interest groups, which include web-based fan fiction and diaspora communities. We then look at L2 research examining visually 3-D rendered online gaming and multi-player virtual environments, including a focus on studies that examine relevant, but non-L2 specific, social, psychological, and cognitive dimensions of activity in these settings. Available research in both areas suggests additional questions and the need for further investigation. The final section of the article

suggests an augmentation of L2 educational practice in an effort to more successfully bridge in- and out-of-school goals and to be inclusive of emerging forms of digitally-mediated expression and action.

NEW MEDIA LANGUAGE AND TOOL SOCIALIZATION

Language socialization proposes a model of language development that unites becoming a speaker of a language with participation in particular speech communities. Interactions with experienced or more established members of a community are seen as pivotal processes that help novices develop discrete semiotic resources as well as sensitivity to expected dispositions, normative patterns of interaction, and status-appropriate identity stances (Duff, 2002; Ochs, 1993). P. Garrett (2008, p. 190) posits that:

As a developmental process, ... language socialization is much more than a matter of learning to produce grammatically well-formed utterances. It is also a matter of learning to use language in socially and pragmatically appropriate, locally meaningful ways, and as a means of engaging with others in the course of – indeed, in the constitution of – everyday interactions and activities.

Despite the broad penetration of online tools, cultures, and literacies into many arenas of everyday life, L2 classrooms often remain bounded contexts providing limited opportunities for committed, consequential, and longer-term communicative engagement afforded by new technologies. The relative isolation of instructed L2 settings, while potentially very productive for learning *about* language, can be seen as limited in view of recent language socialization research which suggests that social and linguistic environments affect L2 learners' language use and development and concomitantly, the semiotic resources they have available for the construction of desired social identities (e.g.,

Duff, 2007; Tarone, 2007). Drawing from cultural historical activity theory (e.g., Engeström, 1987; Kaptelinin & Nardi, 2006; Nardi, 1996), Thorne (2003, 2005, 2009) applied a variation of this argument to processes of Internet tool socialization and has described research illustrating that technologies mediate communicative activity in ways that are informed by users' prior online experience. The historically developed "cultures-of-use" of Internet communication tools can be seen to facilitate, and in some cases obstruct, interactional and expressive activity that subsequently impacts L2 learning trajectories (Thorne, 2003: 40; see also Thorne & Black, 2007).

Recent research on Internet interest communities has suggested that they provide rich empirical grounds for exploring the varied forms of L2 engagement, development, and socialization that are taking place via new information and communication technologies. Early explorations of computer-mediated communication (CMC) posited the emergence of "netspeak" (Crystal, 2001), or homogenized language varieties that developed in tandem with the use of online media such as email and Internet Relay Chat (IRC). However, more recent sociolinguistic research has focused on the wide range of new media practices that proliferate in distinct online contexts. In particular, such work has drawn attention to the ways in which multiple languages and emergent discourse practices are used to construct relationships and establish social identities online (Androutsopoulos, 2006). The research reviewed in the following section addresses the ways in which individuals use L1 and L2 proficiencies for the discursive construction of self and social relationships in a variety of Internet interest communities.

Internet Interest Communities and Remix Cultures

Inquiry into online communication spaces has been particularly useful for understanding the many shifts taking place in late modern communicative and compositional practices. Over a decade ago, the New London Group (1996) put forth a manifesto that called for a broadening of traditional language-based approaches to literacy teaching and learning in order to acknowledge and accommodate emergent literacy practices catalyzed by “the multiplicity of communications channels and increasing cultural and linguistic diversity in the world today” (n.p.). According to the New London Group, the term *hybridity* denotes “the mechanisms of creativity and of culture-as-process particularly salient in contemporary society” (New London Group, 1996, n.p.). Hybridizing (i.e., the process of taking existing linguistic, semiotic, and/or cultural materials and re-combining them to create new meanings) is a particularly salient aspect of contemporary youth’s participation in online affinity spaces (Gee, 2005). For example, a hybridized communicative practice common to online registers is the melding of textual and conversational styles in which users combine the conventions of print-based text with the linguistic and paralinguistic features of face-to-face conversation to create a new communicative mode that addresses the constraints of text-based media while taking advantage of the rapidity of electronic information exchange. Many modern technologies facilitate the hybridizing, or *remixing*, of available cultural materials by allowing users to easily combine, modify, and transform existing images, files, and texts. Lankshear & Knobel (2007) have described numerous cases of remixing literacy practices and make the following observations:

Even the concept of “text” as understood in conventional print terms becomes a hazy concept when considering the enormous array of expressive media now available to everyday folk. Diverse practices of “remixing”—where a range of original materials

are copied, cut, spliced, edited, reworked, and mixed into a new creation—have become highly popular in part because of the quality of product it is possible for “ordinary people” to achieve. (2007, p. 8)

This culture of semiotic plasticity, coupled with ready access to malleable digital content, has led to a participatory ethos that dominates the creative, communicative, and compositional practices of many Internet interest communities.³ Moreover, the “multiplicity of communication channels” enabled by new technologies has also created unprecedented potential for linguistic, cultural, and creative exchange across geographically dispersed sites. In the discussion below, we address such shifts in terms of a move toward hybridity in online communicative practices and the related enthusiasm for *remix* culture in online compositional practices.

Fan Communities

Fan communities centered on Japanese media, such as anime (animation) and manga (comics), provide compelling examples of the hybrid and participatory nature of the language and literacy practices taking place in online interest groups.⁴ Inquiry into online fan spaces has been useful for our understandings of how English language learner (ELL) youth use hybrid linguistic practices and multiple expressive modes to construct identities and form online social networks. Lam’s ethnographic research (2000, 2004, 2006) on immigrant youths’ digital content creation around Asian popular culture has been particularly influential in this area. In an early study, Lam (2000) explored how Almon, a high school student who emigrated to the U.S. from China, improved his language skills and gained confidence as a global English-user through his participation in the Japanese

music, or J-pop, fan community. In an early interview, Almon expressed concern that his ongoing struggles with standard English would hinder his efforts to pursue a career, as his academic placement in remedial classes positioned him as a low-achieving and ineffective English user. In contrast, Almon's online activities provided alternative contexts for self-expression and to receive explicit feedback on his L2 use. To illustrate, Lam described how Almon appropriated, and then remixed, a variety of resources in order to construct a website devoted to a prominent J-pop artist. These resources included advertising and promotional language, images, songs, and material drawn from magazines and other fan websites. They also included hybrid linguistic resources, such as *kanji* (Chinese characters used in Japanese script) as well as English text. According to Lam, the remixed nature of the discourses used to construct his webpage "provided Almon with the linguistic tools to enter into a multicultural world of Japanese popular culture" (Lam, 2000, p. 475) where he was able to present himself as a competent interlocutor—an identity that he was unable to take on in social and institutional settings in his new home in the U.S.⁵

Research in online fan writing communities has begun to explore how ELL youths' passion for Japanese popular culture affords opportunities for language learning and socialization. In a series of articles and a book length treatment examining *fan fiction*, Black (2005, 2006, 2008) described the processes through which her focal participants used their L2 of English to compose, and publicly post, fictional narratives on the website *fanfiction.net* (FFN). With over a million users from countries across the world, FFN is the largest multi-fandom archive on the web. Fan fiction inherently involves a remixed composition process. Fans begin with pre-existing media, such as a book, movie, or video game, rework it (e.g. change plotlines, settings), integrate new materials (e.g. introduce new

characters, languages), and use different modes of representation (e.g. add music, images, text) to extend the original media's tropes and plot lines in new directions. Kozulin (1998: 130) has proposed a literary model of sociocultural psychology which suggests that internalized literary conventions serve as mediators of human experience. The practice of fan fiction authoring illustrates the evocative power of literary and popular culture fictional worlds, but more importantly, also demonstrates the ways in which such existing media provide resources for using language and other semiotic resources to carry out "symbolic work," a notion Willis (1990, p. 11) describes as "remaking the world for ourselves as we make and find our own place in it."

While the focal participants in Black's research used English as the primary language for composing, they also used Romanized forms of their L1s of Chinese, as well as other Asian languages, such as Japanese, to create culturally and linguistically hybrid texts that were well-received within the anime fan community. By drawing from their insider knowledge of Asian languages and cultures (Black, 2005, 2008), these youth were able to create highly popular fan fiction stories and display expertise as writers. This "expert" status served as a means of offsetting focal participants' struggles with composing in English and enabled them to "construct identities as successful writers within the anime-based genre" and develop strong social connections within the community (Black, 2005, p. 123).

According to Black, online fan fiction communities promote informal, participatory types of learning that are beneficial for adolescents' L2 literacy development, as well as for their sense of self-efficacy in and level of affiliation with English. To take one example, Black (2008) described a focal participant, Nakano, who received over 7000 separate

instances of audience feedback, known as “reader reviews,” over the course of a three-year ethnographic study. Much of this feedback was supportive in nature and many readers directly addressed Nanako’s challenges as an ELL writer. Some of these reviews also included feedback on persistent grammatical errors and detailed comments related to Nanako’s rhetorical choices (Black, 2008). This immediate exchange of information with readers, many of whom were L1 English speakers, can be viewed as a collaborative and participatory form of writing that provided an explicit interactional context that helped to hone Nanako’s awareness of composing with a specific audience in mind, while at the same time providing contextualized feedback on her linguistic choices. In addition, over the three year course of the study, there was a marked improvement in Nanako’s writing as she explicitly responded to the audience’s feedback and often revised and then reposted her stories, incorporating readers’ suggestions into the revised text (Black, 2008).

In a recent article, Thorne (2009) assessed the foreign language developmental potential of Internet interest communities, and particularly fan fiction sites, drawing upon Vygotsky’s (1978) *zone of proximal development* (ZPD). The ZPD is defined as the difference between what an individual (or group) can accomplish independently and what the same individual (or group), through imitation and assistance, can accomplish in joint activity (e.g., Kinginger, 2002; Lantolf & Thorne, 2006; Vygotsky, 1978). Within the theory, object-regulation describes instances when artifacts in the environment make possible otherwise inaccessible forms of activity. For fan fiction authors, object-regulation includes the availability of existing storylines, characters, model texts, and awareness of genre conventions. Other-regulation describes mediation by other people, such as supportive comments and linguistic feedback provided by the vibrant fan fiction review

culture. Self-regulated individuals, for whom external assistance is largely unnecessary, serve as models and mentors. In application to L2 learning, participants in fan fiction communities draw upon these resources to assemble complex texts based on personally relevant and creative extensions of existing fictional worlds. Thorne (2009, p. 90) described the potential of mixed language fan fiction compositions for L2 learning as follows:

Remixing practices in the service of language learning align ... with Bakhtin's formulation, that "we acquire language through a 'process of assimilation' – more or less creative – of others' words (and not the words of a language) (1986, p. 89).

The realization of nuanced levels of symbolic competence (in the sense of Kramsch, 2006) requires production (Swain, 2000), which in the fan fiction writing often involves the use of two or more linguistic varieties. Along these lines, Leppänen (2007) has explored the role and function of English in Finnish youths' online fan fiction texts. According to Leppänen, *alternational code switching*⁶ serves as a stylistic as well as a symbolic resource for fan fiction authors, as they use both Finnish and English to creatively adapt U.S. popular cultural texts for a Finnish context and strategically position themselves within the "shared social world" (Leppänen, 2007, p. 163) of bilingual fan fiction.

L2 Use in Diaspora Spaces

Inquiry into online youth diaspora spaces also has been particularly illustrative for our understandings of how ELL youth use varied linguistic forms and expressive modes to participate in both local and global social networks. Lam (2004) has explored how an online chatroom for Chinese diaspora youth provides an alternative to EFL classroom contexts for L2 language socialization. In particular, Lam focused on the social and

discursive practices of two adolescent Chinese immigrant high school students who found it difficult to make social connections with English-speaking peers at school. Lam's analysis revealed the use of a mixed-code variety of English that included the addition of words and linguistic elements in Romanized Cantonese to English-dominant utterances in order to express humor and emotion, to mark social roles and relationships, and to add a distinctly Chinese tone to the conversations. Lam's focal participants enjoyed the online chatroom because they were able to befriend and communicate with a broader range of Chinese-origin English speakers by drawing on L1 and L2 proficiencies. Unlike in school, where they felt self-conscious interacting with U.S.-born Chinese, participation in the chatroom helped them "feel braver in talking to people" as they developed an "increased sense of fluency in English" and developed proficiency with online social registers (Lam, 2004, p. 51). Thus, Lam's analysis highlighted how the online culture and acceptance of code-switching, informal registers, and hybrid language use enabled these teens to "assume a new identity through language" (Lam, 2004, p. 45)—a transcultural identity that challenged categories such as ELL or Chinese-American and instead reflected the multiple affiliations and proficiencies of immigrant youth in modern, globalized contexts (Lam, 2004).

In a similar study, Yi (2007, 2008) conducted ethnographic research on a website called *Welcome to Buckeye City* (WTBC), a diasporic space primarily populated by generation 1.5 Korean adolescents living in the same Midwestern city. For these youth, WTBC served as a site for making and maintaining social connections with other immigrant youth in a context that promoted a variety of L1 and L2 voluntary literacy activities. WTBC houses an impressive array of popular textual genres, such as Internet novels, comics, quotes, reviews of popular music and movies, poetry, news articles, and

survey questionnaires, all of which consist of user-generated rather than mass-media content and provide numerous options for creators to receive feedback and interact with the audience. As a salient example of the participatory nature of many online literacy practices, Yi (2008) described *relay writing*, a form of composition in which authors take turns writing a portion of a novel that is loosely based around a theme or topic. Yi argued that there is a dialogic quality to such multi-author online composing that is rarely attained in traditional print-based textual practices (2008).⁷

Across these studies, there is a clear shift away from monolingual, print-based, and individualistic forms of writing and a movement toward participatory approaches to composition. As Yi pointed out, the “group production orientation” of many online youth activities, such as relay writing, fan fiction, and developing online fan and diaspora spaces, “moves beyond the common emphasis on research into individual composing in cyberspace and puts a new face on voluntary literacy practices, one that involves students co-constructing knowledge and understanding in a community setting” (2008, p. 671). In addition, as Lam (2000) and Black (2008) described, the supportive feedback and positive language experiences that ELL youth gain through voluntary literacy activities can provide a “counterbalance” (Yi, 2007, p. 35) for the frustrations they experience when using English in classrooms. Further, these studies demonstrate that participation in online interest groups has the potential to afford immigrant youth opportunities for leveraging their existing knowledge and linguistic competencies to take on powerful identities as creative and effective communicators (for related research, see Moll, 1992; Norton, 2000; Thorne & Black, forthcoming). For participants in Internet interest groups and diaspora communities, the use of second and sometimes multiple languages for engaging in interpersonally

meaningful communication and identity construction serves goals that enhance, and potentially extend beyond, the practices and standardized forms of knowledge associated with institutional educational settings. This includes engaging in multiple forms of authentic communication, developing a sense of accomplishment as language users, affiliating with the target language, and learning to navigate and develop supportive social networks.

VIRTUAL ENVIRONMENTS AND ONLINE GAMING SPACES

In this section, we explore a set of digital contexts that can be broadly described as multiuser virtual environments. We use the umbrella term *virtual environment* (VE) to discuss a number of distinctly different spaces, namely open social virtualities (e.g., *Second Life*), commercial 3-D gaming spaces designed around goal-directed activity within fantasy world settings (e.g., *World of Warcraft*), and online environments designed to support educational objectives (e.g., *Quest Atlantis*, *Croquelandia*, and educational areas of *Second Life*). We should note that available L2 research relating to VEs is limited and inconclusive. For this reason, some of the discussion to follow focuses on non-L2 VE research that is suggestive of the potential VEs may provide for L2 education as well as indicative of research areas that warrant further exploration.

In recent years, there has been significant interest in VEs in relation to economics (Castronova, 2001), entertainment (Boellstorff, 2008; Castronova, 2007; Johnson, 2005), education (e.g., de Freitas, 2006; Gee, 2003, 2005, 2007; Jenkins & Squire, 2004; Salen, 2008; Steinkuehler, 2004, 2007, 2008a) and, to a lesser extent, L2 use and learning (Bryant, 2006; García-Carbonell, Montero, Rising, & Watts, 2001; Piirainen-Marsh & Tainio, 2009;

Purushotma, Thorne, & Wheatley, 2008; Sykes, Oskoz, & Thorne, 2008; Thorne, 2008b; Thorne & Black, 2007; Zheng, Young, & Wagner, forthcoming).

The sheer immensity of the video game industry warrants brief discussion.⁸ The Entertainment Software Association reports that U.S. sales of computer and console video games came to \$11.7 billion in 2008 while the Motion Picture Association of America calculated U.S. domestic box office revenues for the same year to total \$9.79 billion.⁹ In addition to producing economic effects of significant magnitude, participation in virtual environments constitute a set of international cultural practices that have contributed to an overall shift in the perception and construction of reality, including the political, economic, educational, and social choices that people make in the ‘real’ world (e.g., Castronova, 2001, 2007; Lenhart *et al*, 2008; Squire & Steinkuehler, 2006; Thorne, 2008b). In this sense, social virtualities and massively multiplayer online games arguably comprise the most socially and cognitively complex forms of interactive media currently available. This fact is not meant to valorize these settings, but rather, serves as an encouragement to educators to take seriously the proposition that VEs, as designed environments, present opportunities for both understanding and engineering specific learning processes. In 2005, Castronova noted that virtual environments (his term is *synthetic worlds*) were appearing at a rate of Moore’s Law (doubling every two years) and minimally included 10 million players globally, with typical gamers spending 20-30 hours per week in play (2005, p. 1-2). Only four years later, in 2009, *World of Warcraft* alone, the single most popular online game at the time of this writing, hosts more than 14 million active players on servers supporting game play in Chinese, English, French, German, Korean, Russian, and Spanish.

Graphically rendered 3-D virtual and gaming environments have contiguous and

relatively long histories that extend back to earlier text-based social interactive gaming and role-playing cultures (e.g., MOOs (multi-user domain, object oriented), see Kern, 2000; Thorne, 2000).¹⁰ In fundamental terms, virtual environments of the sort we discuss here involve human agents interacting with one another and with computer-generated characters within a persistent virtual world. Participants engage in these environments by controlling a digital avatar, defined as an on-screen representation that can be a three-dimensional figure or in some cases, a two-dimensional icon or picture. The default communication mode in VEs is synchronous text-based interactive written discourse of the sort common to other ‘chat’ style tools (e.g., instant messaging, IRC, MOOs). Like MOOs that preceded them, VEs usually offer multiple synchronous text channels to enable communication with virtually co-present individuals, a “whisper” channel for one-to-one communication anywhere within the virtual world, a “mail” style tool for asynchronous communication, and increasingly, voice communication capabilities. Games also provide channels for ad hoc groups interacting together and for communication within structured social formations called guilds. The use of synchronous chat in VEs makes relevant the extensive history of research on CMC (Danet & Herring, 2007; Herring, 1996; Nardi, 2003; Walther, 2007) and CMC in language education (Blyth, 2008; Chun, 2008; Kern, 2006; Magnan (ed.), 2008; O’Dowd, 2003; Ortega, 1997; Thorne, 2006, 2008a, 2008c).

Social Virtualities, Massively Multiplayer Online Games, and Synthetic Immersive Environments

The following section briefly describes three prominent categories of VEs, 1) social virtualities, 2) commercially produced massively multiplayer online games, and 3)

educationally oriented synthetic immersive environments. These descriptions are not intended to be rigid definitions of each type of VE, rather we present prototypical examples and research projects that are useful for purposes of description and comparison along a continuum of VEs. We first describe the general qualities of each type of VE and then review relevant research and, where available, studies that relate specifically to L2 use and learning. Finally, we conclude our discussion with suggestions for empirical research in SLA theory and practice (cf., Chapelle, 2001, 2008) that is cognizant of the emerging social practices critical to participation in, and understanding of, emerging virtual spaces.

Social Virtualities.

Social Virtualities (e.g., *Second Life*, *Lively*, *Active Worlds*, *There*) are open-ended virtual spaces that are often designed to represent brick-and-mortar settings (e.g., university campuses, retail stores, nightclubs), venues such as museums and well-known urban locations, or fantasy and futuristic constructions. Players in these settings select the appearance of their avatar, including body morphology, skin and hair color, gender and clothing. In contrast to gaming environments, in which participants are presented with specific tasks and scenarios in tiered orders of difficulty, the objectives and goals of play in social virtualities are determined by the users themselves, or in the case of formal educational activity, influenced and/or guided by the instructor or instructional designer.

Currently, the most prominent social virtuality for both entertainment and educational purposes is *Second Life*, which hosts over 67,000 regular users spread across 1.5 billion square meters of virtual space (Linden Lab, 2008). In the educational arena, hundreds of universities around the world own *Second Life* real estate (purchased in units

known as ‘islands’ which are equivalent to a cube of space measuring 64,000 square meters). In good Baudrillardian (1994) fashion, many universities have produced *simulacra* of their physical-world campuses and use these virtual campus settings for residential and distance education purposes, for student recruitment (via guided campus tours), and to host special media events (see the SL educators blog at <http://www.sl-educationblog.org/> for more information about the active group of educators using *Second Life*).

Despite frequent media attention and the popularity of social virtualities such as *Second Life* among educators, there are only a very small number of limited and in-progress pilot study investigations that have specifically examined language learning in these settings. In a study examining how task-based language learning might be usefully carried out in *Second Life*, Sadler and Nurmukhamedov (2008) analyzed data from ten undergraduate ESL students and twenty-three MA TESOL students. Based on results from pre- and post-intervention questionnaires, participant journals and interviews, and task observations (task outcomes and process videos), Sadler and Nurmukhamedov concluded that task-based learning activities were effective in maintaining motivation and that the learners generally achieved task completion that included substantial interaction in the L2. In a similar recent project sponsored by the Confucius Institute Chinese School, Zheng *et al* (2008) examined the role *Second Life* can play in teaching Chinese language and culture. Their study utilized ethnographic observation, participant mapping, and interview data to assess levels of engagement within *Second Life* and the potential benefit to learners of avatar-embodied participation in virtual space. Preliminary results showed *Second Life* to present opportunities for negotiation for meaning and high levels of engagement for the participants. These initial explorations were congruent with, but fundamentally do not

significantly extend, findings from previous negotiation-oriented studies that have focused on purely text-based synchronous CMC chat spaces (e.g., Abrams, 2001, 2006; Blake, 2000; Smith, 2003, 2004).

Indeed, there is a great need to more substantively explore the educational potential of social virtualities in ways that move beyond text-based computer-assisted language learning paradigms to examine other possible effects, dynamics, and uses associated with visually rendered and avatar-based virtual worlds. In essence, do communication, behavior, and self-perception differ when human agents are virtually embodied in avatar form within a persistent, graphically rendered space? Exploring these issues, Lee and Hoadley (2007) designed experiential learning interventions with the VEs *There* and *Second Life* to address issues of identity enactment and cultural development. As part of a summer sciences and technology enrichment summer camp, high school students (n=14) participated in online virtual spaces for 25% of their class experience. In the VEs, learners were given activities in which they experimented with avatars representing diverse identity variables such as gender, race, and appearance. Entrance and exit survey data indicated that participation in the activities complexified the students' understanding of diversity, the multiple perspectives associated with different social identities, and suggested that adolescent learners are capable of internalizing the impact of their identity choices based on experiences in virtual world settings. Lee and Hoadley (2007: np) argued that VEs hold significant promise as design experiment spaces, stating that the "identity adoption process trains students to solve problems from the point of view of the roles they are assuming, opening them up to new perspectives and challenging them to think in new ways."

In a topically related controlled experimental study, Yee and Bailenson (2007)

tested the hypothesis that one's avatar constitutes the primary identity cue in VEs, and correspondingly, that the visual characteristics of one's avatar significantly impacts online behavior. Two experimental studies were staged within an immersive virtual reality environment. In the first experiment, participants assigned to more attractive avatars were more forthcoming and friendlier in self-disclosure and interpersonal distance tasks in comparison to those who were assigned to less attractive avatars. In the second study, in which subjects were randomly assigned to shorter, the same, or taller height avatars and asked to carry out negotiation tasks, participants with comparatively taller avatars engaged in more confident verbal behaviors, such as more frequently suggesting unfair splits of a limited resource. Based on these studies, Yee and Bailenson confirmed a hypothesis they term the "Proteus Effect," that an individual's verbal behavior is affected by their digital self-presentation in ways that are independent of how others perceive them.

These findings, along with Lee and Hoadley's (2007) study, suggest many possible uses of avatar-mediated embodiment within virtual socialities as tools for exploring identity experimentation and conversational interaction that may yield dynamic opportunities for language learning. For example, through various types of identity experimentation (yet to be empirically determined), participation in social virtualities has the potential to aid learners in the acquisition of skills that may be useful for analyzing sociocultural context. As noted by Kramsch and McConnell-Ginet (1992, p. 5), "[s]ociocultural contexts cannot be reduced to an inventory to be "mastered"... they are not only too rich and various but also in constant flux as people reshape them through speaking and other forms of social interaction." Identity experimentation is one way in which learners can begin to deal with these complexities associated with sociocultural contexts related to the target language.

Further opportunities for dynamic experimentation in VEs are explored in the discussion below focusing on multiplayer online games and synthetic immersive environments.

Massively Multiplayer Online Games.

Massively multiplayer online (MMO) games (Steinkeuhler, 2008a) are commercially designed and avatar-based multiplayer virtual worlds within which thousands of people simultaneously interact, compete, and collaborate with one another (e.g., *World of Warcraft*, *Everquest*, *Final Fantasy*, *Tabula Rasa*, *Eve Online*). MMOs are collaborative virtual spaces designed around goal-oriented activities that become increasingly difficult as one gains experience. Players advance their characters and improve their skills and abilities by completing game-presented challenges (e.g., quests), collecting and making items and resources (e.g., armor and weapons), and buying and selling goods and services in thriving in-world economies (some of which, as discussed above, are linked to global capital markets). MMOs are social and digitally material worlds that are initially structured by fantasy narratives (Steinkuehler, 2006). Importantly, however, MMO cultures have been shown to evolve over time based on the adaptive practices of players (Squire, 2008; Squire & Steinkuehler, 2006).¹¹

Game play in MMOs is complex and requires navigation of challenging virtual topographies, hypothesis testing and strategy development, and research into the consequences of subtle choices regarding character development (Nardi, Ly, & Harris, 2007). As Gee (e.g., 2003, 2007) has suggested, MMOs, and video games more broadly are engineered to enhance human experience in the realms of “control, agency, and meaningfulness” (2007, p. 10), a fact that helps to explain why players invest such

significant amounts of time engaged in MMO play. It may be surprising to those who have not experienced MMOs to know that the games are successful, in part, because of their complexity and difficulty, not because they of their simplicity or capacity to satiate the needs of the so-called attention deficit generation. It takes most individuals hundreds of hours of playtime to gain access to higher levels of game content and while there is considerable repetition in the types of problems one confronts, there is also a continual complexification of scenarios and an attendant expansion of tools and strategies that support continued progress. As Gee (2007) has argued, these features form, simply put, a good learning environment that has fused together pleasure and learning through a focus on difficult and engaging goal-directed activity.

MMOs can be played alone but require tightly coordinated teamwork with other players to successfully complete more difficult objectives. The necessity of needing assistance from other players leads to the formation of casual dyadic partnerships and short-term ad hoc groups as well as long-term social organizations, called guilds, that are dedicated to tightly choreographed multiparty game play (see Ducheneaut et al, 2007; Steinkuehler, 2008a). Guilds in particular create opportunities for new players to develop expertise through exposure to and co-play with more experienced members. Experienced guild members often provide explicit instruction to newcomers but they also discuss strategy amongst themselves in dedicated in-game chat channels that provide opportunities for what Rogoff *et al* (2003) described as firsthand learning through “intent participation”, that is, learning through “keen observation” and “listening-in.” Rogoff *et al* (2003) described the role of talk in a way that maps closely to the goal of MMO guilds, namely to cultivate expertise in as many players as possible to maximize success for all members: “In

intent participation, talk is used in the service of engaging in the activity, augmenting and guiding experiential and observational learning” (p. 195).

Recent communication studies research on talk in MMOs has empirically supported the role of experienced players as catalysts for language socialization. Peña & Hancock (2006) analyzed communication in an online video game and reported significantly more socioemotional talk (e.g., turns intended to release tension, express of solidarity, compliments, encouragements) than purely task associated communication, a finding that underscores the salience of interpersonal communication and relationship maintenance, even within gaming spaces ostensibly oriented toward battle and competition. They note that experience level correlated to type and valence of message production, specifically that experienced players produced more positive and fewer negative socioemotional messages in comparison to less experienced participants. Additionally, experienced players used more specialized gaming language conventions that included emoticons, acronyms and abbreviations, and scripted emotes (the latter describing pre-programmed scripts used to express paralinguistic cues, actions, and emotional states such as nodding, laughter, facial expressions, and third-person narration of the self). Peña & Hancock’s (2006) research did not address language development per se, but an extrapolation from their quantitative assessment, that message production valence and form was stratified by experience level, supports the hypothesis that newcomers underwent a process of language socialization as they ascended in rank.

The research of Peña & Hancock (2006; see also Steinkuehler, 2006¹²) indicates both encouraging and potentially limiting features of commercially available recreational MMOs as sites for L2 learning. On the positive side, research suggests that participants

come to learn, and mediate their activity through, the use of linguistic resources specifically associated with online gaming settings, including, as will be discussed below, the learning of L2s to play with desired gamers who speak languages other than English. A limitation is that such specialized forms of communication may have limited transferability to other contexts. However, it is important to note that in MMOs, as in other arenas of life activity, the prevalence of goal-directed collaborative play generates attendant social activity of all kinds, from phatic communication and passing acts of generosity to serious friendships and romantic bonds, often with people from around the world in multilingual contexts (e.g., Taylor, 2006; Thorne, 2008b). As Nardi *et al* (2007) described, the intensive processes of fact finding, learning game strategy, and acquiring a sense of the local ethos in an MMO involve everyday talk that is largely event-driven. Players ask questions of one another, voluntarily offer advice and assistance, and as specifically noted by Nardi *et al* (2007), the emotional tenor of these interactions (they listed drama, humor, and intimacy) forges a generally positive and distributed network of expertise supportive of development. Nardi *et al* (2007: 8) summarized their study as follows:

Our goal ... was to examine conversational activity in the zone of proximal development [ZPD] to investigate the nature of learning in [the MMO] World of Warcraft. We observed what Vygotsky predicted—that learners accomplish more with the aid of experienced peers than they could on their own. We described the contours of the learning experience in the ZPD as it unfolded in event-driven, erratic, spontaneous, emotion-laden conversations closely tied to the context of activity.

There is considerable research examining the design of, and potential roles for, commercial MMOs in education; however, very little research exists that specifically addresses the issue of L2 learning (however, see Bryant, 2006). In one of the few cases of research examining multilingual communication in a commercial MMO, Thorne (2008b) reported on a multilingual interaction in the game *World of Warcraft* that occurred between a speaker of English living in the U.S. and a speaker of Russian living in the Ukraine. The two were playing near to one another when the Ukrainian communicated the following text message: “ti russkij slychajno?” The American replied with a question mark and then asked, “what language was that?” This initiated 140 turns of dialogue that began with introductions and moved to mutual interests in gaming and popular culture. Early in the interaction, the American simultaneously began an instant messaging conversation with a hometown friend who had been raised in the Ukraine to ask for Russian language phrases to use with his new found Russian speaking gaming partner. Periodically throughout the roughly 30 minutes of play together, the American would post Russian language messages received via instant messenger, some of which were humorously vulgar. The Russian speaker reacted with good-natured responses and, in turn, asked questions about the accuracy of the English he was using in his posts. Thorne (2008b) describes this encounter as a flow of semiotic resources, mediated by two Internet communication tools that linked together otherwise disparate activity systems, which enabled just-in-time access to linguistic tools that helped the developing relationship move forward. The matrix language for this interaction was English, but three languages (including one instance of a Latin aphorism) were used in total. The transcript illustrated a number of positive assets for language learning such as natural and unscripted interaction, reciprocal alterations in expert

status, explicit self- and other-correction at the level of linguistic form, extensive repair sequences, development of an emotional bond, and exhibited motivation by both parties for learning the other's language.

In a follow-up interview to this experience, the American gamer mentioned a strong interest in studying Russian, in part to improve his gaming experience with Russian speakers. The American, a student at a university in the U.S., also reported that a highly enthusiastic gamer in his dorm was studying Chinese to be able to more fully participate in game play with Chinese nationals (Thorne, 2008b). While orienting university and K-12 level foreign language programs to include MMO specific communicative competencies may be overstepping the findings of this study, students' motives for foreign language study may reasonably be speculated to include a desire to participate in digitally mediated plurilingual communities.¹³

Synthetic Immersive Environments.

Synthetic immersive environments (SIEs) (e.g., *Quest Atlantis*, *Croquelandia*, *Zon*), the final type of VE to be discussed here, combine the player generated cultures and contexts of social virtualities with the goal-directed, collaborative activity of MMOs to create an engineered space which “integrates the many benefits of online gaming to produce explicit, educationally related outcomes in simulated, relevant interactional contexts” (Sykes, 2008, p. 10-11). SIEs are designed to target educational objectives through the creation of a meaningful collaborative space in which the participants are directly engaged in activity relating to specific domains of knowledge.¹⁴ Players' specific activities and goals in SIEs vary based on the targeted learning objectives (e.g., in

Croquelandia activities are designed to focus on L2 pragmatic features whereas activities in *Zon* primarily focus on the development of L2 lexical skills).

In a study of the SIE *Quest Atlantis*, Zheng *et al* (2009) examined expert-learner interaction and the English language acquisition of two adolescent Mandarin Chinese speakers. Data from quest logs, interviews, and participant observation indicated that intercultural collaboration for quest completion resulted in the acquisition of various pragmatic, syntactic, semantic, and discourse practices. Zheng *et al* (2009) also described instances in which the learners co-constructed meaning at the discourse level and modified one another's cultural perspectives through tasks centered on a shared goal. In addition, Zheng *et al* (2009) noted that since many of the tasks focused on the sharing and co-construction of cultural knowledge, the expert speaker and less experienced English user each took on the roles of learner and instructor. As a result, both interlocutors developed a new perspective of the other and gained an increased appreciation for cultural differences.¹⁵ Zheng *et al* (2009) suggested that similar developmental trajectories could occur through goal-directed activity in MMOs not specifically built for educational purposes.

Select SIEs have been designed to foster L2 development. With this focus, it is expected that participants will use language for freely chosen social interaction (as in the case of *Second Life* and *Quest Atlantis*) as well as in the context of quest completion that encourages awareness of appropriate linguistic and pragmatic choices. Sykes (2008) described the use of croquet (opencroquet.org), an open source game development platform, to build a foreign language specific SIE designed for the learning of Spanish pragmatics. The game, *Croquelandia* (www.croquelandia.net), integrates many features creatively appropriated from commercial online games to produce explicit, educationally-

related outcomes. In *Croquelandia*, learners engage a variety of goal-directed activities (quests) designed to provide behavior-based corrective feedback through interaction with computer-generated Non-Player Characters (NPCs) and other group members. Interaction within this SIE carries the ultimate goal of enhancing learners' ability to perform requests and apologies in Spanish.

Utilizing a synthesis of 120 hours of in-game behavior observation data, survey data, pre- and posttests, and one-on-one participant interviews, data were triangulated to gain a comprehensive picture of how learners interact with the space and peers in the SIE environment as well as the impact of the SIE on the acquisition of pragmatics. Results of this study confirm that similar to user behavior in social virtualities and MMOs, learners in the SIE adopt various styles of participation, which ultimately lead to varied individual experiences and learning outcomes. While the specific factors that contributed to the diverse patterns of behavior in the SIE remain to be determined, Sykes concluded that participant perception of the space, as either an experimental arena or checklist of tasks to complete, played a role in how learners engaged in the tasks. This is a first step in understanding the ways in which SIEs can (and cannot) simulate complex collaborative behavior similar to that found in MMOs. Participants reported that quest completion was viewed as the primary indicator of success and was the central focus of the in-game experience. Thus, in the absence of other means of progress marking, quest completion was the only focus by the majority of the learners. This point will be elaborated shortly.

In terms of learning outcomes, Sykes (2008) reported a marked difference between actual learning outcomes (measured by pre/post discourse completion tasks) and perceived outcomes on the part of the learners. In the apology scenarios, there was a notable change in

perspective from the use of speaker-oriented strategies (e.g., *lo siento*) to hearer-oriented strategies (*Perdóname*), but little change in the other strategies used. This lack of measured improvement on the part of the learners does not necessarily indicate that SIEs are not useful for pragmatic development, but perhaps that the skills measured by the primary instrument, a set of discourse completion tasks (i.e., discrete linguistic formulae), was not congruent with the type of learning that occurs in the SIE. Perception data, interview data, and summative class presentations presented evidence of improvement in the learners' metapragmatic strategies, including analysis skills and strategies for dealing with pragmatic elements of the Spanish language. Future research will be needed to better understand how SIEs impact pragmatic abilities (e.g., comprehension vs. production), especially when learners are engaged in complex collaborative activity.

In a study of learners' strategic development in pragmatics through the use of online environments (i.e., a website and an SIE), Sykes and Cohen (in press) confirmed that SIEs are beneficial for developing learners' metapragmatic strategies. That is, through participation in an SIE, learners reported they were more conscious of the necessity for pre-planning prior to performing language functions, were more likely to select a focus (e.g., comprehension or production) when engaging in interaction, and were more aware of the need to monitor their discourse in terms of level of formality, timing, and terms of address. While self-report data needs to be interpreted with caution, the results of this study support the qualitative analysis in Sykes (2008), which suggested that SIEs benefit the development of metapragmatic skills.¹⁶

Ultimately, each of the VE studies described above evoked as many questions as they were able to answer. Nevertheless, the results suggested some of the possibilities of

VEs for language learning, especially in the areas of identity experimentation, task-based learning, negotiation for meaning/action, the development of intercultural competence and pragmatic abilities, the advancement of metalinguistic skills and strategies, and access to additional means of L2 assessment. Continued research is essential and, as the foreign language professional community moves forward in the use of a variety of innovative technologies for language learning, VEs of all kinds will continue to be the subject of much discussion (and debate). As we feel should be the case in foreign language education, the ultimate goal is to inculcate the capacity to utilize symbolic resources that are essential for negotiating transactional settings, carrying out social actions, and establishing and maintaining meaningful relationships with speakers of other languages. Based on findings from the discussion above, as well as Purushotma, Thorne, & Wheatley's (2008; see also Steinkuehler, 2008b) design recommendations for L2 games and VEs, we suggest a select few areas for future investigation:

- *Scope and Description*
 - What phenomenological patterns are visible in behavioral and linguistic data gathered in VEs and how do they correlate to L2 development?
 - What areas of communicative competence are most effectively improved through participation in VEs?
- *Identity Formation and Experimentation*
 - To what extent do VEs provide resources for identity formation and experimentation for L2 learners?
 - How does identity experimentation vary based on type of VE, learning task, visual representation of avatar, and opportunities for user behavior?
- *Task Design, Goal-Directed Activity, and Feedback*
 - How do tasks and content delivery in VEs compare to face-to-face and text-only CMC tool use?

- How should goal-directed activity and feedback mechanisms be structured to fully utilize 3-D VE spaces and avatar embodiment?

DISCUSSION: L2 LEARNING IN THE CRUCIBLE OF NEW MEDIA

The preceding review of research on VEs and Internet interest and diaspora communities provided substantial evidence that opportunities for L2 use and learning exist in these contexts. At the same time, challenges and questions need to be addressed, such as, first, what models of language and L2 development best apply to new media contexts? Second, how can we productively integrate (or interface) participation in freely chosen Internet interest, diaspora, and/or VE communities with instructed L2 practices?

Beginning with the former question, in instructed L2 pedagogical conditions, and portrayed in perhaps an over-negative light, depictions of L2s have tended to implicitly support prescriptivist linguistic sensibilities that represent presumed homogeneous, monolingual, and idealized ‘native speaker’ norms (e.g., Firth & Wagner, 1997). In contrast, the remix, plurilingual, and emergent nature of many L2 digital vernacular communities and VE contexts highlight the centrality of meaning, the use of (sometimes multiple) languages for the performance of desired identities and aesthetic expression, and at a metalinguistic level, the development of repertoires and strategies that serve as tools to negotiate social actions within novel and fluid communicative events.¹⁷ Successful communication in Internet interest communities and VEs involves the contingent use of semiotic resources in response to context, purpose, and desired intention. As described by Canagarajah (2007, p. 928) in reference to lingua franca English communication in multilingual communities, “language learning involves an alignment of one’s language resources to the needs of a situation, rather than reaching a [pre-specified] target level of

competence” (see also Atkinson *et al*, 2007; Kramersch, 2002). In the same publication, Canagarajah stated that

previously dominant constructs such as form, cognition, and the individual are not ignored; they get redefined as hybrid, fluid, and situated in a more socially embedded, ecologically sensitive, and interactionally open model” (2007, p. 924).

Thorne and Lantolf (2007, p. 189) have made a similar proposal they call a *linguistics of communicative activity*,¹⁸ that describes semiotic resources as emergent and overlapping systems that people learn to use to realize communicative intentions, interpret the intentions of others, and perhaps most importantly, to foster conditions of possibility for producing and transforming selves and communities. Such treatments of language push against the strictures of prescriptivism and accountability that hold sway in institutional learning settings, but they arguably offer expansive conceptual tools that more closely describe the shifting tableau of contemporary digital literacies and plurilingual contexts of communication.

In response to the question of integrating digital vernaculars within instructed L2 practice, in virtually all the cases we described in this article, processes of language socialization combined with implicit and explicit feedback systems support the acquisition of linguistic forms, communicative strategies, and resources for performing relevant social identities. As with all pedagogical choices in L2 education, desired learning outcomes must align with reasonable expectations of the kinds of linguistic and interactional expertise that may be developed through participation within a particular activity, speech community and/or modality. The contexts described in this article differ radically in terms of the competencies that comprise them, in some cases converging with conventional L2

competencies and, in other cases, diverging from instructed L2 norms. Convergent language learning outcomes are likely to occur in fan fiction authoring (through peer feedback and an emphasis on formal accuracy) and SIEs designed specifically for the acquisition of discrete linguistic and pragmatic content. Language socialization processes and outcomes that notably diverge from conventional L2 competencies include participation in commercial MMOs and virtual socialities, within which full participation may result in communicative repertoires that are specific to local speech community norms and potentially less transferable to education and other contexts (though see Steinkeuhler & Duncan, 2008, for a discussion of ‘scientific habits of mind’ developed through participation in online gaming worlds).

As a proposal for systematically incorporating convergent and divergent digital vernacular texts into L2 education, Thorne & Reinhardt (2008) have developed a pedagogical framework called *bridging activities*, grounded in principles of language awareness and the concept of multiliteracies (e.g., Cope & Kalantzis, 2000; New London Group, 1996), that couples students’ digital vernacular interests with instructor guidance to explore structural, functional, and pragmatic dimensions of living language use. The immediate instructional objective is to strengthen the ecological relations between language practices and identity dispositions developed within both instructional L2 settings and the plurilingual world outside of school.¹⁹ The superordinate goal is to foster critical awareness of the anatomy and functional organization of a wide range of communicative practices relating to both digital and print literacy conventions.²⁰ In turn, the cultivation of greater language awareness would support ‘just-in-time’ learning across the life span of unknown (and unknowable) future linguistic repertoires. In summary, Thorne (2009, p. 91) has

proposed that “[u]ltimately, the aim is not merely to gain the mastery necessary to reproduce [L2] language and culture practices, but also to be able to contribute to forging new ones in the crucible that forms everyday communicative interaction.”

CONCLUSION

The contexts and empirical research findings discussed above suggest a number of opportunities relevant to traditional approaches to L2 teaching and learning. Participation in internet interest communities and online gaming has the potential to propel language learners beyond the confines of the institutional identity of ‘student’ by fraying the boundaries separating language study from social life, student from player, and information consumer from knowledge contributor (Sykes, Oskoz & Thorne, 2008, p. 539). In many new media contexts, from literary gestures in fan fiction communities to language-mediated coordination among players in an online game, specific language competencies develop in interaction within particular genres (i.e., fan fiction) and routine interactional scenarios (i.e., gaming contexts). At the same time, participation in these semiotically mediated communities may help to strengthen the ecological linkages between forms of language use and identity dispositions developed within instructed L2 settings and communicative pursuits associated with other life contexts.

This discussion has argued that what occurs online, and often outside of instructed educational settings, involves extended periods of language socialization, adaptation, and creative semiotic work that illustrate vibrant communicative practices. It is troublesome, therefore, that digital vernaculars remain largely unaddressed within instructed L2 curricula, or worse, are trivialized or vilified as stigmatized varieties. In an era in which

mediated communication constitutes an important and even primary modality for social, recreational, and professional life, the mastery of high-frequency and high-stakes mediated genres of communication warrant systematic inclusion among the explicit goals of L2 educational practice. As digital cultures researcher Dana Boyd (2008: 154) describes it:

[D]igital networks will never merely map the social, but inevitably develop their own dynamics through which they *become* the social. The interaction of people with information systems is recurrently marked by play and experimentation, as people test the limits of their settings and manage the consequences of unexpected interactions and altered contexts. Digital social structures disrupt the boundaries that define social communities, but the reassessment of context and performance that accompanies it is endlessly generative.

One of the marvels of communication is its endless potential for both reflecting and shaping human activity as it changes over time. Thus, as our everyday linguistic and social practices undergo significant shifts as a result of technological mediation, it seems only reasonable that, as N. Garrett implicitly suggested in her 1991 article, L2 educational practice also should shift to both reflect, and provide learners with access to, the communicative practices and social formations associated with these changes.

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¹ In the near future, as more cell phones and other devices become Internet-capable, the number of Internet users will increase dramatically, especially in regions that are by passing traditional cable technology stages.

² Web 2.0 is a shorthand term for what has been described as the second generation of the World Wide Web. Commentators generally agree that Web 2.0 refers to not so much a shift in underlying technologies as to a transformation of informational, social, communicative practices (for further elaboration, see O'Reilly, 2007; Sykes, Oskoz, & Thorne, 2008; Warschauer & Grimes, 2007). Internet tools and participatory processes described as Web 2.0 include blogging, collaborative writing and composition environments, file sharing (photo, video, audio) and tagging, and social utility and networking sites.

³ As one anonymous reviewer of this article noted, beginning in the late 1990s, foreign language educators have used video and audio editing tools to combine various media into new and developmentally focused forms. The reviewer suggests, and the authors of this article agree, that in a sense, progressive language educators preceded the popular culture forms of remixing by approximately a decade.

⁴ To describe a few additional examples not discussed in the main text of this article, *fansubbing* (see Leonard, 2004) is a practice in which fans use computer software to create their own subtitles for anime

videos. In a similar practice called *scanlation*, fans digitally scan the pages of manga in order to create editable computer files that enable them to substitute translations for the Japanese text using photo-imaging software. Another example of participatory language practices emerging in online communities are the numerous Japanese/English translation sites that fans create and maintain to assist other fans with the interpretation of anime and manga texts. Through these activities, fans subvert the traditionally passive role of the media consumer and become active producers of content and mediators of culture.

⁵ Additionally, Lam (2000) describes the participatory nature of Almon's site, which includes a guest book for visitors to leave feedback as well as email and ICQ addresses for visitors to contact him, provided a segue into peer relationships while at the same time allowing fellow fans to convey their own perspectives and make a contribution to the site content. In this way, site creators and visitors alike are able to feel a sense of ownership over and investment in the content.

⁶ Leppänen (2007, p. 153) defines *alternational code switching* as "a situation in which Finnish and English alternate within the same discourse to the degree that it is difficult to establish which one of them is the dominant language (Auer, 1999, p. 317). It is alternational switching in that the discourse could be consistently conducted in either of the two languages – the producer and his/her recipients are sufficiently proficient in both."

⁷ A notable practice that emerged during Yi's observations of participants' relay writing activities was the addition of author commentary below each story. This sort of commentary bears a striking similarity to the "Author's Notes" that writers from Black's research inserted into their fan fiction texts (see Black, 2008, for further discussion). These commentaries and Author's Notes, coupled with reader reviews of texts, provide a direct line of communication between author and audience and break down the distinction between producers and consumers of content.

⁸ Edward Castronova (2001, 2002), an economist turned telecommunications researcher, was the first to perform detailed economic analyses of virtual gaming environments as they interrelate with global capital through the sales of in-game objects on public auction sites such as ebay (www.ebay.com). In a careful analysis of *EverQuest*, a popular massively multiplayer online game, Castronova ranked its 'virtual' economy

as the 77th largest economy in the ‘real’ world in 2001, with a “GNP per capita somewhere between that of Russia and Bulgaria” (2001, p. 1; see Steinkuehler, 2008a, for discussion).

⁹ Data from the Entertainment Software Association (<http://www.theesa.com/facts/index.asp>) and the Motion Picture Association of America (<http://www.mpa.org/researchStatistics.asp>).

¹⁰ Text-based virtual environments like MOOs are still used in L2 education (e.g., Schneider & von der Emde, 2000) and by practitioners of a variety of intercultural L2 education called tandem learning (e.g., O’Rourke, 2005; Schwienhorst, 2004). However, educational, social and role-playing MOOs, especially in comparison to their considerable popularity in the 1990s, have recently been displaced by the 3-D massively multiplayer online videogames and virtual socialities described in this article.

¹¹ Squire and Steinkuehler (2006) describe the dialectic of initial design and player created cultures as follows:

Understanding MMOs as cultures and not just environments is crucial if we are to understand such virtual social worlds as both emergent and designed. The cyberworlds of videogames entail more than virtual 3-D territories and the array of characters that populate them; they crucially entail the quasi-enduring virtual communities that constitute them as well (2006:, p. 179).

¹² In related research, Steinkuehler (2006) analyzes a single rather quotidian message produced by an expert MMO player. She describes the speech community specific linguistic features of the message and its interpersonal, ideational, and indexical significances, noting that such talk “can be leveraged to better understand the nature of the social and material activity it helps constitute and how that activity is tied to the very community that renders it meaningful in the first place” (2006: 50).

¹³ Reciprocally, L2 learning through MMO play may prepare some participants for successful interaction in non-gaming communicative settings. The sociolinguist Jan Blommaert, currently separated from his Belgium-based family due to work in Javäskylä, Finland, reported to one of the authors of this article that his twelve year old Flemish speaking son, a frequent player of the MMO *Runescape*, recently told him the following: “Dad, if I play *Runescape* for another six months, I may be able to come to Finland and go to school there in English” (Blommaert, personal communication, October 5th, 2008).

¹⁴ SIEs fall in the category in what Prensky (2001) terms “serious” games.

¹⁵ These results align with findings from computer-mediated foreign language learning research (Sykes, 2005) and specifically the reported efficacy of intercultural communication for pragmatic development (e.g., Belz, 2003; Belz & Thorne, 2006; Belz & Vyatkina, 2005; Kinginger & Belz, 2005; Thorne, 2003, 2006), but only partially take advantage of the SIE environment as a unique interaction context.

¹⁶ Another SIE currently in the development stage is *ZON*, a flash-based multiuser space for learning Chinese, developed under the direction of Yong Zhao at the University of Michigan. As users enter the space, they play the role of tourists and must accomplish a number of tasks in order to become a resident, and eventually a citizen. With each level, learners are exposed to more geographic areas, language skills, and cultural information. Since it is still in development, empirical investigation addressing this particular SIE is not available. Nevertheless, blog comments on the SIEs main website, indicate an overall positive response by alpha users of the site.

¹⁷ As Lemke describes, drawing upon Bakhtin, “[I]anguage competence in this sense is as much an ensemble of virtual identities as a language itself is an ensemble of heteroglossic voices” (2002:, p. 68).

¹⁸ The *linguistics of communicative activity* framework (Thorne & Lantolf, 2007) is rooted in, and attempts also to augment, the Vygotskian cultural-historical tradition by selectively recovering key insights from earlier work by Peirce (1955), Wittgenstein (1953), Whorf (1956), and Garfinkel (1967), and bringing them into contact with current scholarship by linguists and communication theorists such as Rommetveit (1974, 1992), Hopper (1998), Hanks (1996), and Tomasello (2003), among others. The motivation for developing the LCA framework is to disinvent language understood as an object and to reinvent language as *activity*, where the term activity describes a specific form of human societal existence that consists of purposeful changes to, and transformations of, natural, social, and mental realities (Davydov, 1999: 39). This perspective implies that human languaging activity structures, and is structured by, enduring conceptual properties of the social, political, and material world.

¹⁹ Ecological theoretical frameworks for the study of SLA that investigate how parts of a complex system interact have been proposed by Kramsch (2002), Kramsch and Whiteside (2008), Leather and Van Dam (2003), and Van Lier (2004).

²⁰ Bridging activities center on in-class teacher-guided exploration and analysis of student selected or created digital vernacular texts originating in Web 2.0 and other technologies/practices such as instant messaging, blogs and wikis, remixing, and multiplayer online gaming. Application of the model includes an iterative implementation cycle of (1) observation and collection, (2) guided exploration and analysis, and (3) creation and participation.