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7. LANGUAGE AND LITERACY DEVELOPMENT IN COMPUTER-MEDIATED CONTEXTS AND COMMUNITIES

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This article describes second language uses of Internet communication tools, Web environments, and online gaming, and critically reviews existing research and emerging technologies representing diverse pedagogical conditions in three distinct computer-mediated configurations: (1) instructed and institutional intraclass discussion and interclass partnerships, (2) transcultural partnerships and structured participation in "open" Internet environments, and (3) interaction in ongoing Internet-mediated environments that include popular culture blogs and Web sites, *fanfiction* communities, language and/or culture communities, and online games. We propose that a critical-and-constructive appraisal of existing and emerging digital media, communicative genres, literacy practices, and the communities made possible through them, can help to forge more responsive, and more ecologically responsible, language-learning opportunities for students who are expected to navigate increasingly mediated social and professional worlds.

All arenas of human interaction, from institutional contexts such as government, commerce, and education, to interpersonal communication among intimates, are mediated by tools and technologies, from gesture and speech to image and textual literacies. In dialectic tension with the explosive growth in digital information and communication media, Internet information and communication technologies have amplified conventional communicative practices in the areas of audience, impact, and speed and also have enabled the emergence of distinctive communicative, cultural, and cognitive practices. These practices emerge within distinctive cultures-of-use—that is, contextual aspects as well as "the historically sedimented characteristics that accrue to a [computer-mediated-communication] tool from its everyday use" (Thorne, 2003, p. 40)—and, as much of the research reviewed in this article suggests, these unofficial or assumed cultures-of-use often shape participation and forms of language development and literate engagement taking place in computer-mediated contexts, at times in ways that are at odds with formal and/or structured design elements of learning contexts. Thus, the argument developed in this article is that qualitative shifts in communicative contexts, purposes, and genres of language use associated with new media necessitate a responsive and

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proactive vision of educational practice, particularly in the areas of first and additional language instruction.

This review article will extend earlier treatments of Internet-mediated language education appearing in ARAL (e.g., Kern, Ware, & Warschauer, 2004) and other publications (e.g., Kern, 2006; Thorne, 2008) and will specifically examine affiliative activity and relationship and community building, as well as identity construction within computer-mediated interaction, either as a design element of formal instruction or as a function of participation in emergent, noninstitutionally located online cultures-of-use. The latter part of this formulation is intentionally broad as we explore research (and in some cases informal reports) within the following contexts:

1. Intraclass and interclass communication, where e-mail, synchronous chat, or other technologies are used to mediate and expand opportunities for language use
2. Organized transnational partnerships and structured participation in noninstitutional settings
3. New media research examining engagements in Internet-mediated environments that are not, or are only indirectly, linked to instructed second language (L2) contexts

These categories represent a heuristic taxonomy that in practice form way points along a fluid continuum. We will restrict this review to computer-mediated language and literacy research that explicitly references the developmental potential of social and interactional aspects of online interaction.

Communication Technologies in Contemporary Contexts

Within affluent regions of the world and for Internet users everywhere, communication and social interaction are markedly different today from even a decade ago. Massive sociological analyses have documented that the Internet has qualitatively transformed, with variable consequences, everyday communication and information practices in commercial, financial, professional, educational, recreational, and interpersonal realms (e.g., Castells, 1996, 2004). These late modern conditions raise questions as to how researchers and language educators could orient themselves to the changing qualities, purposes, and contexts of mediated language use generally and toward the issue of which genres and communication tools should be included in instructed L2 curricula.

Intraclass Interaction and Interclass Partnerships

The L2 educational use of Internet communication tools has emphasized language development through textually mediated, generally peer-focused, communication. Pedagogical and research treatments of intraclass Internet and local area network communication technologies began emerging in significant numbers in the early 1990s. These accounts suggested a number of pedagogical benefits such as

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greater opportunity for expression of ideas than in face-to-face discussions, more linguistic production overall (Chun, 1994; Beauvois, 1992), the expansion of occasions for authentic and meaningful discourse (Kelm, 1996; Kern, 2000; Warschauer, 1997), and increased engagement by students who do not participate as frequently in face-to-face classroom discussion (Sullivan & Pratt, 1996; Warschauer, 1996). The conventional subject positions of teachers and students were also argued to have shifted dramatically through the ongoing intervention of technology. To take one example, Kelm (1996, p. 27) stated that "technology allows language instructors to function in new roles: designer, coach, guide, mentor, facilitator. At the same time the students are able to be more engaged in the learning process as active learners, team builders, collaborators, and discoverers."

The early euphoria surrounding technology use as a potential panacea for assuaging the challenges of education and language learning is striking in much of this earlier L2 computer-mediated communication research (for a critical assessment of research from this period, see Knobel et al., 1998; Ortega, 1997; for a negative case study, see Janangelo, 1991). Yet it is also the case that computer-mediated communication (CMC) has the potential to transform what is often teacher-centered communication in face-to-face settings into more multidirectional interaction in computer-mediated contexts. For example, Newman, Cole, and Griffin (1989) described the use of CMC for reorganizing participation structures and for providing a diversity of communicative channels that form functional systems to support conventional subject matter learning as well as problem solving, written language development, and more agentive participation in knowledge producing activities.

To take a prominent early example from within the L2 literature, Kern (1995) used a synchronous chat tool (Daedalus Interchange) to mediate a French foreign language class discussion and then compared the log files from this event to a whole class oral discussion on the same topic. His quantitative and qualitative analyses showed that the distribution and direction of student turns at talk were radically different in the two conditions, with the computer-mediated discussion involving much higher rates of peer-to-peer talk. Topically, the CMC session illustrated greater sharing of personal information and, of particular interest, a contribution to the chat channel of an overt statement of solidarity with and promotion of ethnic identity (Chinese in this case), something Kern argued would have been unlikely to have occurred within the confines of teacher-directed whole-class discussion.

Darhower (2002) has examined the use of synchronous CMC in two fourth-semester university-level Spanish courses. His analysis illustrated that students were able to appropriate the chat environment to produce a personally meaningful, highly intersubjective discourse community that included the performance of nonstudent identities, theatrical role-play, sarcasm and recurrent forms of humor, and strategic uses of the first language (L1) to support more sophisticated dialogue, all of which extended the discourse possibilities substantially beyond those available in the face-to-face classroom setting.

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Admittedly, such reported findings involve a complexity of factors, but one hypothesis is that the opportunity to interact primarily with peers and within a peer-centered communication environment affords opportunities to perform identities not traditionally associated with those of "student" in instructed institutional contexts. The notion that institutionally structured identities limit communicative, and potentially developmental, possibilities has been discussed for some time. Firth and Wagner (1997, 1998, 2007), for example, stressed that the L2 research community, and by extension, many L2 pedagogical approaches, are dominated by a focus on individual cognitive issues at the expense of attention to the processes and contexts of the actual communication occurring. In particular, they pointed out the issue of the representationally anemic research constructs that are used as proxy identities for human agents engaged in situated activity. Firth and Wagner (1997) succinctly described the problem as a "general preoccupation with the learner, at the expense of other potentially relevant social identities" (p. 228).

In a study that sought to address these issues and to extend beyond second language acquisition research within bounded institutional contexts, Thorne (2000) examined intraclass uses of synchronous chat in French foreign language courses and followed up with extensive ethnographic interviews with participants. Similar to other studies, the log file transcripts of online communication showed high levels of experimentation with language and high participation levels for nearly all students, but also significant numbers of disruptive and occasionally aggressive speech acts. In the interviews, students who had significant experience in noneducationally related digital speech communities stated that they felt "less culpable" and as though there was "less supervision" during chat sessions, even when the instructor was online and participating in the discussion. Additionally, and in contrast to the aforementioned positive reports of CMC as a democratizing agent for educational discourse (e.g., Sullivan & Pratt, 1996), the experienced Internet users in these classes reported being keenly aware of which students were not as sophisticated with current styles of digital communication, going so far as to state that the face-to-face classroom was the more egalitarian of the two settings.

In terms of the language-mediated presentation of social identities, Thorne's (2000) research suggests that acculturation processes associated with becoming a competent member of nonacademic digital speech communities may significantly influence the character, tone, and discourse styles of online discussions within educational contexts. This work also highlights the need for instructors to become aware of the social identities and genres of language use that their students may closely associate with the appropriate cultures-of-use for particular Internet communication tools.

In an illustration of how contextual dynamics can radically affect the processes and learning outcomes of Internet use in language education, Warschauer (1999) examined technology use across three distinctive sites, a linguistically and ethnically diverse college-level English as a second language (ESL) course, a Hawaiian heritage language course, and an English writing class. His emphasis was to assess the impact of technology-mediated learning activities across these divergent

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contexts with a focus on understanding the limits and possibilities of computer mediation as a transformative force in the development of computer literacy, L2 communicative competence, and L1 writing. Warschauer's analysis showed that the processes and outcomes of technology use differed greatly across the various contexts, suggesting constitutive ecological relationships (e.g., Bateson, 1972) between institutional mission and culture, teacher beliefs about the processes and expected outcomes associated with learning, and student-participants as subjects with agency and independent life goals (see also Warschauer, 1998). To briefly examine two of the cases, the undergraduate ESL course emphasized discrete point surface-level grammatical accuracy, and subsequently, computer-mediated activities involved primarily grammar drills and attention to linguistic form. In contrast, the Hawaiian language course was ideologically committed to writing as a form of collective empowerment, with computer-mediated activities involving linkages to the community and the production of applied research that could support Hawaiian language revitalization and maintenance. In terms of technology integration into formal educational contexts, Warschauer's (1999; see also 2005) research has suggested that socially or professionally relevant "strong purpose activities" tend to be more productive and engaging for participants.

Interclass and Intercommunity Partnerships

Although virtually all institutions and regions include populations possessing heterogeneous linguistic and cultural resources that may be developmentally useful to one another, structurally linking them together for mutual benefit remains underutilized within L2 education.

An emerging class-to-class configuration is to link together local expert speakers, such as diaspora, immigrant, and heritage language populations, with foreign language (FL) students in organized partnerships. Blake and Zyzik (2003) used synchronous chat to connect Spanish heritage language students in a university language course with Spanish FL learners on the same campus. Benefits were reported for both groups. The FL learners gained access to interaction with more advanced speakers of Spanish, while the heritage speakers, many of whom had expressed insecurity about their Spanish language ability, that it was "not good enough" (Blake & Zyzik, 2003, p. 540), occupied expert roles that helped to affirm their cultural and linguistic backgrounds. Blake and Zyzik suggested that for both groups, Internet mediation decreased anxieties about negative appraisals of their linguistic performance, and correspondingly, that such "non-inhibiting" situations may tend to increase language output for both groups (p. 540).

Thorne (2004) examined an e-mail–mediated peer revision activity involving lower-intermediate students and more advanced Spanish foreign language students at the same university.[1] The task called for the lower-intermediate students to assume the identity of a magazine editor whose column gives advice to teens about their problems, while the advanced students were to review the essays and provide comments on content and grammar as appropriate. Reflection surveys were distributed to both groups of students. From a total of 194 suggestions made by

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reviewers, 185 were incorporated into the rewritten essays, a ratio experienced language educators found to be very high. More interesting, however, were the responses to the reflection survey. The advanced learners described a sense of overall progress through retrospective insight into their near-past as novices and from the opportunity to temporarily occupy an expert subject-position vis-à-vis their knowledge of Spanish. The lower intermediate group received and incorporated grammatical assistance and, in select cases, reported to be motivated by interactions with proximally more advanced near-peers.

In assessing these two studies of interclass collaboration, the assistance provided to the students with lower language proficiency was constructive. The result for the more advanced students, however, is arguably more noteworthy. Palincsar and Brown (1984) term a switching around of student power positions in the classroom "reciprocal teaching," where participants typically relegated to the discursively constrained student role gain the opportunity to occupy the structural role of an expert. This switch in subject positions shows the potential to provide insight into numerous aspects of the educational process. Additionally, for participants in the studies reviewed above, it made more visible to them their progress as developing language experts.

Organized Transnational Partnerships

Internet-mediated intercultural second language education (hereafter ICL2E) is premised on the notion that transnational dialogue and other forms of interaction can foster productive, and within the otherwise confined spaces of instructed foreign language classrooms, perhaps even necessary, conditions for developing intercultural communicative competence. Rather than focusing narrowly on language in relative isolation from its use in meaningful communication, ICL2E emphasizes the use of Internet communication tools to support intercultural community building between geographically dispersed participants (see Thorne, 2006, for a review). Many theoretical perspectives have been brought to bear on ICL2E research and pedagogy, including critical and cultural studies, communication theory, cultural historical activity theory, ethnography, and various strains of linguistic and second language acquisition theory (e.g., Basharina, 2007; Belz, 2004, 2005a; Belz & Thorne, 2006a, 2006b; Byram, 1997; Furstenberg, Levet, English, & Maillet, 2001; Kinginger, 1998; Kramsch, 1998; O'Dowd, 2006; O'Rourke, 2005; Schneider & von der Emde, 2000; Thorne, 2003, 2005). At the core of most ICL2E projects is the aspiration for participants to develop meaningful relationships with one another and to use the language they are studying for this purpose. Explicit educational objectives include linguistic and pragmatic development, the heightening of cultural awareness of both one's home culture(s) as well as that of one's interlocutors, and direct experience with the challenges and rewards of intercultural communication. ICL2E has been shown to produce a diversity of social-psychological conditions including tension and frustration (e.g., Belz, 2003, 2005b; Kramsch & Thorne, 2002; Müller-Hartmann, 2000; Schneider & von der Emde, 2006; Ware, 2005; Ware & Kramsch, 2005), as well as camaraderie, sense of community, and intimate friendship (Darhower, 2006, 2007; Thorne, 2003). This section will address three aspects of the ICL2E literature:

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contrastive cases of intercultural tensions and interpersonal relationship building occurring in ICL2E projects, the L2 developmental outcomes attributable to embedding language learning within the context of Internet-mediated relationship building, and structured participation in open Internet environments.

Developing Intercultural Awareness Through Conflict and Contradiction

Kramsch and Thorne (2002) acknowledged that international communication is certainly made more rapid and accessible by global communication networks; attendant to this shift in modality, however, is the need to revise and expand conventional characterizations of face-to-face communicative competence (e.g., Breen & Candlin, 1980) to account for the genres and interactional dynamics enabled by Internet-mediation. In a study of French–American ICL2E, close analysis of e-mail exchanges illustrated that the French and American students were operating within, and thus expecting from the other, differing genres of communication. The French students employed a largely factual, academic, and dispassionate genre of writing that included supporting their positions with examples and the use of argument building logical connectors ("for example," "however," "moreover"). By contrast, the American students expected the dialogue to result in peer solidarity and mutual trust building. Especially in early phases of the project, the phatic style of the American postings, heavy with message elements seeking to build friendly rapport rather than information exchange, suggested a high degree of affective involvement and personal-emotional investment that, in the end, did not convert well to contentious academic argumentation. The two partner classes were operating on the orthogonal axes of communication as information exchange versus communication for personal engagement, forming what Bernstein (1996, p. 44) has termed a "potential discursive gap" that marks an opportunity for alternative possibilities and understandings. In the instance of this telecollaborative exchange, however, this gap was not adequately recognized until after the fact and so was not explored by students or instructors during the course; thus the potential of a transcultural learning community did not adequately form in this instance due largely to unexamined differences in communicative genre, expectation, and perceived purposes of the interaction.

In a recent study, Basharina (2007) examined a triadic ICL2E project involving English learners from Japan, Mexico, and Russia. Utilizing activity theory (see Engeström, 1999; Lantolf & Thorne, 2006; Leont'ev, 1981; Thorne & Lantolf, 2007), this study identified a number of contradictions within the partnerships that catalyzed and mitigated the types of interaction that occurred. In particular, the curricular objectives and communication technologies made available clashed at pivotal points. Basharina drew upon the cultures-of-use framework (Thorne, 2003), in particular the proposition that historically sedimented qualities accrue to Internet communication tools through quotidian use and form an important axis along which to analyze cultural conflict, variation, and similarity. Basharina documented that the three groups varied in their use of online communication, and that more global cultural differences as well as differing expectations of appropriate online behavior created unresolved contradictions. Key issues were the use of formal versus informal registers of language, informationally dense messages versus personally situated

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narratives, the number and length of messages one could and should post, and whether extensive quotations (full paragraphs with minimal or no citations) counted as plagiarism. These intra-interactional disagreements were compounded by macrostructural differences in educational paradigms and varying socioeconomic status of the partner classes at local and nation state levels. Basharina concluded by calling for greater transparency at all levels of planning, more cross-site alignment in terms of the orientation of students to the processes of ICL2E, and stronger teacher mediation as an aid to interpreting and contributing messages (e.g., Belz & Müller-Hartmann, 2003).

Schneider and von der Emde (2006) also addressed the issue of conflict and open disputation emerging within intercultural partnerships. In an exchange between the German students at Vassar College and students studying English at University of Münster, a significant conflict occurred during a discussion of two school shootings, one at Columbine High School in Littleton, Colorado, and the other in Germany at the Johannes Gutenberg Gymnasium in Erfurt. In response, rather than proposing strategies to either deal with or avoid conflict, Schneider and von der Emde described their development and use of a dialogic paradigm that helped to reframe such tensions as sites for intercultural exploration and learning. As part of their approach, they shifted away from the term *communication,* encumbered by its long association with communicative language teaching, and propose instead the Bakhtinian conception of dialogue, which characterizes language not as a unified system or resource for maintaining status quo semantics, but as a site of struggle (Bakhtin, 1986). Their approach also involved situating telecollaborative partnerships in explicitly academic discourse such as ICL2E research to move students toward learning about the language and culture they are studying even in the face of conflict.

Related research such as that of Belz (2003), Ware and Kramsch (2005), and Ware (2005) have also helped to define specific methods for transforming unreflective intercultural conflict into developmentally available opportunities. Belz (2003) suggested focusing on "rich points" (Agar, 1994) as they occur through close examinations of the minutia of lexical choice and subtle linguistic cues used to create social realities that influence the flow of communication and the qualities of relationship development (see also Toyoda & Harrison, 2002). Belz (2003) suggested that the pedagogical implication is not that students need necessarily change their discourse preferences, but that intercultural communicators would benefit from greater awareness of their own interactional style(s) and the development of heightened attunement to the communicative preferences of their interlocutors, perhaps even choosing to occupy positions of hybridity which may augment their interpretive capabilities as intercultural speakers who can navigate between multiple online and offline speech communities (for related work describing "shuttling" between languages and genres, see Canagarajah, 2006).

The instructor has multiple roles when facilitating ICL2E projects, such as acting as a critical resource facilitating consciousness raising and modeling what Kramsch has described as an intercultural stance (Kramsch, 1999; Ware & Kramsch 2005). More specifically, Belz (2003) described the complex role of the ICL2E

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educator: "the teacher in telecollaboration must be educated to discern, identify, explain, and model culturally-contingent patterns of interaction in the absence of paralinguistic meaning signals, otherwise it may be the case that civilizations ultimately do clash—in the empirical details of their computer-mediated talk" (pp. 92–93). In response to a number of missed opportunities for recontextualizing unexamined conflict in an ICL2E partnership, Ware (2005, p. 65) noted the need for moving beyond a narrow focus on the coconstruction of online discourse and toward meta-awareness of the construal of the broader online context of interaction. Put another way, an increasingly important function of the L2 teacher is "to prepare students to deal with global communicative practices that require far more than local communicative competence" (Kramsch & Thorne, 2002, p. 100).

Linguistic Gains as a Function of Interpersonal Relationships That Matter

The strength of meaningful intercultural partnerships also has had a hand to play in linguistic and pragmatic learning outcomes reported in ICL2E research. In a series of studies, Belz and Kinginger (2002, 2003) and Kinginger and Belz (2005) described the development of address forms used in French and German (*tu*/*vous* and *du*/*Sie,* hereafter T/V). Nearly all of the American participants in these interactions exhibited free variation of T/V at the start of the intercultural communication process. Belz and Kinginger tracked usage over time in both e-mail and synchronous CMC sessions and found that after critical moments within exchanges with expert speakers, the American participants began to systemically modify their usage. These critical moments included explicit feedback and rationales for T form usage from German and French peers. Additionally, through the CMC discourse in which they were participating, the American students had opportunities to observe appropriate pronoun use by native speakers. In this way, pragmatic awareness of T/V as an issue led to the approximation of expert speaker norms in most cases. The critical insight emerging from Belz and Kinginger's research is that T/V use is not simply rule governed but is instead embedded in a system of meaning potentials that accrue over time and are realized in particular social interactions. Kinginger and Belz (2005) concluded that American students' desire to maintain positive face with German and French age-peers was the impulse focusing their attention toward the role of linguistic form in the performance of pragmatically appropriate communication, a condition that otherwise would be difficult or impossible to create within a conventional L2 classroom.

In related research, the social relationships built in these ICL2E partnerships have been shown consequential to the development of other grammatical and morphological features, namely *da*-compounds in German (Belz, 2004, 2006), modal particles in German (Belz & Vyatkina, 2005; Vyatkina & Belz, 2006), and linguistic control in the use of overnull subjects and overall fluency in Spanish (Dussias, 2006). The approach taken by Belz and Vyatkina in their various publications involved utilizing the ICL2E discourse of the students' own production as consciousness raising materials for the explicit teaching of contextually bound linguistic elements. German modal particles, for example, are frequently used and essential elements of interactive and interpersonal communication (Vyatkina, 2007). They are also,

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however, largely absent in formal instructional discourse, are polysemous, and do not have direct counter parts in English, all of which make modal particles difficult to teach effectively. Through iterative cycles of awareness and production tasks that drew upon intercultural CMC discourse the learners had directly participated in, the frequency, distribution, and accuracy of the students' use of modal particle came to approach that of the native speakers they were interacting with (Vyatkina, 2007; Vyatkina & Belz, 2006).

In contrast to approaches to L2 education that focus predominantly on language in relative isolation from its use in interpersonal interaction, ICL2E emphasizes participation in intercultural dialogue and development of the linguistic and metacommunicative resources necessary for carrying out such processes. This suggests that part of what language education could involve is the creation of conditions that support the development of significant social relationships between persons who have been socialized into different languacultural viewpoints. The ICL2E research reviewed here indicates that when personal relationships matter, academic treatments of grammar and pragmatics attain renewed relevance in the lives of speakers.

Structured Participation in Open Internet Environments

The use of open Internet environments such as message boards and chat forums has a lengthy history within L2 education. Cononelos and Oliva (1993) provided an early account of a content-based Italian foreign language course in which students participated in Italian language newsgroup discussions. The interaction with native speakers was reported to be intimidating at times, but also compelling in terms of producing authentic contexts for expression. The experience also galvanized the students into a mutually supportive community in that students came to rely upon one another, as much or more than the instructor, for editorial assistance in the production of messages.

In a more recent study, Hanna and de Nooy (2003) reported on four students of French who participated in public Internet discussion fora associated with the Parisian newspaper *Le Monde.* Hanna and de Nooy's rationale for opting to use public discussion fora, rather than more conventional approaches such as telecollaboration partnerships or tandem learning, was to move students entirely outside of the relative safety of explicitly educational interactions where participants occupy the institutionally bounded subject position of student or learner. *Le Monde* discussion fora, by contrast, exist to support argumentation and debate about mostly contemporary political and cultural issues. Hanna and de Nooy followed four students, two of whom opened with stand-alone messages that requested help to improve their French. They received a few cordial as well as abrupt replies, each of which suggested the need to take a position in the ongoing discussion. Neither did, and both disappeared from the forum. In contrast, the other two students opened with a response to an existing message, directly entering the ongoing debates. One student primarily used English in his posts, but with coaching and support from other participants, he maintained a presence on the forum, suggesting that "neither

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politeness nor linguistic accuracy is the measure of intercultural competence here" (Hanna & de Nooy, 2003, p. 78). Rather, in the circumstances of the *Le Monde* discussion fora, participation in the genre of debate was the minimum threshold for continued participation. From an instructional perspective, encouraging students to participate in noneducationally oriented online communities would involve coaching them to recognize contingent and often localized cultures-of-use of Internet communication tools. This could include developing awareness of appropriate genres of language use and patterns and styles of participation with the goal of gaining the capacity to contribute to ongoing discussions in ways that do not ultimately privilege "the self . . . as the exotic little foreigner/the other" (Hanna & de Nooy, 2003, p. 73).

Emerging Internet Environments and New Media Literacies

The majority of educational research focused on second language acquisition examines development and learning within the tightly bounded confines of classrooms. Yet demonstrably, life and learning are not composed of isolated or strictly isolatable moments and spaces (e.g., Leander & Lovvorn, 2006; Roth, Elmesky, Carambo, McKnight, & Beers, 2005). The use of the Internet, both in and out of school, is expanding rapidly, and often involves participation in communicative genres that differ from analogue-normative epistolary conventions (e.g., Crystal 2001; Herring, 1996; Thorne & Payne, 2005; Werry, 1996). Although access to communication and information technology remains unequally distributed across geopolitical regions and social classes (see Castells, 2004; van Dijk, 2005; Warschauer, 2003), Internet user populations continue to expand around the world, significantly increasing the quantity and types of media (text, image, sound, and voice) and forms of participation available (Jenkins, 2006).

Emerging Literacy Practices

A great deal of research informed by the New Literacy Studies (NLS) tradition (e.g., Bazerman, 1989; Gee, 1992, 1996; Street, 1995) has clear implications for current understandings of literacy and language learning as socially and culturally situated, shaped by context, and mediated by various tools and technologies. The NLS notion of *multiple literacies,* whereby learners develop literacy skills "through multiple experiences, in multiple contexts, with multiple text genres (both oral and written), for multiple purposes" (Kern, 1995, p. 67) is especially relevant to explorations of language practices taking place in out-of-school, online settings. Moreover, the concept of *multiliteracies* (Cope & Kalantzis, 2000; New London Group, 1996) has been particularly helpful for exploring communicative contexts where networked information and communication technologies enable globally distributed individuals to connect using multiple languages and forms of semiotic mediation. Many of these new literacy practices, such as text messaging, e-mail, chat, and communication via avatar, to name just a few, extend beyond traditional print-based text.

Much of the scholarship in this area has focused on native speakers using English and other forms of semiotic representation to engage in (potentially new)

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varieties of literate interaction in online environments. For example, Lankshear & Knobel (2003, 2006) reviewed a range of new language and literacy practices associated with *remixing* or the "practice of taking cultural artifacts and combining and manipulating them into a new kind of creative blend" (Lankshear & Knobel, 2006, p. 106). Many types of remixing have arguably become common "writing" practices for a number of youth in online fan communities (Lessig, 2005, cited in Lankshear & Knobel, 2006). For example, *fanfiction* is a practice by which fans of various media such as books, movies, television, comics, and video games borrow elements of these popular cultural texts, such as characters, settings, and plotlines, to name just a few, to construct their own narrative fictions. Fans often remix these various media, combining multiple genres (e.g., creating a "crossover" in which the fiction "crosses over" between a movie and a book), languages, and cultural elements such as inserting Japanese terms and Asian cultural references into Japanese animation or *anime*-based fanfiction written in English and set within a North American story context. Remix practices can also illustrate a plurality of registers, for instance, alterations between formal narrative prose and online social registers (Black, 2005; Lankshear & Knobel, 2006). Lankshear and Knobel also explored other forms of digital remixing that include the production of anime music videos (AMVs) (combining video and popular music), fan-produced translations and subtitling (combining video, image, and text), and creating amateur *manga* and/or fan art (combining image and text). Other research has explored how youth use language and new technologies strategically to strengthen social bonds and articulate their identities in online *zine* and journal communities (Guzzetti & Gamboa, 2005; Lankshear & Knobel, 2002), fan sites (Alvermann & Hagood, 2000), and through social networks constructed and maintained via instant messaging (Grinter & Palen, 2002; Lewis & Fabos, 2005; Shiu & Lenhart, 2004) as they develop "digital" literacies (Alvermann, 2002) articulating with established and emergent cultures-of-use of these Internet communication tools.

Of late, there also has been increasing attention paid to the many online literate exchanges taking place in multiple languages, particularly in communities that coalesce around popular and youth culture. For example, Lam's (2000, 2004, 2006) work has explored how the Internet provides new, transnational contexts for immigrant youth's English identity development and language socialization. In an early study, Lam (2000) described Almon, an immigrant from Hong Kong, who had struggled with English, been tracked as a low-achieving student, and expressed significant trepidation about English, the language of his new home in the United States. In high school, however, he began to explore the Internet, developed a Web site devoted to the Japanese pop (J-pop) singer Ryoko, and used his knowledge of Japanese popular culture, Web design skills, and chat and e-mail to create a textual identity in English. This process was mediated largely in English but also included transcultural expressive features such as emoticons, Web page design, and elements from other languages (e.g., Chinese). The online medium, coupled with his developing textual identity, bolstered Almon's confidence in communicating with a supportive, transnational group of peers who shared his interests in popular culture. Moreover, these exchanges also helped him to shift "from a sense of alienation from the English language in his adopted country to a newfound sense of

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expressivity and solidarity when communicating in English with his Internet peers" (p. 468).

Commenting on the differences between Almon's developmental progress in English in school and in the Internet peer group, Lam and Kramsch (2003) argued that although Almon's textual identity on the Internet was a positive and empowering discursive formation, his position in the U.S. high school "is also symbolically constructed, this time as a low-pride 'low-achiever'" (p. 155). In other words, as Lam and Kramsch noted, the sophisticated genre of English language use Almon demonstrated online may not meet the selection criteria necessary to pass the high school exit composition test. This case presents a number of challenges to the conventional goals and processes of language education, such as the rigidity of the gate-keeping mechanisms of high-stakes testing, the disconnect between the prescriptivist epistemology of schooling and language use that is appropriate in other contexts (Internet-mediated and otherwise), and what should or could be done to leverage, and perhaps formally acknowledge, a plurality of communicative practices that are currently considered stigmatized linguistic varieties. In an age marked by transcultural and hybrid genres of communication, these issues will increase in intensity and complexity and must necessarily inform the L2 educational frameworks of the future.

In a more recent study, Lam (2004) described how Yu Qing and Tsu Ying, two adolescent Chinese emigrants to the United States, participated in a Chinese–English chat room and used a hybrid form of English and Romanized Chinese to represent their identities as bilinguals. According to Lam, the hybrid or mixed-code variety of English became an integral part of establishing and maintaining a collective ethnic identity for members of this community—an identity that followed "neither the social categories of English-speaking Americans nor those of Cantonese-speaking Chinese" (p. 45). Such code-switching was also used for rhetorical purposes such as expressing humor, relationships, and social roles within the community. Lam's analysis highlights how the online culture of hybrid language use allowed these teens, who felt marginalized from their native English-speaking as well as native-born Chinese American peers in school, to develop confidence and fluency interacting with a transnational group of youth in English.

Yi's (in press; 2007) work explores the multiliterate practices of generation 1.5, Korean American youth in an online community called *Welcome to Buckeye City* (WTBC). Drawing from ethnographic and case study data, Yi described how this community served as a "safe house" (Canagarajah, 1997) for these youth to use their L1 of Korean and L2 of English to socialize, compose, relax, and discuss problems from their daily lives. A unique activity on WTBC was *relay writing,* whereby members of the site compose a portion of an evolving story and then "relay" the text to the next author (Yi, in press). Much like the role-play writing of fanfiction authors (Black, in press; Thomas, 2005), this collaborative form of writing "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 coconstructing knowledge and understanding in a community setting" (Yi, in press, p. 4). By writing

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with partners and in groups, these youth are able to engage in purposeful, composition-related interactions, develop metacognitive strategies for monitoring their language use, and gain insight into the social nature of writing (Black, in press).

Yi's case study analysis of Joan, a generation 1.5, Korean American high school student in the United States, reveals how Joan was able to use a wide range of multiliterate composing practices to develop what Yi calls a "writerly" identity in the WTBC community (personal communication, May 15, 2007). Joan's prolific writing of poems, short stories, cards, notes, relay novels, e-mails, and instant messages provided her with opportunity to take on subtly different identity roles according to the social and composing settings. By publicly posting her poetry on WTBC, Joan was also able to receive feedback from other members of the site. This feedback served the multiple purposes of helping Joan to improve her composing skills, enabling her to discuss her "adolescent thoughts and feelings" with other immigrant youth, and affirming her identity as an accomplished poet. Additionally, Joan's frequent instant messaging, chatting, and e-mailing helped her to develop confidence and fluency in "conversational" English and biliterate writing (Yi, 2007).

Black's (2005, 2006, 2007) empirical investigation of an online fanfiction site also centers on the multilingual composing practices of English language learner (ELL) youth. Drawing from a 3-year ethnographic project, Black presented case studies of ELL youth of Asian heritage participating in a Japanese animation (anime) fanfiction writing community. In this work, Black highlighted how the cosmopolitan nature of anime-based fanfiction enabled some ELL focal participants to act as cultural and linguistic "consultants" within the community by helping other fanfiction writers accurately incorporate elements of Asian cultures and languages into their story texts (Black, 2005). Akin to Lam's 2004 study, Black also found that many ELL youth used Romanized Chinese to compose hybrid or multilingual fanfiction texts that incorporated their L1 of Mandarin, L2 of English, and at times additional languages such as Japanese and French. These hybrid texts provided a means for case study participants to index their identities as multilingual and multicultural youth (Black, 2006) and participate via valued language practices that emerged within this specific fandom-inspired speech community.

An additional focus of Black's work is the many ways that online fanfiction-related activity is aligned with school-sanctioned literacy and language development practices, such as collaborative composition, peer-review, peer-editing, and mentoring (Black, 2007). For example, Black described how the ease of online publication made it possible for Nanako, a 16 year-old Mandarin-Chinese high school student who immigrated to Canada at age 11, to revise and repost her fanfiction texts in accordance with audience feedback on textual elements such as plot, characterization, and grammar (Black, 2007). Like many fanfiction authors, Nanako also utilized community resources such as online writing guides, composition forums, as well as generic examples from other fanfiction authors to familiarize herself with the associated techniques and conventions of different genres of writing (Black, 2005). In these ways, Nanako was able to not only improve her English writing skills but also take on the identity of a popular and accomplished fanfiction author with a

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broad following of readers. Thus, a common thread across Black's, Lam's, and Yi's work is how online communities provide ELL youth with new forums for taking on powerful authorial and social roles, even as they learn and develop fluency with multiple textual forms, languages, and online registers.

Virtual Environments and Gaming

Although not explicitly interactive with other players, a recent report described L2 learning relevant uses of off-the-shelf machine local gaming. A best-selling example is *The Sims 2,* a game available in multiple languages that simulates the routine, and even the mundane, activities of everyday life. In an informal assessment of The Sims 2 as a foreign language learning tool, Purushotma (2005) found that the vocabulary and tasks the game comprises were highly aligned with the content of conventional foreign language course content. Purushotma argued that the difference between instructed foreign language learning and a game like The Sims is that exposure to the target language is always linked to carrying out tasks and social actions, which concomitantly embeds vocabulary and grammatical constructions in rich associative contexts.

Increasingly, multiplayer online games and virtual environments are coming to the attention of education researchers and practitioners (for a review, see Squire, 2003; see also Steinkuehler, 2006). They have been argued to provide opportunities for immersion in linguistic, cultural, and task-based settings (Gee, 2004).[2] An array of literacy practices have recently emerged that are associated with massively multiplayer online games (MMOs), video games played online in a persistent virtual world in which individuals interact with other players, not only through voice and in-game chat screens but also via digital characters called *avatars.* Such research has focused on the function and social norms governing the use of "4337 speak" or "leetspeak" meaning "elite speak," a specialized form of in-game writing utilizing alphanumeric characters that is used by experienced players (Black & Steinkuehler, in press; Steinkuehler, 2006). Additionally, research has detailed how language and other in-game symbols are used to develop strong "projective" identities, defined as a long-term and usually consistent identity performances players project onto their in-game characters (Gee, 2004). Cultures promoting explicit assistance are also common in MMOs and instances describing how experienced players scaffold *newbies,* or novices, into successful participation are emerging (Ducheneaut, Yee, Nickell, & Moore, 2007; Nardi, Ly, & Harris, 2007; Squire & Steinkuehler, 2006).

The most popular MMO at the time of this writing (June 2007) is *World of Warcraft* (or WoW, produced by Blizzard Entertainment), which currently has a customer base of over 8.5 million worldwide. WoW is a graphically elaborate and visually elegant online realm that supports voice and text propositions from game-generated characters. Human gamers can act on the environment and with other human and game-generated characters and can communicate with one another using an in-game multichannel synchronous chat tool as well as with an asynchronous mail application (see Nardi et al., 2007).

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In a forthcoming study examining a multilingual encounter in World of Warcraft (hereafter WoW), Thorne described an impromptu dialogue between two gamers, one American and the other Ukrainian. Both were battling computer-generated foes in the same area, when Zomn, the Ukrainian, sent the following message to Meme, the American: "ti russkij slychajno?", to which Meme replied with a question mark and a follow-up question asking which language Zomn is using (the reply was Russian). Approximately 150 lines of dialogue follow that begin with introductions and statements of location. Early in the conversation, the American Meme contacted a Ukrainian high school friend using AOL Instant Messenger (AIM) to ask how to say something appropriate in Russian. This overlapping use of multiple information and communication tools, very common among sophisticated Internet users (and particularly youth, see Thorne & Payne, 2005) is a representative example of what Jones (2004) described as *polyfocality*–the use of multiple semiotic resources in near simultaneity. Periodically throughout the roughly 30 minutes of play together, Meme would post Russian language messages received through AIM from his Ukrainian hometown friend, some of which were humorously vulgar. Zomn reacted with good-natured responses and, in turn, asked specific questions about the accuracy of the English he was using in his posts.

From a language-learning perspective, the conversation was naturally occurring and unconstrained by the fabricated (if also developmentally useful) patterns characterizing much instructed setting discourse. 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 reciprocal alternations in expert–novice status wherein both participants provided language-specific explicit corrections, made requests for linguistic assistance, and collaboratively assembled successful repair sequences. From an ethnomethodological perspective, the social order assembled by this dyad illustrates significant opportunities for both producing new knowledge and refining existing knowledge in the areas of language use (English for Zomn and Russian for Meme) as well as WoW associated game strategy. Finally, an enduring social bond was established (they added one another to an in-game "friends" list) that pertained to continued intragame activity as well as to out-of-game social networks. In an uncorroborated but interesting follow-up to this episode, during an informal conversation with the American student, he mentioned a strong interest in studying Russian, in part to improve his WoW experience with Russian speakers. He also reported that another student in his dorm, a highly enthusiastic gamer, had already begun to study Chinese with the primary goal of more fully participating in Chinese language-mediated game play (Thorne, in press).

In the research discussed earlier relating to emerging Internet environments, gaming, and new media literacies, a unifying theme is that the social accomplishment of language development was not an end in itself. Rather, the desire to build expressive capacity was driven by its use value as a resource for creating and maintaining social relationships that are meaningful in the participants' lives. In this sense, certain developmental trajectories occurring in informal learning environments may only be possible in self-selected activity marked by the establishment of relatively egalitarian, and situationally plastic, participation structures. Research on

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learning in noninstitutionalized digital environments is in its relative infancy. Further research is needed that finely documents what Brouwer and Wagner (2004) described as "collections of phenomenological similarity" that serve as resources for the construction of "intersubjective meaning in social life" (p. 31). Future work in this area should help to highlight the evolving contours of possibility for language development in the transcultural spaces of noninstitutional online environments and associated cultures-of-use.

Discussion

The Internet has enabled multiple new opportunities for information gathering, enhanced possibilities for producing and disseminating information to others, and has provoked changes in the granularity of information sharing between spatially dispersed coworkers, friends, and family members. Especially among the digital native generation (Presky, 2001), a descriptor for individuals who quite literally grew up with (and through) the use of Internet information and communication tools, it is apparent that social as well as academic communication is mediated by participation in digital environments such as social networking sites (www.facebook.com, http://www.myspace.com), blog networks, Web sites, instant messaging, gaming, and voice and text messaging over cell phones (see Thorne & Payne, 2005, pp. 381–386). This increase in mediated communication in the service of community building and maintenance suggests that for many individuals, performing competent identities in second and additional language(s) now involves Internet mediation as or more often than face-to-face and nondigital forms of communication.

It is also clear that, unlike Internet use in L2 education in earlier times, when the Internet was typically perceived as a proxy environment for the development of conventional L2 learning objectives such as face-to-face communication and nondigital writing, Internet-mediated communication is now a high-stakes environment that pervades work, education, interpersonal communication, and, not least, intimate relationship building and maintenance (Castells, 1996). Education generally, and language education particularly, will need to accommodate emerging communication tools, their emergent and plastic cultures of use, as well as their attendant communicative genres that are, and have been for some years, everyday dimensions of competent social and professional activity.

Notes

1. This pedagogical project was conceptualized and carried out by G. Zapata and A. Jiménez-Jiménez.

2. Gaming is closely related to virtual environments such as Second Life, a three-dimensional, visually rendered world within which structured and unstructured social, professional, and work activity occur. However, there are number of differences between the two. To take Second Life as the example of a virtual environment, the computer-enabled environment itself does not provide a comprehensive ontology; rather this is produced by the human players themselves in

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the form of the objects they create and the interactions and talk they produce together. Within gaming environments, by contrast, nonhuman player characters (NPCs) play critical roles such as giving help and assistance, providing instructions for goal-directed tasks (called quests or missions); acting as antagonists in battle; and providing functional services such as, within the game World of Warcraft for example, banking, skills and profession training, transportation, selling goods and materials, armor repair, and the like. In essence, in both gaming and virtual environment settings, player-to-player communication and interaction are foundational, but gaming involves much more highly structured and goal-directed activity.

ANNOTATED REFERENCES

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

Drawing from a notion of identity as a fluid construct, Black examined how an English language learning youth used her participation in an online fan writing community, not only to develop her English language and composition skills but also to construct an online identity as a highly popular, multiliterate writer. The article also focuses on the *dialogic resources* that the learner appropriated to scaffold composition of her texts as well as her social interactions with other fans. Thus, the article demonstrates how popular culture and technology coalesce and create a context in which this ELL youth was able to draw from multiple linguistic, cultural, and popular resources to develop a positive, transcultural identity.

Black, R. W. (in press). *Adolescents and online fanfiction*. New York: Peter Lang.

This book presents an ethnographic account of adolescent English language learners' participation in the largest online fanfiction archive, Fanfiction.net. The start of the text provides an overview of theory and research in relation to popular culture, fanfiction, and literacy. The latter chapters use discourse analyses to focus on the literate and social practices of three youth in particular. Analysis highlights how these youth were able to draw from new media and technologies to create online narrative and social spaces that afforded each of them different opportunities to learn and practice English, improve their composition skills, develop confidence in their literate abilities, and represent their shifting identities over time.

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

In this book, Gee juxtaposed specialized varieties of academic language and literacy with the language and literacy practices of youth in online and offline *affinity spaces,* in which individuals coalesce around a shared passion or endeavor. (Gee drew from examples of learning and

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literacy related to Pokemon and video games.) Through such juxtaposition, the author highlights how *all* children successfully learn specialist varieties of language and associated ways of thinking in popular cultural-inspired affinity spaces. In this way, Gee makes the argument that individuals learn and acquire language best when they are able to relate lexicon and syntactic structures to their prior knowledge, interests, and experiences. He goes on to call for increased attention to the forms of learning that youth are voluntarily embracing in affinity spaces as a means of making education more equitable and motivating in schools.

Kern, R. G. (2006). Perspectives on technology in learning and teaching languages. *TESOL Quarterly 40*(1), 183–210.

In this review article, Kern described a wide array of published work in the area of technology-related L2 research and pedagogy. The article is divided into three sections, the first of which focuses on the current status of computer-assisted language learning and its theoretical grounding, cultural embeddedness, and effectiveness. The second section reviews L2 research in the areas of computer-mediated communication, electronic literacies, and Internet-mediated intercultural foreign language education (or telecollaboration). The final section extends these discussions into the future of technology related L2 research and pedagogy.

Knobel, M., & Lankshear, C. (Eds.). (2007). *A new literacies sampler*. New York: Peter Lang.

This volume "samples" a wide range of new literacy practices taking place in online environments. Collectively, the authors draw from sociocultural theory, approaching new language and literacy practices as communicative resources that are intimately tied to new contexts of use. This collection of studies describes the role of language and literacy in production and negotiation of meaning in technology-mediated contexts such as wireless classrooms, popular Web sites, online and offline role-playing games, fanfiction Web sites, and blogs. In so doing, the authors provide robust accounts of emerging methodological and theoretical approaches that are useful for in situ study of technology-mediated meaning making and literate practice.

Lam, W. S. E. (2006). Re-envisioning language, literacy, and the immigrant subject in new mediascapes. *Pedagogies, 1*(3), 171–195.

In this article, Lam considered the implications of technology-mediated transborder social networking for language learning, socialization, and literacy development for immigrant youth in the United States. In the first part of the article, the author provided a pointed synthesis of research related to globalization, networked electronic communication, and language and identity to posit a potential shift from immigrant

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acculturation (socialization to the culture of the adopted country) to *transculturation* (socialization to multiple contexts and modes of belonging in a globalized, networked world). Next, Lam presented case studies of immigrant youth who use multiple languages, including English, to participate and form relationships in linguistically and culturally pluralistic spaces. Through such activities, these youth were able to use English construct what the author called "global identities" that differed from their identities as minority language learners in the United States.

Leander, K., & Lovvorn, J. (2006). Literacy networks: Following the circulation of texts, bodies, and objects in the schooling and online gaming of one youth. *Cognition and Instruction, 24*(3), 291–340.

Leander and Lovvorn argued against context-based binaries, such as activity inside and outside of formal schooling, and instead developed a framework that emphasizes how literacy practices actually create and organize space-time. Building on actor network theory and case study analyses of the literacy practices of a youth engaged in activity associated with school and a massively multiplayer online game, the authors proposed the heuristic "literacy networks" to describe the heterogeneity of space-time representations and the movement, position, and circulation dynamics of textual practices within and across particular literacy practices. Close analyses of literacy networks are argued to provide insight into the complex interrelations linking literacy practices to agency, identity, and engagement.

Steinkuehler, C. (2007). Massively multiplayer online gaming as a constellation of literacy practices. *E-Learning, 4*(3), 297–318.

In this article, Steinkuehler drew from data collected during a 2-year online cognitive ethnography of the massively multiplayer online game *Lineage*. Using discourse analytic analyses, the author outlines the *constellation* of technology-mediated literacy activities that make up successful play for this online role-playing game. Steinkuehler described how text-based forms of in-game interaction and out-of-game fan activities all play a role in active and successful gaming, thus highlighting the relationship between online and offline literacy practices. Analyses also explore the specialized textual forms and communicative norms of in-game interaction, specific genres of game-related literacy practices, as well as the connections between such literate activities and national literacy standards for schools.

Thorne, S. L. (2003). Artifacts and cultures-of-use in intercultural communication. *Language Learning & Technology, 7*(2), 38–67.

This article analyzes three cases of computer-mediated foreign language intercultural interaction and suggests relationships among the following factors: (1) educational-institutional and nonacademic social and material conditions, (2) specific cultures-of-use associated with specific

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Internet communication tools, (3) that genres of communicative activity relate to both tool type and discursive context, and subsequently (4) that these aforementioned factors underlie varying types, qualities, and quantities of participation in foreign language intercultural interaction. The analyses demonstrate that Internet-mediated educational activity is embedded in, and functionally disassociable from, other everyday communicative contexts. As a corollary, Internet communication tools, like all human artifacts, are shown to be deeply cultural tools for habituated users.

Thorne, S. L. (in press). Transcultural communication in open Internet environments and massively multiplayer online games. In S. Magnan (Ed.), *Mediating discourse online*. Amsterdam: Benjamins.

In this publication, Thorne examined online gaming and open Internet environments as informal settings for L2 use and development. The text begins by contextualizing communication technologies use within broader demographic, historical, and sociological frameworks. Two categories of online interaction are then explored: (1) various cases of Internet-mediated intercultural communication that largely, or fully, occurred outside of instructed L2 classroom settings, and (2) a case study of multilingual transcultural communicative activity occurring in the massively multiplayer online game World of Warcraft. The case studies suggest that these contexts are sites of frequent and highly meaningful communicative activity for participants. In conclusion, an argument is made for continued exploration of new media genres of language use and their selective inclusion into instructed L2 pedagogies, processes, and curricula.

Warschauer, M. (1999). *Electronic literacies: Language, culture, and power in online education*. Mahwah, NJ: Erlbaum.

In this book, Warschauer provided in-depth accounts of technology-mediated language learning in four distinct formal learning contexts: an undergraduate English as a second language (ESL) class; a graduate ESL writing class; an undergraduate Hawaiian language class; and a community college English writing course. The author situated these studies at the start of the book with a historical analysis of the relationships between literacy and technology. Through analyses of the electronic literacy practices in these various contexts, Warschauer provided insight into the changing nature of reading and writing and explored the implications of these changes for classroom teaching and learning.

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