

Appendix C

Questionnaire: Intercultural Sensitivity Scale
(Adapted from the Intercultural Sensitivity Scale developed
by Chen and Staresta 2000)

Below is a series of statements concerning intercultural communication. There is no right or wrong answer. Please work quickly and record your first impression by indicating the degree to which you agree or disagree with the statement. Thank you for your cooperation.

5 = strongly agree 4 = agree 3 = uncertain 2 = disagree 1 = strongly disagree

(Please put the number corresponding to your answer in the blank before the statement.)

- ___ 1. I enjoy interacting with people from different cultures.
- ___ 2. I tend to wait before forming an impression of culturally-distinct counterparts.
- ___ 3. I am open-minded to people from different cultures.
- ___ 4. I often give positive responses to my culturally different counterpart during our interaction.
- ___ 5. I don't avoid those situations where I will have to deal with culturally-distinct persons.
- ___ 6. I often show my culturally-distinct counterpart my understanding through verbal or nonverbal cues.
- ___ 7. I have a feeling of enjoyment towards differences between my culturally-distinct counterpart and me.
- ___ 8. I am very observant when interacting with people from different cultures.
- ___ 9. I try to obtain as much information as I can when I interacting with people from different cultures.
- ___ 10. I am sensitive to my culturally-distinct counterpart's subtle meanings during our interaction.
- ___ 11. I am pretty sure of myself in interacting with people from different cultures.
- ___ 12. I feel at ease to talk in front of people from different cultures.
- ___ 13. I always know what to say when interacting with people from different cultures.
- ___ 14. I can be as sociable as I want to be when interacting with people from different cultures.
- ___ 15. I feel confident when interacting with people from different cultures.
- ___ 16. I think people from other cultures are narrow-minded.
- ___ 17. I don't like to be with people from different cultures.
- ___ 18. I cannot tolerate the values of people from different cultures.
- ___ 19. I cannot tolerate the ways people from different cultures behave.
- ___ 20. I would not accept the opinions of people from different cultures.
- ___ 21. I think my culture is better than other cultures.

Transcultural communication in open Internet environments and massively multiplayer online games

Steven L. Thorne
The Pennsylvania State University

This chapter examines online gaming and open Internet environments as informal settings for second language (L2) use and development. The text begins by contextualizing communication technologies use within broader demographic, historical, and sociological frameworks. This discussion suggests the existence of a deeply problematic school-world divide between the goals and processes of conventional institutionalized schooling on the one hand and students' increasingly mediated interpersonal, recreational, and professional lives on the other. Two categories of online interaction are then explored: (a) various cases of Internet-mediated intercultural communication that largely, or fully, occurred outside of instructed L2 classroom settings, and (b) 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 pedagogy, processes, and curricula.

What attracts people most, it would appear, is other people. (Whyte 1988)

Learning through living online

People learn all the time – increasing their capacity to function autonomously as well as productively in groups and developing ways to present themselves competently and contingently across diverse activity setting. Formalized educational activity, of course, is a powerful contributor to development, but so too are lived experiences in less explicitly structured environments. Processes variably described

as informal learning (Sawchuk 2003), apprenticeship (Lave 1988), language socialization (Ochs 1993), and becoming a particular kind of person over time (e.g., Lave & Wenger 1991), may include explicit instruction, but also encompass a wide array of participation in non-instructed culturally organized activity. Building on a review of published research and presentation of a preliminary case study of intercultural communication in a massively multiplayer online gaming environment, I will suggest that engagement in freely chosen Internet environments provides developmentally productive opportunities for learning. This essay explores second and foreign language (L2) use in such non-institutional contexts and specifically focuses on digitally mediated communicative practices that are distinct from, or at the boundaries of, the modernist project of formal education.

This essay is partitioned into three parts: (a) contextualizing communication technology use within broader historical and sociological frameworks and acknowledging the growing disconnect between the goals and methods used in school and students' increasingly mediated interpersonal, recreational, and professional lives; (b) Internet-mediated intercultural activity, focusing on an instance of interaction that was sparked within a formal educational setting but subsequently evolved independently; and (c) language use in virtual environments and massively multiplayer online gaming. Throughout the essay the iterative theme will be the implications and potentialities for learning additional languages (L2s) through activities mediated by Internet communication and gaming environments.

Questions and challenges

'Who cares?'

When pondering non-instructional uses of Internet resources as sites of L2 use and development, theorists and practitioners might ask many questions. A first might be – who cares? How would knowing more about personal and social uses of the Internet help L2 educators with their in-class efforts? Indeed, the bulk of educational research – that focused on second language acquisition (SLA) and otherwise – 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 et al. 2005).

Student use of the Internet, both in and out of school, is expanding rapidly, and with this expanded use comes participation in and exposure to communicative genres that are substantially different from pre-digital epistolary conventions

(e.g., Crystal 2001; Herring 1996; Thorne & Payne 2005; Werry 1996). Although access to communication and information technology is still 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. At this point in history, more than a decade beyond the wide-spread diffusion of the world wide web (in the mid 1990s), it has become cliché to engage hyperbole when attempting to describe the magnitude of the Internet's transformative effects on local and global communicative practices, yet recent demographic trends empirically substantiate hyperbolic phenomena. As of June 10th 2007, there are estimated to be well over one billion (1,133,408,294) Internet users globally. Among world regions, North America retains the greatest percentage of Internet penetration (69% of total population), followed by Oceania/Australia (54.4%) and Europe (39.4%). Somewhat surprising, however, is that the largest absolute number of Internet users currently reside in Asia (409,421,115) (from Internet Use Stats, www.internetworldstats.com/stats.htm). To revisit the essential message of Internet pioneer Tim Berners-Lee (1998), the demographic shifts in Internet growth suggest that the Internet is less a technological fact than a social fact, and one that is mediated in large part by textual language use. All of this suggests that within language education, Internet-mediated communication is no longer a proxy activity or practice environment, but is itself the real thing – the medium through which we perform social and professional roles and through which we engage in interpersonal and informational activity.

The usage-based identity of Internet communication tools

The second question asks why learners frame (and perform) communication differently when doing them on the Internet, an issue I have addressed in earlier work on L2 education and Internet use (Thorne 2000, 2003; Kramsch & Thorne 2002). Focusing on the interpenetrations between micro-interactional activity and macro-social and cultural structures, this research examined social and formal educational uses of Internet communication technologies. Log file transcripts and ethnographic interviews provided evidence that for a number of students, the discursive framing of Internet-mediated L2 educational activity was strongly influenced by their prior socialization into non-educational digitally mediated speech communities. In other words, Internet communication styles marking high competence were first established in social uses of the medium, which in turn informed how students communicated when in Internet-mediated instructional settings. Though prior research on computer-mediated communication (CMC) use in L2 contexts (e.g., Beauvois 1998; Chun 1994; Warschauer 1997) had provid-

ed important descriptive analyses of uses of CMC for educational purposes, this work was limited by its lack of attention to school-exogenous and macro-cultural processes also at work (although see Warschauer 1999). For many L2 technology researchers (as well as Internet users themselves), the variable meanings and affiliative significances of the Internet are masked by the *doxa*, or taken-for-grantedness, of its use in routine, everyday cultural practice (e.g., Bourdieu & Eagleton 1992). To help clarify this situation, I proposed an analytical framework for the study of Internet mediation that drew upon and expanded theoretical treatments of mediation and interactivity system analysis (Thorne 2000, 2003, 2005, 2006a; see also Engeström 2001; Lantolf & Thorne 2006). Although artifacts do possess a functional identity that affects communicative dynamics and patterns, *in situ*, artifacts such as Internet communication tools are meaningfully and differentially defined by their historical patterns of use, the majority of which now arguably involve non-instructional environments and purposes. What students do online and outside of school involves extended periods of language socialization, adaptation, and collective transformation that result in highly complex, modality and interlocutor specific language practices (e.g., Werry 1996; Thorne 2003; Thorne & Black in press; for a distinctive example involving online gaming, see Steinkuhler 2006). Within the context of formal educational CMC L2 use, a phenotypic approach frames in-class digital interaction within the larger context of participants' prior and everyday use of Internet communication tools.

Internet communication tools, like all human creations, are cultural tools (e.g., Cole 1996; Nardi 1996; Wartofsky 1979) that carry interactional and relational associations, preferred uses (and correspondingly, dispreferred uses), and expectations of genre-specific communicative activity. In this sense technologies are structured and structuring forms of culture (e.g., Bødker 1997; Bourdieu 1990) that will have variable meanings and differing mediational influences across communities. I wish to underscore, however, that while Internet communication tools carry the historical residua of their use across time, patterns of past use inform, but do not determine, present and future activity (just as gender or social class do not determine present and future activity). Rather, what I have recently come to call the cultures-of-use framework for addressing research and pedagogical innovation in Internet environments (Thorne 2003, 2006a; Thorne & Black in press) provides an axis along which to perceive and address issues of genre conflict, variation, and alignment (see also Kramsch & Thorne 2002; Thorne, forthcoming). Extensions of this line of research will be further discussed below.

Deepening school-world divide

A significant challenge to the viability of institutional forms of education is its limited capacity to respond and reform in relationship to a rapidly changing world. This issue is strikingly salient in view of the dissonance between top-down processes and pedagogies that operate in formal learning environments and the bottom-up life experiences, many Internet-mediated, of students in secondary and university environments (e.g., Lankshear & Knobel 2003). This relevance gap has been confirmed in recent research by the Pew Internet and American Life Project (Levin & Arafeh 2002) based on focus groups (136 students in gender-balanced and racially diverse clusters) and voluntary participation data (200 students who submitted online essays describing their use of the Internet for school). The 2002 Pew report revealed that although nearly all students used the Internet as a regular part of their educational activities, we know little about how they actually use it for schoolwork or about how its use might substantively inform school policies, practices, and pedagogies. As Internet users expand numerically and geographically, and as Internet information and communication tools continue to evolve, research and pedagogical innovation involving Internet use and language education must continue to adapt in response to new populations, communication tools, and emerging communicative needs.

Review of research

Open Internet environments and L2 Use

People have interests, passions, hobbies, idols, fetishes, problems, addictions, and aspirations that they want to communicate, share, argue about, and bond over. The Internet has created compelling opportunities to engage in all of the above (and more) through contributions to fan fiction sites (Black 2005, 2006), discussion fora associated with online newspapers (Hanna & de Nooy 2003), and fan websites (Lam 2000, 2004; Lam & Kramsch 2003). To begin with a project that most closely relates to instructed L2 learning, 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. One forum in particular, labeled *Autres sujets* (other topics), included a wide range of participants and topics and was selected as the venue for the study.

The French foreign language learners in Hanna and de Nooy's study were David and Laura, both American, and Eleanor and Fleurie from England. Each student's opening post to the *Autres sujets* forum was analyzed and followed for the number and content of the responses received. Each of the four students positioned themselves as learners of French, but they differed in their approach. Eleanor and Fleurie created new, stand-alone messages on the forum, with the respective subject lines *Les Anglais* (The English) and *Une fille anglaise* (An English girl). In the content of their posts, Eleanor and Fleurie both made explicit requests for help to improve their French. They received a few cordial as well as abrupt replies, each of which suggested that the need to take a position in the ongoing discussion. Neither did and both disappeared from the forum.

In contrast, the other two students, David and Laura, both opened with a response to another message, *de facto* entering into a turn exchange system as their messages were marked by the subject line header of the message they had responded to (e.g., *Réf: Combattre le modèle américain* – Fight the American model). They also each began by apologizing for the limitations of their French language ability. Hanna and de Nooy interpret this apology as a clever strategy that “reinstates certain cultural borders” and that provided them with “a particular speaking position” (p. 78) that may have yielded advantages in the debate culture of the forum. It was critical that immediately following their language apology gambits, Laura and David each contributed position statements on the themes of racism and cultural imperialism. David, in fact, primarily used English in his posts, but with coaching and support from other participants, he maintained a presence on the forum, suggesting that “neither politeness nor linguistic accuracy is the measure of intercultural competence here” (2003:78). Rather, in the circumstances of the *Le Monde* discussion fora, participation in the genre of debate appeared to be the minimum threshold for continued participation. This study confirmed that mutual benefit, or at least the presence of minimally passable amusement value, is necessary to sustain longer term interaction. From an instructional perspective, encouraging (or requiring) students to participate in non-educationally oriented online communities would involve coaching them to recognize appropriate genres and contributions to activity, and subsequently, helping them to engage in discussion that does not ultimately privilege “the self ... as the exotic little foreigner/the other” (Hanna & de Nooy 2003:73).

Hanna and de Nooy's study illustrated that participation in open and thematically oriented Internet communities supports the very processes that L2 education ostensibly seeks to provide, such as the use of language as a resource

for ongoing identity formation and personally meaningful communication in the service of goals extending beyond ‘practice’ or ‘learning’ in the restrictive senses associated with institutional settings. In related research investigating diaspora and immigrant youth engaged in non-academically structured uses of the Internet, Lam (2000, 2004) documented ethnographically a number of developmental trajectories. One individual, an immigrant from Hong Kong, 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 started to converse over email and SCMC with a number of other J-pop fans. 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). Participation in a vibrant online community elevated Almon's confidence and enhanced his capacity to use a genre of English appropriate to online communication. As Almon's semiotic repertoire expanded, he developed the ability to construct a complex online identity and to build and sustain meaningful relationships. 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 note, 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.

Internet-mediated intercultural second language education

The use of Internet technologies to encourage dialogue between distributed individuals and partner classes proposes a compelling shift in L2 education, one that

moves learners away from simulated classroom-based contexts and toward actual interaction with expert speakers of the language they are studying. The conceptualization of L2 learning and use as foremost a process of intercultural communication, in both online and offline contexts, has received significant attention in recent years (e.g., Belz & Reinhardt 2004; Belz & Thorne 2006a, 2006b; Brammerts 1996; Byram 1997; Furstenberg et al. 2001; Kinginger 1998, 2004; Kramsch 1998; O'Dowd 2003; Sercu 2004; Thorne 2003, 2006). Indeed, with greater Internet access across more of the world, it has been suggested that Internet-mediated intercultural communication constitutes a "second wave" of computer-mediated L2 pedagogy (Kern, Ware, & Warschauer 2004:243).

Research on Internet-mediated intercultural language learning has documented numerous cases of pragmatic and linguistic development seen as consequences of participation in significant, meaningful, typically age-peer personal relationships (e.g., Bez & Kinginger 2003; Kinginger & Belz 2005). The case I will now describe comes out of research (data and analysis drawn from Thorne 2003) involving a student in a University level a fourth-semester French grammar course participating in an exchange with University students in France. The portion of this case study that I relate here, however, occurred entirely outside of the organized exchange and hence is relevant to the theme of language learning in non-institutional uses of Internet communication tools.

In a post-semester interview, the student in question described a transition that began with frustration over the slow start to her telecollaborative partnership but which evolved into prolific flurries of communication when the interaction shifted to the use of instant messaging (IM). The student reported that the first IM interaction went on for nearly 6 hours and included the use of both English and French. Subsequent to this one, the interactions continued in 20- to 30-minute sessions, often twice or three times per day. Two issues are highly salient – the shift to IM, which is the clear communication tool of choice for peer interaction among university-aged youth in the United States (e.g., Shiu & Lenhart 2004), and the subordination of French language study as an educational activity to the use of French (and English) for the building of a personally meaningful relationship (per Hanna & de Nooy 2003, discussed above). Not discounting the importance of the flirtatious nature of this relationship, the American student reported that her linguistic and pragmatic performance in French had improved. Through interaction with and goading from her French key pal, the American student eventually gained command of appropriate *tu-vous* pronoun use, a facility that had eluded her throughout years of French study. More dramatically, the American student had always thought of herself as "horrible" at French grammar and had little confidence in her capacity to carry out meaningful communication in the language.

When asked about the specific linguistic gains arising from her interactions with her French interlocutor, she made the following remarks:

Interviewer: What else beside the *tu/vous* stuff did he help you with?

Kirsten: Usage of "au" versus "en" versus "dans" versus "à" versus, you know, that kinda stuff. A more in-depth vocabulary, for sure. ... it's kind of nice to have a human dictionary on the other end too ... I was like "how am I supposed to say?" like for example So the "de" and "à" thing, "de la campagne," "à le cité," whatever, stuff like that. I was like "wow," you know, eeeeeee [vocalization of glee; laughs]. Because I couldn't get that from a dictionary.

Interviewer: That's something you have to have a little help with, yeah?

Kirsten: Yeah, yeah, and how am I supposed to learn it? That's not in the grammar books, you know [laughing], expressions like that, and other things. It was fun. (Thorne 2003:50–51)

In these excerpts, the American student described the interaction that allowed her access to the French prepositional system that she stated she "couldn't get ... from a dictionary" and that was "not in the grammar books." Many French language students have successfully developed the ability to use French prepositions of location from grammar texts or instructor-provided grammar explanations. This student, however, seemingly required interpersonal mediation, specifically from a desirable age-peer who was willing to provide immediate corrective feedback as part of an ongoing social relationship.

The student provided an extended description of her outside-of-class email and IM transcripts and was able to point to specific instances that demonstrated what she perceived as an expanded competence to communicate in French. The following IM excerpt has not been orthographically modified (though certain turns have been removed to save space). K (Kirstin) is the American student; O (Oliver) is her French interlocutor (both are pseudonyms).

1. O: by the way, I don't know what smart means?
2. O: ...
3. K: smart means .. hmmm
4. K: how to describe that
5. K: intelligent
6. O: I mean what does intelligent mean?
7. O: no I know what the word means
8. K: it's the same thing
9. O: but I'm not sure I grasp the idea
10. K: ooh..

11. K: hmmm
 12. O: kind of philosophical huh?
 13. K: yeah.. you know.. aux Etats-Unis nous avons deux type d'intelligence
 [in the United States we have two types of intelligence]
 14. O: vraiment? [really?]
 15. O: Je veux savoir!!! [I want to know!]
 16. K: il y a "l'intelligence des livres" et "l'intelligence dans la vie" [there is "book
 smart" and "life smart"]
 17. O: donc l'intelligence des livre c'est le savoir? [therefore book intelligence is
 knowledge?]
 18. K: oui.. et l'autre est "common sense" [yes.. and the other is "common sense"]
 19. O: on peut lire beaucoup et savoir beaucoup de choses tout en étant stupide je
 suis d'accord [one can read a lot and know a lot of things and be stupid at
 the same time I agree]
 20. K: oui! [yes!]
 21. O: cool
 22. K: le "common sense" est... par exemple, j'ai une amie qui sait beaucoup des
 choses.. mais elle a mis METAL dans le microwave.. ["common sense" is...
 for example, I have a friend who knows a lot of things.. but she put METAL
 in the microwave..]
 23. O: oups [oops]
 24. K: elle n'a pas de "common sense" [she doesn't have "common sense"]

Kirsten provided her own analysis of this dialogue. References to the IM transcript are shown in parentheses [line #].

Kirsten: The first couple of lines of this [transcript], there's a particular example and I'll show you ... Here's where, this was the true part, where I was like, "wow, I really have learned a lot of French!" (line 1) "By the way, I don't know what smart means." Smart means intelligent, like, I made the translation, I was like, but that's stupid that he didn't know that because intelligent is the same word in both languages! (line 6) "But what does intelligence mean." And he's like (line 7) "no I know what the word means," like [ventriloquating Olivier] "come on stupid," I'm like, yeah (line 8) "it's the same thing." And he said, (line 9) "but I'm not sure I grasp the idea." And I said (lines 10–11) "ohh" "hmmm." And he said (line 12), "kind of philosophical." And I said (line 13) "yeah," and then I went into French. And I was [laughing] so proud of myself. And I, you know, then I wrote, (line 13) "aux Etats-Unis nous avons deux type d'intelligence," right, like life smart and book smart, and then he's like (line 15), initially glossing Oliver's message in English then referring to the French], "I have got to know this!!! Je veux savoir!!!" with three exclamation points and that was like, that was the beginning of my explaining in French,

and I was like "wow!" That was the first one we, that was the first time that I was like, "I made a connection in French." I was so proud. It was like, "wow, that's me, in French, and he understood me!" (Thorne 2003:52)

Kirsten explained the significance of this portion of her first three-hour IM session with Oliver as a threshold moment in her confidence to communicate in French. A combination of the use of her habitual, everyday Internet communication tool of choice – IM – and Kirsten's tremendous enthusiasm for Oliver created the conditions for interpersonal communicative possibility that Csikszentmihalyi has described as "flow activity" (1990, see also Egert 2003; Thorne 2003).

In Csikszentmihalyi's sense, flow involves manageable engagement that challenges physical or mental abilities. High challenge situations, such as Kirsten's threshold experience as a first time successful communicator in French, induce a heightened sense of engagement. Absorption in the activity, rather than a self-conscious focus on an eventual product, results in "a harmonious rush of energy ... which comes as close as anything can to what we call happiness" (Csikszentmihalyi 1993: xiii–xiv). Csikszentmihalyi also describes the importance of immediate feedback, such as that possible in IM interaction, to the attainment of a flow state of consciousness. I would like to suggest a linkage between flow activity and the Vygotskian and activity theoretical characterization of development. Csikszentmihalyi describes flow as a complex activity that stretches current abilities. Flow states of consciousness are most likely to be experienced when people can control their immediate social-material conditions, or as Csikszentmihalyi proposes, that "make it possible to adjust opportunities for action to our capacities" (1993: xiv). This notion aligns well with Vygotsky's (1978) zone of proximal development and provides a succinct description of the developmental context-activity from the participant's perspective. Within the Vygotskian framework, development involves actively resolving contradictions through a process of changes in the locus of control necessary to regulate thinking. Object-regulation indicates instances when artifacts in the environment regulate or afford cognition/activity. Other-regulation describes mediation by an expert or more capable peer. Self-regulation indexes an action that an individual can accomplish with minimal or no external assistance (for SLA related applications of this approach, see Lantolf & Thorne 2006, 2007).

Kirsten's reported flow state of optimal performance suggested the following developmental sequence. She stated a general inability to learn French through object-regulation resources such as grammar texts. Through her IM interactions with Oliver, however, Kirsten benefited from other-regulation, examples of which were the explicit linguistic assistance and confidence producing enthusiasm for her French language use. Other-regulation made possible a threshold experience

during which Kirsten was able to self-regulate and participate in extended and unrehearsed dialogue in French. In essence, out of class and intrinsically motivated IM use supported flow activity. Kirsten herself realized her new found capacity for self-regulation when she stated, “that was the first time that I was like, ‘I made a connection in French.’ I was so proud. It was like, ‘wow, that’s me, in French, and he understood me!’” (Thorne 2003:53). Similar to findings in the research reported above (e.g., Hanna & de Nooy 2003; Kramsch & Lam 2003), this case study suggests that interpersonal dynamics within digitally mediated non-institutional environments enable personally relevant engagement, which in turn can be associated with a range of potential developmental trajectories.

Gaming and L2 learning

Gaming and virtual environments

Increasingly, online games and virtual environments are coming to the attention of education researchers and practitioners (for a review, see Squire 2003; see also Steinkuehler 2004). They have been argued to provide the opportunity for immersion in linguistic, cultural, and task-based settings (Gee 2003). 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 occurs. However, a few important distinctions need to be made. To take *Second Life* as the example of a virtual environment, the computer-enabled environment itself does not provide a comprehensive ontology – this is produced by the human players themselves in the form of the objects and cultures they create and the interactions and talk they produce together. *Second Life* as a virtual world does not explicitly structure action and interaction and neither is there a substantial presence of non-human (computer-generated) characters. Within gaming environments, by contrast, non-human 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* (to be discussed below), 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 is foundational, but gaming involves much more highly structured and goal-directed activity. Here, I will restrict the discussion to gaming and will focus primarily on a case study examining intercultural communication within *World of Warcraft*.

Gaming and L2 use

One variety of gaming involves interaction within pre-programmed (but sometimes customizable) environments. A best selling example is *The Sims*, a game that simulates the routine, and even the mundane, activities and responsibilities of everyday life. *The Sims* is now produced in a number of languages. In an informal assessment of *The Sims* as a foreign language learning tool, Purushotma (2005) found that the vocabulary and tasks comprising the game were highly aligned with the content of conventional foreign language course content. The difference between instructed foreign language learning and a game like *The Sims*, suggests Purushotma, 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.

A second variety of virtual play involves multiplayer social interactive gaming environments, many of which are historically rooted in the online role-playing cultures of MOOs (*multi-user domain, object oriented*). MOOs are constructed social spaces that continually evolve in the sense that individuals can augment the size and number of object-features of the MOO environment by creating new prose-delineated conversation spaces and virtual objects (such as furniture, notes, signs, and interactive programs, called ‘bots’, that respond to textual input). The intense interpersonal nature of non-educational MOOs prompted Kern to describe them as “electronically mediated social environments” (1998:81). MOO use in L2 education is still occurs (e.g., Schneider & von der Emde 2000), especially by practitioners of a variety of intercultural L2 education called tandem learning (e.g., O’Rourke 2005; Schweinhorst 2004; for a comparative description of various intercultural L2 pedagogies, see Thorne 2006a). However, social and role-playing MOOs, especially in comparison to their considerable popularity in the 1990s, have been largely replaced by massively multiplayer online videogames (or MMOGs, see Steinkuehler 2006).

MMOGs are Internet-accessed environments that are immensely popular, especially among adolescents and young adults but also for ‘youths’ more advanced in years. In many ways, MMOGs are deeply educational in the sense that gamers must learn to negotiate complex scenarios, be socialized into culturally specific discursive formations, and be capable of negotiating play in real-time with game-driven characters as well as other co-present gamers. MMOGs log players’ activities, such as completing a quest, solving a puzzle, carrying out tasks, or engaging in battle, magic, or the use of in-game professional trade skills. In this way, there is an ontogenetic developmental component to the gamer’s online character such that the character becomes more powerful (or “levels up”) based on experience. In addition, gamers can accumulate (virtual) property,

commodities with set exchange values within a given MMOG, and in some instances, properties and commodities with exchange value recognized by non-gaming global capital (e.g., in-game resources such as weapons, currency, and even completely developed high-level characters that can be bought and sold in online grey markets). Many MMOGs are multilingual and involve thousands of gamers from around the world. However, with World of Warcraft in particular, there has been a recent shift toward nation-state and language specific domains that serve the function of concentrating together speakers of a given language. The advantage of this development for second language learners is that with the installation of language packs (available for Chinese, English, French, German, Korean, and Spanish), the interface, game-generated language, and players one would likely encounter would be language specific. The drawback is that multilingual interactions, such as the one described in the case study below, now will be less common.

Intercultural collaboration in World of Warcraft

The most popular MMOG at the time of this writing (January 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 multi-channel synchronous chat tool as well as with an asynchronous mail application (see Nardi, Ly, & Harris 2007). As of June 2006, Mmogchart.com reports that WoW holds 52.9% of the global MMOG market share. What opportunities exist in MMOGs like WoW for language use and language learning? In a descriptive and exploratory effort to assess this question, the interaction described below will examine one instance of intercultural communication between two WoW gamers, one from North America (Meme) and the other from Ukraine (Zomn). Both of the character names are pseudonyms. This brief case study is limited to one in-game conversation between two gamers, but it is suggestive of intercultural communication that is reported to occur frequently on WoW and other transnational gaming sites (Thorne 2006b). Meme, the North American gamer, set the context of the interaction as follows:

This started in this one valley off to the side of a zone I was in. I was hunting baby dragons for exp [experience points] when another higher-level character came along and started killing them too. I sent them a message asking why they were hunting them since they wouldn't get much exp off them anymore,

and they said they wanted leather. I then worked out a deal with them that they would just skin the stuff I killed so I could get the exp and they would get the leather, and then they messaged me with this.

As Meme's contextualization of the action at hand indicates, interaction in even battle-focused role-playing games also includes collaboration and negotiated division of labor in the carrying out of complex actions. Note that acronyms are translated within brackets. Otherwise, the text of this opening sequence has been unaltered.

1. Zomn: ti russkij slychajno ?
2. Meme: ?
3. Zomn: nwm :) sry [sorry]
4. Meme: what language was that?
5. Zomn: russian :)
6. Meme: was going to guess that
7. Meme: you speak english well?
8. Zomn: :) where r u [are you] from ?
9. Meme: USA, Pennsylvania
10. Zomn: im from Ukraine ...
11. Meme: ah nice, do you like it there?
12. Zomn: dont ask :)) at least i can play wow :))
13. Meme: haha it is fun indeed, I have a friend from ukraine actually
14. Zomn: :) so what did hes says about it ?
15. Meme: he liked it actually, he moved here when he was about 10
16. Meme: I went to high school with him
17. Meme: but his mom hated it there
18. Zomn: ic /// [I see]
19. Meme: so how old are you? do you go to school?
20. Zomn: im 21 .. law academy ...
21. Meme: ah nice, want to be a lawyer then?
22. Zomn: sry for my english but ill try to do my best :((
23. Zomn: yeap :)))

The dialogue between Meme and Zomn begins with a case of mistaken linguistic identity, but this mistake in turn provides an opportunity for both parties to build alignments and to enact what Kramsch (1999) has described as an *intercultural stance*. In particular, Meme describes a friendship with a Ukranian. Zomn, the more advanced player by experience, affirms their shared passion for WoW. Meme and Zomn are still discussing school and interests when Meme initiates the following sequence:

24. Meme: kak dela?
 25. Zomn: :))) normalno :)))
 26. Meme: if I may ask, what did I say haha, I'm not quite sure
 27. Zomn: how r u :) ///
 28. Meme: what does normalno mean? good?
 29. Zomn: i sad goooooood :)))
 30. Meme: alright =)
 31. Meme: do you speak any languages besides russian?
 32. Zomn: yeap ... english :) ... n studing spanish ..
 33. Zomn: per aspera ad astra :) ?
 34. Meme: through our endeavours, to the stars =)
 35. Meme: nice phrase
 36. Zomn: i like it too

At the very start of this short conversation with Zomn, Meme had contacted a Ukrainian high school friend using AOL Instant Messenger and had asked him 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) describes as *polyfocality* – the use of multiple semiotic resources in near simultaneity. This result was posted as line (24) above. Zomn provides the appropriate adjacency pair, responds to Meme's question about knowing other languages (31), then in line (33) posts the Latin proverb, *per aspera ad astra*, which Meme is able to translate, producing what likely was an unexpected but shared perspective that good things are won through hard work, a sensibility that fits well with the challenges each was experiencing in advancing their character development within WoW. The discussion continued for approximately 100 more turns and shifted seamlessly between two tracks – one generated areas of mutual interest (popular music such as Blink 182) and questions about life goals and pursuits, the other involved negotiating their immediate collaborative actions and more general strategies related to leveling up their characters within WoW. There were also a few overtly pedagogical exchanges suggesting potential opportunities for language learning through relationship building and mutually beneficial in-game actions. In the first, Meme has again used IM to contact his Ukrainian friend for phrases he could use. Note that certain turns have been removed.

37. Meme: Ya lublui fceu v moy popoo
 38. Meme: do you get any exp off of these if you kill them? if so lets party
 39. Zomn: lets for 3k
 40. Meme: sounds good, so what did what i said before mean?
 41. Meme: i was just asking my friend from ukraine what to say

42. Meme: and don't know what it means
 43. Zomn: it wasn't right ... but kinnda 'kiss my ass'
 44. Meme: haha are you serious? i'm going to kill him, sorry about that
 45. Zomn: ahhh np :))) [no problem]
 46. Zomn: u can kill him now :)))
 47. Meme: yeah, I will once I get home, he's in my hometown
 48. Meme: and I'm off at college
 49. Zomn: tell him that u got an interpriter now :)
 50. Meme: will do haha
 51. Zomn: is 'interpriter' right ? :((
 52. Meme: it's actually interpreter, but that was close

This seemingly prosaic excerpt from the larger strip of talk (totaling 140 lines) includes many of the elements conventional L2 classrooms seek to encourage, such as drawing from external resources for the production of experimental L2 production (Meme's outside assistance from his Ukrainian friend via IM), Meme's Russian language utterance (line 37) and request for a comprehension check (lines 41–42), and Zomn's evaluative judgment “it wasn't right ...”) and translation in line 43. This segment is followed by a successful repair sequence initiated by Meme (lines 44–50) that overlaps with Zomn noticing a probable orthographic problem in his spelling of 'interpriter' (line 51) and Meme's overt correction and closing of the sequence with an encouraging softener, “but that was close” (line 52). I submit that the interactive features evident in the speech exchange system (e.g., Sacks, Schegloff, & Jefferson 1974) represented in this spate of online discourse form a quite impressive context for language learning.

First, the conversation was naturally occurring and unconstrained by the fabricated (if also developmentally useful) communication characterizing much instructed setting discourse. The matrix language for this interaction was English but three languages (including the Latin aphorism) were used in total. The transcript illustrates reciprocal alternations in expert-novice status wherein both participants provided expert knowledge, language-specific explicit corrections, made requests for help, 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) and WoW associated game strategy (not discussed in this essay, but see Thorne 2006b). Finally, an enduring affiliative bond appears to have been established that pertained to continued intra-game activity as well as to out-of-game social networks.

Evidence for this bond was displayed in the following leave-taking sequence (lines 53–62, below). The two players agree to add one another to in-game friends lists, proleptically sanctioning the possibility for future intra-game interaction. In (lines 58–59), Meme indirectly indexes his prior exposure to a few common Russian words, and presumably the relationship with his Ukrainian childhood friend, by asking Zomn to check his spelling of the Russian word for goodbye. In response, Zomn suggests a more suitable and peer-register alternative (#60).

53. Zomn: :) .. dont u mind if i add u to friend list ?
 54. Zomn: yeah :)
 55. Meme: go ahead, i'll add you too and we can group again sometime
 56. Zomn: sure :))
 57. Zomn: nice too meet u //
 58. Meme: you too, I forget how to spell goodbye in russian, dasvidania?
 59. Meme: Is that sort of close?
 60. Zomn: it is right ... or ... just 'poka'
 61. Meme: alright, thanks
 62. Meme: see ya

In an uncorroborated but interesting follow-up to this episode, during an informal conversation with the American student, he mentioned a strong interest in starting Russian language courses. 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. For the growing number of individuals participating in MMOG environments, the international, multilingual, and task-based qualities of these social spaces, where language use is literally social action, may one day make them *de rigueur* sites for language learning. Or somewhat ironically, but suggested by the American student's comment above, perhaps interest in foreign language study will become in-part driven by students who wish to enhance their gaming skills and affiliative capabilities in these largely language organized action-scapes.

Discussion

Many developmentally productive processes occur within the institutional spaces of modern formal education. This review of published research and preliminary sharing of a MMOG case study support the argument that discourses of institutionalized instruction and of learning-through-engagement discourses in freely chosen Internet environments can share attributes such as negotiation, repair sequences, explicit corrective feedback, and requests for assistance (see also Sin-

clair & Coulthard 1975). In other ways, however, research on informal learning suggests the more radical notion that knowledge production can and does occur outside of conventional expert – novice configurations. In research on informal learning among adults working together on computer-literacy skills, Sawchuk (2003) has suggested that “learning need not be productive of the social order and it need not be rooted in a pedagogical discourse constituted in and constituted of a hierarchy of power and knowledge. Rather, it can be seen as a potentially open process, and in some sense, fundamentally democratic” (p. 304).

In the instances of Almon (i.e., Lam & Kramsch 2003), Kirsten (i.e., Thorne 2003), and the two WoW gamers, the social accomplishment of language development involved symmetrical or reversible relative positions of mastery, or both, across interactional sequences. Language learning 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 were 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 learning in non-institutionalized digital environments is in its relative infancy. Further research is needed that narrowly documents what Brouer and Wagner (2004) describe 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 non-institutional online environments.

As a final point, the rise in mediated communication suggests that for many students across the world, performing competent identities in second and additional language(s) may now involve Internet-mediation as or more often than face-to-face and non-digital forms of communication. This observation is not meant to valorize Internet use in any way. On the contrary, my point is that with increasing opportunity to choose and engineer Internet mediation for developmental purposes, the responsibility to make informed decisions is more critical now than ever before. Hence a necessary project sitting squarely in front of language educators and researchers is to imagine ecologically relevant participation frameworks that would encourage, with minimal subversion, active participation in developmentally constructive Internet-mediated discourse. Attendant to this ambition, however, is the willingness to acknowledge that certain forms of knowledge and performance historically at the foundation of the academy may become obviously anachronistic as the real world benchmarks for competency across communicative genres and registers shift to reflect the qualities of increasingly mediated forms of discourse.

References

- Beauvois, M. H. (1998). Write to speak: The effects of electronic communication on the oral achievement of fourth semester French students. In J. A. Muyskens (Ed.), *New ways of learning and teaching: Focus on technology and foreign language education*. Boston, MA: Heinle & Heinle.
- Belz, J. A. & Reinhardt, J. (2004). Aspects of advanced foreign language proficiency: Internet-mediated German language play. *International Journal of Applied Linguistics*, 14(3), 324–362.
- Belz, J. A. & Thorne, S. L. (Eds.). (2006a). *Internet-mediated intercultural foreign language education*. Boston, MA: Heinle & Heinle.
- Belz, J. A. & Thorne, S. L. (Eds.). (2006b). Introduction: Internet-mediated intercultural foreign language education and the intercultural speaker. In J. Belz & S. L. Thorne (Eds.), *Internet-mediated intercultural foreign language education* (p. iix–xxv). Boston, MA: Thomson Heinle.
- Berners-Lee, T. (1998). What the semantic web isn't but can represent. Retrieved June 10, 2005, from <http://www.w3.org/DesignIssues/RDFnot.html>
- Black, R. W. (2006). Language, culture, and identity in online fanfiction. *E-learning*, 3(2), 170–184.
- Black, R. W. (2005). Access and affiliation: The literacy and composition practices of English language learners in an online fanfiction community. *Journal of Adolescent & Adult Literacy*, 49(2), 118–128.
- Bourdieu, P. (1990). *The logic of practice*. Stanford, CA: Stanford University Press.
- Bourdieu, P. & Eagleton, T. (1992). Doxa and common life. *New Left Review*, 191, 111–121.
- Brammerts, H. 1996. Language learning in tandem using the Internet. In M. Warschauer (Ed.), *Telecollaboration in foreign language learning* (pp. 121–130). Honolulu, HI: University of Hawaii Second Language Teaching and Curriculum Center.
- Brouer, C. & Wagner, J. (2004). Developmental issues in second language conversation. *Journal of Applied Linguistics*, 1(1), 29–47.
- Byram, M. 1997. *Teaching and assessing intercultural communicative competence*. Clevedon: Multilingual Matters.
- Bødker, S. (1997). Computers in mediated human activity. *Mind, Culture and Activity*, 4(3), 149–158.
- Castells, M. (ed.) (2004). *The network society: A cross-cultural perspective*. Northampton, MA: Edward Edgar.
- Chun, D. (1994). Using computer networking to facilitate the acquisition of interactive competence. *System: An International Journal of Educational Technology and Applied Linguistics*, 22, 17–31.
- Cole, M. (1996). *Cultural psychology: A once and future discipline*. Cambridge, MA: Belknap Press.
- Crystal, D. (2001). *Language and the internet*. Cambridge: CUP.
- Csikszentmihalyi, M. (1993). *The evolving self: A psychology for the third millennium*. New York, NY: HarperCollins.
- Furstenberg, G., Levett, S., English, K., & Maillet, K. (2001). Giving a virtual voice to the silent language of culture: The CULTURA project. *Language Learning & Technology*, 5(1), 55–102.
- Egert, J. (2003). A study of flow theory in the foreign language classroom. *The Modern Language Journal*, 87(4), 499–518.
- Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education & Work*, 14, 133–156.
- Gee, J. P. (2003). *What videogames have to teach us about learning and literacy*. New York, NY: Palgrave Macmillan.
- Hanna, B. & de Nooy, J. (2003). A funny thing happened on the way to the forum: Electronic discussion and foreign language learning. *Language Learning & Technology*, 7(1), 71–85.
- Herring, S. (Ed.). (1996). *Computer-mediated communication: Linguistic, social and cross-cultural perspectives*. Amsterdam: John Benjamins.
- Jones, R. (2004). The problem of context in computer-mediated communication. In P. Levine & R. Scollon (Eds.), *Discourse and technology: Multimodal discourse analysis* (pp. 20–33). Washington, DC: Georgetown University Press.
- Kern, R., Ware, P., & Warshauer, M. (2004). Crossing frontiers: New directions in online pedagogy and research. *Annual Review of Applied Linguistics*, 24(1), 243–260.
- Kinginger, C. (1998). Videoconferencing as access to spoken French. *The Modern Language Journal*, 82(4), 502–513.
- Kinginger, C. (2004). Communicative foreign language teaching through telecollaboration. In K. van Esch & O. St. John (Eds.), *New insights into foreign language learning and teaching* (pp. 101–113). Frankfurt: Peter Lang.
- Kinginger, C., & Belz, J. A. (2005). Sociocultural perspectives on pragmatic development in foreign language learning: Microgenetic case studies from telecollaboration and residence abroad. *Intercultural Pragmatics*, 2(4), 369–422.
- Kramsch, C. (1998). The privilege of the intercultural speaker. In M. Byram & M. Fleming (Eds.), *Language learning in intercultural perspective*. Cambridge: CUP.
- Kramsch, C. (1999). Thirdness: The intercultural stance. In T. Vestergaard (Ed.), *Language, culture, and identity* (pp. 41–58). Aalborg: Aalborg University Press.
- Kramsch, C. & Thorne, S. L. (2002). Foreign language learning as global communicative practice. In D. Block & D. Cameron (Eds.), *Globalization and language teaching* (pp. 83–100). London: Routledge.
- Lam, W. S. E. (2000). Second language literacy and the design of the self: A case study of a teenager writing on the Internet. *TESOL Quarterly*, 34(3), 457–483.
- Lam, W. S. E. (2004). Second language socialization in a bilingual chat room. *Language Learning & Technology*, 8(3), 44–65.
- Lam, W. S. E. & Kramsch, C. (2003). The ecology of an SLA community in computer-mediated environments in leather. In J. Leather & J. van Dam (Eds.), *Ecology of language acquisition*. Dordrecht: Kluwer.
- Lankshear, C. & Knobel, M. (2003). *New literacies: Changing knowledge and classroom learning*. Buckingham: Open University Press.
- Lantolf, J. P. & Thorne, S. L. (2006). *Sociocultural theory and the genesis of second language development*. Oxford: OUP.
- Lantolf, J. P. & Thorne, S. L. (2007). Sociocultural theory and second language acquisition. In B. van Patten & J. Williams (Eds.), *Theories in second language acquisition*. Mahwah, NJ: Lawrence Erlbaum.
- Lave, J. (1988). *Cognition in practice: Mind, mathematics, and culture in everyday life*. Cambridge: CUP.
- Lave, J. & Wenger, E. (1991). *Legitimate peripheral participation*. Cambridge: CUP.

- 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.
- Levin, D. & Arafteh, S. (2002). *The digital disconnect: The widening gap between Internet-savvy students and their schools*. Washington DC: Pew Internet & American Life Project.
- Nardi, B. (Ed.). (1996). *Context and consciousness: Activity theory and human-computer interaction*. Cambridge, MA: The MIT Press.
- Nardi, B., Ly, S., & Harris, J. (2007). *Learning conversations in World of Warcraft. The proceedings of the 2007 Hawaii International Conference on Systems Science*. New York: IEEE Press. Retrieved February 20, 2007, from <http://www.artifex.org/%7Ebonnie/pdf/Nardi-HICSS.pdf>
- Ochs, E. (1993). Constructing social identity: A language socialization perspective. *Language and Social Interaction*, 26(3), 287–306.
- O'Dowd, R. (2003). Understanding the "other side": Intercultural learning in a Spanish-English e-mail exchange. *Language Learning & Technology*, 7(2), 118–144.
- O'Rourke, B. (2005). Form focused interaction in online tandem learning. *CALICO Journal*, 22(3), 433–466.
- Purushotma, R. (2005). You're not studying, you're just ... *Language Learning & Technology*, 9(1), 80–96.
- Roth, W. M., Elmesky, R., Carambo, C., McKnight, Y. M., & Beers, J. (2005). Re/making identities in the praxis of urban schooling: A cultural historical perspective. *Mind, Culture, and Activity*, 11, 48–69.
- Sacks, H., Schegloff, E. A., & Jefferson, G. (1974). A simplest systematics for the organisation of turn-taking for conversation. *Language*, 50, 696–735.
- Sawchuk, P. (2003). Informal learning as a speech-exchange system: Implications for knowledge production, power, and social transformation. *Discourse & Society*, 14(3), 291–307.
- Schneider, J. & von der Emde, S. (2000). Brave new (virtual) world: Transforming language learning into cultural studies through online learning environments (MOOs). *ADFL Bulletin*, 32(1), 18–26.
- Sercu, L. (2004). Intercultural communicative competence in foreign language education: Integrating theory and practice. In O. St. John, K. van Esch, & E. Schalkwijk (Eds.), *New insights into foreign language learning and teaching* (pp. 115–130). Frankfurt: Peter Lang.
- Shiu, E. & Lenhart, A. (2004). How Americans use instant messaging. *Pew Internet & American Life Project*, Sept. 1, 2004.
- Sinclair, J. & Coulthard, R. (1975). *Towards an analysis of discourse: The English used by teachers and pupils*. Oxford: OUP.
- Squire, K. (2003). Video games in education. *International Journal of Intelligent Simulations and Gaming* (2)1. Retrieved January 15, 2007, from <http://website.education.wisc.edu/kd-squire/manuscripts/IJIS.doc>
- Steinkuehler, C. (2004). Learning in massively multiplayer online games. In Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon, & F. Herrera (Eds.), *Proceedings of the sixth international conference of the learning sciences* (pp. 521–528). Mahwah, NJ: Erlbaum.
- Steinkuehler, C. (2006). Massively multiplayer online videogaming as participation in a Discourse. *Mind, Culture, & Activity*, 13(1), 38–52.
- Thorne, S. L. (2000). Beyond bounded activity systems: Heterogeneous cultures in instructional uses of persistent conversation. Proceedings of the Thirty-Third Annual Hawaii International Conference on System Sciences (HICSS-33). Los Alamitos, IEEE Press.
- Thorne, S. L. (2003). Artifacts and cultures-of-use in intercultural communication. *Language Learning & Technology*, 7(2), 38–67.
- Thorne, S. L. (2005). Epistemology, politics, and ethics in sociocultural theory. *The Modern Language Journal*, 89, 393–409.
- Thorne, S. L. (2006a). Pedagogical and praxiological lessons from Internet-mediated intercultural foreign language education research. In J. Belz & S. L. Thorne (Eds.), *Internet-mediated intercultural foreign language education* (pp. 2–30). Boston, MA: Thomson Heinle.
- Thorne, S. L. (2006b). Interculturality and mediated social practices in Internet environments. Paper presented at American Association for Applied Linguistics, Montréal, Canada, June 19th, 2006.
- Thorne, S. L. (forthcoming). Mediating technologies and second language learning. In D. Leu, J. Coiro, C. Lankshear, & M. Knobel (Eds.), *Handbook of research on new literacies*. Mahwah, NJ: Erlbaum.
- Thorne, S. L. & Black, R. W. (in press). Language and literacy development in computer-mediated contexts and communities. *Annual Review of Applied Linguistics*, 27, (2008).
- Thorne, S. L. & Payne, J. S. (2005). Evolutionary trajectories, Internet-mediated expression, and language education. *CALICO Journal*, 22, 371–397.
- Van Dijk, J. (2005). *The deepening divide: Inequality in the information society*. London: Sage.
- Vygotsky, L. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.
- Warschauer, M. (2003). *Technology and social inclusion: Rethinking the digital divide*. Cambridge, MA: The MIT Press.
- Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *The Modern Language Journal*, 81, 470–481.
- Warschauer, M. (1999). *Electronic literacies: Language, culture, and power in online education*. Mahwah, NJ: Lawrence Erlbaum.
- Wartofsky, M. (1979). *Models*. Dordrecht: Reidel.
- Werry, C. (1996). Linguistic and interactional features of Internet Relay Chat. In S. Herring (Ed.), *Computer-mediated communication: Linguistic, social and cross-cultural perspectives*. Amsterdam: John Benjamins.
- Whyte, W. H. (1988). *City: Rediscovering the center*. New York, NY: Doubleday.