

9-10-2015

Skilled Linguistic Action in English as a Second Language Learners' Play of World of Warcraft (WoW): A Distributed View

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Skilled Linguistic Action in English as a Second Language Learners' Play
of World of Warcraft (WoW): A Distributed View

Kristi Jacqueline Newgarden, Ph.D.

University of Connecticut, 2015

Contending that language is distributed, dialogical, dynamic and values-realizing and learning is embodied and situated, this research provokes an action-oriented understanding of second language (L2) learning, as illustrated in the dynamics of World of Warcraft (WoW) gameplay. A goal is to show that L2 learners pick up affordances for learning to take skilled linguistic actions (Cowley, 2012) in authentic interactions with meaningful outcomes. Agency, orientation to sociocultural norms, and pragmatic competence are distributed in real-time languaging as learners coordinate actions using embodied, material and linguistic resources. Two studies examined data from a semester-long course in which English as a Second Language (ESL) learners and native English speaking (NES) college students played WoW and explored its culture and values. Frames of ecological psychology and distributed language were applied in multimodal analysis of three video recordings of gameplay by a group of three L2 learners and two NESs. Study 1, *Recurrent Languaging Activities in World of Warcraft (WoW) Play as Affordances for Skilled Linguistic Action by English as a Second Language Learners*, adopted Zheng's (2012) Eco-dialogical model to explain players' languaging dynamics. Recurrent gameplay activities afforded a range of communicative activities, which reflected Common European Framework of Reference (CEFR) descriptors of L2 proficiency and conversational

values realizing across L2 skill levels. Assessment of L2 learners' skilled linguistic actions in gameplay correlated with assessments of speaking proficiency by Intensive English Program (IEP) teachers. Study 2, *Distributed Language Learning in a World of Warcraft (WoW) Centered Course*, adopted Steffensen's (2012) dialogical system to consider how players balanced values during group play, improving their coordination over time. Distributed gameplay elements; co-presence with a Skype connection, engagement with game rules and culture, avatar embodiment, and recurrent languaging activities contributed to sociocultural attunement, attention to linguistic form, meaning and pragmatics, and smooth coordination. Course elements, the inclusion of expert players, membership in a WoW guild, and online discussions, afforded community building. Players' gameplay verbalizations became increasingly aligned over time, with higher alignment associated with more coordinated gameplay. This research contributes to both Second Language Teaching and Learning (L2TL) and the study of digital games and learning.

Skilled Linguistic Action in English as a Second Language Learners' Play
of World of Warcraft (WoW): A Distributed View

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A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

at the

University of Connecticut

2015

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Kristi Jacqueline Newgarden

2015

APPROVAL PAGE

Doctor of Philosophy Dissertation

Skilled Linguistic Action in English as a Second Language Learners' Play
of World of Warcraft (WoW): A Distributed View

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2015

*To my father, Mark Newgarden, who showed me how to work hard,
and to my mother, Elaine V. Newgarden, who shows me how to be a lifelong learner*

Acknowledgements

The obstacle is the path. – Zen proverb

A good friend advised me that unless I was really interested in carrying out research, I did not really need to pursue a Ph.D. She pointed to all that I already had: an established career, a good university job, a family and a nice home. She spoke from her own experience with the pressures of graduate study, of the workload and deadlines that require making sacrifices of different kinds. As it turned out, the obstacles that *were* the path that I chose were significant. There have been many challenges over the years, and at least a few moments when the possibility of getting off the path came to mind. Fortunately, there have been far more moments of realizing how exciting this learning is, how deep and meaningful the questions about language and cognition and technologies are, and how rewarding it has been to have even a small part in addressing a few of them.

Support, guidance and co-action with more expert others has been critical in inspiring, enriching and sustaining this research. I would like to thank Dr. Dongping Zheng, the good friend just mentioned, who introduced me to the Educational Technology program (now Cognition, Instruction and Learning Technologies) at UConn. She became my mentor, co-author and in times of need, my consultant on Chinese medicine! No matter what distance comes between us, we always find a new common ground and reason to work together in a mutually rewarding way.

I am so grateful to have been introduced to the Distributed Language Group (DLG) by Dongping in 2009. This research draws on the work of many DLG members, in particular, Dr. Stephen J. Cowley, Dr. Bert Hodges, and Dr. Sune Steffensen, all incredibly insightful authors who have broken much new ground for the Language Sciences. Stephen Cowley has been very

generous with his feedback on co-authored work, contributing the term “skilled linguistic action” that is central to the two studies presented. The DLG is a community in which I hope to participate for many years to come.

I would like to thank my advisor, Dr. Michael F. Young, for teaching Situated Cognition, a course that changed my worldview forever and created the foundation for the theoretical framework of this research. Mike is also to thank for introducing me to World of Warcraft (WoW) (mostly by sharing his riveting accounts of personal experiences in the game) and planting the idea that it could be a technology with affordances for second language learning. I could not have attempted to create a course centered on WoW play without his encouragement, gaming help, and feedback. I was not a gamer when I began to play WoW before creating the first course in 2010, and I am not an expert player now, but learning to play the game was an unexpectedly enjoyable part of this work that sparked an interest in exploring other digital games and virtual world environments for L2 learning.

I would like to thank my other dissertation committee members, Dr. Manuela Wagner, Dr. Roger Travis, and Dr. Min Liu for graciously taking on the work of reading and providing thoughtful, gentle critiques. I feel very fortunate to have benefited from the varied expertise of such impressive colleagues. Thanks also to Dr. Andrew DePalma for his participation as a reader of my dissertation proposal. I would also like to acknowledge the students who took part in the WoW courses at UConn – two of the most memorable courses I have ever taught.

On the home front, I am forever grateful to my very patient husband and partner, Ted, for helping me keep things in perspective, and to my daughters Alexa and Caryssa, who grew from toddlers to teenagers while I pursued a Ph.D., always reminding me of the importance of finding time to play and do things together.

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CHAPTER 1

Introduction

“Human intelligence and creativity, today more than ever, are tied to connecting—synchronizing—people, tools, texts, digital and social media, virtual spaces, and real spaces in the right ways, in ways that make us Minds and not just minds, but also better people in a better world.”
(James Paul Gee, *The Anti-Education Era: Creating Smarter Students through Digital Learning*, 2013).

Gee’s (2013) words inspire educators concerned with helping learners develop not just knowledge and skills, but attitudes and awareness that support lifelong learning, social consciousness and responsible global citizenship. Given the many serious problems afflicting this world, “global warming, environmental degradation, global flows of economic speculation and risk taking, overpopulation, global debt, new viruses, terrorism and warfare, and political polarization” (Gee, 2013, p. 146), making the most of limited and globally distributed resources and cooperating with understanding of diverse cultural perspectives are urgent necessities. Figuring out “the right ways” to exploit the affordances of technologies for education may prove to be one of the most critical activities for sustaining human existence and improving the quality of life for more of the world’s people.

On both global and local scales, technologies, like language, extend our human ecology (Steffensen, 2011). Both allow us to access information that directs us toward our goals, help us solve the problem of the moment, or address the more complex questions of a lifetime. Both technologies and language allow us to participate in a variety of communities and create mutually rewarding relationships with others near and far. The social affordances of technologies are of particular interest to educators who take a situated view of learning. Following Lave &

Wenger (1991), this research assumes that “Learning, thinking and knowing are relations among people in *activity* in, with, and arising from the socially and culturally structured world” (p. 51).

Some technologies, for example, digital game-based worlds, have associated communities that are themselves emergent cultures (Pearce, 2009). Players’ goal-driven activities shape what become the socioculturally established routines and traditions of popular massively multiplayer games such as World of Warcraft (WoW), Guild Wars, Final Fantasy, EvE, etc. Beyond just following routines, players can follow trajectories of play that lead them to become creators, designers, leaders and teachers of their favorite digital games. Expert players and fans of various games have established communities in which “knowledge production” (Squire, 2012, p. 14) is the main activity and the knowledge produced sustains the community; it is focused on enriching and improving gameplay experiences for more of its members. These player instigated knowledge-producing activities outside of formal learning have been going on for more than a decade, capturing the interest of many researchers who draw connections between games and “good learning” (Gee, 2003).

If we look at the development of game communities, we see that part of the power of games for learning is the way they develop shared values. In other words, by creating virtual worlds, games integrate knowing and doing. But not just knowing and doing. Games bring together ways of knowing, ways of doing, ways of being and ways of caring: the situated understandings, effective social practices, powerful identities, and shared values that make someone an expert. (Shaffer, Halverson, Squire, and Gee, 2005, p. 5)

The impetus for this research was to investigate how play of World of Warcraft (WoW), one of the most popular Massively Multiplayer Online Role-playing Games (MMORPGs)¹, might help second language (L2) learners develop situated understandings of the L2, pick up on effective social practices, shape powerful identities and participate in a community with shared values. A pedagogical goal was to see how instructional design could support the development of a community as L2 learners and native English speakers (NESs) together took part in a university course centered on playing WoW and exploring its culture and social values.

Background

Second Language Learning Theories and Computer Assisted Language Learning (CALL)

This research contributes to the synergistic domains of second language learning theory and Computer Assisted Language Learning (CALL). Exploration of game-based language learning in the virtual environment of WoW is also intended to build on previous studies of games and learning, especially those that have adopted situated, ecological perspectives of cognition and learning. The Dynamical, Embodied, Embedded, Distributed and Situated (DEEDs) (Walmsley, 2008) view of cognition and language taken as the theoretical framework for the two studies presented calls for an action-oriented understanding of L2 learning, i.e., as it takes place in the dynamics of gameplay and related (meta-game) activities.

CALL has a roughly 50 year history as a sub-field of applied linguistics (Thorne & Smith, 2011), contributing research that has informed theories of Second Language Acquisition (SLA) and L2 teaching practices, leading to wider adoption of technologies for L2 teaching and

¹ There are currently 10 million WoW subscribers (Retrieved on April 28, 2015 from <http://www.statista.com>)

learning. However, L2 instructional approaches continue to be guided by computational theories of mind that artificially separate the learner and the learning environment. As has been argued (Zheng & Newgarden, 2012), a rethinking of language learning in dynamic terms is needed in order for L2 practitioners to comprehend and capitalize on the new possibilities virtual worlds offer. This research shows how L2 learning in the dynamics of WoW gameplay can be seen as a process dependent on L2 learner's agency, orientation to sociocultural norms and ongoing development of pragmatic competence in coordinating activity with others.

In Linell's (2009) dialogical terms, communication depends on both the tensions created by alterity and the achievement of intersubjectivity. The opposing forces are balanced in interactions as parties enact joint communicative projects. From the DEEDs perspective, L2 learning is situated in communities of practice (Lave & Wenger, 1991), and distributed across persons, artifacts, time and space (Zheng & Newgarden, 2012). Ecologically, it is learning to live in the jungle of the language environment (van Lier, 2004), rather than a matter of internalizing grammar rules or lexical items in classroom situations, expecting to apply them later in idealized "real life" situations.

The dynamic view presented by this work challenges prevalent beliefs about language that are based in computational models of cognition and historically influential views from linguistics that have treated language as a code (Love, 2004) and communication as transmission of information. Although cognitive science began "to turn away" from symbol processing more than 30 years ago (Cowley, 2013, p.2), current pedagogies in L2 teaching across several major theoretical categories (see Thorne & Smith, 2011), still rely heavily on information-processing concepts. Widely used terms such as comprehensible input and output have led to the common beliefs that an L2 teacher's main function is to provide modified input and give feedback on

learners' output. Accordingly, L2 learners are not typically involved in decisions about the content of what is taught. Classroom language practice activities may be interactive, but conversational topics are often not relevant or psychologically meaningful to learners. As a result of the emphasis placed on mastering language rules in decontextualized classroom activities, L2 learners often end up knowing a lot more about the target language than about how to be someone (Zheng & Newgarden, 2012) who participates in various L2 communities.

Sociocultural theories of second language (e.g., Lantolf, Thorne, Kramsch) have brought attention to the importance of interaction, identity and activity in social and cultural contexts for L2 development. Vygotsky's Zone of Proximal Development (ZPD) has been integrated in L2 teaching approaches and CALL research. Problem-based learning, task-based learning, and other social constructivist approaches have replaced grammar-translation and "drill and kill" as social aspects of language have come to the fore of L2 theorizing. Complexity (Larsen-Freeman & Cameron, 2008) and ecological (van Lier, 2004) theories of L2 learning have been meticulously elaborated. Both of these theories further emphasize the importance of learner autonomy, agency and self-regulation while making the case for learning-centered rather than content-driven instruction.

The further contribution of the multidisciplinary theories of DEEDs is needed to reach a more naturalized (Cowley, 2013) understanding of language and L2 learning; one that better accounts for human biology and the dialogical basis of our brains (Linell, 2009) which play a defining role in semiosis, as embodied experiences connect the dynamics of what is going on with verbal patterns. Understanding language as a mode of action we engage in together (in which sociocultural contexts are defining), or what distributed language theorists refer to as *linguaging* (Maturana, 1988), is necessary to understanding how language learning can take

place in and across the contexts of virtual worlds of games and “real world” lives. Theories of SLA have changed as new technologies have been adopted and given rise to new questions, this research may contribute to another wave of change as more embodied technologies (virtual reality headsets, augmented reality, touchable (pushable/pullable) 3D technologies, or even scent-releasing technologies) make their way into mainstream use and certain early adopter classrooms.

Dynamics of Second Language Acquisition (SLA) Theory and CALL Research

Thorne & Smith (2011) noted that technology and second language acquisition (SLA) have a complex, dialectical relationship with one another. They explained the central “bridging” role of SLA research between CALL theory, design and practice and how this creates an ecological relationship “governed by questions regarding the complex relationships between language use and language development” (Thorne & Smith, 2011, p. 274).

Garrett (2009) stressed that all three of the major components of CALL; pedagogy, theory and technology, should be considered equally and as “interwoven” and that “accepted pedagogical practice should not be the primary determiner of technology use” (Garrett, 2009, p.2). Garrett further recommended that CALL research should explore the interrelated, situation-specified variables of L2 teaching/learning environments, technology-based learning activities, learning objectives, and learner characteristics and goals, an approach this research adopted.

Chapelle (2009) outlined the relationship between thirteen influential SLA theories within four major categories² and their potential implications for CALL. While cognitive linguistic theories such as Chomsky’s Universal Grammar were still influential when Garrett

² The four categories were cognitive linguistic, psycholinguistic, general human learning, and approaches to language in social context.

(1991) reported on CALL trends, their assumptions about developmental constraints on language abilities offered only a limited role for CALL in instruction. The possibilities of interest to cognitive linguists were, for example, the ability to sequence the presentation of grammar forms to individualize instruction or to provide learners with opportunities for hypothesis testing (Chapelle, 2009). Interactionist theories have been drawn upon more extensively in CALL, guiding for example, design that highlights word forms through repetition and modification, giving the learner control over review and modification of content (input) and help features while providing feedback that supports comprehension and production (output) (Chapelle, 2009, p. 745). Interactionist theories also informed studies of Computer Mediated Communication (CMC) where the notion of “negotiation of meaning” became a central concept in explaining how L2 learners mapped meanings from shared input such as text chat.

SLA theories based on behaviorist ideas of associative learning have influenced CALL designs that provide repeated and optimal exposure to language based on the assumption that declarative knowledge will eventually become automatic procedural knowledge. Designs for use of technologies for telecollaboration between L2 learners have relied on pedagogies from sociocultural theories that prioritize intercultural learning, pragmatic competence, and the development of learner identity as social relationships are formed (Chapelle, 2009).

Situated and ecological influences can also be seen in the CALL literature. Recent studies on use of Social Networking Sites (SNS) by L2 learners of English (Reinhardt and Zander, 2011) and French (Mills, 2011) drew upon language socialization and situated learning theories that connect language learning with participation in speech communities. Lafford (2009) suggested that the emerging ecological perspective of language learning in CALL would help to guide the integration of Web 2.0 technologies in L2 instruction. She stressed the value of

thinking in terms of the affordances of different technologies to help L2 learners build the specific competencies they need for local contexts (Lafford, 2009, p. 693).

Chapelle (2009) traced previous developments in CALL to the need for designers and researchers to explain the role of instruction in SLA. She applauded Garrett's (2009) theoretical pragmatism, adding that openness to new theoretical perspectives helps CALL researchers understand the possibilities offered by new technologies, not only for facilitating "normal" language acquisition, but for "improving on it" (Garrett, 2009, p.2). This research is undertaken in the spirit of uncovering more evidence for how one technology, the MMORPG WoW, may afford ways of facilitating L2 learning, moreover, in a way that incorporates the engaging and rewarding dynamics of play.

Digital Games for Learning and the Potential of Games as Language Learning

Environments

Digital games are increasingly being considered for their educational value. de Freitas (2006) pointed to three main trends that are responsible for this new perspective; 1) widespread use of games in home environments that led to the Serious Games movement, 2) authoring and modding of games for educational purposes, and 3) growth of online gaming and its associated communities. Interest in games and learning has also been generated by critiques of schools (Brown and Adler, 2008; Gee, 2013; 2004; Prensky, 2001, 2006), work on new literacies (Gee, 2003), and research of game player participation in online game and fan-fiction communities (Steinkuehler & Duncan, 2009; Steinkuehler & Williams, 2009; Thorne, Black and Sykes, 2009).

Although educators have begun to experiment with video games much more widely, they are still an emerging technology in U.S. postsecondary education (Epper et al., 2012) and the use of digital games for learning is not widespread. This is expected to change; however, partly

because of the expectations of the population of “digital natives” who are reaching higher education with significant game expertise and histories of learning with digital games. Other forces pushing the integration of games are instructional designs that, for example, blend game dynamics with simulations, or use the badge reward structure of games to document learning. The prevalence of mobile technologies and use of social media in education are also factors. (Epper et al., 2012).

As a recent meta-analysis of 300+ game-based studies in K-12 education revealed, there is still not a lot of evidence of academic achievement gains from video games used for educational purposes (Young et al., 2012). However, positive findings were clustered in the domain of language learning (as well as history and physical education).

Second Language Learning and Digital Game Play Studies

Leading up to the proposed research, Newgarden, Zheng, & Liu (2015) presented a quantitative study using data from the same set as for this research, of an unscheduled WoW gameplay episode by three adult L2 learners and the instructor. The study investigated the relationships between ecologically and dialogically defined variables, i.e., values realizing, languaging modality (verbalizing and/or acting via an avatar) and skilled linguistic action. Multimodal analysis of voice and video recordings of play and Multinomial Logistic Regression led to development of a statistical model for predicting the probability that players’ joint communicative projects, which they enacted as they coordinated in virtual world activities, would reflect wayfinding (getting information that helped them move forward in a positive direction), orienting to we (attuning to a shared socioculture such as WoW or the L2) or both of these values.

The authors reported a reciprocal development between skilled linguistic action, multimodal languaging (when verbalizing and avatar actions were aligned) and values realizing. This development was attributed to agency that was distributed in the open-ended game environment by players' common ground alignment (deploying language to orient jointly to objects or linguistic features in the game) and prospective coordination (inviting others to move forward together with a task). Multimodal languaging was found to predict communicative projects that realized both wayfinding and orienting to a common socioculture. The authors suggested this was "evidence that embodied languaging enriched the experience of conversing for these L2 learners" (Newgarden et al., p.25).

Zheng, Newgarden & Young (2012) also directly informs the two studies presented in this work in terms of theoretical grounding in DEEDs, ecologically framed constructs and hypotheses, and multimodal, dialogical, situated methods of analysis. Reporting on a multimodal analysis of the same WoW gameplay analyzed by Newgarden et al. (2015), the authors highlighted the affordances for L2 learners' values realizing. They pointed to patterns of communicative activities associated with certain game location-based activities as affordances that could inform future game-enhanced L2 teaching and learning with WoW or other MMORPGs. The concepts of co-action, values realizing and skilled linguistic action were promoted as central to a new theory of L2 learning.

Zheng (2012) illustrated Linell's (2009) dialogical diamond, a model of semiotic activity, which extends C.S. Peirce's triadic model to include "the silent we," i.e., the shared historical and sociocultural understandings that shape and are shaped by communicative interactions. Zheng developed Hodges's (2007a) notion of language as a caring, values-realizing system, providing a model for instructional design and future research. She reported on a multimodal

analysis of adult learners of Chinese as an L2 in a designed Chinese environment in the virtual world of Second Life. Using Communicative Activity Type (CAT) analysis (Linell, 2009), she described how multi-scalar dynamics of perception, action and caring systems (Hodges, 2007a; 2009) contributed to the skillful, rule-conforming languaging (Zheng, 2012, p. 13) and the identity development that occurred. Zheng's theoretical grounding and methodology were adopted in this research.

Few other studies have taken a situated, ecological view of L2 learning in and through games and their cultures (Zheng et al., 2012). However, Paul, Black, van Es & Warschauer (2012) investigated affordances for language development and socialization using data from play of WoW on the Spanish game server by two adult L2 learners of Spanish over seven weeks with different levels of language proficiency and WoW experience. Grounded in sociocultural theory, the study adopted the concept of affordance from van Lier's (2004) ecological view as the unit of analysis. Qualitative analysis involved inductive coding of language patterns in chat log utterances (i.e., types, length, role of speaker in), identification of themes in participant journal entries, interviews, and field notes of gameplay. Positive findings were that WoW supported and created a safe environment for L2 learning, communicative competence was emphasized in play, and collaborative action between experts and novices was promoted. Game features were noted as affordances, for example, the use of a guild and private chat channel to facilitate supportive communication, and group play options that provided not only language practice, but contextualized practice that connected with cultural norms. The authors also noted affordances embedded in game artifacts and texts that developed orientation to sociocultural language norms and conventions.

Peterson (2012) took a sociocultural approach in his study of four adult English as a

Foreign Language (EFL) learners who played the MMORPG Wonderland (four 70 minute sessions over the period of one month). Research goals were to 1) describe the features of linguistic and social interaction and 2) to explore learner attitudes about MMORPG gameplay and learning English. Language and the game were considered as mediating tools that facilitate the type of interactions that transform “lower level mental functions such as attention and memory” to “higher level functions such as planning and problem solving” (Peterson, 2012, p.365). Learners’ co-construction of L2 forms was theoretically facilitated by interactions operating in zones of proximal development (ZPD), i.e. where more capable peers assist less capable peers, and was claimed to lead to learner intersubjectivity and self-regulation. Pre and post course questionnaires and participant interviews triangulated Peterson’s discourse analysis of twelve excerpts from gameplay text chat.

Peterson found extensive use of politeness, expressed through greetings, informal language, small talk, humor, emoticons, and leave-takings. Intersubjectivity was achieved as learners used game features to “make friends” within the game, and joined forces by forming teams to complete game quests. Intersubjectivity was maintained by learners’ use of linguistic forms such as continuers (utterances signaling attention and interest) and requests for assistance that were answered. Learners reported benefits of participating in the study including less anxiety about the L2 in the gameplay context, practice that improved fluency in forming sentences, and development of reading and vocabulary, including learning slang and more informal language. Interactions with native English speakers in the game were “challenging but positive” (Peterson, 2012, p. 376).

Thorne, Fischer and Lu (2012) looked at the “linguistic ecology” of WoW texts encountered by L2 players in game quests and regularly accessed game help sites (wowhead.com,

wowwiki.com, and elitistjerks.com) to “assess the readability, lexical sophistication, lexical diversity, and syntactic complexity of the texts using four indices that have been shown in previous research to be useful measures of linguistic complexity” (Thorne et al., 2012, p.287). Against the negative stereotypes of what is believed to be cognitively required to play MMORPGs, they reported that WoW texts present a “substantial volume of highly complex linguistic input”(p. 291) that provides intellectual challenge as L2 learners “engage with the semiotic system and signifying practices they wish to learn”(p. 298). They advised that to understand how this happens in real-time will require “a more complex, non-causal and nuanced approach” (p. 298) and to provide a more complete picture, consideration of player-to-player communication. Their conclusion invoked a view of WoW texts as affordances for semiosis that are linked in WoW play with situated practices to become “massively influential developmental forces” (p. 297). The contribution of this study is the evidence of WoW’s rich semiotic budget (van Lier 2004), which should provide new fuel for ecological studies, such as the two studies presented here, that show how players’ situated activities in games make complex texts and other game artifacts more than potential “input.”

Cornillie, Clarebout and Desmet (2012) investigated L2 learners’ perceptions of corrective feedback (explicit and implicit) during play of a multiplayer game designed for L2 learning of pragmatics. A finding of relevance was that learners found explicit corrective feedback to be useful and neither type a detraction from the enjoyment of gameplay. In the same special issue on digital games, Sylven and Sundqvist (2012) investigated L2 proficiency in relation to extramural gameplay in English by Swedish youth ages 11-12. Corroborating previous findings, they found a correlation between more frequent extramural gaming and higher English proficiency as measured by tests of reading, listening comprehension and vocabulary.

Rankin et al. (2008) asked whether MMORPGs support vocabulary acquisition in the L2 and whether the social interactions between native (NES) and non-native English Speakers (NNES) in MMORPGs support vocabulary acquisition. Twelve advanced English as a Second Language (ESL) students in an Intensive English Program (IEP) were assigned to two conditions. The researchers used a between-subjects design with a pre-test and post-test, both of which assessed knowledge of English vocabulary modeled in the game by non-player characters (NPCs). In the first experiment, the treatment group played EverQuest2 for four hours per week while the control group attended three hours of ESL class. Significant results were reported for overall vocabulary acquisition comparing pre-test and post-test scores, but the gain for students who participated in the ESL class was significantly higher. The researchers emphasized that the claim was simply that the MMORPGs facilitate vocabulary acquisition, not that the gains would be higher than traditional instruction.

In a second experiment the treatment group played EverQuest2 as teams made up of two ESL students and two NES university students. The control group students played EverQuest2 alone. When the same vocabulary acquisition tests were administered as pre-tests and post-tests, the treatment group scored significantly higher overall on the post-tests. The researchers pointed to the social interactions between the ESL and NES students in the treatment group around game play (discussions of quests, for example) as an important factor in vocabulary/language acquisition and considered the inclusion of NES players as a way of “leveraging the benefits of MMORPGs for second language acquisition” (Rankin et al., 2008).

Rankin et al. (2009) built on their 2008 finding of increased vocabulary acquisition for L2 learners who played with NESs, investigating in a more qualitative way, how social interactions in EverQuest2 play between NNESs and NESs contributed. Turning to content

analysis of game transcripts (five hours of chat texts), the researchers used Dialogue Acts Markup in Several Layers (DAMSL) to code speech acts.³ Five categories of frequent speech acts were identified and applied in coding of each player's turn of talk.⁴ The researchers developed a Flash-based visualization tool, ClockWerk, which provides a global picture of communication patterns during gameplay and connects speech acts to time and session of play, while distinguishing between NESs and NNEs. Based on the ClockWerk visualizations, the researchers identified several differences in communication patterns based on linguistic capabilities, for example, that NESs made more attempts to lead and influence teammates, which led NNEs to produce more "self-assertive" messages to indicate their individual progress in the game. The increase in the number of chat messages by NNEs over time was attributed to their increasing level of comfort and said to support their "communicative performance" (Rankin et al., 2009, p. 167). While the coding of individual speech acts does not reflect the dialogical view that underpins the present research, the visualization of types of communicative acts across the time of gameplay that also allows for comparison of individual and group NES's and NNE's speech is an innovation that shows promise for longitudinal studies.

Thorne (2008), Thorne, Black & Sykes (2009), Piirainen-Marsh & Tainio (2009) and Zheng et al. (2009), as reviewed in Zheng et al. (2012), also informed this research. Additional review of digital game-based studies from 2013 to 2015 is provided in relation to the research questions of each of the two studies presented in this work.

³ Originally developed to code spoken language, DAMSL evaluates "the influence of communication on both the sender and receiver of messages" (Rankin et al., 2009, p. 163).

⁴ The speech acts were: 1. Conversational openings and closings 2. Requests for game or personal information 3. Assertive statements 4. Attempts to influence Player Characters' future actions and 5. Player Character's commitment to future action

From research framed by many different epistemological beliefs about second language learning, cognition, language and technologies, there has certainly been progress made toward understanding the potential of Second Language Teaching and Learning (L2TL) with digital games. Each of the two studies that together comprise this work contributes to an underexplored category of research on L2 learning with digital games. While many studies have relied on data from L2 players' text chat during gameplay or on learner self-report, Study 1 considers L2 learners' real-time spoken language and avatar actions in WoW through analysis of audio and video recordings of gameplay. Study 2 considers how L2 learning is distributed in WoW play as well as in players' activities in game-associated communities, in this case, in the community of a WoW-centered course. There have been very few studies that have considered L2 learning in "meta-game" terms, and/or its relationship to learning that takes place during gameplay (Chik, 2014 and Ryu, 2014 are recent exceptions discussed in Study 2).

Theoretical Grounding

Assumptions of distributed theories of cognition (Hutchins, 2000; 1995) and language (Cowley, 2011; Linell, 2009; Steffensen, 2012; Thibault, 2011) form the overarching frames of this research. In distributed theories, cognition and language are activities that rely on more than individual brain-bound cognition, they rely on resources, both material and social, that become available through experiences that are shaped or situated by context, history and culture. These assumptions provide a basis for describing the activities and interactions of students in a classroom or a group of WoW players as a dynamic or dialogical system (Steffensen, 2012).

The Eco-dialogical (Zheng, 2012) view of language that is the basis of understanding dynamic languaging fits within distributed views in that the boundaries between agent and environment imagined in information processing views are replaced by a unified agent-

environment system. Ecological psychology, which stemmed from Gibson's (1966, 1979) theories of perception and information pick up, and dialogicality, based on Linell's (2009) work, are both relational views of cognition and language. In ecological psychology, relations between an agent and environment afford action as ambient information is detected and picked up according to an agent's abilities and goals. In Linell's (2009) dialogical view, speakers orient to each other, to the objects of their communicative projects, and to shared sociocultural norms that are virtually present as constraints on a given situation. In ecological and dialogical theories, cognition is situated and contexts are defining.

There are two key concepts drawn from ecological and distributed views of language that are central to the hypotheses of this research: *values realizing* and *skilled linguistic action*. Hodges's (2007a) developed the idea that central functions of language are seeking good prospects, caring and wayfinding, which are values-realizing activities. Ecologically, values are "the real goods that actions must realize sufficiently for an ecosystem to exist" (Hodges, 2009, p. 631) and "the global constraints on self-organizing ecosystems" (p. 634). Zheng (2012), Zheng et al. (2012) and Newgarden et al. (2015) have repeatedly shown that learning to take skilled linguistic action is a values-realizing process for L2 learners.

Skilled linguistic action is a construct that was introduced to L2TL in previous collaborative research (Zheng et al., 2012; Newgarden et al., 2015). Taken as the main objective for L2 learners, skilled linguistic action is dynamic integration of language and embodied action that is in attunement to sociocultural norms. It is not a process that involves encoding or decoding of information, but an activity by dialogical agents who directly perceive and act on affordances in environments while under the constraints of social discourses (Cowley, 2012). Learning to take skilled linguistic action requires engaging in communicative activities that draw

on and connect to material and cultural resources (Cowley, 2012).

Challenges for ESL Learners and Teachers

The population of learners considered in this research, adult English as a Second Language (ESL) learners in an Intensive English Program (IEP) at a U.S. university, have various reasons for learning English, but generally, language skills are needed in order to pursue academic or professional goals. Ideally, intensive language study provides the time and space necessary for development of language and sociocultural competency, supporting L2 learners' participation in L2 communities that are important to them. However, even when language learning is intensive, typically based on 20-25 hours of classroom study per week, the experiences L2 learners have in classrooms may not be sufficient to develop the skills needed to interact adaptively in situations they encounter outside the classroom. Conversing in the L2 is critical to language learning (van Lier, 2004) and interactions should be authentic and meaningful. To participate effectively as college students, professionals or in other social roles, L2 learners need to have experiences that help them enculturate to the practices and discourses of these communities (Brown, Collins & Duguid, 1989).

From the eco-dialogical (Zheng, 2012) perspective that frames this work, to become proficient communicators, L2 learners need to attune to social and cultural linguistic conventions and situation-transcending practices (Linell, 2009) or sociocultural norms of the culture that impinge on real-time situations. L2 communicative skills improve as learners increasingly learn to anticipate and adaptively respond to culturally normed verbal patterns and embodied linguistic cues that are picked up over successive experiences in naturally unfolding (authentic) social situations. However, there is no way to guarantee that L2 learners will seek out opportunities for language practice outside of the classroom. If there are affordances for speaking their native

language (L1), such as a large community of other fellow speakers of their L1, it is highly likely that adult learners will spend much of their extracurricular time communicating in the L1. IEP teachers are challenged to create situations for learning that provide for authentic interactions that are shaped by sociocultural norms and that lead L2 learners to adopt intentions to engage in the same types of interactions outside of classrooms.

IEP teachers are also challenged to overcome many learners' passivity in the classroom, which is often a by-product of their years of prior experience in teacher-centered educational systems. Language learning goals are frequently tied to attaining scores on standardized tests required for college admissions, for example on the Test of English as a Foreign Language (TOEFL). This can lead learners to prioritize test preparation, which need not involve live interaction with others, while devaluing what can be learned, for example, in a project-based course. Even when given the opportunity to set individual goals and contribute to the direction of the course syllabi, some L2 learners are hesitant and reluctant to do so, never having had this kind of autonomy in a classroom before. Teachers in an IEP are challenged to incite L2 learners with a variety of educational backgrounds to take responsibility for their ongoing learning and develop the metacognitive skills associated with planning for, monitoring and evaluating their own learning.

Developing a classroom community can also be a challenge when learners are culturally and linguistically diverse, while on the other hand, diverse learners provide a wealth of affordances for intercultural learning that teachers can exploit. Fortunately, IEP teachers working with adult learners have a great deal of freedom in terms of developing activities for learning, which may be the reason why there has been so much research in CALL over the past 50 years.

The WoW Course, Participants and Data

The data for this research came from the first of two implementations of a WoW-centered semester long course that was designed and taught by the author at a U.S. university. The mostly online course brought together L2 learners who were studying English in the university's IEP and native English speaking (NES) freshman who took the course as a one credit First Year Experience option, a course designed to help new students adjust to academic, social and cultural life. The course focus was exploration of the culture and social values of WoW. L2 learners and NES freshman were placed in mixed groups of four to five players and required to take part in one hour weekly scheduled sessions of group gameplay with the teacher. Group members decided collaboratively on the goals of a given session of group gameplay. Discussion of WoW values took place mostly through online threaded discussion in a Blackboard course site while a course wiki was used for teaching and learning about playing WoW. Weekly guided discussions focused on a particular social value (Work, Money, Education, etc.) and how it was reflected in WoW culture.

Three episodes representing the gameplay of Group Z were selected from the full data set of gameplay recordings. The episodes represented gameplay from the beginning (Week 1) and towards the end of the course (Weeks 8 and 10). Group Z included three L2 learners and two NESs, one of whom was the teacher. There was one non Group Z member, an L2 learner, who played in the Week 1 episode.

Hypotheses and Research Questions

An overarching hypothesis was that skilled linguistic action and values realizing by L2 language learners are reciprocally developed in WoW gameplay, both through designed affordances of the game (game rules, material artifacts and avatar roles), the meta-game, and

explicit game-contextualized instructional practices. An overarching question was: How do L2 learners perceive and act, constrained by values, in culturally embedded situations of languaging in the game environment, and what factors shape their language learning, relationships and future affordances for participation in L2 communities?

Five research questions were addressed in two related studies. Study 1, “Recurrent Languaging Activities in World of Warcraft (WoW) Play as Affordances for Skilled Linguistic Action by English as Second Language Learners,” addressed questions 1 and 2:

1. How and when did designed and emergent game affordances support L2 learners’ abilities to take skilled linguistic action in situations of gameplay that mirrored the “real world”?

2. What were the relationships between L2 learners’ languaging during gameplay, their participation in the WoW course, participation in the IEP community, and overall speaking proficiency scores assigned by their IEP teachers at the end of the same period?

Study 2, “Distributed Language Learning in a World of Warcraft (WoW) Centered Course,” addressed questions 3, 4 and 5:

3. How did individual L2 learner languaging unfold as players gained experience with WoW and familiarity with group members including English-speaking college students and an instructor?

4. What contextual factors contributed to L2 players’ development of sociocultural attunement, attention to linguistic form, meaning and pragmatics, smooth coordination during gameplay, or community-building relationships?

5. Did the spoken language of the players (NESs and L2 learners) who played WoW as a group become more aligned over the 15 weeks of the WoW course?

Overview of Studies

Study 1 followed Zheng et al. (2012) and Newgarden et al. (2015) in carrying out an eco-dialogical analysis of WoW gameplay, in this case, applied to three episodes of Group Z's play. Applying multimodal analysis, players' verbalizations and avatar actions were transcribed from video and audio recordings of approximately 1 to 1.5 hours of WoW play with simultaneous Skype conference call. The unit of analysis was Linell's (2009) communicative project (CP), defined as a situated interaction that "involves an implicit or overt co-action between two or more parties" (p. 193, Linell, 2009). CPs were keyword coded using open and axial coding. Keyword visualizations were then created using Transana (Woods & Fassnacht, 2012) software and patterns were identified in relation to answering research question 1, about designed and emergent affordances that supported skilled linguistic action by L2 learners in WoW play. To answer question 2, correlations between the following four scores for each L2 player were assessed: skilled linguistic action in gameplay, participation in the WoW course (both gameplay and posting activity in the online course sites), participation in the IEP community, and learners' mean speaking proficiency scores, which were assigned by their IEP teachers using an in-house proficiency scale, based on classroom assessments for the same semester as the WoW course.

Study 2 used the same data set, but emphasized a different theoretical perspective, i.e., how L2 learning was distributed in the interactions of players who formed a dialogical system (Steffensen, 2012) each time they played WoW as a group. Multimodal analysis was conducted as described for Study 1 to address research questions 3 and 4 in terms of how affordances for L2 learning were distributed across player interactions, WoW artifacts and rule-bound activities in the virtual world of the game. Analysis of players' contributions to guided online discussions complemented the multimodal analysis of gameplay in addressing how instructional design

elements provided affordances for sociocultural attunement. To answer question 5 about whether Group Z players' language became more aligned over the course of playing WoW together over a semester, a software called Linguistic Inquiry and Word Count (LIWC2007) (Pennebaker, Chung, Ireland, et al., 2007) was used to calculate a linguistic style profile for each player. Subsequently, a metric called Linguistic Style Match (Gonzales, Hancock, & Pennebaker, 2010) was used to compare players within each episode of play and to compare the degree of players' linguistic alignment across multiple episodes from beginning to end of the course.

The common thread in these studies is theoretical grounding in distributed views of cognition and language. The activities involved in L2 learning are situated in authentic, meaningful, experiences that involve dialogical relationships and co-action with others. Engaging in communicative projects (Linell, 2009) affords realizing the broad conversational values of being clear, comprehensive, coherent, complex and caring (Hodges, 2009). This research was initiated with the expectation that a popular massively multiplayer online game (MMOG) with a huge population of players who speak English, an engaging quest-based game narrative, a wide online community base and an intricate, and somewhat neutral culture to explore, was likely to be an environment that would be, in many ways, ideal for L2 learning, or in distributed language terms, for *learning to take skilled linguistic action*.

Exploring the affordances for L2 learning with a technology as complex as an MMORPG like WoW requires theories of learning and cognition and methodologies that account for multimodal interactions and the contributions of avatar embodiment, use of voice and audiovisual information from a variety of sources. Researchers need to look carefully at the contexts of gameplay and consider games' unique features, including mechanics, rules and material artifacts, recurrent activities, the narrative and cultural norms of play, and the

affordances each of these create as players perceive and act on them. In addition, L2 researchers can turn to situated views of learning to understand how participation in the community-oriented cultures of games like WoW affords coordinating with others and improving coordination over time, sociocultural and intercultural learning, and authentic interactions that can be scaffolded by more expert others including intrepid L2 teachers.

The most satisfying potential contribution of this research would be to shed more light for L2TL on the value of taking an ecological (van Lier, 2004), dialogical (Linell, 2009), distributed (Cowley, 2011) view of language, not only for the sake of understanding the affordances of MMORPGs, though this is a recommendation, but to reach a new more powerful understanding of language, not as a tool to be used or a symbol system to be internalized, but as values-realizing activity. L2 instructional designs that use technologies in “the right ways” Gee (2013) hoped for are predicted to be those that plan for learning to be distributed across culturally defined social interactions, material resources, and the history of a learner’s experience (Hutchins, 2000). Ultimately, this research supports the hypothesis that by participating in authentic, recurrent, meaningful, embodied interactions with diverse others in technology-linked communities of practice, including those of digital games, L2 learners can learn to take skilled linguistic actions, aligning language, movement, and sociocultural attunement to realize values in languaging with others.

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CHAPTER 2

Study 1: Recurrent Linguaging Activities in World of Warcraft (WoW) Play as Affordances for Skilled Linguistic Action by English as a Second Language Learners

Abstract

In this study of affordances for second language learning in World of Warcraft (WoW) group play, three gameplay episodes spanning a semester long college course were compared. Framed by ecological psychology, dialogical and distributed views of language, multimodal analysis explored four English as a Second Language (L2) learners' verbalizations and avatar integrated actions as they coordinated to accomplish game goals. Players learned to take skilled linguistic actions as coordination of recurrent prototypical WoW gameplay activities (questing, planning next moves, traveling, learning a skill, etc.) afforded multiple iterations of authentic pragmatic communicative activities. Frequent activities were mapped to Common European Framework of Reference (CEFR) speaking proficiency descriptors, which often serve as the basis of L2 curricula; evidence that informal gameplay engages players in the varieties of communicative interactions that formal instruction attempts to provide. Through the dynamics of group gameplay, L2 players and two native English speakers realized a range of fundamental conversational values (Hodges, 2009), namely; being clear, comprehensive, coherent, complex and caring. Multimodalities of languaging (avatar movement while verbalizing over Skype) afforded complexity by allowing players to multitask, pursuing game goals while conversing on a range of topics. Course design requirements including guild membership, mentoring of new players by more expert players, and scheduled play afforded an ongoing sense of community that supported situated learning. A significant correlation was found between L2 learners' scores on

measures of skilled linguistic action in gameplay and speaking proficiency scores from their Intensive English Program (IEP) end-of-session evaluations. This research provides additional evidence for the increasingly popular belief that game worlds may be prime environments for L2 learning and recommends both theory and methodology that accounts for the contributions of multimodality and avatar embodiment.

Introduction

Why have many researchers looked for evidence of second language (L2) learning during digital game play? For one, we know that many L2 learners play games recreationally, and wonder about L2 learning “in the wild” of informal gameplay (Chik, 2014; Piirainen-Marsh & Tainio, 2009; Ryu, 2013; Sylvén & Sundqvist, 2012; Thorne, 2008; Thorne, Fischer & Lu, 2012). We also know that commercially successful massively multiplayer online role-playing games (MMORPGs) are widely popular in many parts of the world because so many people enjoy playing them. We want to know whether we can generate similar engagement and motivation in games designed for L2 learning and in instructional settings in general. Many MMORPGs provide access to persistent L2 communities that exist around play of a game, each with its own narrative and socially determined ethos. Interacting with other players in an L2 is promoted through the challenges and rewards embedded in the design of games, which typically require ongoing language-facilitated problem-solving and coordination as players make progress toward various goals such as leveling up their avatar or completing quests. Many 3D avatar-based games allow for multimodal (voice, text and avatar-embodied) interactions with other L2 speakers, providing an enhanced sense of co-presence and immersion.

Popular multiplayer games such as WoW, currently with 10 million subscribers⁵, represent massive online communities of speakers of English, Chinese, Spanish, etc. in their persistent game worlds and in online international communities of fans who share game knowledge, insights, and game-inspired fiction and art through game associated websites. For all of the above reasons, L2 researchers, including the author, have become increasingly interested in multiplayer games as sites where L2 learners can engage in authentic, meaningful and playful interactions with L2 native speakers.

As revealed in the literature review that follows, L2 researchers of games have drawn heavily on the extremely influential work of James Gee (2003, 2004) in the area of video games and learning, as well as other prominent games researchers whose work over the past two decades has exposed commercial games as sites for the development of literacies (Thorne, Black & Sykes, 2009) and mathematical (Steinkuehler & Williams, 2009) and scientific habits of mind (Steinkuehler & Duncan, 2008), while guiding future approaches to learning with epistemic games (Shaffer, Squire, Halverson, & Gee, 2005). Principles of “good learning” found in “good games” have been aligned with objectives for L2 teaching and learning, i.e., goal-orientation and task-based learning, interaction, real-time feedback, contextualizing narratives, and motivation, engagement and flow (Sykes & Reinhardt, 2013).

Review of Literature on L2 Learning in Digital Game Worlds

In their 2014 introduction of the special issue of *Language Learning and Technology* on “Games and Play in Technology-Mediated L2 Teaching and Learning,” Sykes & Reinhardt noted the spate of research in this field over the previous five year period, citing two recently

⁵ Retrieved on April 4, 2015 from Statista, the Statistics Portal at:
<http://www.statista.com/statistics/276601/number-of-world-of-warcraft-subscribers-by-quarter/>)

published comprehensive resource texts (Peterson, 2013; Sykes & Reinhardt, 2013), an edited volume (Reinders, 2012), and other special issues devoted to studies of digital games and L2 learning (ReCALL, 2012; Digital Culture and Education, 2011). The literature in L2TL with digital games has now expanded sufficiently that trends and themes in both findings and recommendations for future research can be identified. The focus of this review is narrowed to findings from studies of game-enhanced (Sykes & Reinhardt, 2013) L2 learning, specifically with commercial-off-the-shelf (COTS) MMORPGs rather than with educational language learning games (as in game-based L2 learning). The potential contributions of the current study and its eco-dialogical, distributed language grounding will then be described.

Based on a meta-analysis of L2TL with digital games, Pasfield-Neofitou (2014) located open-ended game worlds, including MMORPGs such as WoW, in a central position between digital games that have a pre-determined end goal (e.g. Mario, Halo) and virtual social worlds (e.g., Second Life, Kitley) that lack the game mechanics of rules and specified goals. Game worlds, and particularly MMORPGs that incorporate both game mechanics *and* affordances for social interaction and pragmatic socialization (Palmer, 2010), offer what is increasingly seen as ideal environments for L2 learning (Bryant, 2007; Peterson 2011, 2013; Thorne et al., 2009). L2 researchers' theoretical beliefs about second language acquisition (SLA) inspire different rationales for interest in game worlds:

The inclusion of social mediums for communication and collaboration facilitates the types of collaborative dialogue theorised to be beneficial for SLA by sociocultural research, while the inclusion of game mechanics facilitates the types of negotiation and interaction in tasks theorised to be beneficial for SLA by psycholinguistic research. (Pasfield-Neofitou, 2014, p. 273)

From social perspectives of learning, the positive findings advanced include evidence that game worlds offer opportunities for co-constructed collaborative dialogue through players' interactions in the Zone of Proximal Development (ZPD), as in Rama et al.'s (2012) study of two Spanish L2 learners play of WoW, experimental learning through role play and language play (Peterson, 2010b), and engagement and motivation for L2 learning (Peterson, 2013; Rama et al. 2012; Thorne, 2008). Collaboration between native and non-native speakers during gameplay and in discussion activities related to gameplay was found to benefit vocabulary acquisition (Rankin, McNeal, Shute & Gooch, 2008), and language socialization (Thorne, 2008). Rankin, Morrison, McNeal, Shute & Gooch (2009) attributed the increase in quantity of L2 learners' chat messages over a total of five hours of gameplay sessions with native English speakers to learners' increasing level of comfort, which added to their "communicative performance" (p.167).

From information processing perspectives, which take cognition to be an individual activity, studies tend to report how game mechanics facilitate highly engaged task-based interactions that generate comprehensible target language input and increase target language output in text chat. Real-time negotiation in text chat with other players as well as interaction with non-player characters (NPCs) was found to enhance and elicit extensive L2 output (Rankin et al., 2009) and to benefit vocabulary learning (Rankin, Gold & Gooch, 2006). Reinders & Wattana (2011) found an increase in the number of turns in dialogue in both text and voice chat over three sessions of gameplay of a modded version of Ragnarok Online played by sixteen university Thai English learners on a private server. Based on three consecutive studies of Swedish 10-11 year olds' extramural L2 activities, including digital game play, Sylvén & Sundqvist (2012) reported a positive correlation between level of L2 (English) oral proficiency,

vocabulary size, and MMORPG play, which was found to be more common among boys, who in fact scored higher than girls on English vocabulary tests. The authors favorably compared play of WoW with Content and Language Integrated Learning (CLIL), a common approach in European schools that combines learning of content with instruction in an L2 so that “students constantly receive input, produce output, and interact in the target language, activities which indeed are considered conducive for L2 learning” (p. 116). The authors shared that: "Our aim is to show that what CLIL claims to do in the language classroom, WoW seems to accomplish, at least to some degree, in learners' spare time" (p. 115).

Affective factors inhibiting individual player’s L2 learning have frequently been assessed through participant self-report surveys, questionnaires and interviews. Participation in game worlds has been found to impact L2 learner affect, i.e., by reducing anxiety about the L2 by allowing for anonymity, reducing inhibition via avatar use, and reducing level of stress created by the need to attend to paralinguistic cues in spoken communication through use of real-time chat (Peterson, 2010b, 2011). Play of modified quests in Ragnarok Online with use of text chat functions was also found to increase L2 learners’ reported willingness to communicate in the L2 during gameplay (Reinders & Wattana, 2011, 2014).

In the majority of studies that examined participants’ feedback on their gameplay experience, L2 learners reported positive benefits; e.g., that the experience was enjoyable, that opportunities to interact with native speakers were valued, and that gameplay helped development of reading and discourse management strategies (Peterson, 2011). Additionally, comprehension improved from the need to understand quests and other players, vocabulary improved, the fun of play helped build confidence, instant feedback enhanced the development of fluency, and gameplay provided a good opportunity for communication outside the classroom

(Reinders & Wattana, 2011). In Peterson's (2012) study of four college-aged Japanese learners' play of the MMORPG *Wonderland* over a one month period, students reported less anxiety about the L2 in the gameplay context, practice that improved fluency in sentence formation, reading and vocabulary development, and informal language learning. Interactions with native English speakers in the game were "challenging but positive" (p. 376).

In studies taking a situated view (Lave & Wenger, 1991), L2 learning and language socialization was facilitated through participation in communities of practice associated with players' membership in in-game social groups, such as a guild in the case of Palmer's (2010) ethnographic study of the pragmatic socialization of two adult Spanish L2 learners. Piirainen-Marsh & Tainio (2009) illustrated how two teenaged L2 learners of English appropriated game resources such as being able to playfully repeat non-player character voices and dialogue during non-playing segments of *Final Fantasy*, thereby attending to prosody, constructions, and vocabulary while experimenting with English-speaker identities. Zheng, Newgarden & Young (2012) and Rama et al. (2012) reported how requiring players to be part of a guild, a type of player alliance that is an option in *WoW* play, facilitated supportive, caring communication between L2 learners and others while also promoting collaborative actions between novice and expert players working toward common goals as they played games together.

As noted by Newgarden et al. (2015), very few other researchers have considered the affordances of multimodal features of play in game worlds, particularly the affordance of many MMORPGs for players to communicate with voice via built in game channels or voice over Internet protocol (VOIP), e.g., by Skype conference call. With the exception of Piirainen-Marsh & Tainio (2009), Zheng et al. (2012), Newgarden et al. (2015), and Reinders & Wattana (2011), none of the other studies mentioned in this review analyzed players' spoken interactions. As a

result, findings on linguistic features, the achievement of intersubjectivity or use of discourse strategies have been based almost exclusively on transcripts of in-game text chat. Yet, analysis of spoken interaction by Zheng et al. (2012) of just one 47-minute WoW gameplay episode, displayed an extensive range of communicative activities in the L2 (e.g., coordinating, sharing game knowledge, reporting on actions, negotiating meaning, seeking and offering help, expressing need, locating, apologizing and others).

The contributions of embodiment through an avatar to L2 learning in a game world (ability to move in various ways through a 3D space, ability to change the perspective of view, and abilities to display certain emotions, gestures and even make certain avatar-voiced sounds and comments) have been the focus of even fewer studies. Bryant (2007) connected a high level of motivation to German L2 learners' avatar experiences in WoW. Newgarden et al (2015), from an ecological and dialogical analysis that considered avatar movement and coordination with spoken verbalization, found statistical evidence that players' multimodal languaging (when their verbalizations were coordinated with the actions of their avatar) in collaborative communicative projects during WoW gameplay was predictive of communicative projects in which two of the major values of conversing, wayfinding and orienting to socioculturally shared norms, were realized. This finding suggests that avatar-embodiment, which entails projecting (Gee, 2008) ourselves as we act through and as our virtual "other self" (in other words, we co-act (Zheng & Newgarden, 2012)), contributed to especially productive communicative projects, ones that allowed players to move on toward their goals (wayfinding), while also allowing them to pay attention to L2 sociocultural practices and their responsibilities to others.

Of the negative findings from studies of L2TL with digital games, Peterson repeatedly found that "technostress" affected participation by players who were new to a game or less

familiar than others with the game interface (2011 and 2013), chat communication system (2011 and 2013), and/or avatar controls (2011). L2 learners at lower proficiency levels, i.e. beginners, were reported to have more difficulty with the learning demands of certain games, for example learning to use the game interface of Everquest II (Rankin, et al., 2009). These kinds of problems were commonly explained to cause cognitive overload (Peterson, 2013; Rankin et al., 2006).⁶ The variable quality of target language output, often connected with use of simplified registers in text chat, were also mentioned as concerns (Peterson, 2013; Reinders & Wattana, 2011) as was the absence of error correction (Peterson, 2013).

Peterson (2013), summarizing the limitations of the studies to date, mentioned small sample size, short duration, over-reliance on learner self-report, and most unfortunately, lack of a clear theoretical basis. Peterson (2013) also noted a preponderance of studies that have focused on vocabulary learning and learner attitudes as opposed to other variables of interest (grammatical accuracy was a suggestion). In their resource guide for L2TL researchers and practitioners interested in digital games, Sykes & Reinhardt (2013) called for more empirical research on both game-enhanced and game-based L2TL that is ideally interdisciplinary and collaborative, and that takes a variety of theoretical perspectives and applies diverse methods of analysis. They also recommend focused research that is aimed at understanding how different elements of digital games are “especially effective for specific aspects of L2TL” (Sykes & Reinhardt, 2013, p.114). Pasfield-Neofitou (2014) also recommended more variety in the games and second languages studied and focus on specific features of MMORPGs, particularly the use of voice and audio in gameplay. She called on further studies to explore text chat in MMORPGs

⁶ However, note that Zheng et al., 2012, from an ecological perspective, suggested that technology breakdowns (that are commonplace during MMORPG gameplay by a group) provided affordances for additional L2 learning through problem solving.

to confirm whether it is indeed, as suggested by Rama et al. (2012), like face-to-face conversation, with skills that may be transferrable.

With particular relevance for this research, Pasfield-Neofitou (2014) called for *analysis of data from L2 learners' actual participation in game activities* over longer periods of time.

Emphasis was added by the author to stress that in terms of understanding learning as a situated, embodied, dynamic activity, this is the most critical need in the field. It is one thing to ask for and report learners' feedback about their gameplay experiences and another to carefully analyze what they say and do with others as they are playing an MMORPG.

Ecologically, what is important is to understand how L2 learners' values-realizing interactions in the game world lead to affordances for learning as language and actions are integrated in coordination of gameplay activities. In this study, players' dialogical attunement to others and to participating as members of a WoW gameplay community are explored as situated learning that is made evident in real-time interactions. Multimodal analysis can reveal the patterned dynamics of L2 language learning distributed in gameplay, such as the finding of recurring languaging activities reported here. Distributed L2 learning in game-related activities and across timescales of players' lives is the topic of Study 2.

This study follows from Zheng et al. (2012) and Newgarden et al. (2015) in exploring the affordances of avatar embodiment in L2 languaging during WoW play, reporting a new positive finding with regard to how use of voice combined with the mobility of avatars allowed players to “multitask” or talk about a topic other than what they were doing as a group in the game. An eco-dialogical view of language is also promoted by this study, in part with the adoption of Linell's (2009) communicative project as the unit of analysis. Rather than quantifying L2 learners' language “output,” or analyzing turns of talk in text chat, eco-dialogical analysis starts from a

jointly achieved, other-oriented, embodied interaction that has a clear communicative focus and entails locomotive action and the pickup of affordances. Ongoing skillful participation and sense-making in the communicative projects (Linell, 2009) that unfold in the course of coordinating with others is a dynamic view of L2 proficiency; which is more than just being able to initiate more turns of talk, be more complex or accurate or have a larger vocabulary, though these factors all describe aspects of proficiency that are more or less important depending on the context. Adding to the findings of Zheng et al. (2012), this study provides additional evidence of L2 learners' participation during gameplay in a range of communicative activities that are prioritized in L2 curricula. L2 proficiency is conceptualized in terms of learners' *skilled linguistic actions* (Zheng et al., 2012; Newgarden et al., 2015), in other words, their situated, on-the-fly integration of language and actions that demonstrates linguistic know-how, sociocultural attunement and adaptivity. Zheng (2012), Zheng et al. (2012) and Newgarden et al. (2015) have repeatedly shown that learning to take skilled linguistic action is a values-realizing process for L2 learners.

In answer to several of the limitations of studies mentioned by other L2TL digital game scholars, this research considers gameplay over a 15-week period, applies qualitative and quantitative methods, and builds on the author's previous collaborative studies of WoW play and L2 learning that were also framed in ecological and dialogical terms. Players' in-game, voiced verbalizations, actions and co-actions were analyzed. This study is not grounded in either social or psycholinguistic theories of SLA, but in a situated, distributed, Eco-dialogical, and embodied view of language and cognition (Cowley, 2011; Linell, 2009; Newgarden et al., 2015; Zheng, 2012). It is argued that this kind of view can account for more of the complex factors involved in

L2 learning, not only in an MMORPG, but also in the much more sensorily immersive virtual game worlds many will soon be playing in.

Research Questions

The two questions for this study were 1) How and when do designed and emergent WoW game world affordances support English L2 learners' development of abilities to take skilled linguistic action, and 2) Is there any relationship between final scores for a) L2 learner's skilled linguistic action in gameplay, b) WoW course participation, c) participation in the Intensive English Program (IEP) community, d) and/or L2 learners' English proficiency scores for speaking from IEP teachers at the end of the same semester?⁷ The first question reflects the belief that evidence of L2 learning will not be found by asking about the outcomes of gameplay in terms of disparate linguistic variables, but by looking at the dynamics of gameplay *linguaging*, in other words, how L2 learners coordinate and make sense with language and actions. The impetus for the second research question is to determine whether the quality (based on analysis of players' conversational values realizing) and quantity (based on players' initiations and responses) of L2 learners' languaging during gameplay was consistent with their performance in classroom speaking activities in the IEP which were assessed and scored by their five teachers using an IEP-developed scale. In other words, the second research question asked whether assessment of players speaking in WoW gameplay activities based on Eco-dialogically framed measures, would match assessment of players speaking in L2 classrooms using an L2 proficiency scale tied to classroom curricula. This study has a counterpart, Study 2, which used

⁷ Since one L2 player had exited the IEP in the previous semester, his exit proficiency scores were used.

the same data set along with participant-generated writing related to WoW course assignments, to illustrate how L2 learning was distributed across both gameplay and course activities.

Integrated Theories of Cognition, Language and Learning

Eco-dialogical Warriors and the Eco-dialogical Model of Linguaging

Zheng (2012), Zheng & Newgarden (2012), Zheng et al. (2012) and Newgarden et al. (2015) have led the charge of calling for a new Eco-dialogical understanding of second language learning, particularly with regard to investigating the affordances of virtual environments for richly contextualized, embodied learning. As Newgarden et al. (2015) revealed in a comparative discussion of studies of L2 learning and digital games and as noted again with review of additional literature here, there has been a tendency for researchers to follow deep-seated linguistics traditions of treating environments as *inputs*, of looking for changes in discrete aspects of learners' *outputs*, or of analyzing discourse while completely ignoring learner movements and actions (Newgarden et al., p. 2-4). In this study, the context of learning and L2 learners' interactions with the material and linguistic resources of the gameplay environment are brought into focus by framing the analysis with Zheng's (2012) Eco-dialogical model (Figure 1).

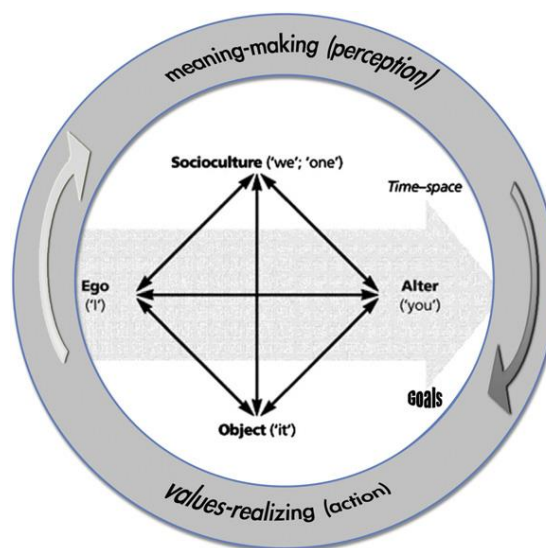


Figure 1. Eco-dialogical model (Zheng, 2012).

The activity the whole model represents, *linguaging*, is complex. As defined by Stephen J. Cowley, a founding member of the Distributed Language Group, linguaging is “a mode of action that integrates patterns that function in different time-scales: we integrate how we move and feel, with what we hear 'us' -me and you -saying (and do so against Discourses)” (Cowley, personal communication). Linguaging is real-time embodied activity that we engage in as we converse with others for the purpose of solving problems, learning, building relationships, and achieving other results, only some of which are visible.

In the distributed view of language, linguaging is a first-order activity that necessarily precedes the development of a symbol system, which is therefore known as second-order language. Second-order language is historical, emergent from societally and culturally defined practices, while first-order linguaging, which is constrained by the symbol system, is metabolic activity (Cowley, 2012). Linguaging is the primary activity for L2 learning since in the ecological view of L2 learning illuminated by Leo van Lier (2004), “Meaning is created, enacted and shared in conversation and meaningful language learning is, therefore embedded in conversation” (p.145) and activity makes linguistic information relevant and available for further action. Linguaging is embodied cognition.

The outer circle of the Eco-dialogical model represents cognition from an ecological psychology (Gibson, 1979) perspective. Perceiving and acting are ongoing for an agent in an environment. “One can keep on learning to perceive as long as life goes on” (p. 245). An agent perceives and acts on affordances, which Gibson (1979) defined as properties of the environment that exist whether or not an animal perceives them. “The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill” (Gibson, 1979, p. 127). However, affordances, according to Chemero’s (2003) clarification of Gibson’s (1979)

explanation, are not necessarily properties of the environment, they can be features of whole situations that a perceiver can act on, (using Chemero's example, observing that it is raining is a more "primitive" type of perceiving (of a feature) than noticing a new dent in one's car (a property). Agents need more than just to perceive a feature of the environment that supports or demands a certain action; they also need abilities⁸ to act. In Chemero's (2003) definition, affordances are "relations between the abilities of organisms and features of the environment" (Chemero, 2003, p.189).

As also portrayed in the outer circle of the model, perceiving and acting are constrained by values realizing. Hodges (2007a) developed the theory of values realizing by building on Gibson's (1979) claim that "values and the meaning of things" (Gibson, 1979, p. 127) are what agents directly perceive. He defined values as "the real goods that actions must realize sufficiently for an ecosystem to exist; thus, values are obligatory demands that define what constitutes good driving or a good conversation (Hodges 2007a, 2007b; Hodges & Baron, 1992)" (Hodges, 2009, p. 631). On the most global scale, Hodges & Baron (1992) theorized that "values are the intentions of the world as a self-organizing system" (p.270). In contrast, on a local scale, in taking the action of sitting at a computer and typing, we might be realizing the values of accuracy, focus, efficiency, or of being comfortable, alert and/or engaged by what we are writing.

⁸ Chemero (2003) distinguishes between ability and effectivity, the term traditionally used in ecological psychology, for example, by Turvey (1992), to describe the properties an agent needs, in complement to the properties of the environment, to act on an affordance. Chemero argues that since agents perceive features of situations, not properties of the environment, there is no complementing needed. Additionally, Turvey called effectivities dispositions to act, but Chemero points out that dispositions, by definition, always manifest if circumstances support them while abilities may fail (p. 189).

Multiple values are involved and are in tension in any action and they are heterarchically rather than hierarchically realized (Hodges and Baron, 1992). The dynamics of situations dictate which values guide perceiving and acting; values are not rank-ordered. By invoking values as constraints on affordances, Hodges (2009) highlighted the moral, ethical, other-oriented dimension of human sense-making understood in ecological terms, emphasizing that “affordances are not just possibilities for action, but entail responsibility, they reveal the consequences of action “for good or ill” (Hodges, 1992).”

Hodges (2009) further established the critical exploratory and performatory functions of conversing as a values-realizing activity:

An ecological approach to language gives primacy to the physical and the pragmatic, that is, to first-order activities. From this perspective conversing is a form of *orienting*, *integrating*, and *way-finding* (Hodges 2007b, p.174), helping humans to recognize and realize existing affordances, and to modify and create new ones that invite responsible action. (Hodges, 2009, p. 642)

Conversing significantly extends our ability to explore information in our environment, including information about others in it. Hodges (2009) theorized that we jointly create “dialogical arrays” as we participate in conversations, and like Gibson’s (1979) optic arrays, these provide a source of information that can be probed. To Hodges (2009), wayfinding depends on conversing:

Only in our active probing and being willing to be probed is it possible to learn about our situation and its prospects, and something about what lies beyond the horizon of the situation. But it is in using the horizon (literal and metaphorical) of my conversation partners that I can begin to see what lies beyond. (Hodges, 2009, p.637)

Again emphasizing our moral responsibility to others, Hodges also made the case that conversing affords us with a means of caring for ourselves and others and a need to be careful of what we say, of how we speak, or of what we speak up for (or against). In a broader sense, “Caretaking is a form of attention to protecting and enhancing the integrity of the goods that make it possible for an ecosystem with its ways of life, its inhabitants, and their projects to exist and to flourish” (Hodges, 2007b). With the contribution of Hodges’s insights about the function of values, conversing in ecological terms is clearly much more than communication and requires much more than just rule-following (Hodges, 2009) or linguistic knowledge.

Moving on to the inner diamond of the model, which was adopted from Linell (2009), we find the dialogical view of language, which takes alterity as a biologically determined, fundamental human orientation. Consciousness depends on alterity, which Linell (2009) believes is likely to be based neurologically on mirror neurons. In Linell’s (2009) definition, dialogicality has to do with human’s “dynamic abilities to take part in interactions with others and with sociocultural contexts as well as physical environments” (Linell, 2009, p. 368). Conversing requires us to attend to the other’s verbalizations and body language, to anticipate what the other will hear, how they will interpret what was said and how they may respond, while meanwhile attending to our own pragmatics and verbalizations. Interpersonal communication is not secondary to intrapersonal cognition in the dialogical view.

Meanings are not fixed, but exist as potentials that are activated to meet the needs of ever changing situations. Participants in dialog draw on linguistic resources that “index, cue or prompt understandings in terms of reference, conceptualization and intervention” (Linell, 2009, p. 358). Situated meaning making reflects the creative and adaptive qualities of language.

Conversing with skill requires orientation to socially and culturally established norms that determine how conversing is done (linguistic rules and conventions, situation-specific vocabulary, prosody, gestures, etc.). In Linell's (2009) terms, orienting to the shared socioculture is "orienting to we/one," the third parties present in dialogue also known as the "silent third." Orienting to we/one has a relationship in languaging with how speakers establish their co-authored understanding of the object or "it," i.e., the thing they are talking about, but also to how they talk about "it" in a given sociocultural context. Sociocultural resources (orienting to we/one in languaging) are what "bridge the gap between situations and traditions (situation transcending practices)" (Linell, 2009, p. 49). Participants in situated interactions orient to traditions that let them "produce and reproduce activity types and other routines" (Linell, 2009).

Like ecological psychology, dialogism also assumes a moral dimension in conversing, i.e., that participants in dialogue have a responsibility and accountability for what is said and heard, that trust is essential to sense-making (because communication can never be perfect), and that our perceptions are value-laden (Linell, 2009, pp. 22-23).

The final components of the model are reflected by the backgrounded one-directional arrow, which represents the changing time-space dimensions of situations and the goals of those engaging in dialog that are being pursued in a given time-space of languaging.

There are two additional concepts central to the questions explored in this study that relate to the Eco-dialogical model: *Conversational values* (Hodges, 2007a/b; 2009; 2011) and *skilled linguistic action* (Cowley, 2012; Zheng et al., 2012, Newgarden et al., 2014).

Conversational values, discussed further in the following section, are the specific values that

Hodges (2009) identified as being definitional for good conversations. These were explored in the analysis of languaging in this study.

For an L2 learner, being able to take skilled linguistic action, explained in detail in a following section, emerges from L2 learners' full embodiment and enactment of languaging, the full Eco-dialogical model, over time, given an L2 environment that affords real-time, first-order languaging. A favorite Gibson (1979) insight is that learning is "the improving of perceiving with practice and the education of attention" (p. 254). Learners accomplish this as they act as part of distributed, dialogical systems. Steffensen (2012) described these as "systems of co-present human beings engaged in interactivity that brings forth situated behavioural coordination (or a communicative, structural coupling)" (p. 513), a conceptualization adopted in Study 2.

Conversational Values

Hodges (2009) specified four overarching values associated with an ideal type of conversing:

Conversing, like driving, is an ecosystem defined by values. Among the values that define it are clarity, coherence, comprehensiveness, and complexity (Hodges 1990; Hodges and Baron 1992). Both in our speaking and our hearing we work to make utterances differentiated, integrated, flexible, and rich enough (first-order language) to be labeled as articulate, grammatical, meaningful, and useful (second-order language). (Hodges, 2009, p. 633)

Hodges connected the values of clarity, coherence, comprehensiveness and complexity to Slobin's (1979) evolutionary and developmental constraints on languages, "Be clear; be processible (e.g., grammatical and pragmatic coherence); be quick and easy (e.g., blurring of inflections); and be expressive (e.g., semantic and rhetorical diversity and richness)" (Hodges,

2009, p. 633). While these values are understood to be in tension and cannot all be realized simultaneously in a single utterance, “over time the values (to which the mandates point) jointly provide for the sufficiency of language” (p. 633). The idea of evolutionary and developmental constraints resonates with the complex system view of language (Larsen-Freeman & Cameron, 2008).

The power and importance attributed to these four conversational values inspired exploration of them in L2 players’ gameplay languaging. They were defined and coded as keywords (see Keyword Categories and Definitions Table 2) under the larger category of Values of Conversing. Caring was added under this category, since conversing has also been described ecologically as a system for caring for others and ourselves (Hodges 2007b; Zheng 2012; Steffensen 2012) and has been found in a previous study of WoW gameplay to frequently characterize L2 learners’ language and actions in group gameplay (Zheng et al., 2012).

Skilled Linguistic Action

Cowley (2012) proposed the term “skilled linguistic action” as an alternative to second language acquisition (SLA) to counteract the impact that computational and code views (Love 2004) have had in applied linguistics namely, making the learning of forms and functions the ideal of L2 learning. Skilled linguistic action by L2 learners means “managing activity under material and cultural constraints. As they (L2 learners) do so, they link linguistic patterns (including ones shown in grammars and dictionaries) with affect, artifacts and social skills” (Cowley, 2012, p.13). In other words, skills with language are traced to experiences of languaging, which is a multimodal activity.

Zheng et al. (2012) argued for skilled linguistic action as a way for L2 practitioners to rethink what L2 learners need to do and pointed to the merits of WoW gameplay as a learning

environment. Newgarden et al. (2015) explored the construct empirically, considering three linguistic activities involved in coordination as types of skilled linguistic action (i.e., common ground alignment, prospective coordination and co-action⁹) and investigating their relationships with broad types of values realizing (wayfinding and orienting to we/one). Of these, only prospective coordination was a strong predictor of values realizing. However, as Newgarden and colleagues (2015) indicated, there are likely to be many other types of activities that constitute skilled linguistic action. Therefore, in the present study, an attempt was made to flesh out the concept by finding additional empirical examples and evidence.

Communicative Project Theory

Linell's (2009) Communicative Project Theory and Communicative Activity Type (CAT) analysis were applied in this study. Communicative Project Theory focuses on "what's going on" for participants in interaction, such as solving communicative problems, information sharing, or meaning making (Linell, 2009, p.211). The dialogical unit of analysis, which was adopted in this study, is the "communicative project," (herein, CP). In each CP, conversing and/or action centers on a task that requires the coordination of two or more individuals (Linell, 2009, p. 178). Projects are linked and therefore, "Discourse may be seen as a flow of projects, varying in size and partly overlapping and nested into each other" (Linell, 2009, p.188). This perspective is used to define how conversations are parsed for analysis and suggests that lines of chat or utterances may be coded as part of several nested communicative projects simultaneously.

On a more global scale, WoW gameplay was treated as a Communicative Activity Type (CAT) as in Zheng et al. (2012) and Newgarden et al. (2015). Following Linell's description, it is

⁹ These coordination types are defined briefly in the Keyword Descriptions in Table 2, and are addressed in greater depth in the counterpart study. They are not a focus of the analysis for the current study.

“a comprehensive communicative project tied to a social situation type” (Linell, 2009, p. 201). Further, a CAT has a clear action agenda, which is realized as a sequence, consisting of an opening, a main activity, and a closing. CATs are often a mixture of “*transactional and social-relational talk*” (Linell, 2009, p. 211), which is true of WoW group gameplay with voice. During prototypical game activities, players shift according to the situational demands, between talking about what they are doing in the game and talking about non-game topics, so both types should be recognized as part of a gameplay episode.

CPs were identified and linked as audio/video/transcript clips of gameplay language and action. Each project was explored to identify what was going on and what the main functions of verbalizing and acting (linguaging) were. Then these lower level communication types were grouped under higher-level categories that were called “Communicative Activities” (see Table 2). However, these were more local than Linell’s (2009) CATs; they are together, constituents of WoW gameplay as an overarching CAT.

Methods

The Data

This study used data collected (with Institutional Review Board approval) in 2010 during a semester long course I designed and taught at the University of Connecticut (UConn). The one-credit course entitled “World of Warcraft (WoW): Is This Who We Are?” was conceived to bring together English as a Second Language (L2) learners and native (or near-native) English speaking (NES) freshman to explore social, cultural and personal values through play and discussion of the game. The course was offered as a First Year Experience course for the NES students. The NES students’ role was framed as Service Learning in that they were helping L2 learners practice English and providing sociocultural expertise. All but one of the L2 learners

was enrolled in an intensive English program (IEP) and chose to take the WoW course as part of their full time study (22 classroom hours per week). One L2 learner had exited the IEP and matriculated as an undergraduate and was taking the course for credit.

The mostly online course incorporated discussion and reflection that were intended to provide language practice and feedback as well as cultural knowledge and awareness in terms of recognizing social values and their relationships to culture. A course goal was to bring L2 learners into interaction with NES university students and support their participation in the nested L2 communities of the class, the university, and the game. Course activities outside of gameplay (readings, videos, discussions, construction of a game knowledge base, written reflection) were designed to build on play experiences. These are addressed in the counterpart study.

Students were assigned to small groups of two to three NESs and two to three L2s with at least one more experienced WoW player in each group. I required each group to play one hour of WoW each week using Skype conference calling and recorded the gameplay and dialog using iShowU video recording and Skype Call Recorder software. All course members were also required to become members of a WoW guild. A guild is composed of a group of players who choose to be affiliated with each other in order to gain some collective social or material benefits (e.g., have other players to talk to and get help from or have access to gold or items in the guild bank). Guild membership is optional for WoW play, but is required for end game play such as raiding, when large numbers of players can work together to defeat the most challenging bosses in the game. The purpose of requiring students in the course to join the guild was to provide for the social and material benefits mentioned, to enable member-only communication (through guild chat) and to allow easy tracking of course members' comings and goings. The guild

students joined, Twilight Hope, was managed by my dissertation advisor, and provided members with access to a bank full of gear and other items, but few non-course guild members were active players. Students were invited to participate in the study and provided consent at the end of the course after grades were given.

Data selection. First, I explored the full data set of video recordings of gameplay from two iterations of the 14-week course (almost 1 TB of video data) to identify three group episodes that were roughly equivalent in length from the early, middle and late weeks of the semester, and that included all players (L2 learners and NESs) across all three episodes. The ideal was a set of data from one play group that included multiple L2s, at least one NES besides the instructor, similar quantity of spoken dialogue, with players paying attention to game features and/or language, with some evidence of learning, and with interesting group dynamics.

There were four groups of four or five players each time the course was implemented, yet the “ideal” data set did not exist.. Problems with missing and incomplete data were caused by Skype connection difficulties, recording errors, students missing scheduled group gameplay sessions, release of World of Warcraft game patches (these required long download times that delayed group play), and release of a new expansion of the game in the middle of one of the semesters of the course.

The series of group gameplay episodes selected were from the first run of the course. The core members of the group (hereafter, referred to as Group Z) included three L2 learners and two NESs and the instructor (me). All the L2 learners in the group participated in gameplay and online course posting and completed a final paper. (The course assignments are considered in Study 2). Within the series, there was evidence of players’ co-action, attention to language forms and meanings, interesting dynamics among the players, and evidence in players’ written

coursework that they had enjoyed and benefited from the gameplay that was a course requirement.

The three gameplay episodes I selected were from Week 1, Week 8 and Week 10. The Week 1 episode was used as data in two previous unique analyses (Zheng et al., 2012; Newgarden et al., 2014). The length of gameplay analyzed from Week 1 was 47 minutes, for Week 8, 1 hour 14 minutes, and for Week 10, 1 hour 13 minutes. The full recording for Week 1 was analyzed, but for Week 8, the portion analyzed is out of a 2-hour session of play, starting from the players' connection on the Skype conference call. For Week 10, the portion analyzed is out of roughly 2 hours of play, starting from the point where one of the group members (Danja) went offline and the remaining four members began to play the game at a higher level with challenges more appropriate for their WoW abilities. They had been playing at Danja's lower level in order to support her.

Participants. Two L2 learners, Gwo and Lov, members of Group Z, played in all three of the group gameplay episodes that were selected for analysis. Group Z also included one other L2 learner, Danja, one NES freshman, Zeus (aka Phailboat or Phail for short), and me, referred to as Jil, my avatar name, acting as instructor and researcher.

Gwo, a college-age male from Saudi Arabia, was a former student of the Intensive English Program (IEP) who had entered UConn and was taking the course as a one-credit First Year Experience (FYE) course. When he had exited the IEP, he was at an advanced level for English speaking proficiency (equivalent to a C1 for speaking in the CEFR (see Appendix for CEFR Oral Assessment Criteria). In the IEP, speaking proficiency scores were assigned by instructors based on assessment of students' mastery of level-based curriculum objectives at the end of each session using a scale developed by the IEP (see Appendix B). Lov was a student

from China who had been studying in the IEP for several sessions. He was a low-intermediate English speaker (CEFR B1). Danja, a female from Spain, was also an IEP student at a high-intermediate level of speaking (CEFR B1+). Zeus aka Phail was a male freshman NES from the U.S. taking the FYE course for credit. I (avatar name Jil) am a female NES from the U.S. There was an additional L2 player, Sev, a female student in the IEP from Turkey who was a low-advanced English speaker (CEFR B2).

In terms of gameplay experience when the course started, Gwo was a new player with previous gaming experience. Lov had played WoW on Chinese servers. Danja and Sev were both first time WoW players with little previous gaming experience. Zeus/Phail was an expert player and I(Jil) was a newcomer with just a few months of experience. Table 1 summarizes the information presented in this section.

Table 1

Summary of WoW Player Information

Player (avatar type) and Experience with WoW or Video Games	Country	Native language	L2 proficiency level/(CEFR) or Native English Speaker (NES)	Group Z member	Status in course
Gwo (dwarf warrior) Previous gamer	Saudi Arabia	Arabic	Advanced/C1	Yes	Undergrad and IEP alum
Lov (dwarf priest) - Played WoW on Chinese server	China	Chinese	Low intermediate/B1	Yes	IEP student
Danja (human warlock) No experience	Spain	Spanish	High intermediate/B1+	Yes	IEP student
Sev (human warrior) No experience	Turkey	Turkish	Advanced/B2	No	IEP student
Zeus(dwarf warrior) aka Phail(human priest) Expert WoW player	U.S.A.	English	NES	Yes	Undergrad
Jil (dwarf rogue) - New to WoW	U.S.A.	English	NES	Yes	Instructor

Multimodal Transcription and Analysis

Analysis of each of the three gameplay episodes followed the same procedures. Each episode was transcribed for both spoken language and players' avatar actions using Transana (Fassnacht & Woods, 2012) video analysis software. Applying dialogical principles (Linell, 2009), the transcripts were parsed in terms of communicative projects (CP). In each project, conversing and/or action centers on a task that requires coordinated efforts by two or more individuals. Each CP, the unit of analysis for this study, was named for its action focus and consisted of a video/audio clip with an associated language transcript and avatar action transcript.

Through open coding, general gameplay activities and various types of communicative activities (CAs) were identified. General gameplay activities that were found to occur and recur in all three episodes were identified and retained as keywords. Axial coding for three main types of CAs (meaning making, facilitating gameplay and taking care of others' needs) was done next, assigning a CA type to each CP. Four keyword categories were derived from Eco-dialogical constructs (sociocultural values realizing, conversational values realizing, languaging modes, and types of coordination) and enlisted in order to build on previous research (Newgarden et al., 2014; Zheng et al., 2012). Based (loosely) on Linell's (2009) Initiation/Response analysis, individual players' utterances were coded for initiation of CPs and for responding to others (one or more times) within a CP. Individual players were also identified as initiators of one of the three main types of CAs: meaning making, facilitating gameplay and taking care of others' needs. Seven categories of keywords were coded (see Table 2 Keywords and Definitions). A colleague familiar with EDD constructs (Dongping Zheng, Ph.D.) coded ten percent of all CPs from each episode and intercoder agreement of 80% was reached.

After each episode was keyword coded, Transana keyword visualizations were developed and used to compare gameplay languaging across episodes. Patterns of players' languaging, values realizing and/or coordination were explored in an effort to answer the first research question, i.e., How and when do designed and emergent game affordances support L2 learners' development of abilities to take skilled linguistic action?

Correlation of Scores

For the second research question, i.e., Is there any relationship between final scores for a) L2 learner's skilled linguistic action in gameplay, b) course participation, c) participation in the Intensive English Program (IEP) community, d) and/or proficiency scores in speaking from IEP instructors, four scores for each L2 player were compiled: 1) a score for skilled linguistic action in gameplay, 2) a score for WoW course participation, 3) a score for IEP community participation and 4) each L2 learner's mean Intensive English Program Speaking Proficiency Score from the end of the same semester. Scores for 1, 2 and 3 were derived as follows. For 1) skilled linguistic action in gameplay, keyword coding of Conversational Values Realizing, CP initiation and CP response were used to calculate a scaled score for each L2 participant. For 2) participation in the course, a scaled score based on attendance of weekly group gameplay, written contributions to a course wiki, weekly reflection posts, and a final paper assignment was given. For 3), an assessment of participation in the IEP community was based on researcher observation and final evaluations from other IEP instructors who taught the participants, and a scaled score was assigned. For 4) mean Intensive English Program Speaking Proficiency scores were retrieved from end of session transcripts for the same semester (as noted, scores from Gwo's exit session IEP transcript were used). Intensive English Program Speaking Proficiency scores were based on a program-developed scale (see Intensive English Program Proficiency

Scale in Appendix). L2 learners were assessed on their speaking by IEP teachers in five different courses based on their speaking performances over the 15-week session. The Pearson Product Moment Correlation (R) was used to test for relationships between these four variables.

Keywords and Definitions

The seven keyword categories for the qualitative analysis were: 1) Recurrent Language Activities, 2) Communicative Activities, 3) Initiation/Response, 4) Language Modes, 5) Values of Conversing, 6) Type of Coordination, and 7) Sociocultural Values. See Table 2 for definitions and coding protocols for each keyword type addressed in this analysis (i.e., 1 through 5 above). Type of Coordination and Sociocultural Values are more important in the analysis and findings of the counterpart study.

Table 2

Keywords and Definitions

Keyword Categories and Definitions

I. Recurrent Language Activities: Each CP was coded with none, one or more.

City Activities: Taking care of self (repairing gear), or taking care of business (turning in a quest, finding a flightpath, buying or selling items) in a WoW town or city

Learning a skill: Combining language and action to learn about and improve with some game skill (e.g., First Aid, using Add ons, using game interface features, etc.)

Planning next moves: Talking about what players should do next in terms of a quest, another spirited activity, or a move to another location

Playing around: Deliberately being humorous and playful with language and/or toons (avatars)

Questing: Coordinating to complete the objectives (killing, acquiring some items, talking to an NPC, etc.) of a quest, whether shared by all players or not.

Random fighting: Non-quest fighting as a group

Talking about a past gaming experience: Telling others about something that happened during gameplay at an earlier time

Talking about future play: Making plans for a future session of play or quest that is not yet available to players because of their levels.

Traveling: Moving from location to another as a group

Table 2 (Cont.)

II. Communicative Activities: Coded for each CP with name of player who initiated the CP and one or more of the three broad types below. (Ex: <u>Danja</u> – Facilitating, Others' needs)		
1. Attending to others' needs (or Others' needs) - <u>greeting</u> or taking leave - <u>checking</u> others' progress - <u>checking</u> others' health - <u>apologizing</u> - <u>expressing</u> disappointment - <u>making</u> a joke - <u>giving</u> support - <u>warning</u> others	2. Facilitating gameplay - <u>suggesting</u> a move - <u>directing</u> others - <u>reporting</u> on status - <u>reporting</u> on loot - <u>asking</u> for help	3. Meaning-making - <u>sharing</u> about a game experience - <u>explaining</u> how to do something - <u>asking</u> about meaning - <u>explaining</u> the meaning of something - <u>clarifying</u> - <u>confirming</u> - <u>asking</u> about game strategy or rules - <u>explaining</u> game strategy or rules - <u>pointing</u> out things in the environment
III. Initiation/Response: Each CP coded with name of initiating player, and with names of players who responded within the CP (one response per player only in each CP was coded) Example of coding of a CP: CP#1: (Initiation – <u>Gwo</u> , Response – <u>Jil</u> , Response – <u>Danja</u> , Response – <u>Lov</u> , Response – <u>Gwo</u>)		
IV. Language Modes: Each CP was coded for one of the following four types: Movement only (no verbalizing, just avatar movement) Verbalizing only (verbalizing with no avatar movement) Verbalizing and Movement coordinated (verbalizing and movement are toward same goal) Multitasking (verbalizing and movement are toward different goals)		
V. Type of coordination: Each CP coded for one or more of the following: Common ground alignment: Joint attending to objects or referents in the virtual and/or real world Prospective: Verbalizing or acting to invite others to move forward Co-action: Verbalizing/acting in coordination to accomplish a mutual goal that requires the other's resources		
VI. Sociocultural values: Orienting to "we/one", the conventions and routines of a <u>socioculture</u> (<u>WoW</u> , English, U.S.). Coded for each CP, either none, one or more: English rules: orienting to linguistic rules or conventions Sharing about daily life: Telling others about an event or activity in one's daily life that is not game related US culture: orienting to some aspect of US culture WoW culture: orienting to features of <u>WoW</u> culture aside from rules for play WoW game interface features: orienting to interface features of the game WoW rules: orienting to <u>WoW</u> game rules		

Table 2 (Cont.)

VII. Values of Conversing: Coded for each CP for each player who participates. One or more possible for each player. (Ex: CP#1: caring – Danja, coherence – Gwo, comprehensiveness – Jil, comprehensiveness – Zeus, complexity – Lov)
caring: demonstrating concern, empathy, or sympathy for another
clarity: concerned with being grammatical, pronouncing words and sounds clearly, and being comprehensible
comprehensiveness: concerned with providing enough detail to disambiguate what is being talked about
coherence: relating to what the other said, particularly by making use of cohesive devices
complexity: being playful or creative with language to add interest or enjoyment for the speaker or listener

Analysis and Findings

Synopsis of Gameplay Activities

Brief summaries of the general activities during each gameplay episode should help readers who are unfamiliar with WoW understand the context of the game environment and distinguish between what would be considered typical gameplay features and what were designed elements of the course.

The Week 1 episode was unscheduled play by Gwo (a level 15 dwarf warrior) and Lov (a level 15 dwarf priest) from Group Z, Sev (a level 14 human warrior), and Jil (a level 24 dwarf rogue and the course instructor). For future reference, levels of players' avatars are provided to indicate their relative progress and experience in the game over time and varied from 1 (starting level) to 70 (highest level) during the time of this episode). In WoW, leveling up to the maximum level possible (the level cap) is a critical game goal that opens up end-game play, the

most challenging level of play, and rewards with the best avatar-enhancing gear.¹⁰ Jil joined the other players after they had already formed a group and were working on a shared quest in Westfall, a low-level area of the game. (Players' grouping to complete low-level quests was related to the course goals of having more experienced players help new players with the game. It might not reflect typical WoW play by unaffiliated players.) The quest objective involved killing Harvestreapers (aggressive robotic scarecrows) and collecting the loot of hops from their dead but sparkling remains. See Figure 2 for a screenshot from Week 1.



Figure 2. Week 1 screenshot: Death of a Harvestreaper.

The gameplay was linear in comparison to the other two episodes. It consisted of about 30 minutes of players questing (coordinating with language and actions to kill foe and collect required quest items) followed by 10 minutes of traveling together into the higher-level area of Duskwood, on a dark and dangerous road on which they had to collectively fight off random attacks by oversized spiders and wolves. In its main city, Darkshire, players spent about 10

¹⁰ When the course took place, the level cap was 60 for the version of the game played by most new players. With each new expansion of the game, the level cap is increased.

minutes talking about and learning how to use a game interface tool to locate a non-player character (NPC) who could repair their damaged gear (armor). Then, accidentally, Sev learned how to fly on a gryphon to another area and players went their separate ways. There were 86 CPs coded (N=86).

The Week 8 episode was a scheduled play session for Group Z including Gwo (then level 44), Lov (then level 30), Danja (a level 11 human warlock), Phailboat (aka Zeus, a level 12 dwarf priest) and Jil (then level 42). Note that Danja had not leveled up much. Play centered on doing several of Danja's low-level quests together as a group. Again, the players' intention of helping the lowest level player was probably related to course objectives. For example, Phailboat, the NES undergrad, had created an alternate avatar since by the eighth week, his initial avatar named "Zeus" had already reached a much higher level than Danja. As an expert player, he was able to quickly create and level up a second avatar with a completely different set of abilities and a different role. Playing a new avatar close to Danja's avatar level provided Phail with more opportunities to gain game rewards through play while he also guided and supported his group members.

The quests were located in different areas of low-level Westfall and consisted of killing a large number of human NPCs known as the Defias Brotherhood, a band of smugglers and thieves that had infiltrated the mostly abandoned farms and buildings in the area. The group managed to coordinate verbally and with action to fight and defeat two entire camps of Defias and take back control of the town of Moonbrook by defeating more than 30 others. The gameplay activities alternated several times between group planning of next moves, questing, turning in completed quests and picking up new quests. While the pattern of play was more sporadic than in Week 1,

all play took place in one area or zone of the game. There were 97 CPs coded (N=97). See Figure 3 for a screenshot from Week 8.



Figure 3. Week 8 screenshot: Group Z questing in Moonbrook.

The Week 10 episode was the second half of a scheduled play session for Group Z including Gwo (level 49), Lov (level 34), Zeus (level 43), and Jil (level 45). In the first half, Danja (level 12) had been playing with the group for about 40 minutes before she had to leave. After she left, Lov suggested that the remaining players do a dungeon (a common type of WoW play available to higher level players that requires the coordination of five players, all taking different roles in the battle, to defeat one or more powerful bosses in order to obtain game rewards of special armor and to level up).

The four players spent time in Goldshire, a low level town that was a popular gathering spot for players, while they tried to virtually queue for a dungeon using a game interface tool, eventually discovering that Lov's level was not high enough for them to do any dungeons together. (Queuing for a dungeon means players submit a game request indicating they want to

play what is called “an instance” as a group. Dungeons are “instanced” gameplay because they are unique situations of WoW play for each group; players’ actions and interactions determine whether players survive the fights with dungeon bosses of various shapes, sizes, forms, special deadly skills, etc. When players queue for a dungeon, they each have to select a role to play in the fighting to come (either damage, tanking or healing). Then, players wait while the game assesses players’ levels and either teleports all players to the entrance of the dungeon (dungeons take place in caves, basements, crypts, monasteries, temples, as well as in palace dungeons) or informs players that they are ineligible as a group.)

While standing around in Goldshire chatting, players were in the midst of WoW spring holiday (Noblegarden) activities, such as quests to catch rabbits and find and collect colored eggs, and were distracted by the antics of some other WoW players who were not in the course, but were also spending some time in Goldshire. WoW players gather in the hundreds of WoW cities for many reasons, including putting on group performances such as forming a train of reindeers and riding them through town. See Figure 4 for a screenshot of Week 10.



Figure 4. Week 10 screenshot: Reindeer train in Goldshire.

Since being in a city rewards by giving players an advantage toward gaining leveling points because a player is “rested,” players often log off and on in cities as well as take care of certain avatar maintenance (banking, buying and selling crafts or goods, clearing inventory, repairing gear, or checking mail). Cities are therefore, regularly visited by every WoW player, and there are regularly occurring communicative activities that take place in them.

After some planning, the group decided to help Lov with his quests in a more challenging area, so that he could level up to 35 and be eligible for more dungeons. Together, the players traveled to Stranglethorn Vale and completed several quests involving Zanzil Witchdoctors and other dangerous “voodoo” inhabitants of the jungle ruins. For the last 25 minutes of gameplay, Lov and Gwo remained in Stranglethorn to work on Lov’s quests while Jil and Zeus travelled to another location to work on a different mutual quest. The players continued to speak with each other via Skype throughout this time. There were 109 CPs coded (N=109). See Figure 5 for another screenshot from Week 10.



Figure 5. Week 10 screenshot: Fighting witchdoctors in Stranglethorn Vale.

Table 3 below summarizes information just presented about players' avatar (toon) levels for each gameplay episode, participation in each episode, membership in Group Z, and language status (native or non-native English speaker).

Table 3

Summary of WoW Gameplay Episode Details

Player	Week 1 Toon Level	Week 8 Toon Level	Week 10 Toon Level	Group Z member	NES or NNES
Gwo (dwarf warrior)	15	44	49	X	NNES
Lov (dwarf priest)	15	30	34	X	NNES
Danja (human warlock)		11	12	X	NNES
Sev (human warrior)	14		60*		NNES
Zeus(dwarf warrior) aka Phail (human priest)		12 (Phail)	43 (Zeus)	X	NES
Jil (dwarf rogue)	24	42	45	X	NES

*Sev did not play, but was present briefly in the audio

Recurrent Language Activities and Affordances for Communicative Activities

Certain prototypical WoW gameplay language activities were identified as recurring across the three episodes analyzed. These were grouped under the keyword category Recurrent Language Activities. The nine types (See Figure 6 below) included what Zheng et al. (2012) referred to as location-based activities, such as city activities, traveling and questing (now adding random fighting outside of questing to this type). These are typical actions WoW players take again and again, sometimes over years of play. Several activities, such as learning a skill or planning next moves, have to do with becoming better at the game, which often means becoming more useful to others, known or unknown, with whom the player may be grouped. Playing around and talking about past and future play are activities that reflect relationship building in WoW and being part of nested communities (of the course, the University, the guild, WoW players, etc.). As is evident in Figure 6 below, which captures side-by-side Transana keyword

maps for Week 1, 8 and 10, the pattern of recurrent languaging activities differed significantly across the three gameplay episodes.

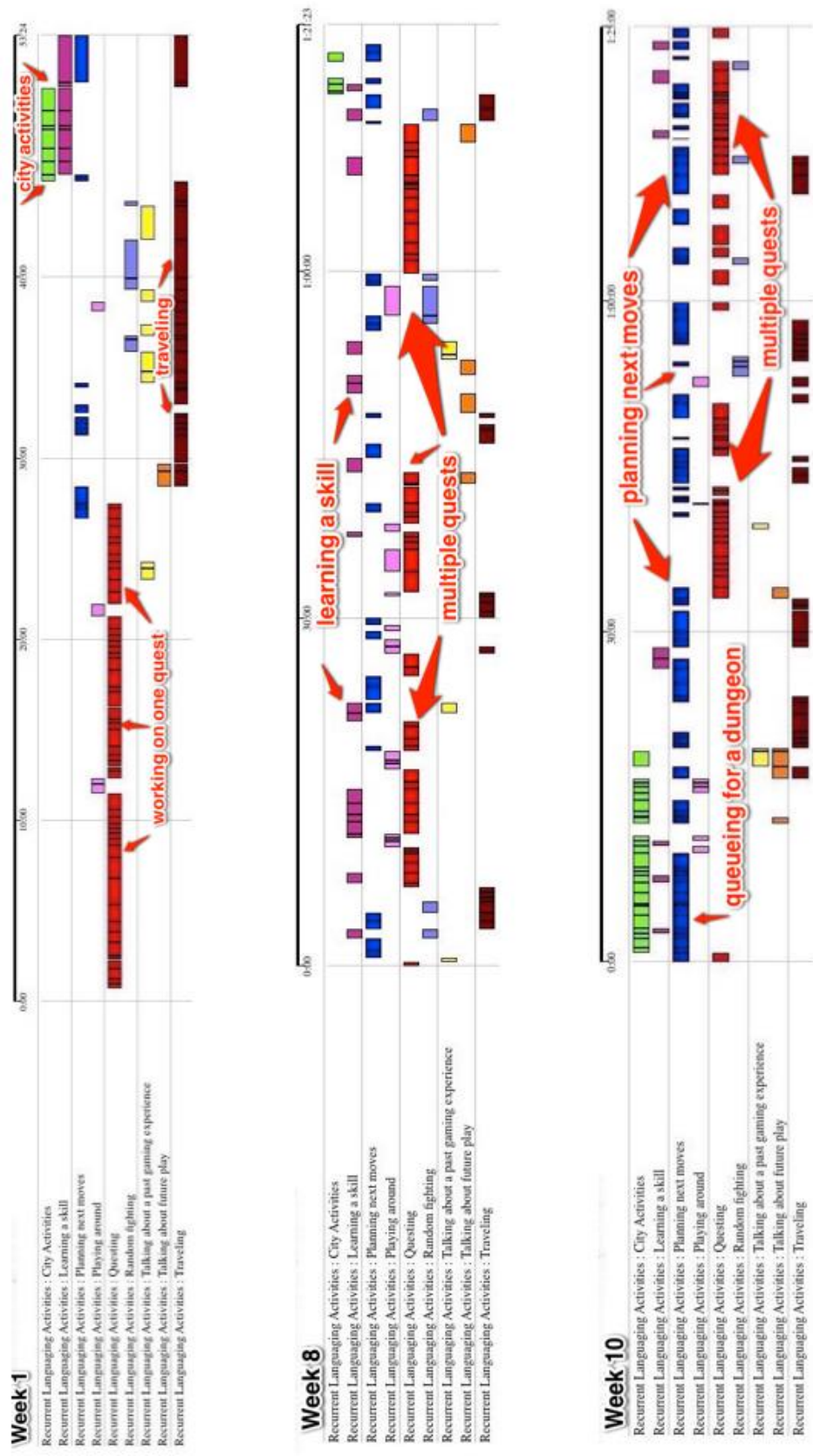
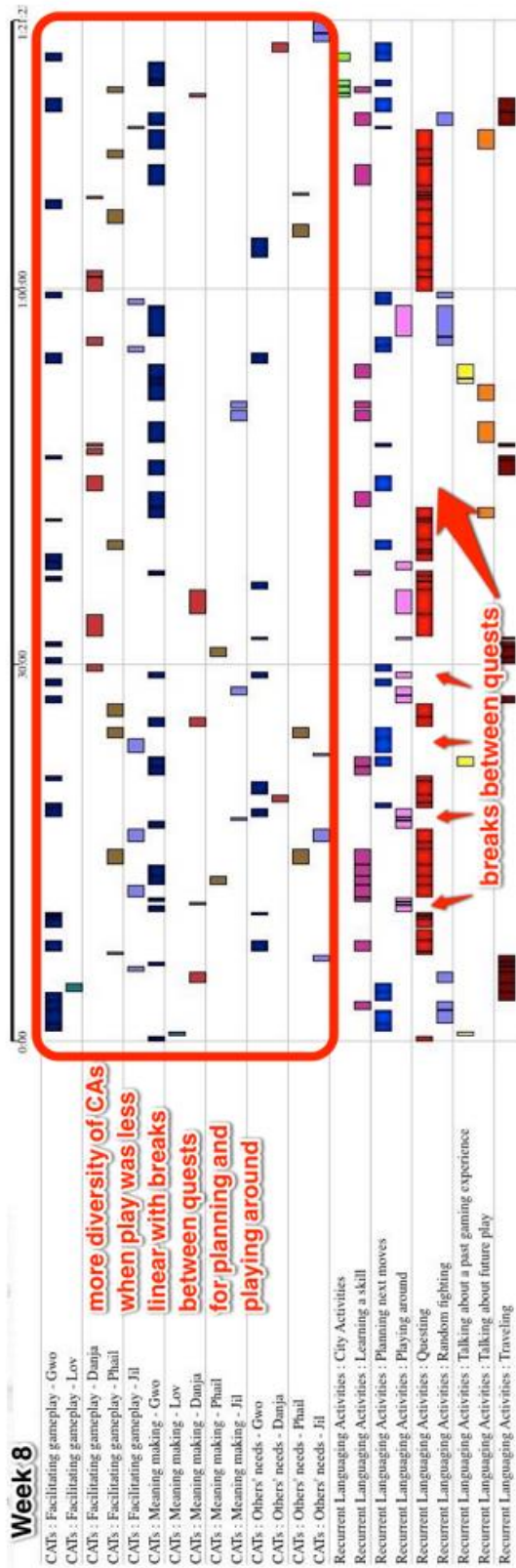
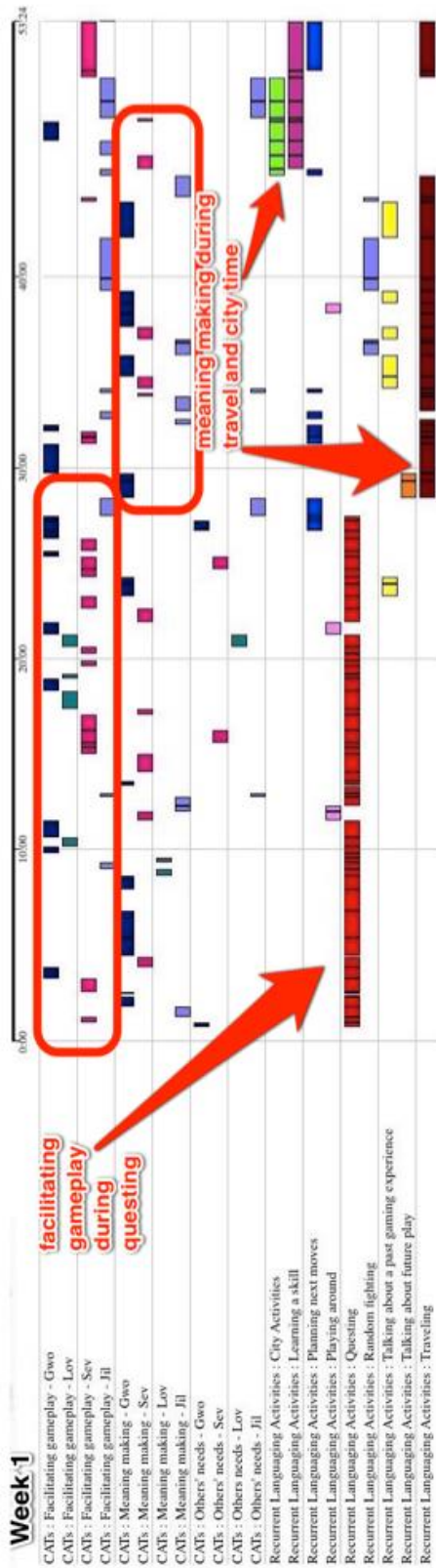


Figure 6. Comparison of recurrent gaming activities for weeks 1, 8 and 10.

There do appear to be relationships between the recurrent languaging activity and the type of CAs initiated more frequently and these are pointed out in Figure 7. For example in Week 1, more CPs for facilitating gameplay were initiated vs. other types during the questing period. There is a shift to meaning making CPs during the traveling and city activities period. In the Week 8 episode, when numerous different quests were completed one after another with periods of planning and playing around scattered between, there is more diversity to the CP type and more CPs initiated concerning others needs vs. the other two episodes of play. Gwo is noticeably focused on meaning making in this episode, first getting caught up in the strange events happening in Goldshire, and then asking lots of questions about leveling up skills and professions. Zeus took charge of directing play in the Week 8 episode, but Gwo still took responsibility for coaching Danja and Lov. In the Week 10 episode, when the four players tried to queue for a dungeon and then engaged in group and pair questing, the CPs initiated were mainly to facilitate gameplay. There was little conversation focused on meaning making or others' needs compared to the other episodes. In fact, in the Week 10 episode, which involved higher level play versus Week 8 and Week 1, neither Lov or Zeus initiated any CAs focused on meaning making.



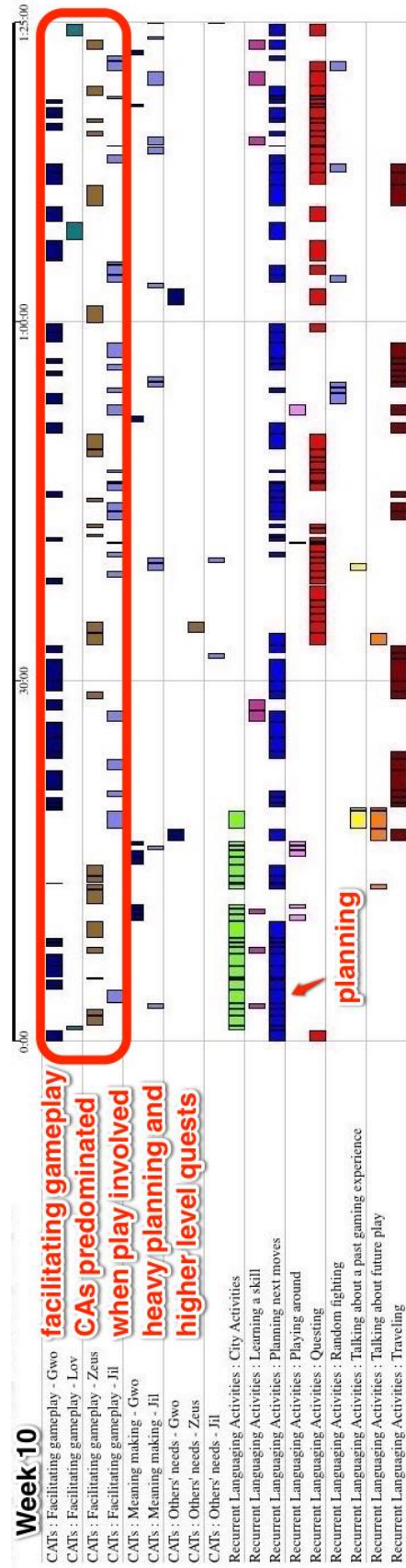


Figure 7. Recurrent language activities and patterns of communicative activities.

Communicative Activities and Player Participation

While recurrent languaging activities afforded a variety of communicative activities according to players' pursuit of different game goals, analysis also revealed how players picked up on affordances to initiate and respond in these activities differently. In terms of players' overall initiation of CPs, Gwo dominated across all three episodes. See Figure 8 for a comparison of CP initiation over Weeks 1, 8 and 10 by both L2 learners and NESs.

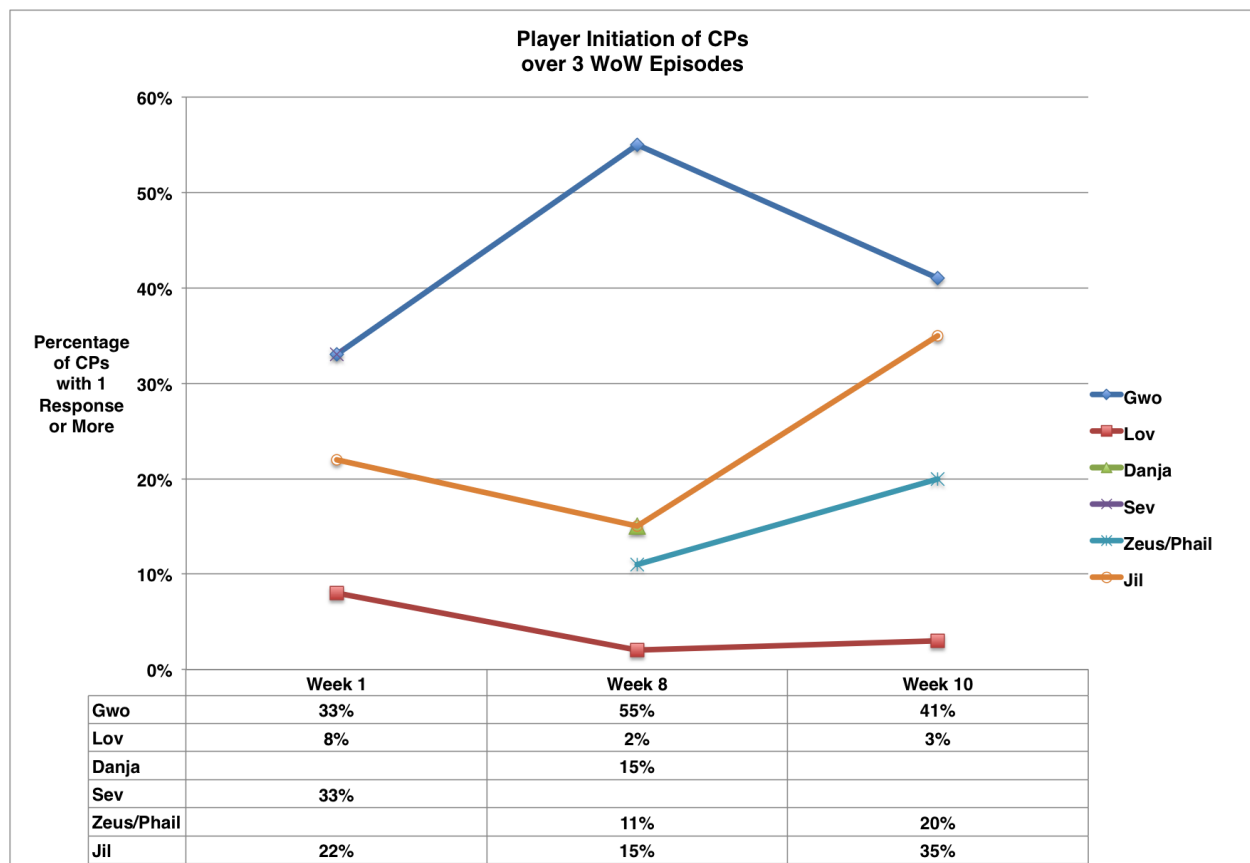


Figure 8. Player initiation of CPs over three WoW episodes (weeks 1, 8 and 10).

In spite of Gwo's dominance in terms of initiating CPs, all players (both L2s and NESs) did initiate CPs of all three types, i.e., facilitating gameplay, meaning making and taking care of others' needs, the three broader categories of communicative activities coded. Facilitating gameplay was the most common type of CA over all three episodes, followed by meaning

making and taking care of others' needs. See Figure 9 below for a comparison of player CA type initiation.

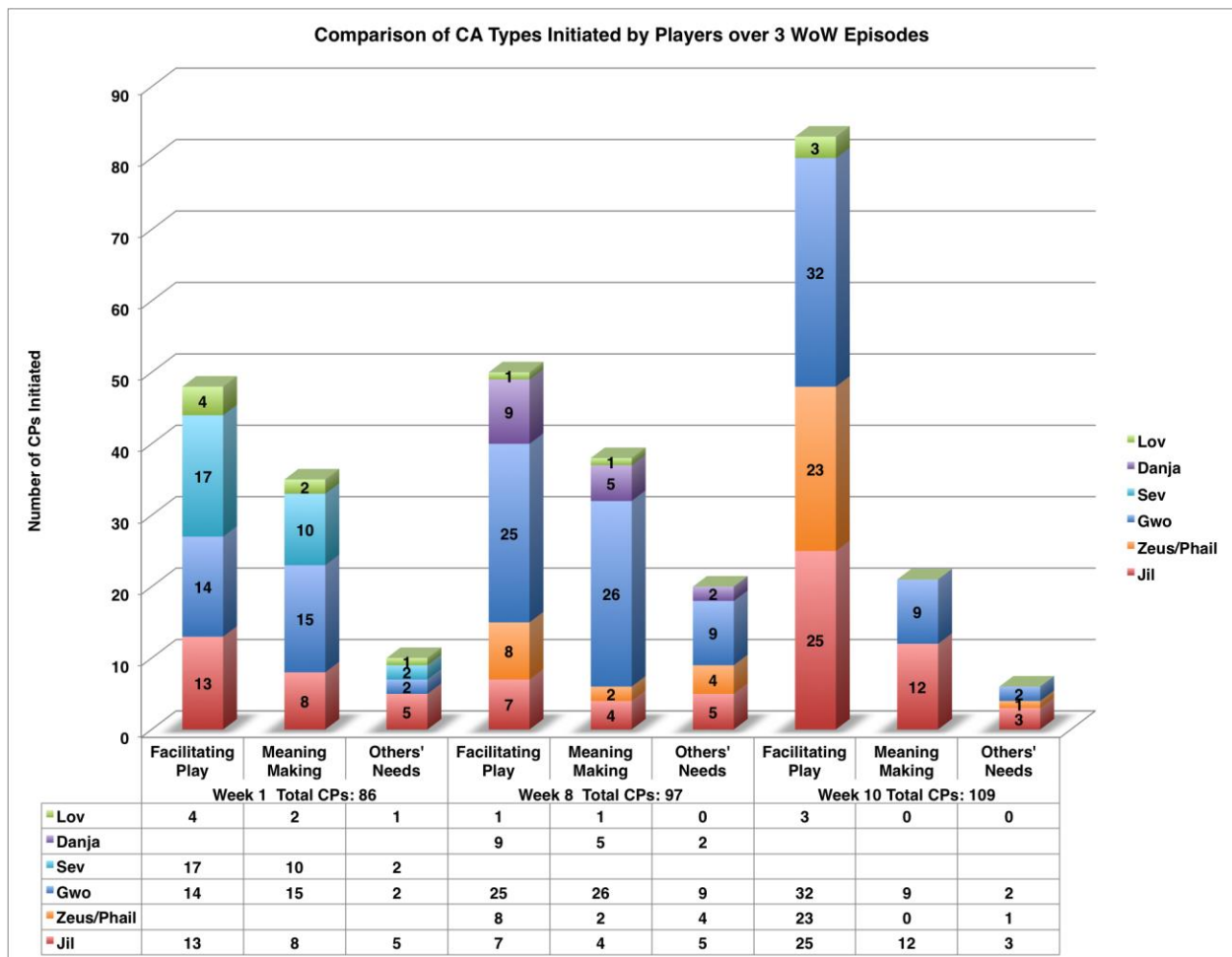


Figure 9. Comparison of CA types initiated by players over three WoW episodes (weeks 1, 8 and 10).

Because CPs are dialogical jointly achieved units, players' responses in CPs matter too. Responsiveness is a means of participating in the dialogue, in the real-time CAs taking place, so it is also important to consider in terms of L2 learner's pick up of affordances for speaking during gameplay. Gwo was most responsive in Week 1 (43% of CPs) while Jil (instructor) maintained a high level of responsiveness across all three episodes (from 35% to 40% of CPs) . Zeus/Phail, the NES player, was highly responsive in both episodes in which he played, Weeks 8 (38% of CPs) and 10 (48%), in fact, more so than Jil, the instructor. Lov's responsiveness was highest in Week 10, up to 27% of CPs from 15% in Week 1. In Figure 10, players' number of responses in CPs is compared across the three episodes. Although a player may have responded several times within a CP, just one response per CP was counted as participation.

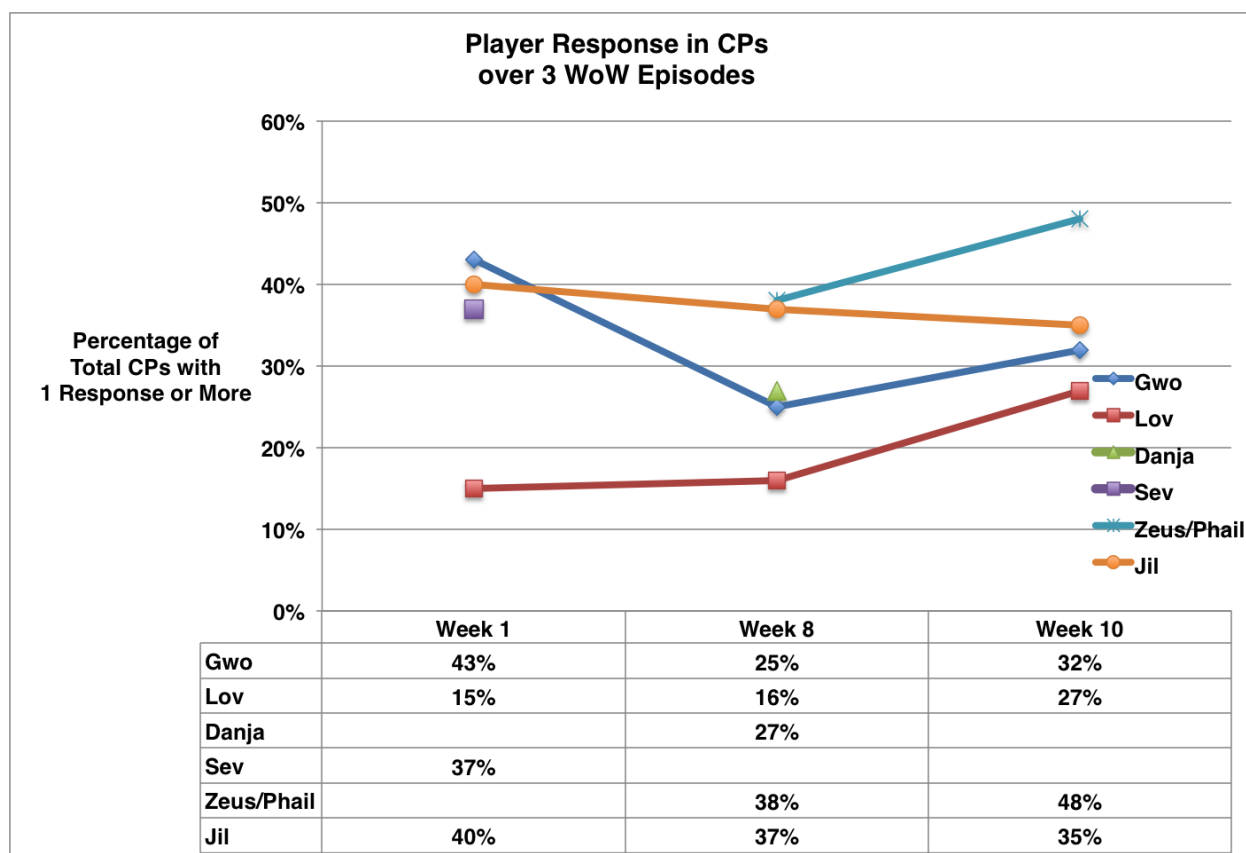


Figure 10. Comparison of player response over three WoW episodes (weeks 1, 8 and 10).

Across the three episodes, Gwo's participation was highest at 73-80% of all the CPs in a gameplay episode. In comparison, Lov's highest total participation rate in Week 10 was only 29% of total CPs. Danja participated in 42% of CPs in Week 8 and Sev participated in 70% in Week 1. Zeus and Jil, the NESs, had similar totals of participation of 49% and 55% of all CPs for Week 8 and both had their highest totals for Week 10 at 68% and 70% of CPs respectively.

Relationship between Communicative Activities and Common European Framework of Reference (CEFR) Descriptors

Looking at the communicative activities that made up each of the three main Communicative Activity categories, it became clear that many of them resembled descriptors of linguistic actions that speakers of a second language are able to take at different levels of

proficiency, such as those found in the Common European Framework of Reference (CEFR) (Council of Europe, 2001).

The CEFR, a scale now used widely throughout the world (Cambridge ESOL, 2011) was developed by the Council of Europe over a twenty year period, to provide a common basis for the design of second and foreign language curriculum by educators throughout Europe. The CEFR adopts an action-oriented approach that “views users and learners of a language primarily as ‘social agents’, i.e. members of society who have tasks (not exclusively language-related) to accomplish in a given set of circumstances, in a specific environment and within a particular field of action. While acts of speech occur within language activities, these activities form part of a wider social context, which alone is able to give them their full meaning” (CEFR, Council of Europe, 2001, p. 9). The scale provides descriptors of language acts in speaking, listening, reading and writing that learners are able to manage at six levels of proficiency, ranging from Basic User (A1 to A2), to Independent User (B1 to B2) to Proficient User (C1 to C2). (See Appendix for CEFR Oral Assessment Scale descriptors for each level).

It is evident that common communicative activities in group play of WoW with voice reflected a range of linguistic actions that describe basic to advanced levels of L2 proficiency in English. These are the basis of syllabi and curriculum in second language classrooms, including the Intensive English Program (IEP) in which the L2 learners in this study were enrolled. The implication of this finding will be taken up in the Discussion. Meanwhile, to illustrate this finding more precisely, communicative activities observed across multiple WoW play episodes were mapped to CEFR descriptors for several categories of speaking and proficiency levels. The categories found to be most relevant to WoW activities included Conversation, Information exchange, Goal-oriented cooperation, Transactions to obtain goods and services, Coherence,

Asking for clarification, Describing experience, Putting (or Making) a case, and Propositional precision (See Table 4).

Table 4

Communicative Activities in WoW Mapped to CEFR descriptors

Communicative Activities Observed in WoW Group Gameplay	Common European Framework of Reference (CEFR) Scale Descriptor Equivalent (Category/Level)
1. Attending to others' needs	
Greeting or taking leave	Can establish social contact: greetings and farewells; introductions; giving thanks.(Conversation/A2)
Checking others' progress	Can ask for and provide personal information. (Information exchange/A2)
Checking others' health	Can ask how people are and react to news. (Conversation/A1)
Warning others	Can explain why something is a problem, discuss what to do next, compare and contrast alternatives (Goal-oriented communication/B1)
Giving support	Can communicate in simple and routine tasks using simple phrases to ask for and provide things, to get simple information and to discuss what to do next. (Goal-oriented cooperation/A2)
Apologizing	Can handle very short social exchanges, using everyday polite forms of greeting and address. Can make and respond to invitations, invitations, apologies etc. (Sociolinguistic appropriateness/A2)
Expressing disappointment	Can express how he/she feels in simple terms, and express thanks.(Conversaton/A2)
	Can express and respond to feelings such as surprise, happiness, sadness, interest and indifference. (Conversation/B1)
	Can convey degrees of emotion and highlight the personal significance of events and
Making a joke	Can use language flexibly and effectively for social purposes, including emotional, allusive and joking usage. (Conversation/C1)
2. Facilitating gameplay	
Suggesting a move	1) Can explain why something is a problem, discuss what to do next, compare and contrast alternatives. 2) Can make his/her opinions and reactions understood as regards possible solutions or the question of what to do next, giving brief reasons and explanations.(Goal-oriented cooperation/B1)
	1)Can outline an issue or a problem clearly, speculating about causes or consequences, and weighing advantages and disadvantages of different approaches. 2)Can help along the progress of the work by inviting others to join in, say what they think etc. (Goal-oriented cooperaton/B2)
Directing others	Can discuss what to do next, making and responding to suggestions, asking for and giving directions.(Goal-oriented cooperation/A2)
	Can help along the progress of the work by inviting others to join in, say what they think etc. (Goal-oriented cooperation/B2)
Reporting on status	1)Can give and follow simple directions and instructions e.g. explain how to get somewhere. 2)Can ask for and give directions referring to a map or plan. (Information exchange/A2)
Reporting on loot	Can deal with practical everyday demands: finding out and passing on straightforward factual information (Information exchange/A2)
	1)Can communicate in simple and routine tasks requiring a simple and direct exchange of information. (Information exchange/A2)
	2)Can give and receive information about quantities, numbers, prices etc. (Transactions to obtain goods & services/A2)
Asking for help	Can ask for attention.(Turntaking/A2) Can communicate in simple and routine tasks using simple phrases to ask for and provide things, to get simple information and to discuss what to do next.(Goal-oriented cooperation/A2)

Table 4 (Cont.)

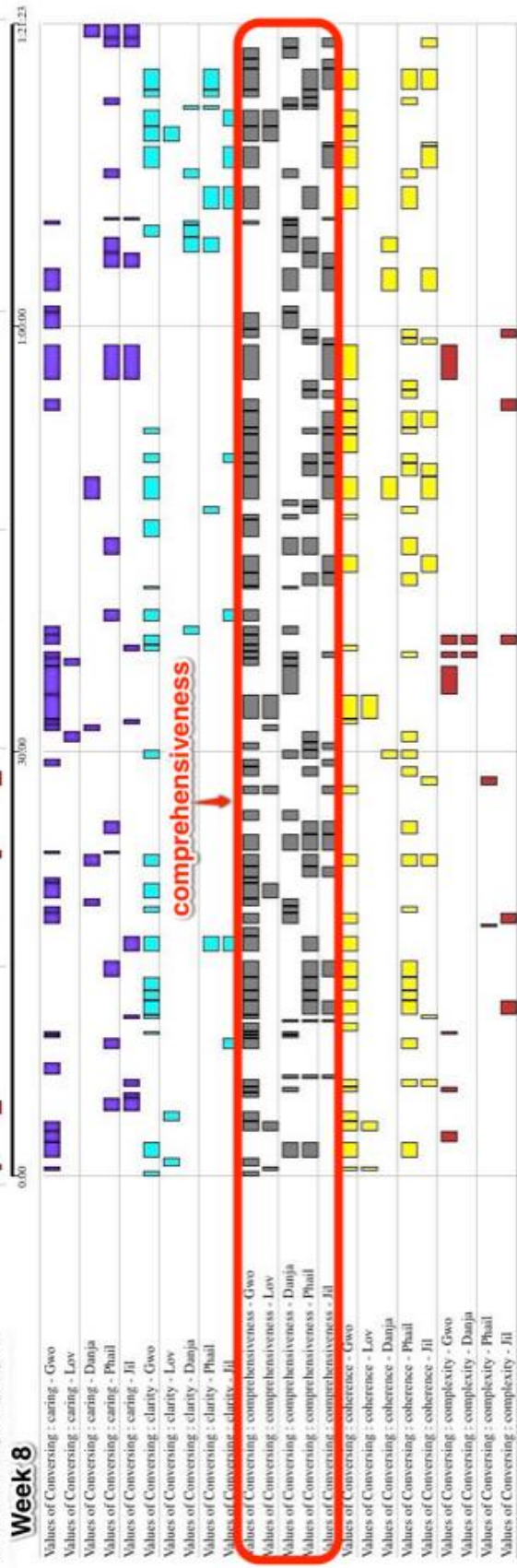
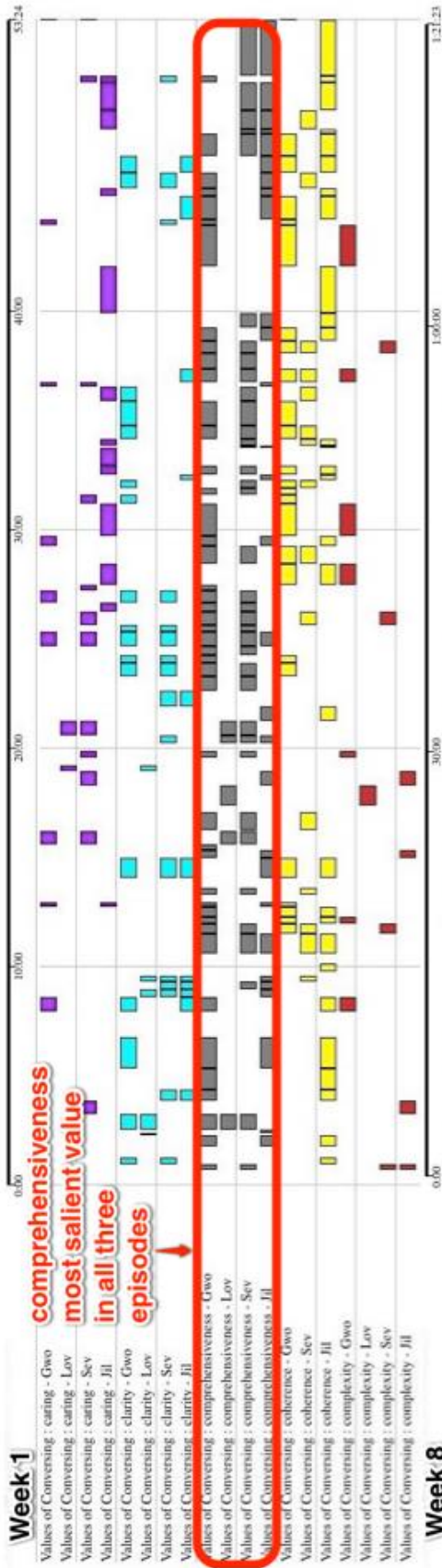
3. Meaning-making	
Sharing about a past game experience	Can ask and answer questions about pastimes and past activities. (Information exchange/A2)
	Can use the most frequently occurring connectors to link simple sentences in order to tell a story or describe something as a simple list of points. (Coherence/A2)
	1)Can relate details of unpredictable occurrences, e.g., an accident. 2)Can narrate a story 3)Can reasonably fluently relate a straightforward narrative or description as a linear sequence of points. Can give detailed accounts of experiences, describing feelings and reactions. (Describing experience/B1)
	Can give clear, smoothly flowing, elaborate and often memorable descriptions.(Describing experiences/C2)
Explaining how to do something	Can describe how to do something, giving detailed instructions. (Information exchange/B1)
	Can give a clear, detailed description of how to carry out a procedure. (information exchange/B2)
Asking about meaning	Can ask for clarification about key words or phrases not understood using stock phrases.(Asking for
	Can obtain more detailed information.(Information exchange/B1)
Explaining the meaning of something	Can explain the main points in an idea or problem with reasonable precision. (Propositional precision/B1)
	Can pass on detailed information reliably (Propositional precision/B2)
Clarifying	Can understand enough to manage simple, routine tasks without undue effort, asking very simply for repetition when he/she does not understand. (Goal-oriented cooperation/A2)
	1)Can ask for clarification about key words or phrases not understood using stock phrases. 2)Can say he/she didn't follow. (Asking for clarification/A2)
	Can follow what is said, though he/she may occasionally have to ask for repetition or clarification if the other people's talk is rapid or extended. (Goal-oriented cooperation/B1)
	Can ask someone to clarify or elaborate what he or she has just said. (Asking for clarification/B1)
	Can ask follow up questions to check that he/she has understood what a speaker intended to say, and get clarification of ambiguous points.(Asking for clarification/B2)
Confirming	Can indicate when he/she is following.(Cooperating/A2)
	Can generally follow what is said and, when necessary, can repeat back part of what someone has said to confirm mutual understanding. (Goal-oriented cooperation/B1)
	Can help the discussion along on familiar ground, confirming comprehension, inviting others in, etc. (Cooperation/B2)
Asking about game strategy or rules	Can ask for and follow detailed directions (Information exchange/B1)
Explaining game strategy or rules	Can briefly give reasons and explanations for opinions, plans and actions.(Putting a case/B1)
	Can describe how to do something, giving detailed instructions. (Information exchange/B1)
	Can pass on detailed information reliably.(Information exchange/B2)
	Can explain a viewpoint on a topical issue giving the advantages and disadvantages of various options (Putting a
Pointing out things in the environment	1)Can tell a story or describe something in a simple list of points. Can describe everyday aspects of his environment e.g. people, places, a job or study experience. 2)Can give short, basic descriptions of events and activities. 3)Can describe plans and arrangements, habits and routines, past activities and personal experiences. 4)Can use simple descriptive language to make brief statements about and compare objects and possessions. 5)Can describe people, places and possessions in simple terms. (Describing experiences/A2)
	1)Can reasonably fluently relate a straightforward narrative or description as a linear sequence of points. Can give detailed accounts of experiences, describing feelings and reactions. 2)Can describe events, real or imagined (Describing experiences/B1)

Conversational Values Realizing

Players picked up affordances for the full range of values that define "good" conversations. Out of all of the conversational values coded (clarity, comprehensiveness, coherence, complexity and caring), comprehensiveness, providing or seeking enough information, was the one most often pursued in CPs and was the most salient in all three episodes. See Figure 10.

Next to comprehensiveness, coherence, relating directly to another's utterances, was most frequent, but in the Week 10 episode, clarity and coherence were realized about equally. There was also the most planning of next moves in this episode, so this may have made clarity, being clear about what has been spoken, more important relative to other episodes. In Week 8, clarity was more concentrated at the end of the episode (during a questing phase) compared to Week 1 when it was scattered evenly throughout play. Caring was slightly more frequent in the Week 10 episode, but was present throughout all three gameplay episodes, which is a positive sign in terms of community building and player relationships.

Players tended to prioritize being comprehensive over several adjacent CPs. The data also typically shows two or more players with similar patterns of being comprehensive during the same phase of play, reflecting that CPs are dialogically achieved.



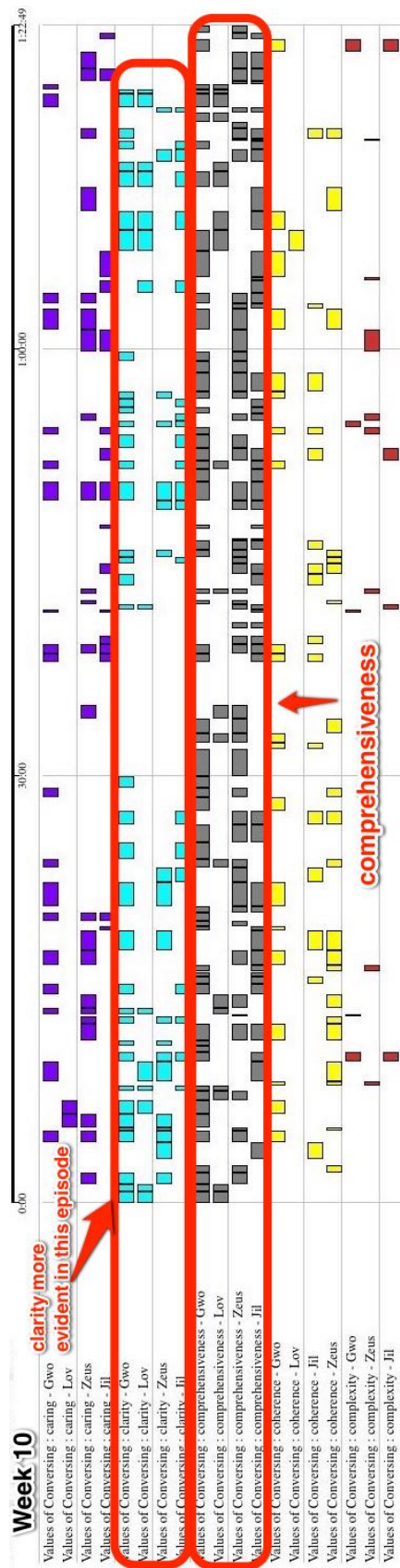


Figure 11. Values of conversing over three WoW episodes (weeks 1, 8 and 10).

As to be expected, being coherent and complex appeared to correlate with speaking proficiency level. Lov, a low intermediate speaker, was rarely coherent (i.e., he rarely used cohesive devices to make connections to what was previously said) and he was only complex (using language playfully or creatively, using idioms, being humorous) once in three episodes. In the Week 8 episode, Danja, a high-intermediate speaker, was coherent and complex just a few times. Gwo, an advanced speaker picked up on many affordances to be complex. He clearly enjoyed having a chance to try out idioms, make jokes and play with prosody and rhythm in conversing with the familiar members of Group Z. The two native speakers Jil and Zeus, were complex by repeating things other players said in a humorous way to make jokes and to tease other players. Figure 12 provides a comparison of individual players' conversational values realizing over the three episodes.

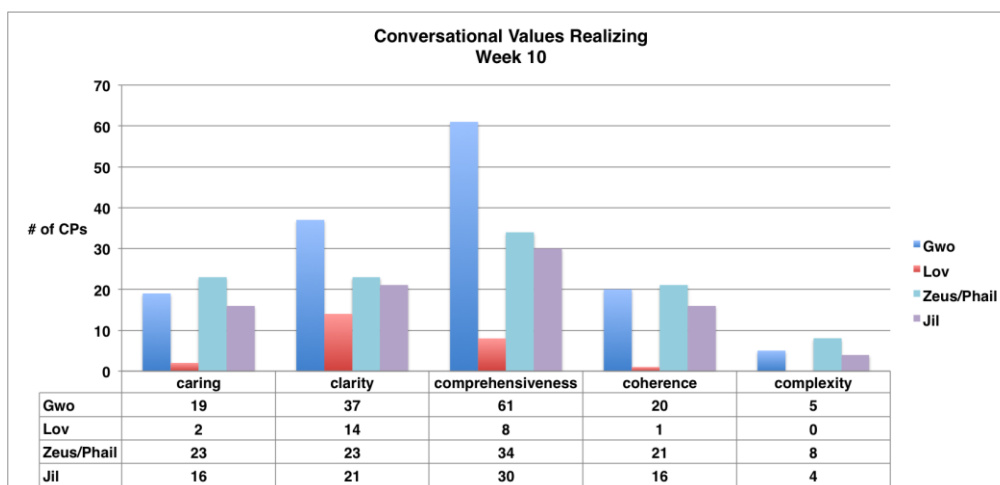
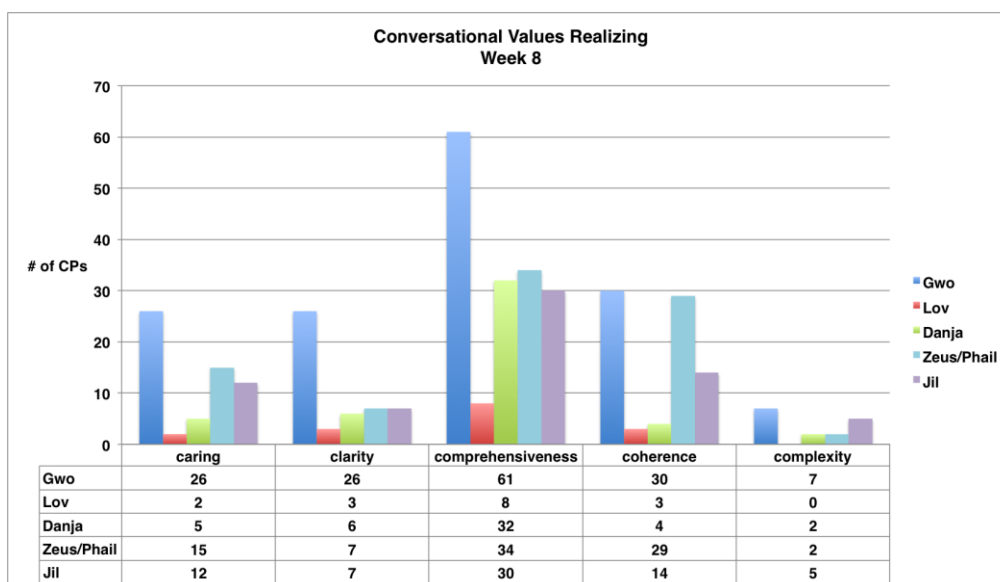
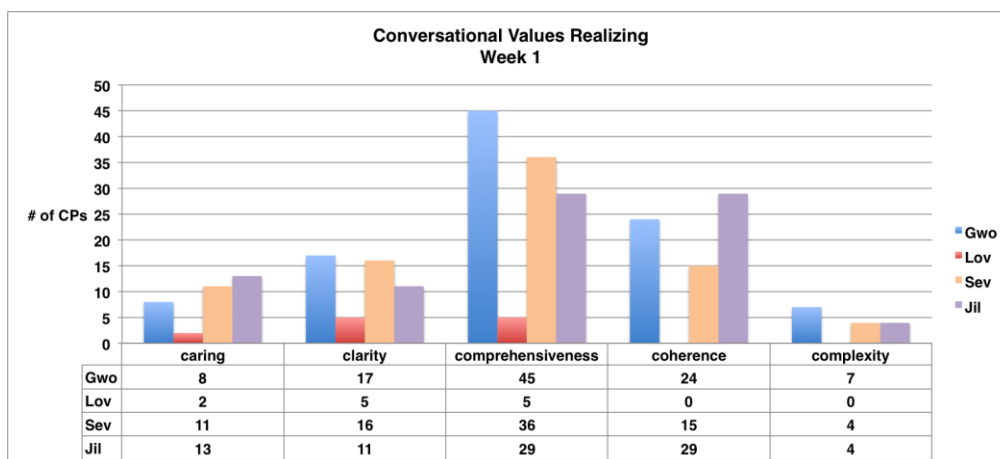
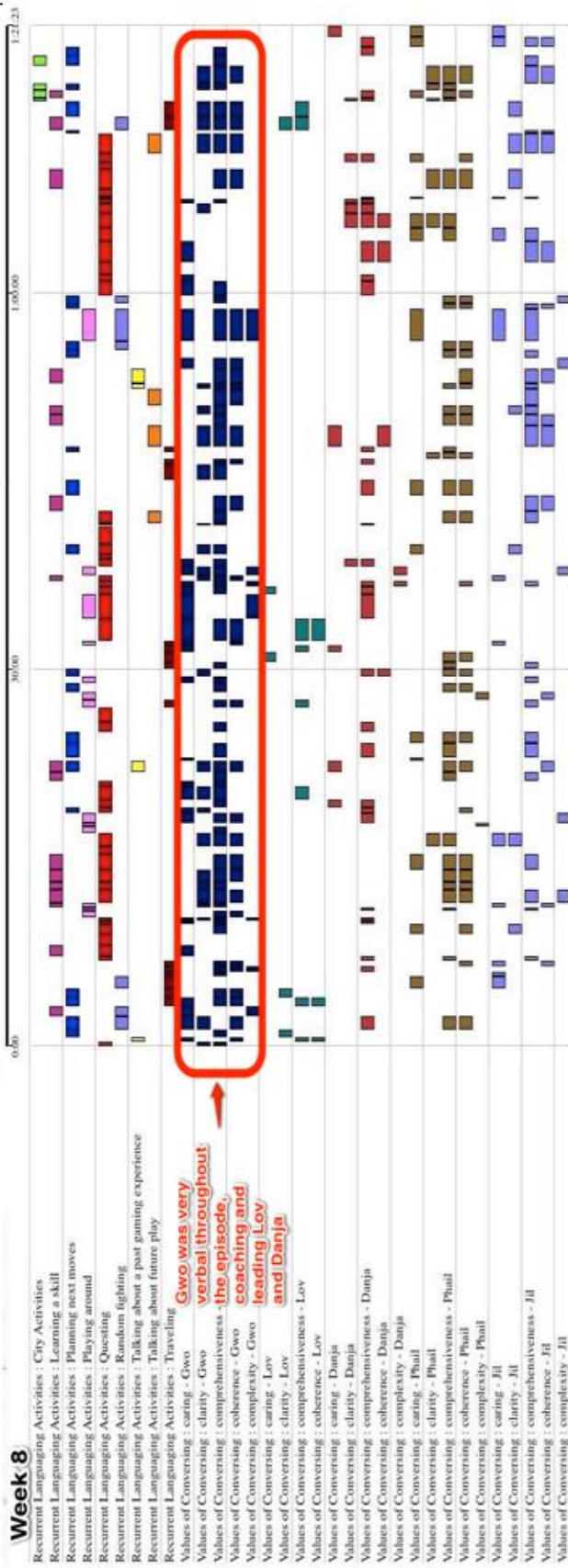
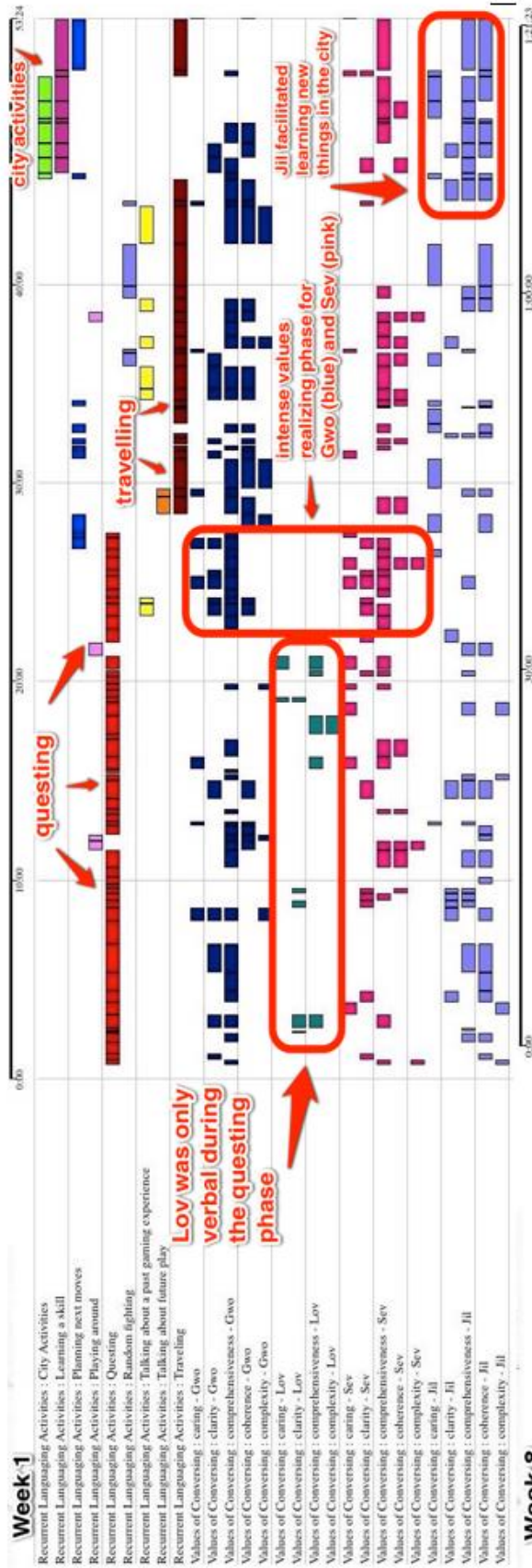


Figure 12. Comparison of players' conversational values realizing for weeks 1, 8 and 10.

Conversational values realizing by an individual player was sometimes more intense, as indicated by clusters on the keyword maps. Clustering can be associated with the activity (specifically, the recurrent languaging activity) going on (e.g., questing, traveling, learning a skill) and even with a certain phase of the activity, for example at the start of questing or during the middle of traveling. For example, both Gwo and Sev's conversational values realizing in Week 1 were intensified around the transition between questing and traveling, a time when they led the others in deciding whether it was time to move on and where they should go next. Jil's values realizing was intensified at the end of Week 1 when the group arrived in a city and she had an opportunity to facilitate learning some game-related skills. In contrast, as seen in Week 10, when players were involved in a quest that presented more challenge to all members of the group, there was a break in conversing. (See Figure 13).



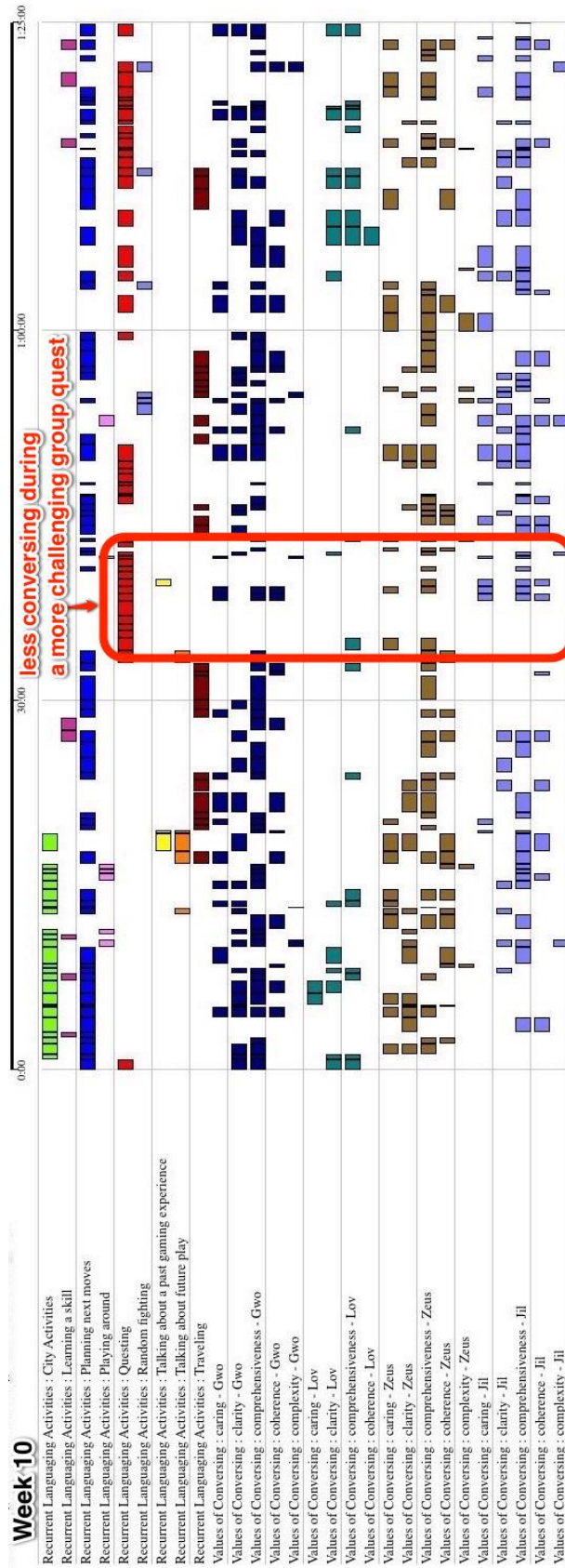


Figure 13. Conversational values realizing and recurrent languaging activities for weeks 1, 8 and 10.

It is evident from Figures 12 and 13 that Gwo played a central role in Group Z. In fact, the caring he expressed through coaching, teasing and scolding Danja as he tried to help her play better in Week 8 was typical of his behavior in other gameplay sessions. Additionally, from the initial episode of group play, Gwo made ongoing effort to include Lov in the play and conversation and coaxed and pushed him repeatedly to speak more at regular intervals. Gwo's comprehensiveness and coherence in conversing were prominent in all three weeks coded.

Lov was only conversationally active during the questing phase of Week 1 perhaps because this was the only time he really had to participate in order to accomplish group goals. The predominant conversational values he realized were clarity and comprehensiveness, which were indicative of his relatively lower listening comprehension skills and his problems with articulating English sounds. He also had a tendency to speak too softly or at the same time as Gwo, so it was difficult to hear him much of the time.

Though not as active as Gwo, Danja realized the full range of values during the Week 8 session, participating steadily throughout gameplay. She was most often comprehensive. Play centered on helping her with several large kill quests, so she needed to continually communicate about the details of whom she needed to kill, what she needed to loot, and how close to being finished with the quest she was.

Phail/Zeus's values realizing was more prominent and diverse for Week 10 versus week 8, perhaps because he was more involved in decision-making from the outset of play.

Jil's values realizing was fairly consistent across the episodes, one exception being greater coherence in Week 1 versus the other weeks. This may have had to do with it being the initial gameplay episode. Jil's level of caring was consistent across episodes in keeping with the roles of course and L2 instructor.

Thus, players' conversational values realizing fluctuated according to the languaging activities they engaged in, their roles in continually changing coordinated activities, and their abilities, goals and intentions in play. These results indicate that WoW gameplay activities afforded L2 learners of various proficiency levels with agency to participate, though perhaps peripherally at times, in creating conversations that were informative, interesting, authentic and often memorable. The relationship between conversational values realizing and skilled linguistic action is taken up in the Discussion.

Multimodalities of Voice and 3D Avatar

Play of WoW with Skype is multimodal activity involving use of player and occasionally, avatar voice, the ambient sounds of the WoW virtual world, the visual information in WoW and on players' computer screens (including game interface features, game texts and text chat, and other online resources) and avatar movements and actions. Of the four modes of languaging (verbalizing only, movement of the avatar only, coordinated verbalizing and movement, and multitasking), multitasking and coordinated verbalizing and movement were most common across all episodes (see Figure 14). They either alternated from one CP to the next or one mode continued across multiple CPs (see, for example, the long stretch of multitasking in Week 8 in Figure 14). Both multitasking and coordinated verbalizing/movement occurred during all types of recurrent languaging activities; questing, traveling, city activities, planning next moves, etc. Predictably, co-action, instances of players coordinating to accomplish something together that they could not accomplish alone, coincided more often with coordinated verbalizing/movement vs. multitasking. Verbalizing only was very rare (twice in Week 1, once in Week 8) and movement only occurred twice in each of the three episodes. These results show

that players were most often engaged in play that entailed both verbalizing and managing their avatar's movements and actions.

An interesting finding was that talking about a past gaming experience or talking about future play co-occurred with multitasking. Players seemed to enjoy having time in less demanding situations of play, to share stories about their adventures in WoW and to create future shared goals. Use of the Skype conference call during gameplay afforded players with agency to decide whether to speak about the game task underway or a completely unrelated topic and therefore; it was an important affordance of multimodality.

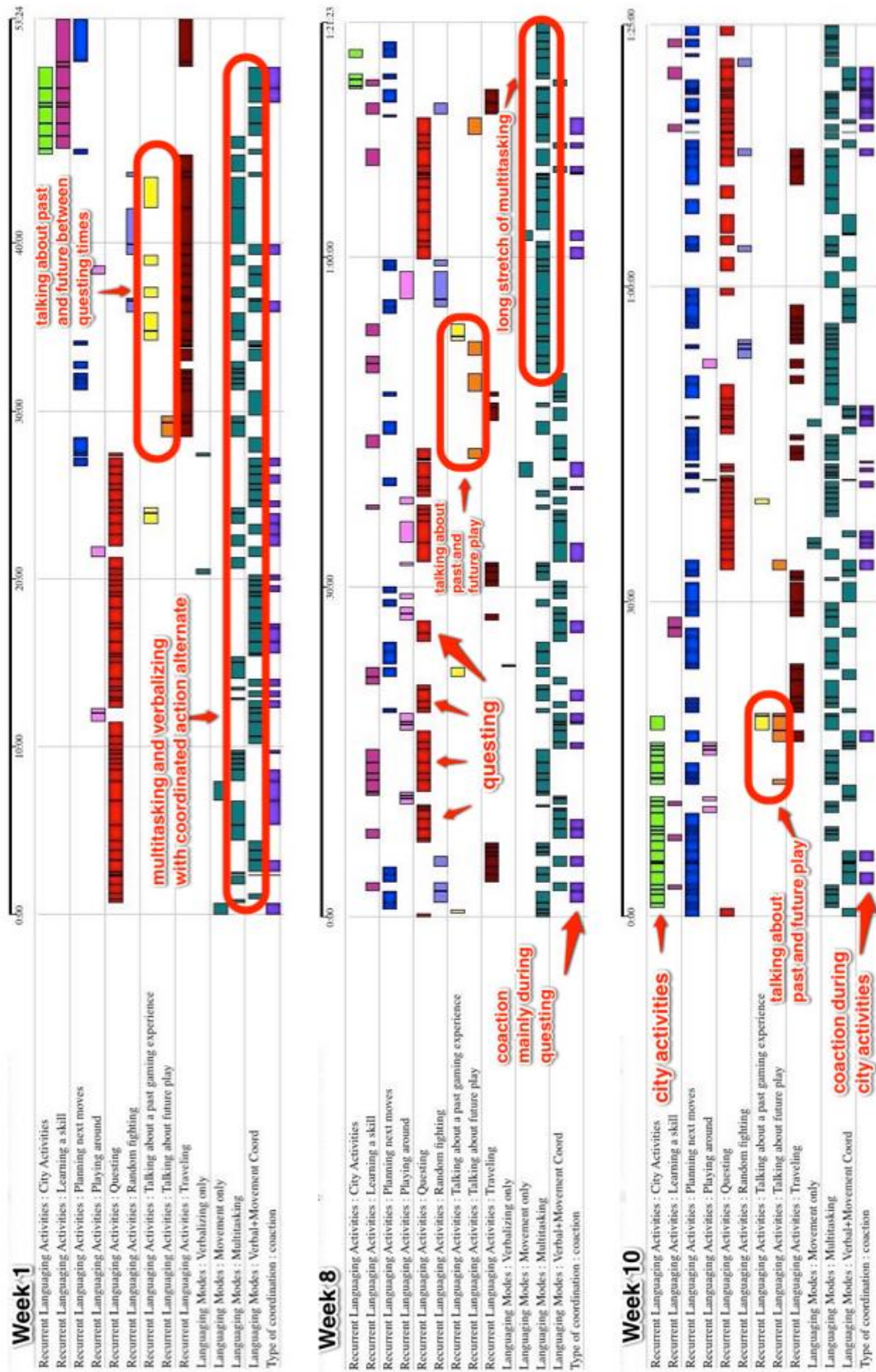


Figure 14. Recurrent language activities, language modes and co-action.

Course Design Supported Talk of Past and Future and Community Building

As just mentioned, in each of the three episodes, there were a number (fewer than 10) of CPs focused on past game experiences or game experiences players wanted to have in the future. These CPs often occurred during travel or breaks in questing. The semester-long timeframe of the course enabled players to reflect on and ask about past gaming events and provided a horizon into the future to plan for both individual and group goals. Stated ecologically, the course timeframe combined with the open-ended play options of the game and players' agency created affordances for L2 interactions that required the use of past and future verb tenses. To cite a few examples, in the Week 1 episode, Gwo and Sev asked Jil about some experiences with much higher level NPCs (aka "The Skull Death") they had had while playing earlier. During the Week 8 episode, Gwo was curious about leveling up his First Aid, and talked about his plans to buy lots of linen in the Auction House, an example of talking about a future goal. In the Week 10 episode, there was talk of doing several different dungeons that would open up to the group once Lov reached level 35.

It is possible, but unlikely that average WoW players unaffiliated with a guild would have a reason to speak with other players about past or future events in the game and storytelling is not commonly found in WoW players' text chat, which tends to employ a different register, extensive use of abbreviation and game-specific and/or "low frequency" vocabulary. Therefore, it is claimed that the course requirements for players to join a guild, to play in groups, and to help new players learn the game supported community-building relationships.

Correlation between L2 Learners' Scores for Skilled Linguistic Action and IEP Speaking Proficiency Scores

Individual L2 learner scores for Skilled Linguistic Action were based on players' Initiation of CPs, Responsiveness in CPs and Range of Conversational Values Realizing. A scaled score ranging from 1 to 5 was assigned for each category and a mean Skilled Linguistic Action score was then calculated. A scaled score for WoW Course Participation ranging from 1 to 5 was based on gameplay participation and quantity and quality of course discussion posts. An IEP participation score was calculated as the mean score of assigned scaled scores ranging from 1 to 5 for leadership, participation and effort based on L2 learners' final evaluations in five L2 courses in the IEP. IEP Speaking Proficiency Scores were retrieved from student transcripts from the end of the course semester (except for Gwo, whose scores came from his final transcript two semesters before when he had exited the IEP).

The Pearson Product Moment Correlation Coefficient (r) was used to test for relationships between these four scores: Skilled Linguistic Action, WoW Course Participation, IEP Participation and IEP Speaking Score. Probably due to the small sample size ($N=4$), only one significant relationship was found. Skilled Linguistic Action scores and IEP Speaking Proficiency Scores were highly correlated, $r=.962$ ($p < .01$). Correlation results are presented in Table 5.

Table 5

Pearson's Product Moment Correlations of Scores

		<i>Correlations</i>			
		1	2	3	4
1	Skilled Linguistic Action	1			
2	WoW Course Grade	.70	1		
3	IEP Participation Score	.59	.20	1	
4	IEP Speaking Score	.96*	.87	.46	1

Note: *p < 0.01

Discussion**Recurrent Language Activities Afford Skilled Linguistic Action**

Returning to the first research question about the designed and emergent affordances of WoW for L2 learners to take skilled linguistic action, a key insight was that WoW's affordances for multiplayer multimodal real-time interaction during co-present virtual world play, along with game mechanics, rules, goals and community-oriented culture afford and constrain languaging. The result is that WoW gameplay is a Communicative Activity Type (Linell, 2009) with interactions that are repeated regularly and that can be learned and anticipated. The recurrent languaging activities (questing, planning next moves, traveling, learning a skill, etc.) that constitute WoW gameplay afforded richly contextualized and varied practice with a variety of communicative activities that describe L2 proficiencies in speaking. In the best L2 classrooms, ongoing effort is made to create authentic contexts for engaging interactions that incorporate content that is meaningful to learners. Syllabi are carefully constructed to facilitate student

learning outcomes that align with L2 proficiency descriptors such as those presented in the CEFR. The findings of this study suggest that playing WoW together accomplished the same instructional goals and moreover, allowed learners to witness and compare over time, the visible outcomes of their participation in authentic communicative activities.

Being able to take skilled linguistic action is different from having communicative competence, which has traditionally been considered as an individual's knowledge about a language. Skilled linguistic action is distributed between speakers in a dynamic situation, it is contingent on what people do together; it involves adaptivity and acting on-the-fly in a linguistically, socioculturally and pragmatically appropriate way. By engaging in the same languaging activities over and over again, but in slightly varied situations, players could detect what was invariant about language and integrated actions in the communicative activities that were entailed. From an ecological view, an L2 instructor in WoW does have a role in this process, it is to guide learners to notice what they are doing and saying in the L2 and when it leads to successful interactions as well as noticing what more expert others say and do and using them as a resource. An additional function is to incite L2 learners to adopt the intention of making changes that lead to improved performance and rewarding outcomes. The type of instruction advocated involves consciousness-raising about strategic, reflective, self-regulated L2 learning practices.

Most of the communicative activities observed in these WoW episodes, when generalized to other types of coordination besides gameplay, can be considered as skilled linguistic actions that L2 learners should be able to take as independent speakers of English (independent is a CEFR level that represents intermediate to high intermediate proficiency (B1 to B2). High intermediate (B2) is considered the minimum level needed for academic work at the college

level). Standards are important and have a place in L2TL, but as van Lier (2004) emphasized, standards should be harmonized with quality learning experiences. Citing Vygotsky, he asserted that learning “should be based on raising “intrinsic needs” in a context in which the educational activities are “necessary and relevant for life” (p.19). The fantastical, world-at-war environment of WoW casts it as an unlikely place for L2 learners to participate in experiences and communicative activities that mirror those they will engage in outside the game. However, the results of this study show clearly that they do. The communicative activities afforded by WoW were identified as critical activities for coordinating with others, for making meaning and for caring for self and others, categories that are essential for human values realizing in the contexts of school, work and daily living. By participating in the communities of the game over time, L2 learners can take part in recurrent languaging activities that afford skilled linguistic actions from basic to advanced levels of proficiency.

Emergent and Designed Affordances Support Diverse Community of L2 Learners

The low levels of participation by Lov in communicative projects and low engagement of Danja in playing the game independently of assigned group times were not ideal outcomes, but they are only part of a fuller picture of each L2 learner that the participant/researcher was able to access, and on the whole, it was clear that each learner had different intentions, sought different goals and reaped their own rewards from the gameplay. This will be discussed in the counterpart study.

Initiating and responding in CPs, the quantity of languaging, was apparently related to proficiency level for these learners. Lov and Danja were more quiet than Gwo and Sev, but from observing their actions during recurrent language activities in WoW, it became clear that they were comprehending group plans and fulfilling their responsibilities as legitimate members of

their WoW group. Gwo, an IEP “graduate,” was able to pick up the affordance to be a leader of the other L2s (and of the whole group at many times), a tech expert and coach for Danja, and a caring, but sometimes bossy friend to Lov. His inclusiveness and support for others shaped caring group dynamics and his high level of initiation and responsiveness was considered as an asset rather than a problem, since the projects he initiated usually related to or interested others.

Zeus/Phail was an ideal NES player in that he was a natural at providing just-in-time game support and on demand feedback on the L2. His patience and support of new (noob) WoW players was a positive contribution, and as an expert player, he modeled the learning culture of WoW admirably, serving as a ready resource for tips, tricks, and WoW cultural information. L2 practitioners who would like to try co-opting game worlds as environments for L2TL do not need to be experts with a game, though some familiarity is advised. Recruiting an expert NES (or several) to scaffold gameplay know-how can be an effective way to distribute the responsibilities of teaching.

Contribution of Multimodal Linguaging to Quality of Experience

That speaking and writing are different domains is a kind of mantra in the distributed view of language. Text chat is a powerful affordance for communicating with others during gameplay, and others have pointed to benefits of using it as data for gameplay analysis. For one thing, it is much easier to collect and transcription is avoided (Palmer, 2010). But others (Peterson, 2013) have found that learning texting registers and keeping up with large quantities of scrolling text was stressful for L2 learners. In contrast, in this study, the use of voice over Skype afforded complexity in the way L2 players were able to multitask, pursuing game goals with an avatar while pursuing conversational values on a different plane. Furthermore, several affordances of avatar embodiment for L2 learning were mentioned in the literature review..

Bodies and avatars and their abilities have a lot to do with what is perceived and acted upon. MMORPGs like WoW are a category of game that afford what Gee (2008) calls “action- and goal-directed simulations of embodied experience” (Gee, 2008, p. 254) which, similar to writing, let us “externalize some of the functions of the mind”(Gee, 2008, p. 254). One way we can do this is by doing something with avatars that Gee claims we do all the time as part of cognition, which is taking a “projective stance” (Gee, 2008, p. 260), which means perceiving and acting in the world by continually meshing our goals, both who we are and who we wish to be, with what the world affords. When we play WoW, for example, as a level 90 female dwarf combat rogue named Jilfira, we take the same kind of projective stance, creating a dialog between our own identity and the inherited identity of our avatar. Gee (2008) explained why this is an especially empowering experience:

The argument, then, is that video games build on and play with a stance that is the norm for effective physical and social human action in the world. They externalize in images much of what remains “mental” (usually unconsciously imaginative) in the real world when we are operating powerfully and effectively. In video games, we play with life as if life were a toy. (Gee, 2008, p. 261)

The co-action of player and avatar in WoW gameplay that Zheng & Newgarden (2012) described is a dialogical relationship that demonstrates alterity. Developing and drawing on alterity is critical to sociocultural learning (Linell, 2009), to caring in conversations (Zheng, 2012) and therefore, to taking skilled linguistic action in the L2. The affordances of avatar embodiment for L2 learning deserve further exploration and should not be overlooked in social and situated accounts.

Relationship between Gameplay Skilled Linguistic Action Score and other Measures of L2 Learners' Speaking and Participation

The rationale for the second research question about whether there were correlations between L2 learners' scores for speaking proficiency, participation (in the gameplay, WoW course and in the IEP) and Skilled Linguistic Action (based on scores assigned for range of gameplay Conversational Values Realizing, Initiation and Responsiveness) was to see whether L2 learners' participation and conversational effectiveness in WoW play related to other measures based on their performance in other L2 learning dimensions. This is still a question of interest, however, with the exception of the significant relationship found between Skilled Linguistic Action and IEP Speaking Proficiency scores, the sample size for this study (N=4) was probably too small to detect other significant relationships. This significant correlation found was strong; however, due to small sample size, the reliability and replicability of the result with a different sample are questionable and should be tested further before generalizations can be made.

Implications, Limitations and Conclusions

The finding that WoW affords recurrent languaging activities has significance for L2 learning “in the wild” of game worlds as well as for L2TL pedagogies and the design of games for L2 learning. First, it suggests that WoW affords a context for learning to take skilled linguistic actions, ranging from basic to proficient on the vertical CEFR scale, for learners who may not have the means or time to travel to a country where the L2 is spoken in order to experience so-called “immersion.” Play in a group, preferably a guild with L2 speakers, and use of voice via some type of Internet connection, are recommended to maximize affordances for recurrent languaging activities and the communicative activities they in turn afford. The fact that

typical communicative activities developed in WoW gameplay could be mapped to CEFR proficiency descriptors can provide a justification for employing WoW as an L2TL environment and Table 4 (Communicative Activities in WoW Mapped to CEFR Descriptors) could serve as either a curriculum resource or assessment tool for teachers or learners engaging in self-guided study.

The fact that the WoW environment did not need to be modified to produce the results found implies that this may also be the case when other COTS game worlds are adopted as L2 learning environments. Game-enhanced research can help to identify the embedded affordances of vernacular games and recommend pedagogical enhancements (Reinhardt & Sykes 2014), such as add-ons for vocabulary learning, the use of journaling to focus on language encountered in quests and with NPCs, or instructor scheduling of group play times (Rama et al 2012). In the counterpart study, the impact of the course design on the educative affordances of WoW is addressed.

Finally, multimodal affordances and contributions to L2 learning in MMORPGs need to be researched further so that an embodied understanding of learning can support future research in the more sensorily experienced virtual environments and game worlds that are emerging. The Eco-dialogical, distributed, and situated theoretical framework and methods of analysis employed in this study can contribute a new, necessary approach to studying embodied real-time linguistic interactions and L2 learning.

In terms of limitations, the findings of this study, though based on in-depth multimodal analysis of L2 players actual participation in gameplay, may not match findings in other instances of game-enhanced research with WoW or other MMORPGs even if the same methods are employed. The group dynamics of learners is a powerful variable as became apparent over the

period of this research in which the gameplay of multiple groups were observed and analyzed. Over two semester-long implementations of the WoW course, some groups “gelled” while other groups required a good deal more scaffolding and encouragement and still, did not seem to have as much fun or get along as well as other groups. This is no different than what happens in traditional classrooms.

Another limitation is that gameplay recordings were captured from the perspective of the researcher, so only a portion of L2 learners’ avatar actions could be observed at times. However, with the use of the Skype call, a sense of co-presence was consistently maintained. Zheng (2012) utilized a technique whereby video from the computer screens of multiple L2 learners’ languaging in Second Life was captured and analyzed simultaneously. This approach could be used to reveal a more micro-level scale of languaging interactions, including information about how individual players use game interface features or add ons and to what effect or even to capture and track learners’ patterns of eye gaze and other embodied movements and changes.

Finally, and in a foreshadowing of what is to come, this study did not touch on the affordances for sociocultural and intercultural learning that the L2 players in Group Z exploited during the course. These will be addressed in the counterpart study in which connections to L2 learners’ written coursework will be made, illustrating in part, how L2 learning was distributed in various game related activities.

In conclusion, the findings of Recurrent Languaging Activities in WoW gameplay that afforded a wide range of communicative activities and conversational values realizing are promising and may well inspire other L2 practitioners to bring their students into the exciting and unpredictable world of the game, which could in turn lead to further discoveries of WoW’s affordances for L2TL. However, it is important to be clear that Recurrent Languaging Activities

are relational affordances that depend on players to enact them, they are activities that WoW affords for players who join forces to cooperate and co-act toward shared goals. L2 practitioners will need to create the necessary conditions for their emergence and can still support players in developing the habits of good language learners; i.e. setting goals, noticing patterns and relationships, attending to pragmatics and sociocultural norms, reflecting on experience, experimenting, taking risks, being clear, comprehensive, coherent, complex and ideally, careful of others.

It is hoped that the eco-dialogical, distributed and situated explanation of L2 languaging will resonate with others in the field who want to have a clear rationale for adopting technologies to support L2 learning. It is hoped that the analysis provided here has demonstrated that skilled linguistic action is a valuable construct for rethinking L2 proficiency, which is not found in output or as a result of an instructional intervention such as gameplay, but in the embodied dynamics of gameplay and other languaging activities. A game world such as WoW is not a tool to increase L2 proficiency or provide input, it is an environment for values realizing in situated sense-making activities. L2 learners are agents with abilities, intentions and bodies that are designed to perceive and act as part of dialogical, distributed, complex ecosystems. In co-action with others, they have the power to bring a virtual world to life.

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Appendix A

Common European Framework of Reference Oral Assessment Criteria (Source: Examples of Speaking Performance at CEFR Levels A2 to C2, University of Cambridge ESOL Examinations, Research and Validation Group, April 2009)

Table 5.5: ORAL ASSESSMENT CRITERIA GRID (CEF Table 3)

	RANGE	ACCURACY	FLUENCY	INTERACTION	COHERENCE
C2	Shows great flexibility reformulating ideas in differing linguistic forms to convey finer shades of meaning precisely, to give emphasis, to differentiate and to eliminate ambiguity. Also has a good command of idiomatic expressions and colloquialisms.	Maintains consistent grammatical control of complex language, even while attention is otherwise engaged (e.g. in forward planning, in monitoring others' reactions).	Can express him/herself spontaneously at length with a natural colloquial flow, avoiding or backtracking around any difficulty so smoothly that the interlocutor is hardly aware of it.	Can interact with ease and skill, picking up and using non-verbal and intonational cues apparently effortlessly. Can interweave his/her contribution into the joint discourse with fully natural turntaking, referencing, allusion making etc.	Can create coherent and cohesive discourse making full and appropriate use of a variety of organisational patterns and a wide range of connectors and other cohesive devices.
C1+					
C1	Has a good command of a broad range of language allowing him/her to select a formulation to express him/herself clearly in an appropriate style on a wide range of general, academic, professional or leisure topics without having to restrict what he/she wants to say.	Consistently maintains a high degree of grammatical accuracy; errors are rare, difficult to spot and generally corrected when they do occur.	Can express him/herself fluently and spontaneously, almost effortlessly. Only a conceptually difficult subject can hinder a natural, smooth flow of language.	Can select a suitable phrase from a readily available range of discourse functions to preface his remarks in order to get or to keep the floor and to relate his/her own contributions skilfully to those of other speakers.	Can produce clear, smoothly flowing, well-structured speech, showing controlled use of organisational patterns, connectors and cohesive devices.
B2+					
B2	Has a sufficient range of language to be able to give clear descriptions, express viewpoints on most general topics, without much conspicuous searching for words, using some complex sentence forms to do so.	Shows a relatively high degree of grammatical control. Does not make errors which cause misunderstanding, and can correct most of his/her mistakes.	Can produce stretches of language with a fairly even tempo; although he/she can be hesitant as he or she searches for patterns and expressions, there are few noticeably long pauses.	Can initiate discourse, take his/her turn when appropriate and end conversation when he/she needs to, though he/she may not always do this elegantly. Can help the discussion along on familiar ground confirming comprehension, inviting others in, etc.	Can use a limited number of cohesive devices to link his/her utterances into clear, coherent discourse, though there may be some "jumpiness" in a long contribution.
B1+					
B1	Has enough language to get by, with sufficient vocabulary to express him/herself with some hesitation and circumlocutions on topics such as family, hobbies and interests, work, travel, and current events.	Uses reasonably accurately a repertoire of frequently used "routines" and patterns associated with more predictable situations.	Can keep going comprehensibly, even though pausing for grammatical and lexical planning and repair is very evident, especially in longer stretches of free production.	Can initiate, maintain and close simple face-to-face conversation on topics that are familiar or of personal interest. Can repeat back part of what someone has said to confirm mutual understanding.	Can link a series of shorter, discrete simple elements into a connected, linear sequence of points.
A2+					
A2	Uses basic sentence patterns with memorised phrases, groups of a few words and formulae in order to communicate limited information in simple everyday situations.	Uses some simple structures correctly, but still systematically makes basic mistakes.	Can make him/herself understood in very short utterances, even though pauses, false starts and reformulation are very evident.	Can ask and answer questions and respond to simple statements. Can indicate when he/she is following but is rarely able to understand enough to keep conversation going of his/her own accord.	Can link groups of words with simple connections like "and", "but" and "because".
A1+					
A1	Has a very basic repertoire of words and simple phrases related to personal details and particular concrete situations.	Shows only limited control of a few simple grammatical structures and sentence patterns in a memorised repertoire.	Can manage very short, isolated, mainly pre-packaged utterances, with much pausing to search for expressions, to articulate less familiar words, and to repair communication.	Can ask and answer questions about personal details. Can interact in a simple way but communication is totally dependent on repetition, rephrasing and repair.	Can link words or groups of words with very basic linear connectors like "and" or "then".
Below A1					

Appendix B

Intensive English Program (IEP) Proficiency Scale

1 Nil Proficiency

Speaking- Virtually no proficiency

Aural Comprehension- Virtually no proficiency

Reading and vocabulary- Virtually no proficiency

Writing- Virtually no proficiency

2 Elementary Proficiency

Speaking- Asks and answers questions on daily personal needs and familiar topics with limited vocabulary

Aural Comprehension- Understands simple question and statements on familiar topics if spoken slowly

Reading and Vocabulary- Reads and understands elementary lesson materials

Writing- Writes simple statements and questions

3 Intermediate Proficiency

Speaking- Converses intelligibly in most social situations, but without complete control of structure and pronunciation.

Aural comprehension- Understands most questions, statements and conversations on familiar topics at normal speed; requires occasional restatement.

Reading and Vocabulary- Reads and understands most intermediate lesson materials, narrative texts, and simple expository writing.

Writing- Writes statements and questions on familiar topics with fair control of basic patterns.

4 Minimal Academic Proficiency

Speaking- Participates, effectively, sometimes hesitantly, in social and academic conversations; makes occasional errors in idiom and structure, often obscuring meaning.

Aural Comprehension- Understands most informal questions, statements, and conversations at normal speed; comprehends lectures on familiar topics with some difficulty

Reading and Vocabulary- Reads and understands most expository materials with regular use of an all-English dictionary.

Writing- Has most sentence structure under fair control within familiar and academic areas, with occasional obscurity of meaning

5 Partial Academic Proficiency

Speaking- Participates effectively in social and academic conversations; makes occasional errors in idiom and structure, seldom obscuring meaning.

Aural comprehension- Understands most conversations and lectures on familiar topics at normal speed.

Reading and Vocabulary- Reads and understands general expository materials and texts.

Writing- Writes with ease but with occasional errors and misuse of idioms; has sufficient background for rapid development of control and self-correction.

6 Full Academic Proficiency

Speaking- Speaks naturally with only occasional idiomatic imprecision.

Aural Comprehension- Understands academic and colloquial conversation, and most lectures with no difficulty.

Reading and Vocabulary- Reads and understands most academic material; displays ability to extract salient elements, sometimes with use of dictionary, at somewhat below native speed.

Writing- Writes with occasional errors in idiom at somewhat below native speed; demonstrates good understanding and control of organization or expository/argumentative essay

CHAPTER 3

Study 2: Distributed Language Learning in a World of Warcraft (WoW) Centered Course

Abstract

The dialogical system (Steffensen, 2012) of a World of Warcraft (WoW) gameplay group, comprised of two adult native English speakers and three adult English as a second language learners, became more coordinated over a semester of playing WoW together in a game-centered course. Multimodal analysis of three episodes of gameplay recorded over ten weeks revealed that by engaging in recurrent languaging activities via Skype conference call and embodied by WoW avatars, players became more efficient at planning moves and completing more challenging quests. As they probed the affordances of dialogical arrays (Hodges 2009; 2014), players' co-agency and co-actions meshed as a distributed cognitive system (Hodges, 2014), which balanced the values of facilitating gameplay, making meaning, taking care of others and having fun. Applying the Linguistic Style Match metric (Gonzales et al., 2010), alignment of players' spoken language within and across gameplay episodes was calculated and found to have been higher in episodes of play in which interactions were more smoothly coordinated. This finding lends support to Fusaroli & Tylén's (2012) argument that a dynamical framework can be applied in understanding how in situations of social coordination, global linguistic patterns emerge and stabilize through a process of local reciprocal linguistic alignment. This study also describes how designed features of a game-centered course, including guided discussion and comparative reflection on WoW culture and social values, afforded conversational ease, development of a class community, sociocultural attunement, and for L2 learners in particular, participation in multiple L2 communities of practice.

Introduction

Optimism and dissatisfaction are both motivators for this work. Optimism is about the affordances of emerging technologies for more embodied learning experiences in virtual worlds and digital games. Dissatisfaction is with second language (L2) theories, research and practices that are stuck with a model of cognition in which environments are nothing more than linguistic input. Big questions for the fields of second language teaching and learning (L2TL) and L2 research concern how educators should adapt in order to improve educational outcomes given that there is a new generation of theories from cognitive science to build from (Steffensen, 2012), a new generation of learners whose socialization has been influenced greatly by access to ubiquitous technologies (Gee, 2003; Prensky, 2006), and of course, there are countless new technologies that not only contribute to human efficiency, but provide new environments for enjoyment and learning that can benefit society (McGonigal, 2011).

The following leading questions provide an introduction to this research in terms of where it comes from theoretically, and where it intends to go: How can instructional designers and L2 educators provide affordances for learners' agency, autonomy, creativity and playfulness in learning interactions? How can teachers invite L2 learners into environments that have unique affordances for L2 learning; places that engage co-action, and dynamic *linguaging*, the “concrete bodily–worldly activities we engage in as we communicate” (Steffensen, 2012), through play of games in which virtual situations mirror those in L2 communities and discourses? How can we invite L2 learners to places that are massively and persistently populated with native speakers of English, Spanish, Chinese, Arabic, German, Russian, etc.; places with elaborate (virtual) cultures that can be experienced with others, in real-time and through participation in online communities that extend throughout the world?

Literature that spans a decade (Bryant, 2006; Peterson, 2011; Piirainen-Marsh & Tainio, 2009; Rama, Black et al., 2012; Rankin, Morrison et al., 2009; Reinders & Wattana, 2014, Sylvén & Sundqvist, 2012; Thorne, 2008; Thorne, Fisher & Lu, 2012), including previous studies of the affordances for L2 learning in World of Warcraft (WoW) gameplay (Newgarden, Zheng & Liu, 2015; Zheng, Newgarden & Young, 2012), points to the value of massively multiplayer video games. However, this research suggests that taking a distributed view of cognition and language will lead to course design and pedagogies that can make the most of what different multiplayer digital games and virtual worlds afford. This study illustrates how distributed theories can be applied in understanding how L2 learning is a process that involves relations, it depends on interactions between learners and their environment and the use of available resources. Interacting in the L2 is shown to integrate multiple timescales, e.g., the timescales of WoW gameplay, a semester long course centered on WoW culture and values, and other longer timescales of learners' lives.

Languageing and Affordances for Co-action in Games

Languageing is a term adopted from Distributed Language theories given the purpose of this study, which was to consider the real-time communicative activities of a group of WoW players as they coordinated together in English over Skype and with their avatars in a virtual world, making sense of the game culture, making progress without dying too often, and making time to be playful. In personal communication, Stephen Cowley, a founder of the Distributed Language Group¹, wrote that languageing is “a mode of action that integrates patterns that function in different time-scales: we integrate how we move and feel, with what we hear 'us' -me

¹ See the Distributed Language Group website for further information:
<http://www.psy.herts.ac.uk/dlg/>

and you -saying (and we do so against Discourses).” Discourses with a capital “D” (Gee, 2008) are the conventionalized social practices of a language community that constrain and inform what people say and how they say it. Learners of a second language need to engage in languaging in order to learn the Discourse of the community. The argument made in a counterpart study, herein Study 1, was that recurrent languaging activities that are typical in WoW group gameplay provided affordances for learning L2 behavior, values, customs, and perspectives through the process of learning WoW’s Discourse.

L2 Learning as a Dialogical Process

Languaging is a dialogical activity that depends on human biology (other-oriented brains that neurally mirror the actions of perceived others (Barsalou, 2013) a vocal system, auditory system, visual system, etc.) and socialization that leads infants to take a “language stance” (Cowley, 2011), meaning development of the ability to recognize the words they hear as “virtual objects” that mean something to the people who utter them. Crucially, languaging involves interaction with others that is “sense-saturated” (Steffensen, 2012). In socio-historical terms, languaging is an activity that shapes cultures (and languages) and empowers humans with the means to cooperate, collaborate and co-act in ways that allow for coexistence. As Steffensen (2012) observed:

Because we live together and act together – and because we can take a language stance – we find ourselves living in an historically derived meshwork of interactivity-based co-adaptivity, co-agency, and co-regulation. (p. 8)

Being part of a language community connects us to a socioculture that we depend on for guiding our interactions. The perspective is important to bring to L2 teaching and learning (L2TL) since L2 learners often find themselves in a very unfamiliar “meshwork” as they begin to participate in

new L2 discourse communities. Instead of learning to “use” a language, learners need to learn to live in an L2 environment (van Lier, 2004). It is also important for L2TL to recognize how a written language bias from linguistics (Linell, 2009) has led to approaches that treat language as a code, making L2 learners believe that what they need to learn can be learned without interaction with others. In contrast, this study illustrates how L2 learners playing WoW with others became part of a dialogical system. In languaging as part of a system, learners co-adapted to WoW culture, shared agency in decision-making, and became responsible for caring for each other.

Literature Review

Connection to Previous Work

This study has connection to previous co-authored work that has provoked second language researchers and practitioners to re-conceptualize language as a system for action and values realizing, and to look at experiences of languaging as the means for L2 learners to develop abilities to take skilled linguistic actions (Newgarden et al., 2015; Zheng et al., 2012). Zheng & Newgarden (2012) reported on what now seem like early efforts to teach English and other second language learners in the virtual world of Second Life. A concern the authors expressed at the time was that the affordances of virtual worlds, avatar embodiment, distributed co-action and co-agency to engage in languaging, were not being fully explored in L2 instruction or research that was largely based on information-processing models of cognition. The idea that the main contribution of virtual worlds for L2 learning is to provide a source of rich linguistic “input” is severely impoverished from the perspectives of ecological psychology and distributed cognition. Yet, a more recent review of the literature (see the counterpart to this study for an extended version) more specifically focused on L2TL with digital games, revealed a similar

theoretical trend. Therefore, this study continues to push the agenda of the need for rethinking second language learning in virtual worlds so that understanding of embodied cognition, distributed and situated learning, and ecological values realizing can be applied in design and pedagogies for other technology-supported L2 learning environments, particularly in light of the affordances of emerging virtual reality technologies (e.g., Oculus Rift headset, augmented reality, etc.).

In Zheng et al. (2012), the authors also used the Week 1 WoW gameplay episode from this study as data for a multimodal analysis of players' coordinated language and avatar actions. Several ecological psychology concepts, e.g., values realizing, languaging, skilled linguistic action were introduced and applied in an effort to uncover WoW's affordances for situated, embodied, distributed L2 learning. Voice-enabled group play of WoW was found to have provided a patterned periodicity of a range of communicative activities (e.g., coordinating, negotiating meaning, seeking help, expressing need, locating, apologizing) that developed as players coordinated prototypical WoW activities such as questing, travelling, and doing business in a city. Study 1 reported further evidence of this finding, which is a useful one for instructional design and future research. Zheng et al. (2012) also found that players realized multiple values through joint communicative projects that were oriented to game culture, game goals and rules. The current study found new evidence that WoW culture (defined broadly as features of the game aside from game rules, for example, game lore, the kinds of places and inhabitants found in the virtual world, conventional ways of interacting with other players, etc.) and rules provided affordances, namely as an easy ongoing common ground focus for conversing.

Newgarden et al. (2015) did a follow-up study of the same gameplay WoW data, applying a completely new analysis and extending Hodges's (2007a/b; 2009) theory of

conversing as a system for values realizing. The study adopted Zheng's (2012) Eco-dialogical model as a basis for looking more closely at the relationships between a) players' avatar-embodied, voiced, real-time communicative activities in WoW, b) their skilled coordination of language and action, and c) conversational values realizing of two broad types, wayfinding and orienting to sociocultural norms. Some activities were more predictive of communicative projects in which both types of values were realized. These were interactions in which players coordinated their avatar actions and verbalizations, when they conversed about game rules, and when conversations were prospective (i.e., they enabled players to move forward in a good direction). The current study looks at how gameplay languaging is managed by a *dialogical system* (of members of the same WoW gameplay group over the timeframe of 10 weeks) and also illustrates how L2 learning in WoW gameplay is distributed as players coordinate activities that attune to WoW sociocultural practices, e.g., planning the group's next moves, questing (which is largely about problem solving), learning a skill, etc. The contention is that they learn to take the skilled linguistic actions they need to be able to take in the L2, in other words, the communicative activities practiced in WoW are authentic and relevant to things learners need to do outside the game in other L2 communities.

Coordination, Collaboration and Community Building in Virtual World L2TL Studies

Zheng (2012) studied adult Chinese learners in Second Life, applying a distributed, eco-dialogical theoretical framework and multimodal analysis to answer research questions that bear on the current study. Though Second Life is mostly not a game, Zheng investigated how designed non-linear game-like quests facilitated coordination and caring in learners' conversing to solve problems. Citing Linell (2009), Zheng (2012) emphasized the primacy of the "coordination of interaction over individual agency or sociocultural environment" (p. 13) in

creating the need for languaging. She attributed L2 learners' gradually increasing use of the target language vs. their L1 to the design of "problem spaces" in the virtual environment that generated unexpected opportunities for "self and other caretaking" and for community building relationships to form. Zheng's analysis using communicative project theory (Linell, 2009) provided a distributed account of how learners perceived and acted on the meaning-making resources of the virtual space including its physical layout, written clues in quest texts, resources in their physical space such as dictionaries and sticky notes, and non-local situation-transcending resources, including their own sociocultural histories.

Three additional recent studies have investigated L2 learning in extended communities of practice and are therefore relevant to the current study. Rama, Black, van Es & Warschauer (2012) found that WoW supports and creates a safe environment for learning and languaging, that communicative competence is emphasized in play, and that collaborative action between experts and novices is promoted. Features of the game contributed as well, for example, the use of a guild (the team-like WoW group many players choose to join) and private chat channel to facilitate supportive communication, and group play options that provided contextualized language practice connected with cultural norms. Situated learning (Lave & Wenger, 1991) theory could deepen the authors' explanation of how game-based learning transcends players' here and now by focusing on learners' participation in L2 communities. The current study appears to confirm Rama, Black et al.'s (2012) hypothesis that structured player groupings, such as in a class setting, facilitate player comfort. They further hypothesized that formal groupings would facilitate solicitation of language support; however, in the current study, solicitation of support was only occasional in the three gameplay episodes analyzed.

Ryu (2013) used activity theory (Engestrom, 1987) and computer mediated discourse analysis (CMDA) to study the asynchronous online communications of six adult males who participated in the fan website “Civfanatics.com” for the popular game “Civilization” over ten months. Participants volunteered based on self-identified interest or engagement in second language learning. The study asked how the players participated in the activity of English learning in gameplay and in the online site, what cultural norms governed the activity, what the environment was, who did what and how roles were organized. An overarching question was how participation in gameplay language learning and meta-game language learning are related in learning English through gaming culture. As the author pointed out, there is a need to balance studies of language learning during gameplay with studies of language learning in meta-game activities. In the current study, online course discussions and use of online game resources are considered in relation to L2 learning in gameplay L2.

As Ryu’s (2013) title, “Play to Learn, Learn to Play,” suggests, he found that participants played games to learn English or they learned English to play games. Participants reported 1) situated learning of words and phrases from history and geography through gameplay and 2) that interaction with game characters made the game context more meaningful. They also reported using dictionaries and other people for help, a finding that illustrates distributed learning. Gameplay was found to be “a trigger” for participating in the online community, which was where interactions in English with other players took place. Ryu saw these as allowing for more advanced language practice: "They can learn simple words or phrases related to the game content while playing games. After gameplay, they can participate in the activity of language learning from native or more fluent peers, practicing advanced forms of language such as

sentences or paragraphs" (p. 298)². Ryu found that "Non-native English speakers (NNESs) took temporal roles as teachers/learners through the activities of reading and writing, which were recognized as a good means to learn English" (p. 297).

The conclusion that gameplay and participation in gaming communities together influence L2 learning through "repeated practices and collaborative interactions" (p.286) resonates with conclusions made in the current study and its counterpart, though it seems more ecologically valid to base such a conclusion on at least some actual gameplay data; one shortcoming of Ryu's (2013) study is that the data was limited to participant self-reports.

Chik (2014) took a different multiple case study approach to studying out-of-class English learning with Commercial Off the Shelf (COTs) games and participation in gaming communities by ten undergraduate Chinese gamers at a Hong Kong university over twelve months. Chik's study did include analysis of recorded gameplay sessions, and several other types of data (interviews, blogs, game forum threads), in answering the question of how gamers managed their gameplay for L2 learning.

One finding was that players created "personal L2 learning locations" in several different ways, i.e., by proactively gaming together in English in certain physical locations, by choosing English-language games and by creating translations of in-game texts or paratexts to help other players learn. Like Ryu (2013), Chik found that gamers often took up teaching roles, acting as language advisors and translators and even creating community pedagogical resources. Autonomy was developed as gamers transferred learning strategies from school to learning L2 gaming. Chik (2014) concluded that affordances for gamers to act and interact online provide

² Note that Civilization is not a multiplayer game and the online English activities were reading, writing and listening, but not speaking.

affordances for the development of autonomy in L2 learning. Chik referred to gamers having “a trajectory of L2 gaming practices,” like a gaming career, that could reflect their L2 learning trajectory. Research and instruction can guide this trajectory by pointing to effective use of L2 games and online game communities for autonomous learning.

Research Questions

There were three research questions for this study. The first imagined that L2 learners’ languaging, their coordination of language and actions in English during gameplay, would change over the course of their time playing WoW together with others who shared common course and gameplay goals. Ideally, L2 learners would enjoy playing a multiplayer game and attune to the aspects of L2 socioculture that are reflected in WoW socioculture, becoming a functioning dialogical system that could coordinate action effectively and provide a caring community. Question one is: How does individual L2 learner languaging unfold as players gain experience with WoW and familiarity with group members including English-speaking college students and an instructor? This question is addressed through multimodal analysis using Linell’s (2009) communicative project theory.

The second question asks about agent/environment interactions that opened affordances for L2 learning and community development in the distributed environments of the course. Question two is: What contextual factors contribute to L2 players’ development of sociocultural attunement, attention to linguistic form, meaning and pragmatics, smooth coordination during gameplay, or community-building relationships? This question is addressed through multimodal analysis supplemented by discussion of L2 learner written contributions to online discussions and of key elements of the course design.

The third question tests the theory that linguistic alignment emerges dynamically to support social coordination (Fusaroli & Tylen, 2012). Question three is: To what extent does L2 learner language align with other players' language within each episode and over the timeframe from the first to last episode of gameplay analyzed? This question is addressed using Linguistic Word Count Analysis (LIWC Analysis) software and the Linguistic Style Match (LSM) metric.

Theory

Distributed Cognition and Distributed Language

In a counterpart study, an eco-dialogically framed analysis of WoW gameplay highlighted the affordances for L2 learning that emerged as a group of players engaged in recurrent languaging activities. This study illustrated how the same group of linguistically and culturally diverse WoW players functioned as a dynamic system, linking their own cultures, contexts and histories and as Hutchins (2000) put it, “creating their cognitive powers in part by creating the environments in which they exercise those powers” (p. 9). In other words, this research is concerned with describing how distributed resources; e.g., of the virtual environment of WoW, course-generated discussions, expert WoW players, native English speakers, a Skype connection, spoken language and texts, online game resources, etc. were soft-assembled as players (L2 learners and native English speakers) coordinated to accomplish individual and collective goals.

In what are known as third generation theories of cognitive science, cognition depends on an integrated brain, body and environment system (Steffensen, 2012). In distributed cognition (Hutchins, 1995), a third generation theory which provided the assumptions of this study, humans make use of not just internal skull-bound processes, but embodiment, material artifacts and others in their environment, and language is a critical part of sense-making. Cognition is

distributed across members of social groups, across internal and external resources, and across timescales, so that “the products of earlier events transform the nature of later events” (Hutchins, 2000).

In the distributed view, cognition is beyond what happens in individual minds. To Hutchins (1995), “individual learning is the propagation of some kinds of organization from one part of a complex system to another” (p. 290), which is only partly an internal process. This is so because the society is in mind and mind is in society (Hutchins, 2000). It is repeated patterns of activity enacted in cultural practices that lead to learning, both for individuals and groups. To understand learning in doing, or cognition in the wild, the organization of the larger complex system, including the socio-material environment and histories of the persons in it, has to be considered.

Rather than think about the context of WoW gameplay in terms of providing a source of language input that leads to generation of more or better language output, this study is concerned with what L2 learners did and said, how they interacted with each other and the WoW environment, and following Hutchins (2000), how they “produced and exploited a rich world of cultural structure.” Changes in the dialogical relationship between players and the environment over time, particularly changes reflecting “processes of entrainment, coordination and resonance” are of interest in this research.

Distributed cognition provides a basis for taking a one-system view of the learning in doing in WoW gameplay and coursework by participants in this study. Distributed language theories (Cowley, 2011; Kravchenko, 2009; Love, 2004; Thibault, 2011) provide a basis for conceptualizing language in terms of embodied, culturally-embedded social activity. The

essence of this view is captured eloquently in Stephen Cowley's introduction to his edited volume *Distributed Language* (2011):

Though inseparable from cognition, language unites social action, verbal pattern, meaning and, crucially, real-time understanding. Further, the brain self-organizes as social co-ordination prompts us to individuate. In learning to talk, we speak, monitor the saying, the said and displays of expectations. Contingencies of our lives lead to the flowering of language. To make sense of its complexities, we entwine dialogue with actions and, thus, set off expressions of power and experience of relationships. (p.5).

Experiences with language are central to the formation of “selves.” Abilities to take skilled linguistic actions (Cowley, 2012; Newgarden et al., 2015; Zheng et al., 2012) develop as we learn to pay attention to others and to the social practices that situations demand in order to detect, anticipate and pick up on the good prospects that conversations afford (Hodges, 2007b) for helping us deal with the “contingencies of our lives.” This applies to learning a first, second, third or fourth language.

Though third generation theories of cognition have proliferated for over two decades, monological views still predominate in linguistics and cognitive science. Communication is widely thought of as the transfer of information from one brain to another and language is widely viewed as a fixed, code-like system that is learned via information processing. Distributed Language theories seek to “naturalize” language by demonstrating that it is not a code (Kravchenko, 2007; Love 2004) while emphasizing instead, that it is embodied activity that people do together. This framing of language as real-time activity is called “first-order” in the distributed view (Thibault, 2011). Symbols and grammars constrain the dynamics of our first-

order languaging by arising and functioning over longer timescales of language histories (Raczaszek-Leonardi, 2010). Therefore, they are referred to as “second-order” constructs (Thibault, 2011). In this study, languaging in the first-order sense is the concept adopted to explain how WoW players coordinate verbalizing and avatar movements in gameplay interactions that have visible outcomes. How L2 learners attune to second-order constructs, for example, syntax, spelling or word form, is discussed in relation to the first-order dynamics of languaging, but is not a primary concern of this study.

Dialogical Systems and Values Realizing Dynamics

The participants in this study can be conceptualized as elements of a distributed cognitive system that made use of various virtual and material resources in the environments of the game and course as part of learning. The group of players in each WoW gameplay episode analyzed for this study can also be understood as a dialogical system, which in Steffensen’s (2012) terms is a “system of co-present human beings engaged in interactivity that brings forth situated behavioural coordination” (p. 513). Analysis of languaging by a dialogical system addresses how participants’ sociocultural orientations, intentions and values, Steffensen (2012) calls these “trans-situational dimensions of the dialogue,” are balanced through co-action.

As explained by Steffensen (2012), who adapted Maturana and Varela’s (1987) construct of structural coupling to better describe human interactivity, dialogical systems are self-organizing complex systems with emergent properties, including “a tendency to establish and uphold equilibriums that balance between various, at time opposing, values and tensions” (p. 513). In a shared environment, such as in playing WoW, interlocutors can co-regulate system dynamics in ways that move the system toward balanced multi-stable states that allow for problem-solving and other creative outcomes that are beyond an individual’s reach. What

Steffensen's (2012) theory adds to the enactivist explanation is that beyond autopoiesis (self-reproduction and maintenance), structurally coupled systems in human-to-human interactions seek meaning and distribute agency in sense-making activities.

What kind of jointly accomplished outcomes emerge from the work of dialogical systems? In Steffensen's (2012) study, the integrity of the dialogical system of a new mother and a visiting nurse was preserved by subtle deictic shifts (use of pronouns) and strategic minimal responding during conversation centered on proper care of the infant resting nearby. The system was shown to resolve conflicts of logic created by various "behavioral tendencies" (for example, "the tendency towards eliciting information vs. the tendency to avoid demonstrating lack of knowledge" (p. 524)) that surfaced in discourse. Tendencies were connected to values relevant to the social systems of family and professional health care. The emergent outcome in this case was the system's ability to balance values that were in tension by careful and adaptive management of languaging.

Steffensen (2012) proposed that "psychodynamic energy," that is taken to vary over the course of dialog, may be the possible order parameter³ of a dialogical system and defined it in terms of the level of "care, trust, compassion, and empathy among the participants" (p.525), where more energy allows for more variability of behavior and more states in which the system can coexist. This hypothesis relates directly to the importance of the development of community in L2 learning environments, which according to Steffensen's dialogical system theory, is the result of values-realizing dynamics. It was useful to consider the ebb and flow of

³ As Steffensen (2012) explained, the order parameter of a self-organizing system is a measure of how far the system is from a state of equilibrium. In a dialogical system, equilibrium would be reached when interaction ceased, as with an irreconcilable disagreement.

“psychodynamic energy” of players in and across the WoW gameplay episodes analyzed for this study and to connect changing levels to players’ values realizing.

Briefly, values-realizing theory (Hodges and Baron, 1992, Hodges, 2007a/b; 2009). is based on Gibson’s (1979) ecological psychology, in which cognition entails direct perception “of the meaning and values of things.” An agent perceives affordances, which are potentials for acting on what the environment offers. Importantly, affordances are value-laden (Hodges, 2007a), they have consequences taught by experience. For an example from WoW, an affordance of the game is to play alone. This can allow for total freedom in deciding where to go (the value of autonomy) and more individual experience gained in fighting enemies (the value of self-sufficiency). However, it quickly becomes clear that being a lone player may result in getting killed repeatedly by other higher level players (e.g., getting “ganked”) or needing to spend much more time completing quests than one would like (e.g., lots of “grinding”), and then deciding to play alone or not becomes a matter of prioritizing certain values over others.

Obviously, in many situations outside a virtual game world, the consequences of actions may be more serious, but the dynamics of perceiving and acting, constrained by ecosystem values (Hodges, 2009), are the same. Values are what we are after in life, they are the goods we seek in all our actions, including in conversing (Hodges, 2009). Therefore, they are the fuel for creating the dialogical systems we are part of while also determining whether these systems are sustained or not, whether they are meaningful, and whether or not they help us move toward our goals.

To understand conversational values realizing, it is necessary to understand conversing as a physical activity that involves pragmatics, i.e., how things are said, which words are used, the tone of voice, volume, gestures, eye gaze, posture, etc., it is “how our speaking and listening are

shaped to be *caring* and *careful*” (p.101, Hodges, 2014). As with other actions, the way we converse is defined by values. There are certain values that define good conversations, namely, clarity, coherence, comprehensiveness and complexity (Hodges and Baron, 1992; Hodges, 2009). These were a focus of analysis in Study 1, which found that players picked up affordances for these four values in relation to their level of proficiency in speaking.

Conversing as values-realizing activity has also been explained in broader terms that are important for a dialogical, distributed analysis. As an alternative to views of language as a cognitive system, Hodges (2009) suggested that conversing provides for human wayfinding in three distinct ways:

(1) Conversing as a perceptual system for exploring dialogical arrays (Hodges, 2007a); (2) conversing as an action system for integrating diverse space-time scales (Van Orden, 2007); and (3) conversing as a caring system for embodying the context-sensitivity and interdependency necessary to realize values (Hodges, 2007b). (p. 628)

Each of these dynamic systems may be at play simultaneously in languaging during WoW gameplay, as in other situations of conversing, therefore understanding the basic ideas from each supports understanding the ecologically-framed questions, methods and findings of this study.

Hodges’s term “dialogical arrays” (2007a, 2014) relates to Gibson’s (1979) term “ambient optical array,” a key principle of his theory of ecological optics. An ambient optical array is an unbounded field of environing visual information from a point of observation. In comparison, a dialogical array (Hodges, 2014) is an environing field of potential for listening and speaking, or “the distribution of other speaking bodies around oneself, that can reveal some information about what they have felt, seen, heard, smelled, and tasted, including what they have

done and to what effect” (p. 98). In postulating conversing as a perceptual system for exploring dialogical arrays, Hodges (2007a) stressed how conversing agents actively probe available information to find “good prospects” in the array for directing their “ongoing actions” (2009), or in other words, to uncover affordances for learning and co-action (Hodges, 2014).

Another way conversing “extends the human ecology” (Hodges, 2009; 2014; Steffensen, 2011) is by allowing for context-sensitive linguistic performances, i.e., interaction-dominant dynamics (van Orden, Holden & Turvey, 2005) in dialogical systems. This means that languaging is flexible activity that is made possible by soft-assembled integration of contributions from local and non-local cognitive resources, e.g., from the brain, body, sociocultural practices (or *situation transcending practices* which will be further explained), second order rules, and demands and constraints of the current situation.

Hodges (2014) emphasized the importance of context-sensitivity in framing conversing as a caring system. Enacting values-realizing conversations that facilitate wayfinding requires more than rule following, it requires alterity and “*thinking* about what we say, or about what another means” (p. 646, Hodges, 2009). Participants have to make an effort to serve the values that are important to preserving the dialogical system, which are the values that open further affordances for performatory and exploratory activities. Therefore, being caring and careful of others is the effortful work (being “anxious and attentive, meticulous and prudent, in assessing and addressing a situation” (p. 642, Hodges, 2009)) that is at the core of the interaction-dominant dynamics of a good conversation or a “healthy” dialogical system.

Caring about Situation Transcending Practices

One of the ways members of a dialogical system demonstrate being careful is by attuning to or following the conventions and routines of the social systems in which they are embedded.

Applying Linell's (2009) term, situation-transcending practices (STPs) are holistic, cross-situational pragmatics for recurring situation types; they are "sociocultural praxis." In dialog, we orient to both what is here and now, what we are saying and hearing others say, as well as to STPs that inform and direct us in whatever it is we are trying to accomplish. Being proficient in a language requires attunement to STPs, which in the Eco-dialogical model (Zheng, 2012), is accomplished as a perceiving and acting L2 learner engages in languaging over time, gaining sufficient experience across situations to pick up on non-local information (e.g., what is normally said and done) that constrains and shapes the dynamics of situated interactions.

In this study, it is assumed that L2 learners and native English speakers become further attuned to STPs that constrain L2 languaging by engaging in prototypical interactions in WoW. These were referred to as Recurrent Languaging Activities in the counterpart study, in which they were correlated with communicative activities that describe L2 speaking proficiencies (as in the Common European Framework of Reference)). In the context of WoW gameplay, attuning to STPs is considered to be an emergent process, but the design of the course also promoted attunement by calling attention to the cultural norms and social values of WoW culture.

Linguistic Alignment and Dialogical Success

The dynamics of first-order languaging have just been described, but questions about how they shape and are shaped by dialogical systems remain. What are the dynamics that make a dialogical system successful? The fact is that conversing well does not always come easily. Hodges (2009) aptly captured the frustration of making ourselves understood in our first language, never mind in a second or third.

Conversing with others always yields a kind of suffering: As we engage

in conversations over time, we come to realize that no matter how hard we work, we cannot be completely clear, coherent, comprehensive, and complex all at once (p. 648). Since meanings are not fixed, there is really no “perfect” understanding of each other. Furthermore, in attempting to balance conversational values, parties to dialog may address both what is said and what isn’t said, adding to the potential for miscommunication. Although Hodges (2009) emphasized that creativity rather than conformity is what conversational values realizing requires, L2 learners do need to pay attention to linguistic norms and conventions sufficiently to be understood and to understand others. Whether to call this a process of conforming or linguistic alignment is not certain, and each term may apply to different situations, for example, in the situation of coordinating the goal-driven activities of a group.

In this study, the question of whether the linguistic style of WoW players became more similar to each other over repeated episodes of gameplay, is asked in relation to the theory that language is for social coordination, and speakers adapt their languaging to facilitate the accomplishment of joint goals. As reported by Fusaroli and Tylen (2012) who investigated the coordinative role of language from a dynamic system perspective, linguistic alignment was found to predict “dialogical success” (p. 110) for interlocutor dyads engaged in speed dating (Ireland et al. 2011), joint information search (Gonzalez, Hancock and Pennebaker, 2010), and hostage negotiation (Taylor & Thomas, 2008). The question of whether it would coincide with successful gameplay for a group of WoW players was pursued as means of complementing the questions and findings from the qualitative analysis.

Methods

Data from the WoW course

The data for this study included four episodes of recorded audio and video gameplay of WoW by four L2 learners an NES undergrad and an instructor, participants' written contributions to online discussions, and their final essays. The gameplay and writing were required elements of a semester-long college course I designed and taught. The course brought together L2 (English) learners who were students in a university Intensive English Program (IEP) and college freshman who took the course as a one-credit First Year Experience (FYE) course. FYE courses are intended to provide freshman with opportunities to foster connections with peers, faculty members, and others in the university community through study in small seminar settings where learning is active, experiential and collaborative. I built a Service Learning component into the course for the English-speaking freshmen, who understood their participation as facilitating conversational English practice and serving as a source of U.S. and WoW cultural expertise for the L2 participants. It turned out that the majority of the undergraduate students who took the course were very experienced WoW players, so they also served as WoW gameplay and culture experts.

The objectives of the course were threefold: 1) to facilitate conversational interaction between L2 learners and native English speakers, 2) to provide freshman students with an opportunity for Service Learning and collaboration with international students and 3) to engage all learners in exploration of a “neutral” culture, the culture of WoW, through investigation of the social values that define gameplay and meta-game activities (i.e., participating in online WoW knowledge forums and other fan communities). A desired learning outcome was that students would consider the social values of their own and other cultures comparatively and

reflect on and/or clarify their personal values. The written discussion of WoW and other cultures' social values took place through the online course components. A wiki was used for the first half of the course, but to better facilitate threaded discussions, I switched to a course management system (a Blackboard-type course) for the second half of the course. In the syllabus, I detailed the particular social values to be considered each week (i.e., Learning and Education, Relationships, Responsibilities, Money and Possessions, Power and Status, Competition, Work, Appearance and Achievement) as well as expectations for students to contribute to a glossary of WoW terms on the course wiki and to participate in weekly group gameplay.

During the first weeks of the course, students met face-to-face and I created groups of four or five players such that L2 learners and native English speakers were mixed within each group. I also made an effort to combine more and less experienced WoW players. The required group gameplay time was scheduled as a weekly one-hour session. Students were encouraged to play WoW independently outside of the scheduled play time with the instructor. To facilitate community building and support new players, I required all students to join the same guild, Twilight Hope, which enabled players to track each other's presence and whereabouts in the game, to communicate via text chat in a private guild-only channel, and to access resources and gold stored in the guild's bank inventory. Gameplay was intended to provide opportunities for spoken conversation for the L2 learners, therefore, I required all players to connect via Skype conference call during scheduled play sessions in which I participated. I recorded most of the weekly one-hour sessions of four groups using iShowU software.

Data selection. The research plan was to investigate L2 language learner development longitudinally. Since L2 learners and NESs played in mixed groups (there were four groups of

four or five players each), I looked for a gameplay data set from a group with three gameplay episodes representing beginning, middle and end (approximate) of the course, and at least two L2 learners (which ruled out one group).

Gameplay was recorded over a period of twelve weeks, however there was a lot of missing data within each group due to recording problems, Skype call breakdowns, and/or missing group members, who were sometimes L2 learners. The data for four groups included twenty eight total recorded group sessions, with from six to ten recordings for each group for the period of weeks one to twelve of the course; however, missing data deselected certain groups for the desired time series. Group Z (a pseudonym), was chosen primarily because gameplay data for this group met most of the criteria above, and allowed for analysis of play by two or more L2 players over the longest timespan.

I selected a set of three gameplay episodes for Group Z, for multimodal analysis of video, audio and text. These were out of a total of six episodes of Group Z play from weeks 1, 2, 8, 9, 10 and 12 of the course. The selected episodes represent weeks 1, 8 and 10. Week 12 was the final week of gameplay, but only two Group Z players were present, so it was not analyzed, and weeks 2 and 9 had gaps in either audio or video due to technical problems.

It is important to note that the Week 10 episode including players Gwo, Lov, Zeus and Jil (WoW avatar nicknames are used to identify participants) was actually the second half of a longer (over two hour) episode, in which the first half included Danja, so it included all four members of Group Z. The two halves of Week 10, (10a and 10b) represented significantly different levels and situations of play to the extent that I felt justified in treating them as separate episodes. I transcribed the first half of Week 10 (Week 10a) and included it in the Linguistic

Inquiry and Word Count (LIWC) analysis (described in the following section) along with 10b as a separate episode since each included a different group of players.

In addition, I transcribed a fifth gameplay episode representing Week 2 and included it in the LIWC analysis. The Week 2 episode included Gwo, Danja, Zeus and Jil but not Lov. Due to a recording error, video for the last portion of gameplay was not captured; however, the audio of the Skype call was captured in full, so transcription of language, but not avatar action, was possible. Therefore, I did not select the episode for the multimodal discourse analysis, but it was acceptable for the LIWC analysis, which only requires a transcript of dialog, not actions as did the multimodal analysis. I limited data from participants' written course contributions to players who were present in the Group Z episodes.

Participants. Gwo and Lov were the two L2 learner participants in Group Z who were represented in all three gameplay episodes I used for multimodal discourse analysis. Danja, a third L2 player, was present in only one of the episodes. Zeus and/or Phail (short for Phailboat) was the college freshman who was present in two of three episodes and I was present in all three episodes as the avatar named Jil. Sev, an L2 learner who was not a member of Group Z, played in the first gameplay episode, which was not really a scheduled session for the group. Table 1 summarizes information about participants' presence in the three gameplay episodes, their country and native language, L2 proficiency level (based on assessment by IEP teachers using an IEP internally-established scale) and student status. Gwo's status deserves clarification. He had been a student in the IEP, but had matriculated as a college freshman the semester prior to him taking the WoW course. In this study, I considered him as an L2 learner, albeit one who had reached an advanced level of proficiency.

Table 1.

Player Information

Player	Country	Native language	L2 proficiency level	Group Z member	Status in course
Gwo (dwarf warrior)	Saudi Arabia	Arabic	Advanced	Yes	Undergrad and IEP alum
Lov (dwarf priest)	China	Chinese	Low intermediate	Yes	IEP student
Danja (human warlock)	Spain	Spanish	High intermediate	Yes	IEP student
Sev (human warrior)	Turkey	Turkish	High Intermediate	No	IEP student
Zeus(dwarf warrior) aka Phail (human priest)	USA	English	NES	Yes	Undergrad
Jil (dwarf rogue)	USA	English	NES	Yes	Instructor

Multimodal Analysis of Gameplay Discourse

I employed multimodal analysis using Transana (Woods & Fassnacht, 2012) video analysis software to explore the gameplay data to the extent that players' language (spoken and to a limited extent, text chat) and avatar actions were recorded. Applying dialogical principles and Communicative Project Theory (Linell, 2009), I parsed transcripts in terms of communicative projects (CPs). In a CP, conversing with or without associated avatar action centers on a task that is coordinated by two or more individuals. Each CP, the unit of analysis for this study, includes a video/audio clip with an associated language transcript and avatar action transcript. A minimal CP includes three interacts as follows: an initiation by a player A, a response by a player B, and a response by player A.

Using open coding, I identified general gameplay activities and various types of communicative activities (CAs). Next, I established keywords based on recurring gameplay

activities. I identified three main types of CAs (meaning making, facilitating gameplay and taking care of others' needs) and with axial coding, assigned each CP to one or more of these types. Building from previous research that took an Eco-dialogical approach (Newgarden et al., 2015; Zheng et al., 2012), I established four keyword categories: sociocultural values realizing, conversational values realizing, languaging modes, and types of coordination. I also coded individual players' utterances for initiation of CPs and for responding to others (one or more times) within a CP. I coded individual players' initiation of one of the three main types of CAs: meaning making, facilitating gameplay and taking care of others' needs. In all, I coded seven categories of keywords for each CP (see Table 2 Keywords and Definitions). A colleague familiar with EDD constructs (Dongping Zheng, Ph.D.) coded ten percent of all CPs from each episode and intercoder agreement of 80% was reached.

Table 2

Keywords and Definitions

<p>Keyword Categories and Definitions</p> <p>I. Recurrent Languaging Activities: Each CP was coded with none, one or more.</p> <p>City Activities: Taking care of self (repairing gear), or taking care of business (turning in a quest, finding a <u>flightpath</u>, buying or selling items) in a <u>WoW</u> town or city</p> <p>Learning a skill: Combining language and action to learn about and improve with some game skill (e.g., First Aid, using Add <u>ons</u>, using game interface features, etc.)</p> <p>Planning next moves: Talking about what players should do next in terms of a quest, another spirited activity, or a move to another location</p> <p>Playing around: Deliberately being humorous and playful with language and/or <u>toons</u> (avatars)</p> <p>Questing: Coordinating to complete the objectives (killing, acquiring some items, talking to an NPC, etc.) of a quest, whether shared by all players or not.</p> <p>Random fighting: Non-quest fighting as a group</p> <p>Talking about a past gaming experience: Telling others about something that happened during gameplay at an earlier time</p> <p>Talking about future play: Making plans for a future session of play or quest that is not yet available to players because of their levels.</p> <p>Traveling: Moving from location to another as a group</p>
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Table 2 (Cont.)

II. Communicative Activities: Coded for each CP with name of player who initiated the CP and one or more of the three broad types below. (Ex: <u>Danja</u> – Facilitating, Others' needs)		
1. Attending to others' needs (or Others' needs) - <u>greeting</u> or taking leave - <u>checking</u> others' progress - <u>checking</u> others' health - <u>apologizing</u> - <u>expressing</u> disappointment - <u>making</u> a joke - <u>giving</u> support - <u>warning</u> others	2. Facilitating gameplay - <u>suggesting</u> a move - <u>directing</u> others - <u>reporting</u> on status - <u>reporting</u> on loot - <u>asking</u> for help	3. Meaning-making - <u>sharing</u> about a game experience - <u>explaining</u> how to do something - <u>asking</u> about meaning - <u>explaining</u> the meaning of something - <u>clarifying</u> - <u>confirming</u> - <u>asking</u> about game strategy or rules - <u>explaining</u> game strategy or rules - <u>pointing</u> out things in the environment
III. Initiation/Response: Each CP coded with name of initiating player, and with names of players who responded within the CP (one response per player only in each CP was coded) Example of coding of a CP: CP#1: (Initiation – <u>Gwo</u> , Response – <u>Jil</u> , Response – <u>Danja</u> , Response – <u>Lov</u> , Response – <u>Gwo</u>)		
IV. Language Modes: Each CP was coded for one of the following four types: Movement only (no verbalizing, just avatar movement) Verbalizing only (verbalizing with no avatar movement) Verbalizing and Movement coordinated (verbalizing and movement are toward same goal) Multitasking (verbalizing and movement are toward different goals)		
V. Type of coordination: Each CP coded for one or more of the following: Common ground alignment: Joint attending to objects or referents in the virtual and/or real world Prospective: Verbalizing or acting to invite others to move forward Co-action: Verbalizing/acting in coordination to accomplish a mutual goal that requires the other's resources		
VI. Sociocultural values: Orienting to "we/one", the conventions and routines of a <u>socioculture</u> (<u>WoW</u> , English, U.S.). Coded for each CP, either none, one or more: English rules: orienting to linguistic rules or conventions Sharing about daily life: Telling others about an event or activity in one's daily life that is not game related US culture: orienting to some aspect of US culture WoW culture: orienting to features of <u>WoW</u> culture aside from rules for play WoW game interface features: orienting to interface features of the game WoW rules: orienting to <u>WoW</u> game rules		

Table 2 (Cont.)

<p>VII. Values of Conversing: Coded for each CP for each player who participates. <u>One or more possible for each player.</u> (Ex: CP#1: caring – <u>Danja</u>, coherence – <u>Gwo</u>, comprehensiveness – <u>Jil</u>, comprehensiveness – Zeus, complexity – <u>Lov</u>)</p> <p><u>caring</u>: demonstrating concern, empathy, or sympathy for another</p> <p><u>clarity</u>: concerned with being grammatical, pronouncing words and sounds clearly, and being comprehensible</p> <p><u>comprehensiveness</u>: concerned with providing enough detail to disambiguate what is being talked about</p> <p><u>coherence</u>: relating to what the other said, particularly by making use of cohesive devices</p> <p><u>complexity</u>: being playful or creative with language to add interest or enjoyment for the speaker or listener</p>

Following coding of each episode, I created Transana keyword visualizations according to questions related to specific keyword combinations. I then explored patterns of players' languaging within and across the three episodes to answer the first two research questions: 1) How does individual L2 learner languaging unfold as players gain experience with WoW and familiarity with group members including English-speaking college students and an instructor and 2) What contextual factors contribute to L2 players' development of sociocultural attunement, attention to linguistic form, meaning and pragmatics, smooth coordination during gameplay, or community-building relationships?

I included excerpts from players' written course contributions to provide greater depth and validity to observations of players' engagement with WoW, L2 learning, and overall experience in the WoW course.

Linguistic Style Match Analysis

I used Linguistic Inquiry and Word Count (LIWC2007) software (Pennebaker, Chung, Ireland, Gonzales and Booth, 2007) to address the final research question of the extent to which L2 learner language aligned with other players' language within each episode and over the

timeframe from the first to last episode of gameplay analyzed. LIWC2007 is designed to evaluate both spoken and written text against an internal dictionary that is composed of more than 4,500 words and word stems belonging multiply to linguistic, psychological, personal concern and paralinguistic categories. Words in transcribed texts are counted and categorized with output providing an indication of quantity and percentage out of total words for each category.

A metric called Linguistic Style Match (LSM) was developed and applied by Gonzales et al. (2010), in a study that established that LSM measures successfully predicted group cohesiveness, coordination and effective task performance. The LSM, which uses an algorithm to “automatically assess mimicry in language,” measures the degree to which two or more group participants in a conversation produce function words at similar rates. As the authors explained, function words are a kind of “syntactic backbone” of dialogue, with only about 400 words making up more than half of our vocabulary in daily speech. They are context independent and produced “nonconsciously” (Gonzales et al., 2010, p. 5).

Following Gonzales et al.’s (2010) method, I obtained a score for each player using the LIWC2007 software to measure nine function-word categories: auxiliary verbs (e.g., to be, to have), articles (e.g., an, the), common adverbs (e.g., hardly, often), personal pronouns (e.g., I, they, we), indefinite pronouns (e.g., it, those), prepositions (e.g., for, after, with), negations (e.g., not, never), conjunctions (e.g., and, but), and quantifiers (e.g., many, few). I compared each player’s score with each other player’s score for each of the nine categories. Next, I divided the absolute value of the difference between two speakers by the total for each category. The LSM score was between 0 and 1, with scores closest to 1 reflecting high degrees of style matching.

Taking Gonzales et al.'s (2010) example, in the case of comparing the percentage of personal pronouns (pp) between Persons 1 and 2, the calculation was as follows:

$$ppLSM = 1 (|pp1 - pp2|/(pp1 + pp2))$$

I calculated An LSM value for the group for each episode of play using Gonzales et al.'s (2010) method of comparing each player's language with an overall percentage of all other group members. For each of the nine types of function words (in this example, a group value for personal pronouns (pp) is derived), I made the following calculations for each player (here four players are assumed):

$$pp1 = 1 (|pp1 - ppG|/(pp1 + ppG)),$$

$$pp2 = 1 (|pp2 - ppG|/(pp2 + ppG)),$$

$$pp3 = 1 (|pp3 - ppG|/(pp3 + ppG)),$$

$$pp4 = 1 (|pp4 - ppG|/(pp4 + ppG)),$$

resulting in

$$\text{Group } ppLSM = (pp1 + pp2 + pp3 + pp4)/4$$

where ppG is the percentage of personal pronoun use of the remaining group members determined by taking their total number of personal pronouns and dividing it by their total word count. I averaged the nine group calculations, mean LSM group scores, to give the total LSM group score. These scores were compared across five episodes of gameplay to determine whether or not the LSM group score became closer to 1 as players gained experience with each other and the game over time. I also addressed the question of whether scores reflected smooth coordination or perhaps a lack of coordination in WoW gameplay by comparing scores with a qualitative assessment of the coordination in languaging and action in each gameplay episode

based on visualizations of gameplay activities and the evidence in video/audio recordings of what players accomplished in terms of gameplay as a group.

Analysis and Findings

Languaging Patterns Shaped the Dialogical System

Answering the first research question, “How does individual L2 learner languaging unfold as players gain experience with WoW and familiarity with group members including English-speaking college students and an instructor” proved difficult because communicative projects, the unit of analysis, are jointly achieved. However, one way to look at players’ individual languaging was to look at their initiation of communicative projects (CPs) and response in CPs initiated by others. The question became, “How is initiating and responding in CPs distributed among all players in a dialogical system?”

In Figure 1 below, player initiation and response is shown as a percentage of total CPs in an episode (Week 1, N= 86, Week 8, N =97, Week 10 N = 109). Some individual player patterns were consistent across episodes. For example, Gwo consistently initiated more than any other player, whether L2 learner or native speaker, and Lov was consistently less verbal than all other players. Jil (instructor) also consistently responded more than she initiated. The more advanced L2 learners, Gwo and Sev, did initiate and respond more often than less advanced Danja and the lowest level student, Lov. Note that in Figure 1, the pink circle on the left encompasses player initiations, while the blue circle encompasses player responses in CPs.

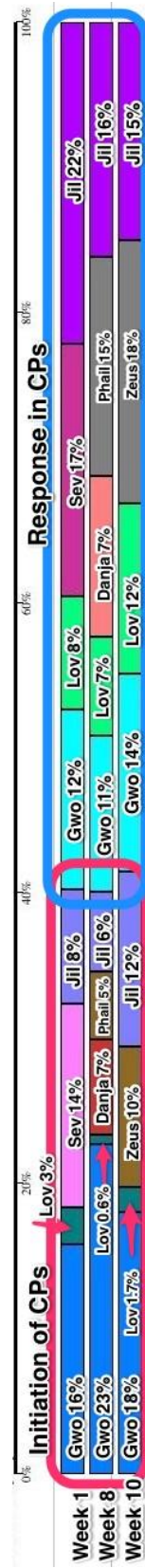


Figure 1. Player initiation and response as percentage of total communicative projects.

But the next question to arise was whether higher rates of initiation and response by L2 learners mean that they learned more or progressed more quickly. That question related to individual learning was beyond the scope of this analysis, but it was possible to consider how players' different initiation and response patterns revealed different engagement, values realizing, and contributions to successful performances of the dialogical system. To do so, it was necessary to consider players' changing goals and roles based on how they materialized in verbalizations and avatar actions. Looking at only initiation and response gives a picture of imbalance and could lead to the conclusion that WoW was a more productive environment for the L2 learners who could already communicate well. However, when the avatar-embodied aspect of languaging is taken into account, players' moves in initiating and responding in CPs can be seen as adaptive, complementary, and toward collective aims.

In Week 1, Jil's responsiveness (22% of CPs) was a predominant verbal activity that sustained group play over time and scaffolded English learning. This makes sense given her role as instructor of the course and the fact that as the highest level WoW player at the time, she was providing a lot of guidance in the game during the first week, more so to Sev and Gwo, since Lov had more experience with WoW. Jil's initiation of CPs (8%) is about half as high as for Gwo (16%) or Sev (14%). This is attributed to Jil's teaching style of letting L2 learners lead conversations when they are able and willing. Gwo and Sev were both confident English speakers and both were highly engaged in the goals of gameplay. They were both eager to level up their avatars, so they had a lot of questions about WoW and some interesting stories to tell about their first encounters in WoW, which they had had while playing on their own over the first week of the course.

Lov's verbal interactions were markedly lower than other players (his highest initiation rate was just 3% of all CPs in the three episodes analyzed covering 10 weeks), but Lov's actions during coordinated group gameplay showed that he comprehended what was going on, what he was expected to do and where he needed to be. He was consistently playful with his avatar, jumping, casting spells, and joking around. What's more, he chose to play as a healer, so he continually avoided being killed so that he could be available to heal the others in the group as they took damage from fighting foes. This required him to follow conversations closely and anticipate other players' moves. Lov was therefore, highly tuned in as a listener and a tracker of group activity, which opened affordances for him to contribute to the overall performance of the group in Week 1.

Though each game task during Week 1 took time and many inefficient moves were made, the group was able to coordinate to accomplish several collective WoW goals: finishing a quest, traveling across a dangerous area, and learning how to do some important routine tasks in a WoW city. They also satisfied the course requirement of putting in some time to learn the basics of the game. While learning and playing, they enjoyed some laughs and got to know each other better.

In Week 8, Gwo's initiation (23% of CPs) was the most salient type of individual player participation. In this week, Gwo was particularly active in his self-appointed roles as Danja's WoW coach and Lov's social coach. Danja seemed to be engaged in gameplay during this week as well as during other gameplay sessions. In spite of her lower level, she was able to keep up with the action (she did get separated from the others once in this episode, but she was able to get help with locating them and returning to their side). She did not choose to play WoW outside of the required class time and therefore her avatar level remained the lowest of any student in the

course. However, in her writing for the course, she indicated interest and enjoyment of the role-playing affordances of the game and attunement to sociocultural features of the WoW culture. This is discussed in the second research question findings below. Her languaging reflected that she was careful of and for her human warlock avatar, and of her minion (a warlock's pet that provides support in combat).

Danja's verbal participation in Week 8 was consistent with other episodes of play, with more responding in CPs vs. initiating them. Group play naturally evolved so that it was centered on doing her quests. Group Z supported Danja as the lowest level player by playing at her level, staying in low level areas of the game world rather than leaving her behind to fend for herself and moving on to more exciting challenges in unexplored areas. Danja therefore needed to communicate about quest items she had to obtain and where they were, and which specific foes had to be killed in order to collect the loot they carried that was needed to complete a quest.

Danja seemed comfortable asking Phail, the undergrad student, directly for help since he was known to be an expert WoW player. Phail took a similar stance to Jil's, trying to let the L2 learners lead the conversations and the gameplay. This could explain why Phail and Jil's levels of initiating and responding are very similar for this episode. It is important to note also that Danja was very comfortable with Gwo and Lov, both former classmates, so she was not afraid to admit her lack of skill with WoW and ask them for help.

Lov continued to be active in gameplay in Week 8, supporting other group members by being a healer. He repeatedly brought Danja back to life when she died after fighting on her own. He was very quiet at times, which led to him being chided by Gwo, who encouraged him to speak up, join the conversation, and be more verbal in general. The accomplishments of the dialogical system in Week 8 were to play together as a group for a full hour, completing several

of Danja's quests with everyone helping out, to plan next moves efficiently between quests, taking several time outs to be playful in the virtual space, and to share gameplay knowledge about gaining skills such as First Aid or some of the professions in WoW that players can train in.

In Week 10, when participation was most equally distributed (see Figure 1), Zeus's responsiveness (18% of CPs) and Gwo's initiations (18% of CPs) were almost equally prominent in the dynamics. This is partly due to the fact that during the second part of this episode, they were each leading a partner in a different quest, so the group was split up in two locations. The needs of their partners were different though, i.e., Jil asked Zeus for support in coordinating to complete a challenging quest (leading to his responsiveness), while Gwo needed to understand what Lov was trying to do (leading to his initiation) to help him and to advise him.

Jil's role during the pair questing was shaped more by gameplay values realizing than instructor values realizing (she prioritized gameplay progress over teaching) and her initiation of CPs was the highest of the three weeks because of the more challenging level of questing she was engaged in (killing a group of ogres in a cave with just Zeus). In this episode, Lov tried (and succeeded) in charting the course of play on several occasions, which indicated his sustained engagement and agency in gameplay, in that he was confident in making a suggestion, even directly to Zeus, the NES. Key accomplishments of the dialogical system in Week 10 were to coordinate queuing for a dungeon and recover when this was unsuccessful, to plan next moves efficiently between multiple quests and find each other after traveling separately, and to split up and still maintain communication throughout a period of pair questing.

This detailed description of gameplay is meant to reveal that languaging dynamics are subject to group dynamics, which are shaped by familiarity, shared goals, social coordination, and values realizing that cuts across multiple timescales of players' lives.

WoW Culture and Rules: Constraints and Conversational Affordances

Moving to the second research question, "How do contextual factors contribute to L2 players' development of sociocultural attunement, attention to linguistic form, meaning and pragmatics, smooth coordination during gameplay, or community-building relationships?" the first finding is that the WoW game culture and WoW rules provided an ongoing focus for conversing. As seen in Figure 2, there were a very high number of CPs in each episode of play (29% in Week 1, 49% in Week 8, 41% in Week 10) in which players oriented to WoW culture, defined broadly as features of WoW aside from game rules, and oriented to WoW rules (39% in Week 1, 31% in Week 8 and 34% in Week 10). Learning the game interface also provided a significant focus for CPs. In comparison, just a small percentage of total CPs focused on some aspect of U.S. culture, a grammar rule or vocabulary term. Sharing about things happening in players' daily lives was also a small percentage of conversations, but even so, the co-presence on the Skype conference call allowed players to pick up on each other's very different physical environments; an undergraduate dorm, the university library, an apartment or a family home, in ways that made it natural to sometimes talk about things happening outside the game.

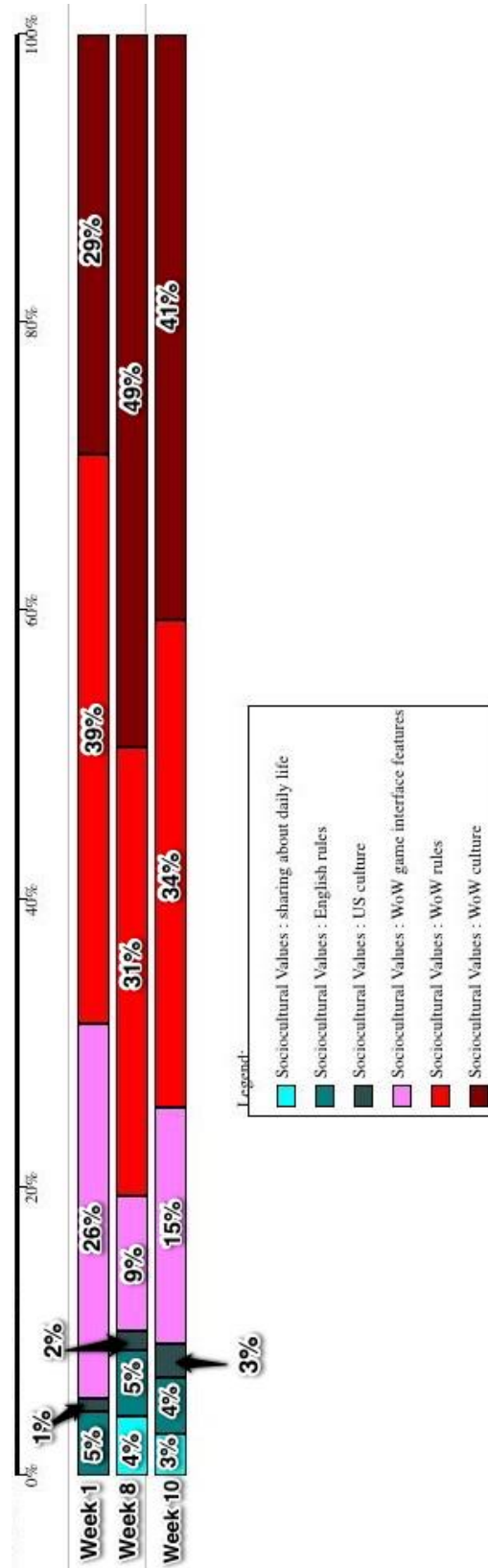


Figure 2. Sociocultural values realizing across three episodes of gameplay.

The finding of so many CPs focusing on WoW rules and culture is not surprising considering several players were new to the game and were therefore asking a lot of questions and getting a lot of instruction and advice. Most CPs centered on what players were doing, perceiving, trying to obtain, where they had to go, how they could do things, and what they needed help with. WoW culture and game rules gave the players something to talk about from the start and continuously, since a course goal was to learn about and discuss the game culture. Although the L2s in Group Z knew each other, the NES Zeus was a stranger, and Jil, the instructor, had not previously taught any of the L2 players or had much contact with them. Therefore, for conversation to flow, as it did, it was critical to have some common ground to talk about.

CPs about game culture peaked in Week 8 at about 50% of total CPs. An explanation is that during this week, Learning a Skill was a more frequent recurrent languaging activity than during other weeks. See Figure 3.

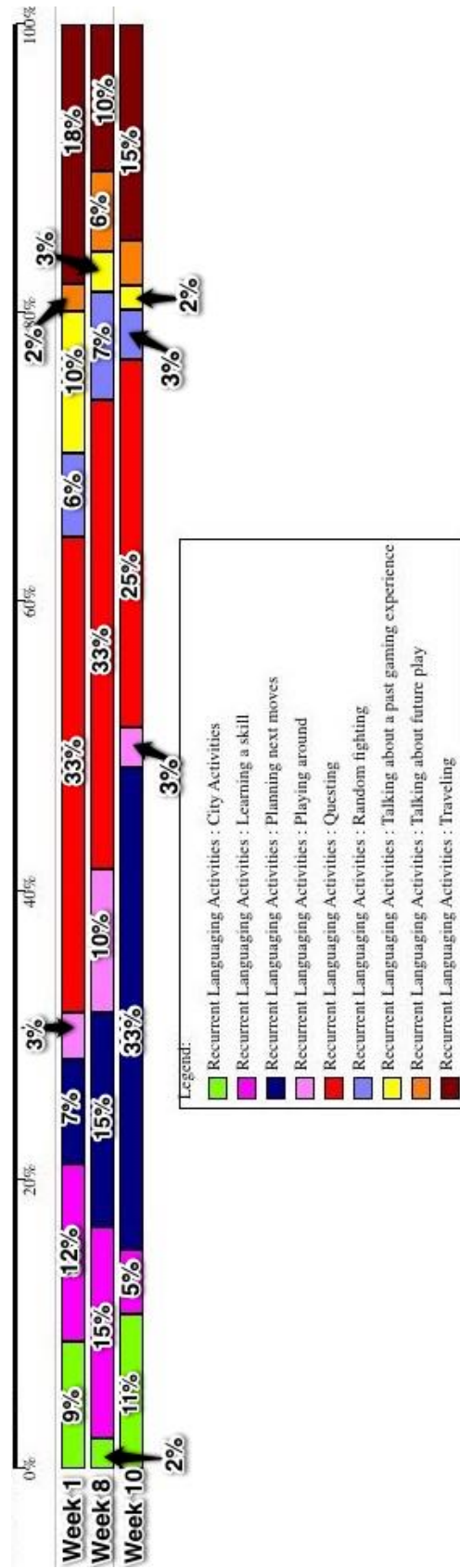


Figure 3. Recurrent language activities as percentage over three gameplay episodes.

Skill learning was defined as combining language and action to learn about and improve with some game skill (e.g., First Aid, using Add-ons, using game interface features, etc.). Skills players talked about and/or worked on included fighting unarmed, making bandages for first aid, buying linen from the auction house, understanding the meaning of health and energy bars (indicators that are part of the players game interface), using a WoW community website called Thotbot to look up a quest location, and identifying phishing scams in WoW texts. The activity of skill learning in WoW was therefore an affordance that provided for situated learning in relation to L2 players' goals on multiple, distributed timescales: immediate gameplay goals (e.g., how to make a bandage that can be used to heal one's avatar), longer term goals for playing WoW and similar games (e.g., how to use a game Add-on to help guide gameplay), and the more open-ended timescale of future participation in L2 cultures (e.g., how to ask for help with learning something new and how to explain how to do something to someone with less experience).

Course Design Exploited Affordances for Cultural Learning

While there were few direct references to U.S. culture in gameplay CPs, the course design drew on the affordances of experiencing and exploring WoW's intricate, diverse culture to bring L2 learners' (and other students') attention to cultural, social and personal values. Through online discussion, students were led to think about and write about how these could be realized in WoW play or other games. The course objectives were as follows:

(L2 learner) students will practice English through interacting with University classmates. University students will provide language help through feedback and insights on U.S. culture. All students will have the opportunity to think about games in a new

way, to learn about other cultures, to clarify personal and cultural values, and to have *fun* in the process.

The course objectives provided an understanding that cultural learning, approached through exploring cultural, social and personal values, was a goal. Students were asked in online discussions to compare and contrast WoW social values, the values of their own culture, U.S. values and their personal values. While WoW culture is not equivalent to U.S. culture, there are many similarities, particularly in terms of social values (for example, working to earn gold and other rewards, gaining status and achievements, being skilled in a profession, following rules, taking care of others in one's group, etc.), which was the thematic focus of the WoW course.

Gameplay provided embodied opportunities for players to live in the culture of WoW, to learn how and why things are done as they are. Supported by more expert others, players connected their actions and activities through the quest-based narrative which tells the stories of WoW lore, the histories and traditions, rise and fall of many races and kingdoms. Cultural learning in gameplay was encompassed in L2 learners' skilled linguistic actions, which by definition, depend on dialogical attunement to sociocultural norms that exist as situation-transcending practices (Linell, 2009).

Many of the L2 learners' posts on weekly discussion topics revealed the connections they made between WoW values and their own, evidence of meta-level thinking. Blending the L2 learners in the IEP with undergrads allowed for contribution of a U.S. perspective from peer group members in the discussions of culture that were encouraged. Dividing up players to ensure that there was one WoW expert player in each group contributed to the quality of information shared about the game culture within each group. Since group members responded primarily to discussion prompts on their designated group page of the course website, it was

important to include a more expert WoW player, especially since in this case, the instructor was nowhere near being an expert. Figure 4 presents the example of a discussion prompt and student responses from Week 7 on the topic of Money and Possessions. Italics highlight student comments in which they made a connection between WoW values, their own values, or their native culture's values.

Looking more closely at individual players' comments, it's possible to see how attunement to a cultural value, in this case the value of having money and possessions, was distributed across multiple timescales of players' gameplay, of their history with their native culture, and of their present actions of responding to the discussion question.

For example, Sev detected the relative importance of having great gear (armor and weapons), an essential type of WoW possession, as opposed to having money alone in WoW culture, admitting that she had been given a lot of money by another player at the start of the course. Even with lots of gifted WoW gold, Sev noticed by reflecting on her gameplay, that she was thrifty in the game culture in the same way she was thrifty with her money in her daily life, thereby clarifying her personal value of being careful with money.

Gwo realized that he prioritized having fun with friends (a value of WoW, the course and the class community, and one of Gwo's important personal values) over having gear that elevated his status (a WoW game culture value). But he also noticed how he valued a faster mount (a WoW gameplay advantage) when his ability to keep up with and play with others, his main motivation to play WoW (based on his personal values realizing), was in jeopardy.

Danja noticed the connection in WoW culture between having money and having a game advantage, such as a faster horse. She affirmed how this relationship applied in her native culture and clarified that her personal values fit within her native culture's values, but

distinguished herself from others in associating money with advantages of comfort and ease rather than social status.

Lov pointed to the critical functions of money in WoW gameplay and how his personal experience in the game depended on him having money. He also connected his need for money in gameplay with his decision to do certain work, to mine ore and minerals, in order to earn gold. Lov, unlike the other players, did not make a connection between WoW's cultural values around money and those of his own culture.

Week 7 Money and Possessions discussion questions: Are money and possessions equally important in WoW? Is there more equal sharing of resources compared to in the real world? Are there rich or poor players? How does this affect their experience in the game? Are money and possessions motivators? How does WoW compare with your culture?

1.Sev (L2 learner from Turkey): Money is very important, but possessions are more important because if you have good gear you can make more money by completing the dungeons and quests. But if you have a lot of money it's not 100% certain that you can find good gear to buy. Actually I could easily say I didn't suffer due to a lack of money, because at the beginning of the game XXXX gave me enough gold to survive for a long time. *Even though it was a game, I noticed that I was as careful about spending my money as I am in real life.*

2.Gwo (L2 learner from Saudi Arabia): The way I see it, money can give you a totally different experience if you had it to buy gears or to learn skills, but it depends on the way you want to play the game. *For me, it was all about having fun, joining friends and playing online. I reached level 45 without upgrading my mount.* I really didn't care much, but when i felt that I might end up missing the joy of the game because everyone were riding fast and they had to wait for me every now and then, I decided to start earning some money in order to upgrade to the fast mount. *Money is a motivator, but not the ultimate goal of the game. I believe the experience you have while earning money is what matter.*

3.Zeus (NES, undergrad student from U.S., expert WoW player): I agree with Gwo, that money is not the ultimate goal in the game. But the gear with the best stats are usually obtained through doing dungeons/raids, usually the gear you can just buy is nothing too special (the Auction House is an exception). I believe money and possessions are a driving motivator in WoW. You need gold in order to learn skills, level professions, mounts (skill and the mount itself), and repair your gear (just to name a few). The greed for money can sometimes be seen by the prices of items in the AH (Auction House). Some people earn money by selling runs through lower level dungeons, selling items they make through their professions, or through selling portals. There are poor and rich people in the game, but if you are willing to put in the time you can make enough money for what you are trying to purchase. Being "rich/poor" really doesn't affect the experience of the game too much, but it makes for an overall more pleasant experience if you don't have to worry about running out of money for skills. *Characters are judged based on the gear and other items they have obtained, which is similar to our own culture. Players are constantly striving to get better gear.*

4.Danja (L2 learner from Spain): I believe also that there is a clear distinction between rich and poor characters, although it is not the most important characteristic of the game. But when I see, for example, others players with horses or other creatures that make easier and faster the transportation from one place to another this makes me desire the same, and try to get all the gold as I can. *In real life, and in my culture in particular, money and possessions are important. Maybe it's not the most crucial value, at least for me, but inevitably we need money and certain possessions for living what make us work and study harder, or trying to get highest possible salary according to our positions in order to live the most comfortable as possible without too many financial worries. Therefore, in this case I agree when somebody says 'Money doesn't bring you happiness, but it helps'.*

5.Lov (L2 learner from China): Money is very important in WoW. In fact the gold is nothing, but it can change to some good stuff. For example ,you need to pay money for level up skill. You need to pay money to buy cool equipment. You need to pay money to buy a mount. There are so many things relate with money. These stuff really make stronger. And money is a support. I can not imagine I can not learn skill, and can not buy mounts, can not pay the flighter to fly..... money is important!!! For money, I decided to learn mining.

Figure 4. Online discussion from week seven of the WoW course.

Attention to Linguistic Form, Meaning and Pragmatics

Attention to linguistic form and meaning emerged organically during each session, but wasn't a very prominent feature of gameplay versus other kinds of sociocultural values realizing as evident in Figure 2, which shows that not more than 5% of total CPs in any of the episodes were focused on English Rules. L2 players sporadically asked about the meaning of words. Jil, the instructor, occasionally provided a more precise vocabulary word to fit a given situation. Jil also scaffolded pronunciation of unfamiliar WoW-specific words (e.g., fetish, hops), however, there was no attempt on the instructor's part to teach any particular aspect of English directly. Questions were dealt with as they came up and communication breakdowns were repaired as they occurred.

The following attempt at explaining a grammar rule was made by Phail (aka Zeus) and Jil, native English speakers, on a rare occasion during Week 8 gameplay when an L2 learner, Gwo, solicited L2 language support. This is a good example of how NESs, like Phail, may not be able to provide clear explanations of a grammar rule, though they know the correct form. Jil provided a more rule-based explanation following Phail's attempt, and though Gwo did express agreement, it's doubtful that either person's explanation was actually helpful.

Clip title: Gwo asks for clarification about use of "me" vs. "I"

1. (1:10:58.2) Phail: He's more by Danja and I, me I should say. (Phail is responding to Gwo's question about where a certain non-player character is located).
2. (1:11:03.0) Gwo: Alright.
3. (1:11:04.0) Gwo: Really, you say me or I?
4. 1:11:08.8) Phail: It'd be me.

5. (1:11:10.9) Gwo: Cause when we talk like to our teacher, like "Me and my friends.." my friends and I, we don't say me and my friends. My friends and I do this or do that.

6. (1:11:25.4) Phail: Yeah, but for that one, it's more by me, so... cause if you say it by itself, it's like "I went to the park, my friends and I went to the park" but it's like more by me...

7. (1:11:43.8) Gwo: Yeah.

8. (1:11:47.9) Phail: That's kind of confusing.

9. (1:11:48.9) Gwo: Well just a little bit, not that bad.

10. (1:11:50.8) Phail: (laughs) Yeah.

11. (1:11:52.8) Gwo: Oh finally, found him.

12. (1:11:54.6) Jil: (laughs) Do you want to know why it's that way with grammar?

'Cause me is the object of a preposition. But when you say "My friends and I," I is part of the subject.

13. (1:12:09.9) Gwo: Ok, true.

14. (1:12:10.6) Jil: Me can't be a subject. It can only be an object.

Evidence of L2 Pickup

In contrast to the attempt at direct instruction above, there was some evidence (at least three examples identified) of players' pickup of vocabulary (e.g., use of a conventional game term versus a non-standard or non-specific term at a prior time) and improvement of pronunciation of certain words, both over the course of several CPs within a gameplay episode. In two other examples like the one illustrated below, the instructor provided an initial scaffold by explaining a more commonly used term or pronouncing a word in the standard way as a recast. The player then engaged in successive CPs where the item came up again and

subsequently, the player used the new word appropriately or pronounced the word in a more native-like way. In a third example, there was no direct correction (Gwo repeatedly referred to Add-ons as Adds on), but after successive CPs in which the two native English speaker players used the correct form of the word, the player produced the correct form on his own. These examples show how conversing during WoW play provides L2 learners with affordances for repeated practices with novel L2 language features in CPs that are situated by the contexts of the game narrative, the visible and manipulatable features of the 3D game interface, and made important by players' goal-driven activities.

In this CP from Week 1, Sev picks up on the familiar WoW term "repair gear" or "repair" for short (which means to restore damaged armor and weapons to their original pristine condition). Sev first uses the phrase "fix our stuff" instead of the conventional WoW term (line 1). When Gwo doesn't seem to know the conventional term either, Jil asks a question that embeds the term in an authentic way (line 5), i.e., the way it would commonly be used in WoW gameplay:

1.(0:39:34.1)Sev: Oh yeah. **How are we gonna fix our stuff?**

2.(0:39:59.7)Gwo: Do what?

3.(0:40:00.8)Sev: How are we gonna make our stuff fixed?

4.(0:40:04.2)Gwo: This is the ...(unclear) yeah, blacksmith, I don't know how to find, I need some, uh, someone to ask.

5.(0:40:14.1)Jil: **What do you have to do, repair?**

6.(0:40:15.7)Gwo: Yeah.

A few minutes later, Jil helps Gwo use the game interface mini map to find a non-player character (NPC) capable of repairing gear (line 1 below), which is a common and recurring need in the game:

- 1.(0:40:17.1)Jil: Oh, can you turn on the thing to look for **repair**?
- 2.(0:40:24.3)Gwo: Turn on, turn on...
- 3.(0:40:27.9)Jil: You know, on the little map in the upper right corner?
- 4.(0:40:31.2)Gwo: Yeah.
- 5.(0:40:32.5)Jil: There is a little circle on the, on the circle at about, I don't know, at about 9, if it was a clock, at about 9.
- 6.(0:40:43.3)Gwo: Find a treasure?
- 7.(0:40:44.1)Jil: Yeah, you can **turn it to repair, find repair**.
- 8.(0:40:47.2)Gwo: Oh yeah, yeah, **repair**, perfect.
- 9.(0:40:49.0)Jil: And then you'll see **where the places for repair are**.

A couple CPs follow a few minutes later in which Gwo focuses on finding a non-player character who can provide repair (line 1 below) and the word is used repeatedly by both him and Jil:

- 1.(0:40:53.1)Gwo: Alright, Avette Fellwood, I think I got one. **Who wants uh, repair?**
- 2.(0:40:59.8)Jil: Oh, I actually need it too. There's a little (unclear)
- 3.(0:41:10.5)Gwo: This guy should be **a repair place. Repair all items**, alright.

And:

- 1.(0:41:17.8)Sev: Should I go to uh, exclamation mark?
2. (0:41:22.9)Jil: Those are quests, but **if you turn on repair, you could um, see where the repairs are**. Did you find one?
- 3.(0:41:34.2)Sev: Umm, I have a lot of circles.

4. (0:41:38.9)Gwo: Yeah, just located at me, I'm standing next to one of them.

Then in two separate CPs after a few minutes, Sev appropriately uses the word repair:

1.(0:45:18.4)Sev: Ok, now **I will look for repair** from here, oh no, I don't have anything. Somebody's also here.

2.(0:45:28.0)Gwo: Stormwind City. Here I am.

And again here near the end of the episode:

1.(0:45:55.3)Sev: Yeah (unclear) Gwo and I are together now. Did you find a guy?

2.(0:45:59.1)Gwo: I found a guy in (unclear). I can take you there. Alright, we are looking for a food place. **You need a repair place** or?

3.(0:46:09.7)Lov: (unclear)

4.(0:46:11.4)Sev: Yeah, **I need a repair place** for my clothes thing and my...

5.(0:46:17.3)Gwo: OK, click on the map, **repair, now we can walk around and find repair. Great.**

In this example and the others identified, language pickup is explained as a process of L2 learners detecting patterns in recurring languaging dynamics by paying attention to how verbalizations and actions are integrated and noticing what is invariant in the vocabulary or pronunciation or form. Players simultaneously adopt the intention of becoming more attuned to, or coming into closer alignment with the dialogical system. This is driven by course and game goals that promote cooperation. In Gwo's final line in the CP above, when he confirms aloud the procedure just learned for efficiently finding gear repair in a city, it is clear that this is learning that benefits not just him, but "we," the group of players as a whole.

The recurrent languaging activities (questing, planning next moves, traveling, learning a skill, etc.) in WoW gameplay afford richly contextualized practice with a variety of

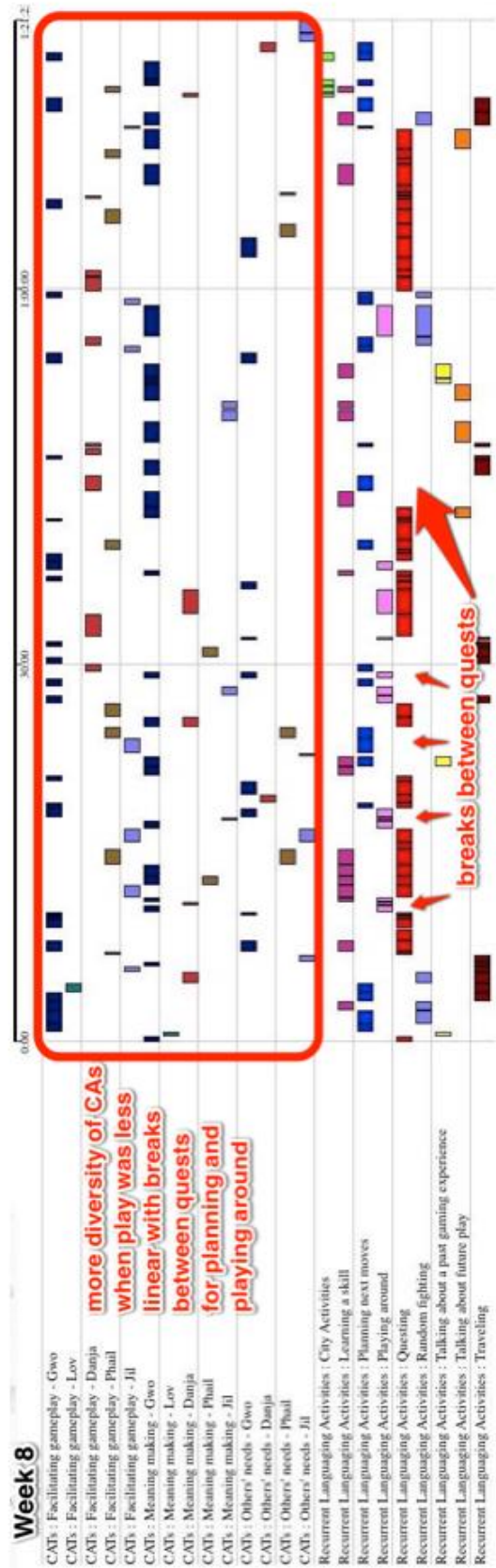
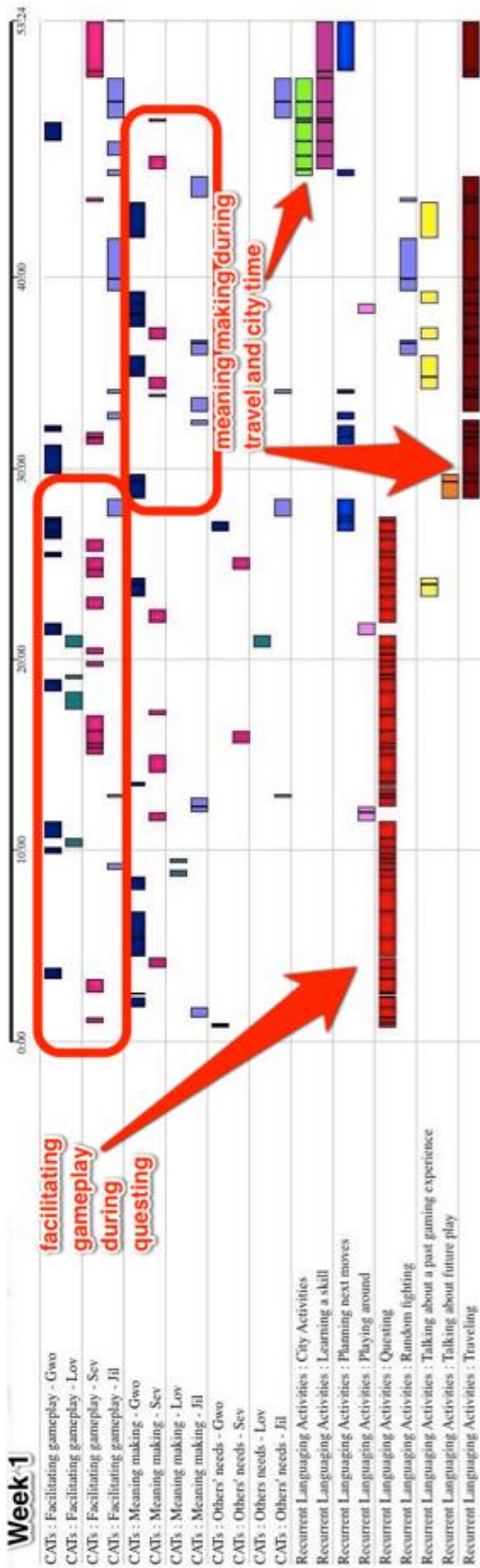
communicative activities that require L2 speakers to know not only what to say, but when and how to say it. By doing the same languaging activities over and over again and paying attention to the language and integrated actions that they entailed and also their outcomes, players picked up on what to say and when and how to say it. This is one of the main findings reported in the counterpart study.

Factors that Improved Gameplay Coordination

Coordination among the core players of group Z improved considerably from Week 1 to Week 10. Players became more efficient at completing quests as a group and engaged in more planning of play to minimize time spent traveling. In Week 1, group questing (working on one low level quest in Westfall) took nearly 30 minutes to complete (with a couple breaks for playing around) and then almost 20 minutes were spent travelling to a city. In this episode, Jil was the highest level player at 24, but at the time, she was still a new player, and could only provide assistance with basic questions about WoW, gameplay, quests, etc. The addition of an expert player in the following week, Zeus, the NES freshman, changed the dynamics of gameplay considerably. Zeus quickly established that he was both knowledgeable of the game and willing to direct the less experienced others.

By Week 8, with Zeus's leadership, there was a lot more planning of next moves going on throughout gameplay both before and after quests. See Figure 5. Look for the red horizontal colored line representing CPs during which players were questing. The dark blue/purple-colored line of CPs above the red are CPs in which players planned their next moves. The pattern of questing and planning becomes more complex in Week 8 as the two activities alternate. In Week 10, there is a long planning phase as the group is waiting for the game's dungeon finder tool to decide if they can do a dungeon together. Once questing started up after they learned they could

not do the dungeon together, there was again, a lot of alternating between planning and questing and multiple quests were completed easily, and without avatar deaths.



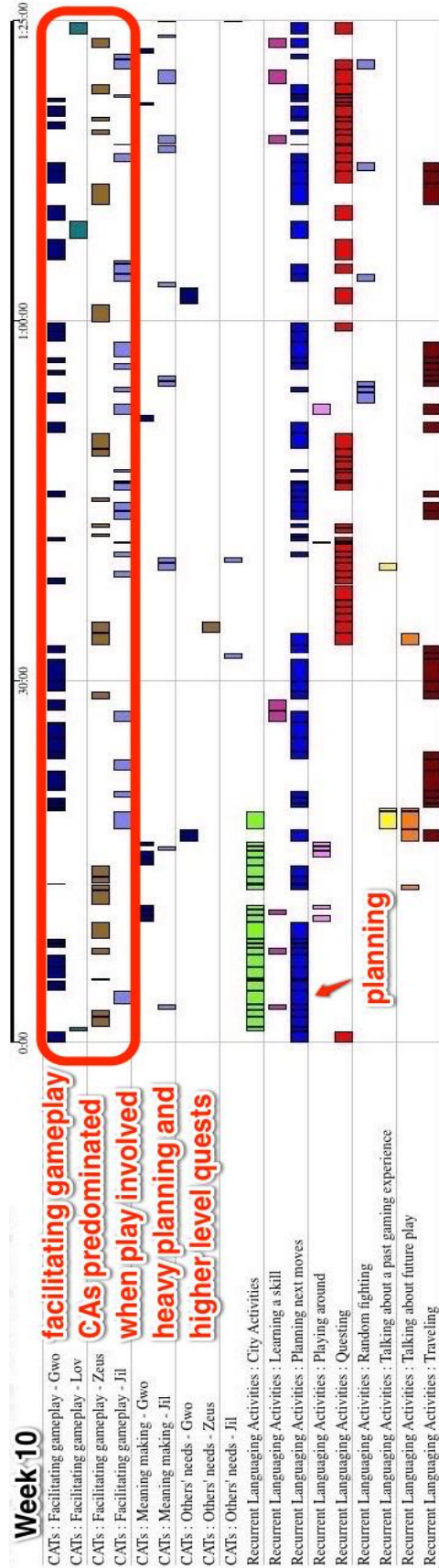


Figure 5. Planning and questing patterns over three gameplay episodes.

In comparison to Week 1 when the group was only able to complete a single low-level quest, three challenging quests that involved killing more than 50 NPC characters (members of the Defias brotherhood) were completed within the Week 8 episode. At the same time, there was more playing around (riding rams backwards, chasing chickens, putting on a mask to play a joke on Danja, etc.), mostly during breaks in questing. Players had become familiar with their skills and abilities and were able to anticipate their appropriate positions and roles during chaotic group fighting. There was skillful coordination during the fighting of the Defias as when Gwo, a more advanced player with an avatar skilled in dealing damage, lured several Defias over to Danja and Phail who positioned themselves at a safe distance away from potential attackers (this is called kiting in WoW terms and is a commonly used tactic in group play).

Another development by Week 8 was that Gwo and Jil had begun to make use of online resources during play. These included an add-on that provided coordinates for locating quests and other game targets and the Thotbot WoW database, which was used to look up information on the objectives and location of a quest Gwo picked up.

By week 10, four members of group Z moved on to a more challenging area and Jil, Gwo and Lov were all making use of several other game add-ons (Carbonite and Questhelper) to track each other's quests and get help with planning efficient routes for play. The add-ons did support coordination. For example, Jil was able to notice that Zeus had the same quest she had and had collected some of the items already. Gwo also tracked Lov's quests and used the information in the add-on to confirm with Lov that he had collected the loot items he needed (for example for a quest called "The Green Hills of Stranglethorn," which required players to collect many scattered pages of a legendary book).

In sum, the distributed contextual factors that supported smooth coordination during gameplay included group dynamics that allowed the expert player to step into a leadership role as needed, languaging that exploited the knowledge of an expert player, players' increased use of planning to reduce inefficient moves, players' knowledge of their avatars' skills and effective performance of their expected roles in group combat, and players' use of meta-game resources including add-ons and a WoW community knowledge-base.

Co-presence and Community-building Relationships

As discussed, the L2 players' co-presence with NESs in the WoW virtual world and on the Skype conference call was a deliberate element of the course design. The WoW course was designed to create communities of practice starting at the gaming group level. The use of Skype for voice communication provided affordances for players to access the help of more expert others at any time, building within group relationships and strengthening the knowledge base of the group. Playing WoW together with an audio connection also opened some unexpected affordances for getting to know each other better.

“Things” happening in both Zeus's and Gwo's living environments that were part of the ambient sound on the Skype call were sometimes distracting, but occasionally they were relevant to the gameplay or course. There was a contrast between the conversations and activities going on around Zeus, an NES freshman living in a dorm, and around Gwo, an international student living off campus with international roommates. For example, the Week 2 gameplay episode became the “Lost” episode in a literal way, because Zeus's roommates decided to watch the final episode of the television show in his dorm room even though he had told them he had to play WoW with his group the same evening. The noise level in Zeus's room made it impossible to focus on the gameplay conversation over Skype. When the L2 learners were asked whether they

knew about the hugely popular television show, only Gwo had heard of it. Later, during the Week 10 gameplay episode, Zeus and his roommates were watching the university's women's national championship basketball game, which was a major event at the school, but it turned out that Gwo was the only L2 learner who was aware of the event. Thus, there was a sense that the other two L2 learners in the group did not participate in some of the more common activities or communities of degree-seeking university students, which is known to be the case for IEP students more generally.

Gwo frequently had international friends who were also taking the WoW course around him and they engaged in side conversations about WoW play or played the game simultaneously in another group. Hearing them and being able to read occasional chat messages from other course members (L2 learners and NESs) during gameplay made the wider community of the course feel present. The course created a blended community of domestic and international students in which learning about the other was afforded in several different modalities, i.e., in languaging during gameplay playing together, in writing and reading discussion posts, and even in picking up information about others' lives via the Skype call.

The course blackboard site (used for the first half of the course) and course wiki (used for the second half in combination with the blackboard site) also helped to develop community-building relationships within and across groups. In weekly online discussions, players shared their views about various values in relation to WoW culture, US culture and their own cultures. These discussions were mainly among group members, but group pages were open to others in the course to read. Course members were also asked to contribute as they wished to other knowledge sharing wiki pages including a glossary, a WoW story page, and a gear statistics page. The NES players were all expert WoW players, and they contributed most of the

postings to these pages, some of them providing extensive write-ups that demonstrated strong writing skills, an added benefit for modeling college-level writing to learners preparing to enter degree programs.

Prospective Coordination and Community-building Relationships

Another way the context of WoW play afforded community building was through providing a need for coordination, or providing the “contingencies” of gameplay life. The three types of coordination in languaging that were coded varied from Week 1 to Week 10. Common ground alignment (players’ joint attending to a common referent in the virtual or real life world) was reached in half of the CPs, while co-action (verbalizing/acting in coordination to accomplish a mutual goal that requires the other's resources) decreased from Week 1 to Week 8 and was roughly at the same frequency in Week 10. Prospective coordination (when a player invited another player to go forward in a promising direction) increased by 10% from Week 1 to Week 10. See Figure 6.

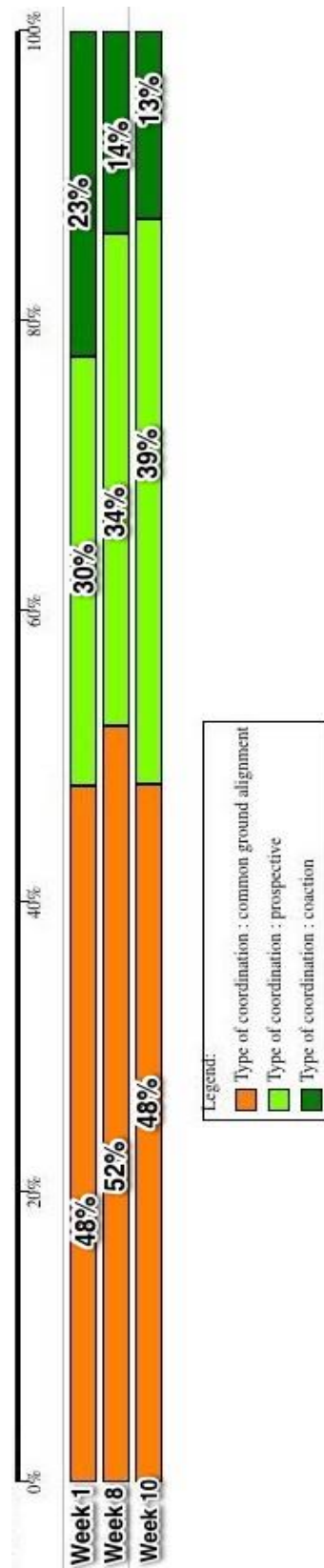


Figure 6. Type of coordination as a percentage of coordination types of all CPs across three gameplay episodes.

The increase in prospective coordination could be attributed to more planning of gameplay moves in the more challenging pair questing during Week 10. Playing WoW together under the constraints of the course set up certain dynamics that led players to adopt gameplay goals, individual and collective, which required them to engage in recurrent languaging activities. These led to CPs in which players frequently needed to establish a common ground, or joint attention on a common focus. Players also needed to co-act with actions and verbalization from the start of playing together, but is not clear why co-action was highest in the first week episode. It is interesting, but not surprising that prospective coordination, the most forward-looking type of coordination, increased over time. The general tone of group Z interactions during play was upbeat and energetic, and from the instructor perspective, the communities of the group and of the course were quite positive, supportive and caring.

Linguistic Alignment Results

Finally, in answer to research question three, whether players' language became aligned within each episode as they coordinated gameplay and over the timeframe from the first to last episode of gameplay analyzed, the results of the Linguistic Style Match (LSM) calculation are presented in Table 3. The comments on each episode provide the researcher's assessment of coordination during the gameplay and mention any special circumstances that bear importance in interpreting the LSM score.

The highest alignment of .692 was for the Week 10b episode, the final episode. Alignment was lowest in Week 2, the so-called "Lost" episode, certainly Group Z's least coordinated episode in terms of gameplay. Coordination was evidently impacted by technical difficulties with the Skype conference call connections, and the lower scores for Weeks 2 and 10a could be reflecting this. It is interesting to see the increase in LSM score for Week 10b from

Week 10a. It does appear that the more coordinated play in 10b after Danja had left, coincided with higher alignment of linguistic style, but higher alignment could be because of the two partner dyads that formed and did separate quests during gameplay in 10b.

What looks promising for further research is that the LSM scores do appear to correlate with the measures they are purported to predict; i.e., group cohesiveness, coordination and effective task performance, that are confirmed by the results of the multimodal analysis. This will be addressed further in the discussion section.

Table 3

Results of Linguistic Style Match (LSM) Calculations

Game episode	Players	LSM*	Comments
Week 1	Gwo, Jil, Lov, Sev	.656	ESL players including Gwo and Lov from Group Z - ESL players know each other from being in IEP for a previous session, they are comfortable with each other. Good coordination throughout session, players stay together, complete quests by helping each other, take time to play around
Week 2	Gwo, Jil, Zeus, Danja	.604	Group Z (no Lov): "Lost" episode, Jil had to ask Zeus to hang up on Skype call because of noise from his dorm room, Gwo goes off Skype call repeatedly to help Danja by sharing her screen, poor coordination except for when others help Danja with Kobold Mine quest.
Week 8	Gwo, Jil, Lov, Zeus, Danja	.685	Group Z: Good coordination throughout this episode. Lots of quests completed, players stay together, take time to play around. Danja levels up from 11 to 12.
Week 10a	Gwo, Jil, Lov, Zeus, Danja	.612	Group Z: Problems with Skype audio at beginning. Danja's low level (12) means they accommodate her by following her to a farm for a pick up quest. Others don't have much to do. They follow Danja back to Goldshire for her next quest and figure out that she doesn't have time to complete it. She leaves after 39 minutes and others keep playing.
Week 10b	Gwo, Jil, Lov, Zeus	.692	Group Z (no Danja): Good coordination throughout this episode, though players split up and do separate quests in groups of two toward end. Lov suggests doing a dungeon since Danja has left the group, but although they queue for one, they are not able to proceed because Lov's level is 34 while Gwo, Jil and Zeus's levels are respectively 43, 45 and 49. They work on Lov's quests in Stranglethorn Vale. Lov is most engaged, most verbal in this session.

***Note: 1 is a perfect match.**

Discussion

Complementing Others' Language

Reframing the first research question about individual languaging patterns in terms of players' contributions to the dialogical system was helpful since the unit of analysis was a dialogical "project" rather than players' individual utterances. Further, treating languaging as a multimodal activity required looking at interactions holistically, accounting for both the verbalizing and virtual actions of avatar-embodied players. This allowed for development of a more complete account of player engagement and participation vs. interpreting player initiation and response percentages alone.

As the analysis revealed, each player was engaged by the game differently, according to the values realizing each prioritized. More proficient L2 speakers were certainly more active in gameplay conversations. However, less proficient speakers picked up affordances to keep up with play, to be helped by those with more expertise, and at times to be responsible for deciding the course of action. Previous experience with playing WoW was an asset for Lov, a less proficient speaker, that allowed him to contribute to group play with his actions that relied on his attention to others' languaging, both verbalizations and avatar actions. Lov's gameplay knowledge was an affordance for legitimate peripheral participation (Lave & Wenger, 1991).

Danja's lack of experience with the game and lack of engagement with the goal of leveling up her avatar constrained Group Z's play, but also afforded others with opportunities for teaching and supporting her, leading to a certain type of recurrent languaging activities. It is likely that different group dynamics created by, for example, less engaged players or less experienced WoW players who were also less proficient L2 speakers, would have revealed

different patterns of languaging. It was certainly the case that certain groups in the WoW course were better at coordinating play than others.

The “psychodynamic energy” (Steffensen, 2012) of the dialogical system of Group Z did rise and fall as a result of changing situations of play, technical issues, etc., but caring and community were always paramount, something that was not as salient in other WoW course gameplay groups based on instructor observations during the course. The recorded gameplay episodes of other groups were not analyzed in the same way as the Group Z episodes, so this cannot be confirmed, but it is hypothesized that pre-existing friendships among the L2 learners may have created more supportive group dynamics compared to some other groups. The NES undergrad WoW expert player, Zeus/Phail, was also patient and helpful without being controlling, where, as mentioned in the data selection section, some expert NES players in other groups were more autocratic, creating a need for instructor interventions intended to keep agency and autonomy distributed.

In Group Z, as familiarity grew as an outcome of languaging, gameplay became more efficient as players assumed expected roles and anticipated each others’ moves and needs. The interpretation is that as a dialogical system, they were able to very quickly reach stable functional states. It was notable that there was never a scramble for control in this group. Leadership emerged according to the situation at hand as players mainly prioritized collective rather than individual gameplay goals. This naturally had an impact on languaging, namely, that players had to be willing to lead and be led, to tell and be told how and what to do, in other words, they had to distribute their agency. An insight drawn from this study is that for L2 learners, contributing to a dialogical system entails not only some minimum level of linguistic alignment, but also

knowing how to complement others' languaging to balance collective goals, collective and individual values realizing, and what are perceived as others' abilities.

Distributed L2 Learning

An overarching purpose of this study was to show how L2 learning was and is distributed in the three ways Hutchins (2000) identified: across social group members, between internal and material or environmental structure, and through time. Looking at the gameplay group as a dialogical system revealed distributed L2 learning across group members and through time. Addressing the second research question about how the contexts of WoW gameplay and the course contributed to L2 learning revealed how certain material and environmental features of the game and course became affordances for players' attunement to sociocultural practices, attention to linguistic form, meaning and pragmatics, and smooth coordination of gameplay.

The finding that WoW game culture and rules were a significant ongoing focus of languaging showed that the game narrative was critical to creating a relatable, but novel culture with rules worth following. In other words, the values and goals of WoW gameplay were engaging enough that Group Z players worked at doing what they were supposed to do to play well, making use of both their own perceiving and acting and the resources of the virtual environment, including its rules.

As mentioned in the literature review, Newgarden et al. (2015), in a separate analysis of the Week 1 episode, found that CPs in which players focused on game rules were more likely to be CPs that accomplished the broad conversational values of wayfinding and orienting to we (the socioculture), thus these were more likely to have been rewarding CPs for L2 learning. Conversing with more expert others while in the WoW world was a just-in-time resource; and players repeatedly probed dialogical arrays that provided affordances for learning (Hodges 2012)

more about WoW, which is certainly for a new player, a very complex game. This brings up a question for future research, which is whether WoW culture and rules would still be an affordance for conversational focus and ease (Newgarden et al., 2015) for more highly skilled or expert L2 learner players.

The finding of relatively little direct conversing about English form, meaning, and use is not disappointing given the evidence of emergent L2 learner pickup within the timeframe of a single gameplay episode as illustrated by the discourse analysis provided. This implies that the context of WoW group gameplay, which gives rise to recurrent languaging activities that center on coordination, does support vocabulary learning in a dynamic first-order way. This is contrasted with Ryu's (2013) report that L2 learner players of the game Civilization learned words and simple phrases during play through interaction with NPCs, and later developed more advanced understanding through participating in written posts on the game community fan site.

It is possible that the L2 learners in this study did enrich their understanding of new vocabulary through writing in online discussions and through their personal essay writing, but it is argued that the affordances for languaging in WoW group play that seem to be missing in another popular game, i.e., Civilization, allow for development of situated understanding and pragmatic competence. An implication is that WoW, a commercial-off-the-shelf game played in North America, Europe and Asia since 2004, has long afforded an informal context for autonomous L2 learning. Furthermore, it is likely that in accordance with Chik's (2014) findings, many L2 learners have proactively created "personal language learning environments" by choosing to play WoW in the L2, supporting each other with in-game and out-of-game resources and applying strategies from formal L2 learning.

Critical Design Elements and Technological Challenges

The more skilled gameplay coordination that emerged over the three episodes of play was a product of the distributed cognitive system of players' knowledge, skills, and values realizing as they acted on affordances of the WoW environment, including online resources that extended the game interface and connected to the wider multiplayer online community. Coordination, community-building relationships and intercultural learning were promoted by a combination of technologies and course design elements. From an instructional design perspective, it is important to point out which elements were most critical for bringing about the promising outcomes found in this study, while also mentioning some of the limitations and challenges created by the technologies that were employed.

First, WoW proved to be an ideal Massively Multiplayer Online Role-playing Game (MMORPG) to adopt because of its wide popularity and community. The massive multiplayer community of WoW is also why the game has such a vibrant culture that could be explored. Being able to recruit at least some expert players was critical to setting up the framework for situated learning while it also allowed the instructor to focus on the learners and meta-level learning objectives such as critical discussion of cultural and social values.

WoW's quest-based narrative and group play affordances were critical for engaging players in collective problem solving activities where first-order languaging was necessary and could be improved via coordination of recurring activities. The use of voice over Internet protocol (VOIP) was also critical to the objective of engaging L2 learners in real time interactions with NESs and each other, though maintaining a clear connection with all players throughout the one to two-hour gameplay sessions was often a challenge.

The online discussion element of the course was critical for engaging players in reflection on their gameplay experiences and making connections between WoW play and other situations of their lives. However, a challenge was getting L2 players to post to discussions on a regular basis rather than waiting until the end of the course and posting on several topics in one sitting. Finally, it was critical to make NESs understand their role in facilitating L2 learners' practice during gameplay and for more expert WoW players to understand their role in supporting new players. This was accomplished by establishing clear guidelines for the course and by structuring each gameplay group to include at least one NES and one experienced WoW player.

Linguistic Alignment

The LSM scores for each gameplay episode did correlate with the researcher's qualitative assessment of coordination, and the last gameplay episode did reflect a higher score than the initial episode, which suggests that greater linguistic alignment does correlate with better coordination. However, the players in Week 1 were not exactly the same players in Week 10b and in fact, because players varied across each episode, the data did not allow for a longitudinal comparison of LSM scores for the same players. Therefore, a recommendation for further research is to apply the statistic to a more "ideal" data set, which would be a series of gameplay episodes by the same group members over a period of at least 10-15 weeks.

The LSM metric has not been applied in second language studies and it is not entirely clear what should be expected when a group of mixed L1 and L2 speakers are analyzed. The idea that speakers' language becomes more similar to accommodate social coordination was the impetus for experimenting with the LSM approach; and it has implications for L2TL. For example, the LSM algorithm is based on counting words that are thought to be produced "subconsciously." If this is the case, then it seems there is not much role for pedagogy except to

create situations and environments for social coordination. Another question is whether the work of alignment falls more heavily to the L2 learner when coordination involves an NES. A further recommendation for future research is therefore, to compare data sets for groups composed of only L2 learners, of mixed L2 learners and NESs, and of NESs only.

Limitations

It is important to note that the dynamics in each of the four groups in the WoW course were not the same. The L2 learners in Group Z, Gwo, Lov, Sev and Danja, had become friends while attending the IEP, which was different from two of the three other groups in which the L2 learners were merely acquaintances. In one group, one of the expert NES players repeatedly tried to make decisions for the group and control gameplay, spending a lot of time explaining things he thought the newer players needed to know. The L2 learners in this group tended to be more quiet as a result. In another group, there was a strong undercurrent of competition between an expert NES player and a female L2 learner who was new to WoW when the course started, but quickly leveled up her avatar and became a strong player. At times, the female player became annoyed by the NES player's comments. One of the challenges of teaching the course was trying to keep the energy during gameplay positive and preventing any one player from dominating their group. Group Z was one of the groups that did not require this kind of intervention. The comparatively more positive dynamics of Group Z were not the primary reason for data selection; however, they certainly contributed to the outcomes and analysis reported here.

Conclusion

This study brought distributed theories of cognition and language into focus to demonstrate what they can offer to L2TL and second language research, particularly with regard

to the design of instruction and pedagogies that can make the most of the sense-saturated interactivity (Steffensen, 2012) that virtual world environments and digital games increasingly afford. Framing a group of L2 learners playing WoW together as a dialogical system (Steffensen, 2012), underscored how languaging is fundamentally other-oriented, entailing responsibility and adaptivity as parties balance values that have connections to their present, past and future.

Multimodal analysis and visualizations of three gameplay episodes spanning ten weeks showed how languaging created and fueled the dialogical system of players. Analysis of players' participation in CPs looked lopsided when viewed in terms of initiating and responding, but when players' shifting roles and values realizing were considered, there was evidence that players languaging was complementary to each other and prioritized maintaining the integrity of the dialogical system.

L2 learners and NESs and newcomer and old-timer WoW players were blended in gameplay groups, some of which were more cohesive than others. Group Z, the focus of analysis in this study, was shown to improve at coordinating WoW gameplay activities that became more challenging over the 10 week period. As they probed the affordances of dialogical arrays (Hodges 2009; 2014), players' co-agency and co-actions meshed as a distributed cognitive system (Hodges, 2014), which balanced the values of facilitating gameplay, making meaning, taking care of others and having fun.

The use of the LSM metric provided a means to discover that the L2 learners and NES players in Group Z matched each other's "linguistic style" more closely when they were also more smoothly coordinated and, as a result, made more progress, in gameplay. The question of what linguistic alignment means in terms of L2 learning is still open to further research.

Finally, this study demonstrated an instructional design for a game-enhanced course that exploited the affordances of an MMORPG for sociocultural and intercultural learning and distributed affordances for community building, learner agency and autonomy. WoW play in the contexts of this course afforded the shared experiences of being present in the virtual world culture together, but also provided the shared constraints that guided players to adopt certain intentions: to be resources for each other, to follow the rules of play and to pay attention to essential sociocultural practices that are part of knowing a language. Gameplay promoted the same attunement L2 learners need in other Discourses of the L2 culture in order to take skilled linguistic actions.

The words of a few L2 players in their final reflections on the course may be the most powerful way to share some of the emotional and unanticipated learning outcomes of the WoW course. For example, that playing the game opened affordances for relationships with NESs that even living in the L2 culture had not:

I had been in the U.S. for 8 months before I start playing, and I could make just a couple of American friends. Then, with the game, I made a lot of friends. (Sev)
Or even more unexpectedly, that the value of being compassionate could be realized in a game called “World of Warcraft”:

To kill enemies is not what this game is all about. You gain point for honor killing, but when you start to harass others, showing your power to less level players by killing them several times, that means you're missing the compassion that will set you apart than any other player. This game teach us not to take advantage of others, teach us that with great power comes great responsibility. Being compassionate could be the most difficult thing, especially if you got

harassed while you were leveling up. From that I learned to adopt a compassionate behavior toward others, I learned that helping lower level players is more self rewarding than the honor kill points. (Gwo)

Or perhaps most surprisingly, that the L2 learner who played WoW only as much as was minimally required by the course, would choose to write about her experience creatively, drawing on the style of the WoW narrative, and appreciating the support she had received from the diverse members of Group Z:

Danja felt blessed to find in her way her a group of friends who hosted and helped her. This group was form by a great diversity of creatures like Warriors and Druids who became soon her second little family. From this little family she learnt what was the teamwork. Each of them had a special ability or quality: strength, wisdom, patience that could be helpful or even crucial for the success of their quests. Danja was conscious of that and at the same time that she felt protected by the force of the group, she grew as a person, as a warrior, and as a warlock. Her skills and powers seemed to flow smoothly and for the first time in her life she was ENJOYING her personal search of happiness. She felt alive, and for her was priceless the richness of living with creatures and people of such a diverse origin and culture. She was sure of being in the right place. (Danja)

These reflections bring individual student learning outcomes to light. While L2 learners became integral members of dialogical systems in gameplay and were part of the distributed cognitive system that created all of the outcomes of the WoW course, they also realized values that were

important to them as unique individuals living in the very complex meshwork of a multilingual world.

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CHAPTER 4

Conclusion

This research was carried out as the main project leading to a doctoral degree in Educational Technology, building on coursework undertaken in a program now known as Cognition, Instruction and Learning Technologies (CILT) in the department of Educational Psychology. The newer program name clarifies that study of technologies for learning requires a foundation in theories of cognition and instruction. Additionally, study of L2 learning with technologies (or CALL) requires a foundation in theories of language and second language learning. Finally, study of digital games requires familiarity with game-based or game-enhanced learning. The point is that the theoretical frames of this work are drawn from multiple disciplines and therefore took time and space to explain, but the analysis was deepened by taking a multidisciplinary approach, and it is hoped that the findings have relevance across these fields of study.

Integrating the two studies in this final chapter begins with revisiting the key constructs from distributed views of cognition and language in terms of their importance for L2TL and CALL, future studies of MMOGs, and other virtual world environments and technologies that afford embodiment. Conclusions from Studies 1 and 2 are then synthesized and finally, the overall implications, limitations and questions for future research are discussed.

Contributions of Taking a Distributed View

Drawing on Zheng's (2012) Eco-dialogical Model to understand the process of avatar-embodied **linguaging** allowed for an action-oriented analysis that uncovered how players interaction with the WoW environment created affordances for taking **skilled linguistic action**, in other words, situated, on-the-fly integration of language and actions that demonstrated

linguistic know-how, sociocultural attunement and adaptivity. Understanding WoW players and the virtual environment of WoW (nested within the environments of the course and the L2 culture) as a unified **agent-environment system** was necessary to uncovering how the **distributed resources** of native English speakers, expert players, game artifacts, rules and culture and online game community resources became networked affordances (Barab and Roth, 2006) that players picked up to coordinate gameplay languaging.

Viewing WoW players in each episode of play collectively, as a **dialogical system**, provided a basis for comparing group gameplay dynamics over time and for exploring how players' competing values and goals were balanced through co-action (Steffensen, 2012). This contributed to understanding how asymmetrical participation of WoW players in communicative projects (Linell, 2009) reflected not just dominance by more verbal players who were more proficient speakers, but that less verbal players (like Lov) were legitimate participants in both the short-term and more long-term projects of coordinating to achieve group gameplay goals. Looking for processes of entrainment, coordination and resonance (Hutchins, 2000) as indicators of a high-functioning dynamic system led to exploration of WoW players' **linguistic alignment** within and across episodes of gameplay and the finding of a relationship between well coordinated play and greater linguistic alignment among players.

Adding to previous findings by Zheng (2012), Zheng et al. (2012), and Newgarden et al. (2015), the findings from Study 1 and 2 demonstrated that learning to take skilled linguistic action was a **values-realizing** process for L2 learners. In Study 1, this was shown by visualizing how WoW players realized the different values that define the ecosystem of conversing (Hodges, 2009); **clarity, comprehensiveness, coherence, complexity and caring**. In Study 2, players

values realizing was viewed in terms of how it was balanced through languaging and actions that shaped the dialogical system of the players as a group.

Synthesis of Conclusions from Study 1 and 2

The Affordance of Recurrent Languaging Activities

The interaction of players' agency and values realizing and WoW gameplay rules, routines and culture (i.e., agent-environment interactions) created recurrent languaging activities, with different patterns in each of three gameplay episodes, that were an affordance for L2 learners' skilled linguistic action. Different recurrent languaging activities afforded different communicative activities, affirming Zheng et al.'s (2012) finding of location-based activities. A more complex pattern of CAs for planning and carrying out quests was seen in the near final week of the course, suggesting that players' ability to coordinate improved over time. This was confirmed by the findings of Study 2. CAs for facilitating gameplay, the most common type in each episode of gameplay analyzed, included: suggesting a move, directing others, reporting on status (of health, location, or needs) and asking for help. These CAs reflect the languaging needed for coordination of a quest, but apply to coordination in other group tasks, especially physical tasks.

To state the connection more directly, Study 1 showed that recurrent languaging activities afforded CAs that mirror those that players also carry out in situations of their daily lives in L2 environments. Common CAs were matched to descriptors of L2 speaking proficiency that ranged from intermediate to advanced. CAs that recurred as an emergent affordance in WoW are those practiced in what are often inauthentic contexts in classrooms. Furthermore, it was shown that recurrent languaging activities provided affordances for players to realize the conversational

values that are most critical for good conversations: comprehensiveness, clarity, coherence, complexity and caring (Hodges, 2009).

Recurrent language activities were connected to evidence of L2 pickup, which was shown as a process of L2 learners detecting patterns in languaging dynamics by paying attention to how verbalizations and actions were integrated and noticing what was invariant in vocabulary, form or prosody. The explanation suggested was that adopting course and game goals that promoted cooperation may have incited players to adopt the intention of becoming more linguistically aligned with other parties who were part of the same dialogical system.

Coordination and Linguistic Alignment

As familiarity grew as an outcome of Group Z's languaging, gameplay became more efficient. Players assumed their expected roles and anticipated each other's moves and needs. More time was spent in planning to minimize time spent traveling unnecessarily. The interpretation was that as a dialogical system, Group Z was able to quickly reach multiple stable functional states after 10 weeks of playing WoW together. The results were visualized, showing successful coordination of more complex play over time.

Players' participation was not equal, however, players' initiating and responding was connected to values realizing and adaptive role-taking that reflected orientation to collective aims. More effective use of distributed resources that supported gameplay; e.g., an expert player's leadership, add ons, and interface tools, also contributed to more smoothly coordinated play. The Linguistic Style Match (LSM) statistic showed that there was a relationship between well-coordinated gameplay and higher linguistic alignment among players in the group. Players had the highest LSM score for the final episode of play, however, the data are somewhat flawed in that earlier episodes included slightly different combinations of Group Z players.

The Contribution of Multimodality

Integration of language and action during questing, was an affordance of WoW that supported players' co-action. Multimodality supported languaging in which verbalizations and actions could be integrated at times and toward different goals at other times. The Skype connection, a designed affordance, allowed players to multitask, i.e., to act with avatars while speaking about an unrelated topic. When they could multitask, for example, when traveling, players picked up affordances for story telling and relating game experiences, an emergent affordance that helped build the sense of community of the group. A related conclusion from Study 2 was that less verbal players (Lov and Danja) could demonstrate through their avatar actions that they were attending to others' languaging and comprehended what others were talking about and planning.

Multimodality afforded by the group Skype call was also found to support co-presence by providing players with access to different ambient environments and dialogical arrays of players' distinctive "real world" lives.

Contributions of Course Design

Several designed features of the course contributed to emergent affordances for languaging and community building. The course length of nearly four months provided an affordance for players to imagine a past and a future in gameplay and thereby affordances for using past and future verb tenses to talk about where they had been and where they hoped to go, literally and in terms of goals, in the game. Sharing goals with guild members provided affordances for learning about game strategies.

Requiring players to join the same guild, play in mixed groups of L2 learners and NESs, and support new players were all designed affordances that built community and distributed resources for gameplay learning and L2 learning.

Skilled Linguistic Action in Gameplay as an Assessment of L2 Proficiency

The correlation between scores for skilled linguistic action in gameplay (based on players' scores for Initiation, Responsiveness and Conversational Values Realizing) and IEP speaking scores based on classroom performance was significant, but due to the small number of L2 learners in the sample, it is not safe to generalize this result with complete confidence. The significant result found in this study could mean that assessing skilled linguistic action in gameplay for these four L2 learners based on these measures was similar to assessing their speaking based on performances in classroom situations over the same timeframe. It could also mean that these L2 learners demonstrated proficiency in speaking similarly in both settings.

Focus on WoW Culture

WoW's broad player community afforded recruitment of expert players, which afforded scaffolding of gameplay and L2 learning as well as cultural expertise. The WoW game culture and WoW rules provided an ongoing focus for conversing, implying that the game narrative was critical to creating a relatable, but novel and neutral culture with rules worth following. Certain recurrent languaging activities were associated with CPs that more frequently focused on culture or rules, for example, learning a skill required more CPs focused on WoW culture.

Course design also brought learners' attention to WoW's culture and social values through guided discussions that developed connections between experiences of gameplay, social and cultural values and personal values. Access to experts on WoW culture and U.S. culture was

available in real-time and asynchronously, which provided opportunities for both just-in-time learning and reflection.

Implications

The communicative activities L2 learners engaged in in WoW afforded situated learning in a community of practice. The communicative activities players carried out in WoW, afforded by recurring features of the environment, were authentic versions of the same activities practiced in classrooms, where they are more likely to be contrived and lacking for context. Identifying Recurrent Language Activities as an affordance for L2 learners to take skilled linguistic actions in WoW gameplay depended on taking a DEEDs view. Brown, Collins and Duguid (1989), in a seminal article for cognitive science, explained why authentic activities are critical for learning, emphasizing the defining role of contexts:

As Hutchins (1993), Pea (1988), and others point out, the structure of cognition is widely distributed across the environment, both social and physical. And we suggest that the environment, therefore, contributes importantly to indexical representations people form in activity. These representations, in turn, contribute to future activity. Indexical representations developed through engagement in a task may greatly increase the efficiency with which subsequent tasks can be done, if part of the environment that structures the representations remains invariant. This is evident in the ability to perform tasks that cannot be described or remembered in the absence of the situation. Recurring features of the environment may thus afford recurrent sequences of actions. Memory and subsequent actions, as knots in handkerchiefs and other aides memoires reveal, are not context-independent processes. Routines (Agre, 1985) may well be a product of this sort of indexicalization. Thus, authentic activity becomes a central component of learning. (Brown, Collins and Duguid, 1989, p. 37)

Thirty years have passed since these groundbreaking early insights led scientists and researchers to adopt situated theories of cognition. New models have been emerging, one of which offers a satisfying explanation of the relationship between recurrent activities and learning without relying on representation as Brown et al.'s (1989) explanation did.

Chemero's (2009) Animal-Environment System is a dynamic system model, which intertwines the perceiving-acting system of ecological psychology with the self-organizing system of the enactivist view (Maturana and Varela, 1998). In this type of system, there is a causal connection between affordances and abilities such that an animal's actions change the environment to provide new affordances that allow for development of new abilities. In longer timescales, the collection of affordances an animal acts on becomes its ecological niche. In WoW play, recurrent languaging activities can allow L2 learners to use their linguistic and avatar-embodied abilities to do things that have perceivable outcomes from which they can learn new things that are applicable to gameplay, such as how to play the game better, and also applicable to a wide range of similar situations in other environments, such as how to explain how to do something to someone else. Applying Chemero's (2009) model, as L2 learners enact recurrent languaging activities, they change the layout of affordances in the environment, which will change how they exercise their abilities in future actions.

The ethos of WoW is one which brings players together to co-act and do what they could not do by themselves. This is the embedded affordance of the WoW environment that ultimately creates the need for languaging, which as Zheng (2012) noted, is more important than player agency or sociocultural affordances.

The implications of the above are that WoW is a technology that probably affords skilled linguistic action for L2 learners who are playing recreationally, especially if they are part of a

guild and play includes the use of voice. There is evidence that playing WoW is a means for L2 learners to participate in an L2 community of practice and move from peripheral to more full participation over time and that instructional design can support the creation of a classroom community of learners. Instructional design elements were also shown to support sociocultural attunement and cultural learning, which are essential elements for L2 proficiency.

Skilled linguistic action was further explored as a construct for L2TL and connected with conversational values realizing based on Hodges's (2009) defining values (clarity, comprehensiveness, coherence, complexity and caring). A new insight was that realizing certain values (coherence and complexity) required skills described by higher levels of proficiency on the CEFR. The correlation between gameplay skilled linguistic action score and the IEP speaking proficiency score implies that assessing skilled linguistic action in gameplay for these L2 learners was similar to assessing their speaking skills in other types of classroom activities.

Limitations and Questions for Future Research

The ideal data set was not found, and the three recordings of gameplay representing three times of play over the course did not include all the same participants or L2 learners. As a result, it is harder to discuss the longitudinal changes for some individual players (Danja or Sev) or for Group Z. Having the same WoW players in all three episodes would have allowed for more data for focus on individual learners.

Discussing the generalizability of the findings is complicated. Group dynamics for Group Z were positive and reflected a caring community, established in part by the instructional design. Different languaging patterns and conversational values realizing would likely be found in different groups. On the other hand, many of the distributed constructs developed here are generalizable to other game research: skilled linguistic action, recurrent languaging activities, co-

action, and languaging. The CEFR table from Study 1 matching WoW communicative activities to proficiency level descriptors could also be tested in WoW play by L2 learners and/or teachers in other contexts.

Future studies would probably benefit from a more inclusive video camera perspective for recordings of gameplay. The limitations of a single computer camera capture were mentioned earlier. Another regret is that learner interviews were not carried out systematically following the end of the course. Interviews could have shed new light on the analysis.

The Linguistic Style Match Statistic (LSM) needs further exploration as a tool for assessing the extent to which a dynamic dialogical system becomes more linguistically aligned as tasks are coordinated or problems are solved. For pairs or groups that include L2 learners, it would be helpful to have some basis of comparison for a high vs. low score. There are known to be other means of looking for entrainment, coordination and resonance when studying languaging in dialogical, distributed systems, for example, Cross Recurrence Quantification Analysis (CRQA), which is a method that visualizes recurrence in a dynamical system (see Fusaroli, Konvalinka, & Wallot, 2014).

A new question is based on Steffensen's (2012) belief that dialogical and social systems "incarnate different logics" (p.9). By this, Steffensen meant "recurring patterns, habits, tendencies and inclination" (p.9). He noted that certain patterns in social systems facilitate patterns in dialogical systems and therefore, certain logics of social systems function as affordances. This is a very intriguing idea in light of the finding of recurrent languaging activities in WoW. The patterns of WoW as a social system afforded the recurrent languaging activities of the dialogical systems in each gameplay episode in this analysis. A future project could be to look at what the "logics" of another digital game or virtual world environment are

(what are the tendencies the game culture incarnates) and how do they afford certain patterns in the dialogical systems of players.

Skilled linguistic action, a distributed construct for explaining what L2 learners need to be able to take, was further explored in these studies. It was connected with conversational values realizing, and L2 learners' patterns of initiation and response in gameplay. There are probably other L2 learner activities that can be related to the construct that could be identified in future research.

Other questions for future research are relative to WoW play or to other digital games. For example, what are the effects of longevity of WoW play on affordances for L2 learning over time? Would WoW culture and rules still be an affordance for conversational focus and ease (Newgarden et al., 2015) for more highly skilled or expert L2 learner players? What are the affordances and dynamics of end game play in WoW? How are other multiplayer games different? What are their recurrent languaging activities? What kinds of CAs do they afford and what are the patterns? What are their cultural values and how do they engage co-action and coordination?

A final idea that was suggested by Chik (2014) is to think about how research and instruction can guide a learner's trajectory of L2 gaming practices to support what might be best practices for autonomous learning. This is exciting to think about because this research has found abundant reasons for encouraging L2 learners to play WoW as part of a group or guild. At the same time, there were many benefits to extending L2 learning in gameplay by embedding WoW play within a course and bringing together learners from different communities with different skills and first languages (L1s).

Returning to Gee's (2013) words (cited in Chapter 1) about finding the right ways to integrate technologies so that distributed resources can be shared and the networked collective is more capable of intelligent actions than any individual operating alone, it is clear that MMOGs, including WoW, are technologies that, by design, have compelling affordances for learning. Digital games and their communities are worth exploring so that affordances for learning what matters most for different situations can be identified and captured in instructional designs. Distributed theories of cognition and learning are needed to understand how we can learn a second language or learn to be some other kind of expert by playing an MMOG. Likewise, we need to take a distributed view to understand how the technologies we depend on daily and those we have not even heard of yet can extend our personal ecologies, and used collectively, can shape a new human ecology.

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