Caring in the dynamics of design and languaging: exploring second language learning in 3D virtual spaces

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Abstract

This study provides concrete evidence of ecological, dialogical views of languaging within the dynamics of coordination and cooperation in a virtual world. Beginning level second language learners of Chinese engaged in cooperative activities designed to provide them opportunities to refine linguistic actions by way of caring for others, for the world, and for themselves. Increased target language use in highly-aligned co-ordinations was traced in the non-linear design of problem-solving spaces by looking at how meaning making and values-realizing trajectories were co-developed with semiotic resources and sociocultural material artifacts in goal-directed activities. More significantly, the non-linear design gives rise to two new problem spaces: coordinating problems and emergent problems, both of which promoted caring and individualized values-realization. Consequently, learners’ diverse identity development occurs in connection with localized values-realization and through sociohistorical experiences. Reciprocally, this development allows language learners to discover and create new affordances in coordinating their thoughts, feelings, actions, and values with others in an ongoing cycle of problem solving.

1. Introduction: current trends in second language learning

In applied linguistics, van Lier (2002, 2004) might be considered the first scholar to introduce an ecological perspective to language education. van Lier attempted to make second language acquisition (SLA) more social and ecological through the assumption of affordances for language pick up that are brought forth by perception, action, and interaction. He made a clear call to colleagues in the field to recognize that our body and sociocultural constraints contribute to linguistic cognition as much as our brain, if not even more so. van Lier’s subtle, organic, erudite scholarship has yet to be integrated in SLA, but the critical point to be taken is that there is a synergistic flow that involves the whole person in his/her situated and distributed sense-making projects (Kramsch, 2002; Linell, 2009; van Lier, 2004). Similar perspectives are shared in Lemke’s multimodal identity development (2002, 2009) and Larsen-Freeman’s adoption of chaos/complexity theory (1997, 2006). Kramsch and Steffensen (2008) attribute these developments to ecolinguistics.

From the ecolinguistic perspective, language is a way of gaining access both to the physical world of time, space, and objects, and to the social world of people. van Lier (2002, 2004) suggested, at a macro level, a language education curriculum focus on providing students with experiential, contextual, emergent, and activity-based quality driven experiences, in which learners’ identities, values, and questions are the central components of classroom dialog. Quality driven experiences, such as cultivating appreciation of art, music and sport, are sources of human inspiration and aspiration. Educational standards should not take away aspirations, but rather should work to balance quality with the teaching of some core curriculum.
subjects. At a micro level, Lemke (2002) suggested to applied linguists that the unit of analysis in studies of interactions should be more functionally defined. Human sense making relies not only on the formal linguistic sign system, but also sociocultural material artifacts and sociohistorical experiential events. The interconnection of these modes of experience functionally co-determines the flows of interaction. Thus, “Semiotic practices are conceptualized as ecosocial processes” (p. 70), and processes become the unit of analysis at every level of ecosocial dynamics.

These ecological, functional approaches to language pedagogy or analysis can be contrasted with more mainstream approaches, such as analysis of t-units (a minimal unit or shortest grammatically allowable sentence), type/token, and speech acts on completion of tasks. The idea that linguistic form-meaning correlations sit passively in the mind as a code, waiting to be brought into use as appropriate, has become a mainstream view. This is what Roy Harris calls the “language myth” (Love, 2004). With its core code view of language, the language myth is reflected in methodological treatments that reduce a full communicative project to measurable speech acts, types/tokens, and code-switching. In stressing inscriptions to make sense of a conversation or an interaction, other communicative functions are overlooked. These are all byproducts of what has become the predominant code-view of language (Linell, 2005, 2009).

One may ask, “What is wrong with the code-view of language?” A better question may be, “Have researchers failed to reach a fuller understanding of human social activities as coordinated by language by adopting the code-view of language?” Language can be confusing and misleading unless we overcome the idea that the meaning of words is specified or fixed by a code, and instead apply our knowledge and experience to understand the verbal meanings (Love, 2004) in context. Such confusion and misunderstanding can be intensified in intercultural communications. For example, in communities where two or three languages are common, linguistic signs are typically cross-referenced during a conversation. To an outsider, this kind of interaction looks and sounds confusing and is usually perceived as code switching. However, to insiders, the interacting parties are making sense by utilizing multiple semiotic resources that are at their disposal. They are translinguaging, not switching codes (Garcia, 2009).

The recent distributed language movement1 challenges code views of language and deconstructs the classical view of mind (Kravchenko, 2009), stating that there are no fixed and definite thoughts that correspond to utterances. “Using language is a matter of creatively endowing certain phenomena with semiotic significance in order to operate relevantly on the world in accordance with the exigencies of an incessant flow of unique, real time communication situations” (Love, 2004, p. 532). This unique flow of real time communication is considered by Love to be first-order activity. Love further argued that it is not encoding language that refines our thoughts, rather, second-order sociocultural resources and norms influence our first-order languaging activity. In other words, first-order languaging draws on second-order constructs. Additionally, our everyday languaging and experience of the world impact how we make sense of second-order sociocultural inscriptions and norms in the form of written marks (Kravchenko, 2009). Once we redefine language in terms of first-order languaging and second-order sociocultural inscriptions and norms as two different consensual domains (Kravchenko, 2009), we can begin to examine the relationship between them.

2. Ecological and dialogical approaches to language

A contextualized view of language is theoretically grounded in ecological psychology and dialogical linguistics. Traditionally, language has been viewed as internal to the individual. However, “language can be understood ecologically, as part of a process whereby groups of people regulate their actions and interactions” (Reed, 1996, p. 155). Central to an ecological psychological account of action and interaction is Reed’s notion of mobility that emphasizes the biological, social, dialogical nature of humans in the processes of being and becoming persons. In order to encounter a prey, an animal has to take an exploratory action to perceive what is available for performatory action. Reed (1996) further pointed out that meaning and values, in the ecological sense, are embodied in the experience of mobile and sentient beings. This psychology of mobility allows us to see sense making as a non-linear trajectory of gradually incremental levels of participation encompassing perception, action, parallel interaction, and collectivized interaction2 (Reed, 1996).

Our purpose in exploring our surroundings is to discover what they offer, “good or ill”, to which Gibson (1979) coined affordance to refer to “both the environment and the animal” (1979, p. 127). Affordance is another hallmark of ecological psychology that explains meanings and values as what the environment offers. The meanings and values are potentials of objects and events that a person may realize through his/her interactions with them (Gibson, 1979). An affordance should be understood neither as an objective nor subjective property, but as a dynamic relationship that overcomes the dichotomy of subjective–objective. Hence, affordances are opportunities for action and awareness, not causes or stimuli (Gibson, 1979; Reed, 1996). Two action aspects of affordances differentiate two types of motivation: the effort after information and knowledge that makes up perceptual systems, and the effort after values that organizes the action system (Reed, 1996). By acknowledging Gibson’s important claim that social learning must inevitably be moral learning (Gibson, 1950; Hodges

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1 The Distributed Language Group (DLG) is a grass root group of scholars that “challenges the mainstream view that what we do with language can be explained by individual competencies or microsocial rules” (http://www.psy.herts.ac.uk/dlg/). The implications of the DLG perspective impacts health, education, and ecosystems. This perspective is developed in two volumes: 1. A special issue of Pragmatics and Cognition on Distributed Language and Dynamics, edited by Cowley (2009a, vol. 17, issue 3); and 2. Signifying bodies: Biosemiosis, Interaction and Health, edited by Cowley et al. (2010).

2 Reed (1996) synthesized findings of researchers who studied domesticated cats and chimps. Contrasting the mother cat’s behavior to wild chimps, the chimps were shown to crack nuts, using rocks as tools. This kind of interaction is at least the beginning of cooperative effort that Reed called parallel interaction. When both interaction parties recognize a task and its process, Reed counts this effort as a collectivized interaction.
and Baron, 2007). Hodges (2009) further characterizes values, not as properties of persons or objects, but in terms of “relationships and the demands that the ecosystem places on those relationships” (p. 634).

Recognizing an agent’s need for meaning and values in first-order languaging activity, Hodges (2007a, 2009) expanded on ecological psychology concepts to address social psychological factors, proposing that conversing encompasses three systems: a perceptual, an action, and a caring system. Viewed as a perceptual system, first-order languaging is not based on decoding of signs with fixed meanings, but rather in participating with other speaker/hearers to jointly create and sustain dialogical arrays of meaning potentials and gestures in any given situation. In understanding conversing as an action-system, human agency allows us to explore not only dialogical arrays, but also to take exploratory and performatory actions to realize values in the complexity of dynamical interactions (Reed, 1996). Finally, in viewing conversing as a caring system, we move away from understanding utterances as representation and tool-use, and toward seeing utterances as goal-directed means for realizing values. To care and to be cared for require conscious awareness, as well as actions and interactions that human agents can engage in directly by being attuned to the world.

The sociocultural allusion in ecological psychological accounts of language becomes explicit within dialogism. Linell proposes the quadrilateral diamond model of communication (hereafter the diamond model) of “I, it, you (thou), to include we/one” (p. 95) to complete the triadic models of I-you-it (Markova, 2006, cited in Linell, p. 96; Reed, 1996, p. 136). In the diamond model as shown in Fig. 1, “we/one” refers to the sociocultural norms. “It” refers to the identities and the nature of the things that are in functional relations with the “I”, “you” and “we/one” (p. 96). This extension of the model brings the idea of human awareness of “the absent third parties” into the light. The “we/one” embodies different forms, such as “persons, groups, generalized others, and cultural norms and including language” (Linell, personal communication). Next, I will explain how the diamond model can reshape second language acquisition theory to incorporate a dialogical perspective.

As views of second language acquisition have broaden from focus on cognitive processes to social practice, much attention has been paid to sociocultural theory. This shift from the ‘subject–object’ (e.g., I-you) monological interactions to I-You in sociocultural contexts is different from a “full blown dialogicality” as shown in the aforementioned diamond model. Specifically, the sociocultural context is not part of a relational structure that functions dynamically with other coordinates on the diamond (Linell, 2009, p. 258). For example, studies that applied sociocultural theory in examining linguistic development emphasized mediation by peers for scaffolding in the zone of proximal development (e.g., Donato, 1994; Shea, 1994). The concept of artifact- and object-mediated action was reduced to language (sign) mediation. Other cultural factors, such as the absent third party or tools, have generally been overlooked in sociocultural accounts of language acquisition. Generally, language development is traced to the interaction between “I” and “you” rather than, as in the diamond model, by treating languaging as orchestrating “I-you-it-we” in full blown dialogicality (Linell, 2009). In full blown dialogicality, the diamond system is embedded within a dynamic time-space dimension, so that situated interactions between agents are also situation-transcending. When interacting parties deploy and appropriate both the sociocultural resources ("it") and the absent third parties ("we") in situated interactions, learning involves change from prior situations and feeds forward for future situations.

Together, the concepts of mobility, affordances, non-linearity, conversing as a perception–action–caring system, and dialogicality serve as a theoretical foundation for this article. In fact, the diamond model connects language at "an intermediate scale between micro-neural processes and large-scale muscle movements," and between “the identity of an individual agent and the larger social-moral context in which that agent acts” (Hodges, 2007a, p. 601). Thus the diamond model can be seen as an open system in which other theories can function and interact with to explain both micro- and macro-interactions. As shown in Fig. 2, I attempt to illustrate how the dialogical model and the ecological meaning-making and values-realizing system co-function for situated and situation-transcending practices. On this new eco-dialogical model, values guide the selection and revision of goals across diverse time–space scales, under which the sociocultural norm “we” (laws or rules of phonology, syntax, or semantics) are nested. In other words, we are guided to coordinate, cooperate, and sometimes compete by the values of any ecosocial semiotic environment, rather than being constrained only by laws and rules (Hodges, 2007a). The dynamics between our need to communicate with others and the demand ecological niches place on relationships established by communicating never end, but our perception and action get finer, wider, and richer over time.

**Fig. 1.** Linell’s (2009) quadrilateral diamond model of communication. The forward pointing arrow in the background indicates continuous recontextualizations across time and space.
In summarizing this section in the context of my study, I applied the ecological concept of language as a system for perception, action, and caring, and designed problem-solving activities that invited language learners to seek meanings and realize values. Together with Linell’s diamond model, I used the eco-dialogical model to analyze the languaging activities taking place in the virtual world of Second Life and guide my efforts to discover how learners coordinate their (inter)actions during problem solving. In the following section, I will describe the learning environment in which this study took place, recount the design process, and provide design evidence of how caring can be present in coordination and cooperation.

3. Virtual worlds and second language learning

3.1. Second Life and its potential for eco-dialogical interaction

Second Life is a three dimensional virtual world developed by Linden Labs (http://secondlife.com/). This free client program enables its more than 1 million registered users, called residents, to interact with each other through avatars (an avatar is a virtual persona of self represented by a three dimensional model). In Second Life, avatars travel to places that are designed by other residents and participate in activities organized by groups via text chat and voice chat. As when we move about in real life, perspectives change as avatars (controlled by keyword input) travel; for example, the ability to hear changes as they move away from their avatar conversational partner. In addition, users can embody themselves in their avatars through their choice of gender, fitness, and age, or as animals, plants, etc. In contrast to a 2D technology, such as a website, a 3D Second Life island can not only host similar kinds of information, but can do so in the form of 3D models, in combination with text descriptions (http://en.wikipedia.org/wiki/Second_Life).

At this formative stage of virtual world development for education, many institutions see the potentiality of Second Life for their programs of interest, imagining, and sometimes implementing, ideas ranging from offering distance learning or blended learning courses in random public spaces to building their own islands. Aside from recognizing the aesthetic value of Second Life and making use of certain functional objects in the world, I am concerned that many existing educational islands/sites within Second Life do not take up the unique affordances of virtual worlds. This immature development may be the result of the myriad affordances of an open meta-verse, which is different from game-based virtual worlds as Brown and Thomas (2009), p. 2 described:

Virtual worlds are persistent, avatar-based social spaces that provide players or participants with the ability to engage in long-term, joint coordinated action. In these spaces, cultures and meanings emerge from a complex set of interactions among the participants, rather than as part of a predefined story or narrative arc. At least in part, the players are the ones who shape and to a large extent create the world they inhabit. While many virtual worlds provide the opportunity for that kind of world to emerge, game based environments, such as World of Warcraft or Eve Online, illustrate it best because of the intense degree of coordinated action and co-presence among players.
The kinds of game-based virtual worlds that Thomas and Brown talked about are imbued with a backstory, quests, missions, and dungeons and dragons. In terms of Linell’s diamond model, these function to invoke absent third parties of the sociocultural “we/one”. Built-in material and cultural artifacts are able to become affordances for players to create teams, groups, and guilds, in which joint actions can be coordinated and sustained. Thomas and Brown, as well as many others, consider joint coordinated action to be a critical condition for learning, yet many educators have not fully recognized the underlying mechanism for coordination and cooperation. To this end, it is reasonable to recognize the role of absent third parties, and their functional and reciprocal relationship with coordination/cooperation and values realizing. Hodges (2007a) defines coordination and cooperation as follows: “Coordination among humans involves two or more intentional agents synchronizing their activities; cooperation requires their working together to achieve a common goal” (p. 154). The synchronized coordination is sometimes called co-action (Cowley, 2011; Wegner and Sparrow, 2007). For understanding virtual world avatar-embodied interactions, Zheng and Newgarden (2012) theorized two types of co-actions: (1) avatar (our extended body in the virtual world) and our own body, and (2) co-acting avatars. Coordination and co-action will be used in this article interchangeably when coordination is referenced to inter-personal coordination between avatars that is enabled both by voice and text chat and by movement in the virtual space. In this animate perception–action system, players engage in both intentional and exploratory movements as they discover values and meanings allow them to proceed. Therefore, by tracing to the eco-dialogical model of interaction, I argue that it is our experience of movement and also movement that can be synchronized that underscore the mechanism of coordination and cooperation. In the movement of our bodies in and with the world, we notice absent 3rd parties that can bring us to alter and improve our thinking-as-we-move/act. We gradually align our meanings and actions with each other to coaction. Coaction gives rise to outcomes that could not have been predicted: it sets off synergies whereby events in one scale lead to emergent change in another (typically faster) scale.

3.2. The Quest Design: Retrieve Emperor Yue Goujian’s Sword

The Confucius Institute at Michigan State University created Second Life Chinese Island to serve the needs of adult learners aiming to fulfill college graduation requirements or personal language needs. In order to immerse distance-learning students in real-life languaging experiences, the island was built with functional oriental architecture (see Fig. 3), and opportunities for coordination and cooperation that allowed for multiple modes and trajectories of learning.

Retrieve Emperor Yue Goujian’s Sword (the Sword Quest) was developed as a part of a virtual quest curriculum.3 What distinguishes the Sword Quest from the rest of the curriculum is the design intention of embedding values-realizing activity so that caring for each other, the community, and the world serves the larger context. In addition, I integrated the ecological concept of mobility, which encourages questers to take exploratory and performatory actions to solve complex problems in virtual space. It is in this complex problem space that hierarchical non-linear dynamical meaning making and values realizing are located. Taking cues from game studies (Gee, 2007) and non-linear interactions (Reed, 1996; van Lier, 2004), the Sword Quest design included design team members with online role-playing game experiences. Non-linearity was accommodated through inten-
tional embedding of correct and incorrect information or clues throughout the island as designed problems for questers to solve. The clues were mostly “carried” by Non-Playing Characters (NPCs). NPCs’ roles ranged from a museum manager, museum guard, janitor, florist, newspaper seller, and fishmonger to a Kongfu master, street sweeper, a homeless man, and pedestrians. Further clues could be found in logical locations in the city once players correctly understood initial clues (e.g., finding a boat ticket receipt in the trashcan of the Seaside Park).

In addition to designing for non-linear problem spaces, caring was fostered by embedded tasks that required cooperation and coordination. To decrease the likelihood of learners randomly clicking and clue hunting or simply seeking rewards, which may lead to exploratory perception and action but only superficial interaction, a caring message was delivered in the larger context of the Sword Quest:

During this journey, you will work with each other and negotiate where you should go with the clues you located. On Chinese Island City, we value friendship, community and sharing. The city will be a better place if you take care of each other during this journey and it is not “very Chinese” to take on the task alone.

Placed in the context of this caring community with multimodal resources, learners may be able to pick up the values of the island and together, with a positive spirit of coordination and cooperation, begin a journey that could be fun, challenging, and sometimes, frustrating and scary.

4. Research questions and methods

4.1. Research questions

With a starting point in the theoretical remarks above, I turn to the following research questions, with the aim of contributing to an understanding of how caring in design and conversing unfold.

1. How do beginning Chinese language learners make it possible for Chinese signs to have a useful function for them?
2. How do resources serve as foci for the major efforts of individuals participating in problem-solving activities?
3. How does a learner’s identity emerge in and contribute to the coordination of actions and interactions?

4.2. Data

This study stemmed from data collected during design and implementation of a semester-long distance learning course. In this design-based case study, I had the role of lead designer, and also observer, in the questing (problem-solving) sessions (with the Second Life name MinnSU). The following profiles (in pseudonyms) will provide a historical time-scale of co-questing (problem solving) for the Sword Quest. Kate, a director in the foreign language department of a private girls’ school in southern California, teaches Spanish and French. Kate was not a computer geek, but savvy and comfortable in climbing the steep learning curve of the Second Life virtual world. Kyle was a second year finance student in a northern community college who learned French in college and for whom Chinese is the second foreign language to be learned in the context of this course. Kyle played video games as a hobby. Al was a final year computer science student in the same community college as Kyle, but they had little contact during the school year in real life. Al was also a gamer, and this was the first foreign language class he had taken.

4.3. Data selection, parsing and notation

Data was collected during regular online class sessions by using video screen capture technology, Fraps and Camtasia. It took the triad (Kate, Kyle, and Al) three hours in 2 separate days to complete The Sword Quest. Using Transana video transcription and analysis software, both verbal (including audio chat and text chat utterances) and action data from three hours of co-questing in the virtual space was transcribed. Voice chat data was transcribed verbatim, text chat was synchronized with the voice chat, and action data was transcribed in descriptive language. Both videos evidenced good representation of the whole questing activity, and patterns that were identified will serve the research questions that focus on caring and languaging in virtual spaces. The chat and action transcriptions are presented in the following format:

Kyle: Oh, you are right. → Voice chat conversation
((MinnSU: Kyle, Ni zai naer?)) → Text chat
/Kate walked to the Janitor NPC/ → Avatar action transcription

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4 The online (4 h credit) adult class was organized into two managerial sessions. I was the main instructor of three students in one session and a doctoral student was the main instructor of three students in the second. Both sessions ran in the following manner each week: 1.5 h of regular new material “Teaching Session” with the instructor, 1.5 h “Questing Session” with tutors or alone, and one other hour of “offline self-study”. Throughout the semester, there were 15 quests completed during the questing session. The Sword Quest session from which this research study data stemmed, took place towards the last quarter of the semester. In this study, I purposely selected the session in which I was the main instructor.
Other symbols appearing on the transcripts follow the Jeffersonian Transcription Notation (Jefferson, 1984). Participants’ voice chat in Chinese is transcribed using Simplified Chinese Characters. In the text chat, participants mainly used the Romanized form of Chinese language, called Pinyin. Translation adjacent to the original utterances and in the body text is in italics. Only Chinese is translated when there is language 1 and language 2 translanguaging in the translation line.

4.4. Units of analysis

Hodges (2007b) compared the unit of analysis, abstracted sentences, commonly used by cognitivists, to dialogical activity, in which listeners have to act in coordinated and cooperative ways with collectivized effort in order to keep the conversation going. Hodges argued that the non-specificity of semantic or syntactic units disappears rapidly as agents explore dialogical arrays. What is ambiguous or unclear for a single person when an utterance is abstracted from its physical-social context is revealed in the coordinative activity of people interacting on a joint task (Hodges, 2007a). In the dialogical arrays of variants and invariants (unstable and stable information), “good conversations create movements that afford the unfolding of still more affordances, and richer ones” (Hodges, 2007b, p. 174). To uncover the affordances of good conversations, I used Linell’s (2009) communicative project (CP) as a unit of analysis to parse the multimodal data and examine meaning patterns at a multiple scalar level; such parsing can contribute to making sense of long episodes of non-linear problem solving processes in a virtual space (Lemke, 2002). CPs were parsed into the smallest analytical unit including three utterance turns taken by persons A and B in the form of ABA as the minimal communicative interaction. This helps reveal discourses as “a flow of projects” varying in size and overlapping with and nested into each other (p. 188). Many communicative projects are linked and subordinated to overarching projects that are basically non-communicative in nature. Communicative projects deal with topics and actions that participants are concerned with or interested in at least for the moment in a particular situation.

4.5. Multimodal analysis

Multimodal analysis emphasizes the co-development of space and hand-arm movement as meaning-making resources (Baldry and Thibault, 2006) in first-order languaging (Thibault, 2011). These resources do not simply function as fixed building blocks, but “leakage across levels” of CPs and nested-CPs is part of the way in which a hierarchy of meaningful units and relations functions in discourse (Baldry and Thibault, 2006, p. 144). The video data sampled in this study is a recording of avatars’ actions and interactions. Thus, hand-arm movements are less of a semiotic resource than they would be in face-to-face situations. However, avatar embodied movement in the virtual space has analytical significance in which mobility allows questers to engage in situated (local) and situation transcending (non-local) practices. The locations (space) where questers find resources can contribute to meaning-making significantly both in the situation and in future events. For example, the meaning-making concerning a clue provided by the Kongfu Master can affect the quester’s decision making in terms of movement to the next target.

5. Results

In this section, I illustrate how multimodal analysis helps reveal questers’ use of L1 and L2 in solving problems (goal seeking behavior), creating resources (learning to create affordances to seek good prospects), and caring for each other.

5.1. Caring for each other: solving coordinating problems

CP1 and CP2 demonstrate that the learners expressed their emotions and developed a bonding relationship on their questing journey by way of expressing humorous and caring statements. As shown in CP1, Kate shared with her teammates that “this is fun” in line 2 and “I am scared” in line 6. In Lines 3 and 4, Kyle and Kate joked that the thief must be one of the tutors, Jin, because “他很高个子” (He is tall.).

Although the three questers usually worked together to solve problems presented in NPC texts or other problems, on many occasions the three developed a caring relationship through co-action, for example, when Kate checked from time to time whether Al was with them as a team, as shown in episode CP2 (lines 2 and 3), “Al 在哪儿?” (Where is Al?) and Kyle responded, “Al 在这儿.” (Al is here.). Sometimes, they co-created new affordances. For example, when the clues led them to the apartment building, Kate told Al that they did not have a search warrant and therefore the right to search the apartment building. Five minutes later, Al made one and gave it to Kate and other questers. The warrant he made said, “We have permission to go wherever we want on Chinese Island”.

5 In Second Life, one can make a note and pass it onto other questers by dragging it to the avatar.
5.1.1. Communicative project 1

Location: On the way to the apartment building (see Fig. 4) (0:25:00.9–0:26:36.7)

1. Kyle: 走吧！
   Let’s go!
2. Kate: Oh, 走吧, 走吧. This is fun.
   Oh, let’s go, let’s go.
   /Al jumped high and moved quickly in front of everyone and arrived at the front of the Apt building./
3. Kyle: I think it is Jin. He is tall.
   He is tall.
5. Kyle: I will go upstairs. ((…))
   Okay.
   /Kyle and Kate walked into the building./
7. Kate: (We don’t have a search warrant) Al, are you walking in the house.
8. Al: (I am going to make a search warrant.)

5.1.2. Communicative project 2

Location: Fish Market (0:02:15.6–0:02:28.4)

1. /Kyle met Al in front of the fisherman, tutor and instructor were behind them./
2. Kate: Ok, Al 在哪儿? 何是 Al?
   Al is here.
4. Kate: Uh, 他, OK, 好的, 好的.
   He, OK, OK.

As Cowley (2011), suggested, coordination gives rise to strategic use of artifacts, wordings and other second-order constraints, “we learn to sense and predict what people feel, want and think” (p. 192). In co-ordinating about their artefacts, locations, and feelings, the questers used both Chinese and English to solve problems that were designed for them, as well as mini-problems that emerged during their interaction. CP1 and CP2 are conversations for solving mini-problems in which they realized their values of caring for community (e.g., creating a search warrant), each other (e.g., concern about each other’s whereabouts), and self (“This is fun!”). It is within the activity of travelling to different locations as their avatars that the questers had the opportunities to constantly evaluate each other’s well being.
5.2. Negotiation for action with the pagoda NPC: solving emergent problems

CP3 demonstrates the problem solving interactions resulting from pursuing the wrong goal when questers missed two important clues earlier in the museum and in the park behind the Beijing Hotel. Even though they missed one clue in the museum from the guard, “他看起来三十岁左右, 戴着一个蓝色的帽子” (He looked like he was in his 30s and wore a blue hat), the clues carried by both the Kongfu master and the street sweeper in the park provided a critical piece of information (that they both saw a man with a blue hat) which would help them proceed. The questers have learned not to decode meaning word by word, but to predict from a marker, “a man with a blue hat.” The last clue they found in the park from the Kongfu master and the street sweeper was similar in syntax and meaning, but the blue hat man was seen in different locations, although at a similar time. The Kongfu master says, “看见一个高个子, 带着蓝色帽子的 男人” (Saw a tall man, wearing a blue hat) while he was warming up in the Seaside Park. Similarly, the street sweeper says, “我看见一个人在大雁塔附近, 他戴着一个蓝色的帽子.” (I saw a person near the Pagoda, he wore a blue hat). The questers did not realize that both the Kongfu master and the street sweeper saw a man wearing a blue hat at the same time, but in different locations. The questers did not pick up the difference between the clues given by the Kongfu master and the street sweeper. However, the pursuing of a wrong goal and a wrong man with a blue hat in the wrong location (at the pagoda) provided opportunities for them to play out their social identities.

5.2.1. Communicative project 3

Location: Dayan Pagoda (Dayan Ta) (see Fig. 5) (0:00:19.6–0:01:46.2)

1. Kyle: Oh, uh, 我找不到。No, no, no. [我找蓝色帽子。I found it. [I found blue hat]

2. Kate: [(This is) 大雁塔, (This IS) 蓝色的帽子!] [Dayan Pagoda. blue hat!]

/Kyle, MinnSu and Jin were in front of the NPC with a blue hat./


4. Kyle: Yeah. (…)

5. Kate: Oh, I didn’t see it.

6. Kyle: Poke him!

7. Kate: 我能帮你什么吗? (Kate was reading what the NPC says.) What can I do for you?

/Kyle walked on the steps to the entrance of Dayan Pagoda./

/Al showed up in a blue scarf next to MinnSu./

/Kyle bounced back to the grass./

8. MinnSu: [(laughing)]

9. Kyle: [da nei]

/Kyle pulled out his gun towards the NPC/ Kyle: Ok, tell me all the resources you know.

/Kyle was talking to the NPC./

10. Kyle: 一支剑在哪儿?

/Where is a sword?/ Al brought a machine gun colored black./

/Al step forward and started shooting to the NPC with a blue hat/ Everybody is laughing very hard./

/Al walked backwards with this machine gun/ Kyle stepped up toward the NPC./ How are you, grandpa? How are you, How are you? I am looking for a man./

/Kate stepped up toward the NPC./

/Al stepped towards NPC with new machine gun colored yellow and blue and backed up to the left side./

/Kyle moved to the right side of the Dayanta entrance and walked behind the Dayanta./

11. /MinnSu and Jin burst into laughing./

12. Kyle came around to the left side and stopped in front of the NPC./


/Would you like some tea? Hehe.

14. /Jin, MinnSU burst into laughing and Kate laughed after her serious question to the NPC./

Kyle and Kate almost simultaneously found “the blue hat man”. Kate was excited and almost screamed, “This is Dayan Pagoda! This IS the blue hat” in CP3, Line 2. However, the NPC sitting on the walkway of the pagoda was only responding, “我能帮你做什么? (What can I do for you?) They tried various things to make the blue hat NPC say more than “What can I do for you?” Both Kyle and Al rezzed (a SL term meaning to resurrect or to make appear by calling the object forth from an inventory
of object files) their guns out from their inventory and threatened him; for example, Kyle said to the blue hat NPC in a serious tone first in English, “Ok, tell me all the resources you know” (Line 10). When there was no response from the NPC, he asked in Chinese, “一 支 剑 在 哪 儿?” (Where is a sword? Line 11). After they failed to get further information, they tried to get into the pagoda by pushing their avatars into the small entrance and they tried to fly up to the top to find more information. While Kyle and Al kept shooting the blue hat NPC, Kate talked to the NPC in a much softer tone, “你 好，公公，你好，你好吗? 我找 一 个 男 人” (How are you, grandpa? How are you? I am looking for a man.” Line 13). And in line 15, she further acted out pragmatically, “你 喜 欢 喝 茶? 呵 呵.” (Would you like some tea? Hehe.). The three of them acted in different ways to try to elicit a different response than “What can I do for you?” from the blue hat NPC. Their collaboration is quite different from CP1 and CP2, where they highly coordinated their actions by caring for each other and the community on the way to find the blue hat man. Later on after this special event with the blue hat NPC, their collaborative spirit returned when they found the sword and returned it to the museum.

The goals the questers tried to achieve were the same in this short detour, but they demonstrated different negotiations for action in realizing what was provided in the environment (Zheng et al., 2009). If Hodges is right that “conversations are about seeking good prospects, caring for others and self, and inviting responsible action,” we can explain Kate’s caring way of interacting with the NPC, but then how can we explain Kyle and Al’s acts and interactions? Might it be that the NPC was just another non-living character? Might it be that in the virtual space, guns are critical tools to get ends met? Might it be a gender issue? Based on all these likely “might-bes,” I conclude that social cultural artifacts available in Second Life afford learners opportunities to take actions that are in relationship with their sociocultural and historical dispositions.

The dynamics of perception and action systems, such as verbal interacts, typing interactions, shooting guns, and flying, set off connotations associated with cultural patterns, which link the local to the non-local (Cowley, 2009b), in other words, from situated interaction and situation transcending practices. It is in this temporal sense that Kate, Kyle and Al’s agency co-emerged according to the spatial specifications of the environment in which sophisticated cultural artifacts, such as Dayan Pagoda, tea offering, and gun shooting all provided semiotic significance for meaning-making and values realization.
5.3. Co-action for the community: solving carefully-designed non-linear problems

CP4 captures the questers’ triumph as they went back to the museum to return the sword that they found on the boat (see Fig. 6). CP4 was accomplished by three main nested CPs and sub-nested CPs of informing the museum manager of finding the sword, showing the sword, and giving it to the manager. In this final episode, the museum manager was transformed from an NPC to a real person (MinnSU). The first nested project (Lines 1–6) of opening the conversation by telling the museum manager that they found the sword was coordinated perfectly with wordings and actions. Kyle initiated it (Line 3) and Kate repeated (Line 4), “我们找到了” (“We found it.”) The second nested project (Lines 7–13) of showing the sword to the manager was coordinated with one negotiation move of confirmation by Kate (Line 9). It is worth noting from the multimodal analysis that questers co-acted with their avatars and with other questers (Zheng and Newgarden, 2012). When MinnSU asked, “给我看看” (Let me take a look.) (Line 8), Kate responded with a tone of both confirmation and coordination to Kyle and Alex (So we will give it to them? Line 9) in English. Kyle responded to MinnSU, “在一剑我的后面” (It’s behind me.). MinnSU did not see it and asked again via text chat, “zai naer3?” (Where is it?) Kyle completed this request first by flying his avatar to the sword (co-action with his avatar), and then by confirming verbally with his avatar next to the sword, “在这儿!” (Here it is! Line13). At the same time, Al did not say anything, but his avatar, flying down from the ceiling to where the sword was, completed the request as well.

5.3.1. Communicative project 4 and nested communicative projects (NCPs)
Location: Museum – post (see Fig. 7)

1. Kate: (This is in Al’s 手里) 越王勾践的剑。
   (in Al’s hand) Emperor Yue Goujian’s Sword.
2. MinnSU: ((wo shi jing4li3, wo3 neng2 bang1 ni3 shen2me ma?))
   I am the manager, what can I do for you?
   /Kyle walked to the front of the desk./
3. Kyle: ((wo men zhao dao le!))
   We found it.
4. Kate: 我们找到了 (Kate is repeating Kyle).
   We found it.
5. MinnSU: ((Tai hao le!))
   Great!
6. Kate: 太好了。
   Great.
7. MinnSU: ((Gei3wo kan4kan ))
   Give me and Let me take a look.
8. Kate: 给我看看 (Kate is repeating MinnSU).
   Let me take a look.
   /Kate walked closer to the front desk./
   /MinnSU walked out of the front desk area./
9. Kate: So we will give it to them?
10. Kyle: Oh, yeah. 一剑, oh, no wait, 在一支剑我的后面。It’s behind
    the dude, right there.
    One sword, One sword is behind me.
11. MinnSU: ((zai naer3?))
    Where is it?
The third nested project, NPC 4–3 (Lines 14–22), was about returning the sword to the museum manager. The Chinese word ‘’给’’ (give) is the focal action that is crucial to complete the project. In addition, it required two sub-nested projects for the questers to coordinate the action and confirm the meaning of “give” in Chinese. “给” (give) first appeared in the context of returning the sword, which was initiated by MinnSU (Line 14). The first sub-nested project (Sub NCP 4-3-1) involved Kate and Al’s (Lines 14–17) coordinating in response to MinnSU’s request for the sword. Kate indirectly requested Al to give the sword to MinnSU, ‘’你有越王剑?” (Do you have Emperor Yue’s Sword?) However, it was interrupted by Kyle’s uncertainty of the word meaning of ‘’给’’. Consequently, the second Sub NCP (4-3-2) emerged, in which Kyle requested the meaning of ‘’给’’ (Lines 18 and 19). Kate responded with a question tone, ‘’is that give?’’ And sounded out ‘’给我,给我,好吗?’ (Give it me, Give it to me, Okay?). Without the action of spreading arms to make an embodied gesture as in real life when MinnSU requested the sword, Kyle had only the pure wording of ‘’给我’’ and had difficulties co-acting in the transaction involving the sword. However, with the presence of his co-questers, he indicated his uncertainty, even though he successfully co-acted with MinnSU and co-questers in NCP4-2 when MinnSU requested in text chat “Gei3wo kan4kan” (Give me and Let me take a look in Line 7). Kate was able to confirm Kyle’s uncertainty and moved forward with MinnSU’s request by coordinating with Al ‘’Can you give MinnSU the sword?” in the second half of Line 19. Then the problem of “给” in both meaning (Kyle’s uncertainty) and action (MinnSU’s request) was resolved by Kyle, who confirmed that the sword had been deposited to MinnSU’s inventory under the Objects folder (Line 21). It was a good play by the three of them and illustrated collectivized and synchronized acts and interacts; in other words they were in co-action, which gives rise to an unexpected outcome of renewed deeper understanding of “给我” demonstrated by the action of successfully returning (giving) the sword to MinnSU.

/Kyle jumped up to the large sword. MinnSU walked back.

12. Kate: 在哪儿?

   Where is it?

13. Kyle: 在这儿!

   Here it is!

   /Kate walked behind the front desk where Kyle was./

   /Al walked went down the open ceiling area where the sword was./

14. MinnSU: ((gei3wo, hao ma?))

   Give( it to) me, Okay?

15. Kate: Oh, 给我,好吗? (12 seconds pause) Al?

   Give it to me, Al?

16. Al: Yes?

17. Kate: 你有越王剑?

   Do you have Emperor Yue’s Sword?

18. Kyle: I am not sure What MinnSU means by 给我

   give me.


   Give me. Give me, OK? Give you, give MinnSU Gongjian’s Sword, OK?

   /Al, Kyle and Kate stood at the back of the front desk, the open garden area. A huge sword was hanging above Al./

20. MinnSU: It should be in my inventory, right?


22. MinnSU: ((congratulations!!!))
6. Discussion

6.1. How do beginning Chinese language learners make it possible for Chinese signs to have a useful function for them?

Can second language education get away from the language myth that suggests that meanings and forms have to be taught before a conversation is possible and that L2 communication can only be possible when cognition takes place before languaging? Linell (2009) argues for primacy of action over language, and the synchronicity of cognition and communication. In the communicative projects presented above, thoughts embodied in actions, feelings, and values are coordinated intra-personally with the assistance of written representations in the form of notes and dictionaries. When these semiotic resources embodied in the materialized objects in the virtual world (representing “it” in the communicative diamond) are picked up, they become affordances for beginning language learners to coordinate with each other (Cowley, personal communication). This inter-personal coordination is where the relationship between intrinsic values, persons, and the material world intersect. Therefore, it is the coordination of interaction that has primacy over individual agency or sociocultural environment (Linell, 2009). If there is no inter-personal coordination, there is no need for languaging. As a result, language resources remain inert in the second-order abstract system. With coordination, new possibilities for action are created and projected for the ongoing seeking of the goods of the game (Hodges, 2007a).

What could cause the questers to change from using words merely to indicate things into being capable of coordinating in the target language, creating propositional structures that are well formed according to the rules of the language? Based on the results of the analysis of nested and sub-nested Community Projects, I primarily attributed the change in language to the dynamics of perception, action, and caring systems (Hodges, 2007a, 2009). These dynamics were shaped in the different problem solving spaces which I described in the results section. Interactions which took place in CPs 1 and 2 are instances of coordinating problems that gave rise to a collectivized action-taking behavior in which questers looked after each other in the situations of being scared and having fun together. Secondly, for the dynamics to occur in virtual space, non-linear mobile activities that demanded coordination and cooperation had to be designed. One such designed problem generated the interaction which took place in CP4, where questers were prompted to bring the sword back to the museum, and were highly coordinated individually and with others in the languaging of returning the sword. Thirdly, emergent problems, as a result of non-linear design, have to be taken into consideration. For example, in CP3, the distracting, yet logical artifact, the blue hat NPC by the Dayan Pagoda, was designed to provide questers with opportunities to engage in a non-linear trajectory in order to check their meaning making of the previous clues. However, what the learners made of it was quite unexpected, resembling the pattern of how we solve new problems in the real world. In sum, these problem spaces fostered caring for self, community and the world. In this larger context of caring, language that coordinates activities and makes meanings enriches our organic memory (Cowley, 2011). Gradual increase of Chinese wordings became more orchestrated towards the end of co-questing.

6.2. How do resources serve as foci for the major efforts of individuals participating in problem-solving activities?

As revealed in the CPs and screen captures, the meaning-making resources are distributed in virtual spaces, including the macro layout of the physical space, the static clue notes that were designed into the virtual space, dictionaries, and learners’ own notes that were collected in their inventories. All of these can contribute to the pedagogical design of non-linear prob-
6.3. How does the learner’s identity emerge in and contribute to the coordination of (inter)actions?

In answer to the second research question, resources themselves cannot serve as foci for the major efforts of individuals participating in problem-solving activities; only when resources turn into affordances do they have functional values which allow individuals to coordinate their learning pathways and the collective non-linear trajectories of problem solving that each individual takes effort to participate in. Review of some CPs and nested CPs in which agent-environment relationships are established clarifies how multimodal analysis reveals this. For example, Al created a search warrant in order to make the questers legitimate in searching the apartment building for the blue hat man; and both Al and Kyle rezzed a gun from their inventories (e.g., in CP4) to threaten the NPC to talk. We can see that the questers not only perceived and acted on the ordinary resources, such as notes and dictionaries for meaning making, but also integrated them to create new ones to augment both linguistic and bodily actions. Both examples speak to the nature of human’s dialogical practices, which are both situated (searching for the blue hat man) and situation transcending (making a search warrant to make the search legal) (Linell, 2009). It becomes clear from the above summary that questers drew on second-order resources and made meaning, embodied in material artifacts, available to each other. In this sense, meaning-making is distributed across linguistic and material resources, human agents and time–space scales. In sum, I attribute the questers’ gradual alignment of their coordination to collectively seek good prospects to the demand of the quest problem spaces and Second Life environments.

To make a further contrast with monological interpretations of interactions, interaction studies in traditional SLA only account for the information retrieved from the head as far as resources (considered as input in traditional SLA terms) are concerned. This overlooks the dynamic affordances created on the fly during coordination. However, using the eco-dialogical model, I was able to capture the heterarchical relationships involved in the interaction at different scalar levels and time scales.

During coordination, questers engaged in a co-temporal and co-affective cooperation by perceiving affordances and feelings (Harris, 2004; Stuart, 2010). These experiences prepared questers for future collective interactions (co-actions), as well as the transformative play of questers’ identities.

At the end of the questing that took place in the pagoda, the boat, and the post-museum, all three questers initiated (inter)actions. The simple clue “What can I do for you” by the NPC, and the special location and sequence of the clues, afforded the negotiation for action for all questers. This emergent problem space afforded questers to enact their identities while their emerging identities also contributed to the interaction. Furthermore, the dialogical arrays created by the play in identities were not only rule following, but also both amusing and serious. As instantiated in CP4, Kyle “threatened” the NPC with guns; and Kate “respectfully” offered tea to get more information. These instances directly speak to Hodges’ theorizing of language as a caring action–perception system in which utterances cannot come to function until the person takes them seriously (2009). The playful and seriousness (within the quest problem spaces) transcended the questers’ dialogical and ecological identity. In these projective movements, their identities and language were transformed by the environment and in turn a new set of affordances were created for new cycles of perception–action, and interaction possibilities.

7. Conclusion and implications

To address learning as a holistic phenomenon, rather than as “in the head” processing, all aspects of quest design, interaction, and data analysis are grounded in ecological and dialogical perspectives. It is worth revisiting how these perspectives functioned in this study.

First of all, by using an eco-dialogical model embracing Linell’s full blown dialogicality, as well as ecological concepts from Gibson, Hodges, and Reed’s original theorizing, I created a multimodal analysis of caring and languaging experiences that offers a dynamic, complex alternative to the simplified “container” view of context that the sociocultural description of language acquisition offers. The eco-dialogical model highlights the distributed characteristics of language and human sense-
making activities, and reminds us that in the processual relational ecosystem, we not only need to include “it” and the socio-cultural, as present in communication, but also space–time dimensions. That is, “the present communicative project has relations to the past and a projected future” (Linell, 2009, p. 97).

Secondly, by acknowledging that “values are ecological” (Hodges, 2009), I was able to investigate how questers realized values demanded by the ecosystem by drawing on second-order, sociocultural, and linguistic norms. Dominant SLA research accounts of monological information exchange overlook the dialogical absent third parties and the material artifacts that are integral in any human communication. In the spirit of conversing as caring for oneself, our communities, and the world, I echo Hodges (2009) that conversing is not about code transfer, but is constrained by codes in which values realizing comes to the fore. Conceiving language as first-order languaging and second-order norms can shed light on rethinking language learning in dynamic terms.

Finally, by applying ecological and dialogical perspectives in the study, and by using Zheng and Newgarden’s (2012) argument for seeing virtual world technology as a catalyst for change, I argue that virtual technology opens up new possibilities. It not only allows designers to provide learners with social, historical, and cultural materials to augment action and interaction across space and time, but also, in a much more tangible way, it allows researchers to re-experience learners’ trajectories.

In conclusion, this study investigated how Chinese language learners solved different problems in a series of expected and unexpected interactions in a virtual space. As revealed in the analysis and discussion sections, two new problem spaces, coordinating problems and emergent problems, came about during game play, adding to those embedded in the designed problem space. The new problem spaces generated on the fly afforded different kinds of languaging experiences that are co-developed with resource deployment and creation. In the spirit of helping language learners step out of classroom discourse and step into real world problems where they can coordinate with others and apply the knowledge they have gained in the classroom, the virtual world may provide an alternative ecosystem for learners to participate in and be shaped by ways of life in diverse communities. With reciprocal causality, virtual worlds can also be ecosystems, which learners simultaneously shape, as they play out their identities in the L2 sociocultural context of “we/one”.

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