Educational Technology Research & Development
Special Issue 2015—Call for Manuscripts

Embodied Cognition and Language Learning in Virtual Environments

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Important Dates
30 November 2014—Submissions of initial papers due
31 January 2015—Decisions and reflection on the initial papers selected
28 February 2015—Revised manuscripts due
30 April 2015—Feedback on revised manuscripts
31 May 2015—Final manuscripts due by the authors
30 June 2015—Final manuscripts sent to the publishers
November-December 2015—Special Issue Publication Issue

Submission Information
Please prepare your manuscripts following the ETR&D Instructions. (http://www.springer.com/education+%26+language/learning+%26+instruction/journal/11423?de tailsPage=pltc_i_2484527).

Submit your manuscripts via https://www.editorialmanager.com/etrd/.
Select “S.I.: Embodied cognition and language learning” as the article type.

Topics of Interest
Topics of interests include, but are not limited to:
• Virtual embodiment and language learning (in general)
• Multimodal communication in virtual worlds
• Virtual embodiment and language skill development
• Virtual embodiment, language processing, and brain
• Virtual motor in language comprehension
• Embodiment and language in K-12 classroom
• Embodiment and language in special education
• New immersive interface technologies such as virtual reality headsets (e.g. Oculus Rift), haptic devices, digital scent technology, facial expression recognition (https://highfidelity.io/) etc., and their impact on embodied cognition.

Questions about relevance and potential topics should be directed to Dr. Lan or her co-editors.

Background
Sociocultural theory of second language acquisition (SLA) asserts that the social context and interaction mediate language learning and thus play an important role in the SLA process (Ellis, 2008). According to sociocultural SLA, the person and the world are connected in an inseparable relationship (Lantolf, 2005). A context-dependent social interaction is most important to SLA because it provides L2 learners essential scaffolding for acquiring an L2 (Vogotsky, 1978). Swain (2000) suggested that language learning is something that happens both inside the head of the learner and in the world in which the learner experiences the learning. In short, external mediation serves as the means by which internal mediation (mental activity) is originated (Ellis, 2008).

The emphasis of the inseparability of external and internal mediation during context-dependent interaction in sociocultural SLA is in line with the argument of embodied cognition. Embodied cognition emphasizes the formative role of the environment (context) plays in the development of cognitive process (Cowart, 2005), focusing on the “interaction between perception, action, the body and the environment” (Barsalou, 2008), which is different from the traditional perspective where the body plays a small role in cognition. Studies in line with embodied cognition have observed different roles of actions in cognitive processes and have suggested that human mind is closely connected to sensorimotor experience. Based on the general theories of embodied cognition, such as those proposed by Glenberg and colleagues (Glenberg et al, 2004; Glenberg & Goldberg, 2011; Glenberg & Kaschak, 2002) and Barsalou (2008), it is argued that the cognitive process develops under the condition that a tightly coupled system emerges from interactions between organisms and their environment, with the interactions being real-time and goal-directed (Cowart, 2005).

Regarding embodied language processing that a person moving his/her body in a certain way will impact how he/she comprehends language, it is consistent with the content of the indexical hypothesis that an understanding of language results from a simulation of the actions that are implied by the meaning of the sentence (Glenberg & Kaschak, 2002). Increasing evidences obtained from the embodied cognition research support the arguments that action enhances comprehension (Asher, 1997; Glenberg & Goldberg, 2011; Glenberg et al., 2004; Tellier, 2008).

In recent years, the findings obtained from brain research also echo that language processing is an embodied process (Aziz-Zadeh & Damasio, 2008; Willems & Casasanto, 2011); that bodily action in the contextual environment and perception are inseparable during the cognition process. As suggested by Rueschemeyer and colleagues (Rueschemeyer et al., 2010), intentional actions activating the brain resources used for the motor system are also engaged in the lexical-semantic processing and language comprehension. Additionally, the motor system is
automatically activated when a person (a) observes manipulable objects; (b) processes action verbs; and (c) observes the actions of another individual (Mahon & Caramazza, 2008).

Virtual immersion environments, such as Second Life (SL, a multiuser virtual environment) or Massively Multiplayer Online Role-Playing Games (MMORPGs), have drawn the attention of cross-disciplined researchers (Lan, 2014; Wang & Burton, 2012) because they make both avatar-self movement and different interactions between the learner and the virtual environments possible (Lan et al. 2013). Thus, such environments seem to be able to provide learners an embodied learning experience (Schubert, Friedmann, & Regenbrecht, 1999). In contrast to controlling an avatar via a mouse or a keyboard (like SL and MMORPGs), gesture-based technologies (like Play Station Move and MS Kinect) that mainly involve gestures, or body motion, have also been widely used to support the physical effects on learning (Chao et al., 2013; Chang et al., 2013; Hung et al., 2014). However, the abovementioned embodied motion and the interaction obtained in a virtual environment are accomplished via learners' avatars rather than directly via their own selves. Are the avatar-based embodied motions sufficient and strong enough to originate the essential internal mediation in learners' brains and consequently have an effect on language comprehension and acquisition? Obviously, more cross-disciplinary evidence is needed to answer the abovementioned questions and to add to the knowledge pool of embodied cognition and language learning in virtual worlds.

To this end, this special issue aims at providing a platform for researchers to present their study efforts that may offer insights into the relation between virtually embodied cognition and language acquisition. These are open questions worth of further explorations. The submitted papers will go through a double-blind review. We invite studies that provide research results and contributions that may help develop further understanding of embodied cognition and language learning and inspire future research directions.

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**Call for Proposal for ETR&D Special Issue 2016**

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