University EAP Students' Perceptions of Using a Prototype Virtual Reality Learning Environment to Learn Writing Structure

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ABSTRACT

This study investigates English language learner (ELL) perceptions of using a prototype virtual reality learning environment (VRLE) designed for teaching and learning writing structure. A mixed-methods approach was used, incorporating pre- and post-participation questionnaires, as well as semi-structured interviews. Participants consisted of 10 ELLs enrolled in first year English for Academic Purposes (EAP) courses at a university in Mainland, China. Results indicate that while the majority of students enjoyed using the VRLE, they maintained varying attitudes regarding the usefulness of the VRLE. Additionally, results from a correlation analysis suggest that learners' attitudes towards the material or content being learned (EAP writing) significantly correlates with learners' attitudes towards using the VRLE for learning writing structure.

KEYWORDS

CALL, EAP, Immersive Virtual Environments, Technology-Mediated Pedagogy, Virtual Reality, Writing Structure

INTRODUCTION

Virtual Reality (VR) as a pedagogical tool has gained increasing attention over the past two decades (Reisoğlu et al., 2017). Concurrently, the technology has evolved considerably, and is currently mass marketed to consumers for a variety of educational and entertainment purposes. The increased affordability and availability of VR devices has likely led to the growing interest in using VR technology for training and education purposes (Cheng et al., 2017; Haluck & Krummel, 2000). Further still, the use of VR in second language acquisition specifically is just beginning to be understood. Schwienhorst (2002) in one of the earliest reviews of VR in second language acquisition concluded that the research in the area at the time was insufficient, limiting much of his review to un-refereed publications and web pages. A more recent review by Lin and Lan (2015) had a much richer selection of articles to cross-analyze from top computer-assisted language learning (CALL) journals. They concluded that there are several areas of research for VR in second language acquisition that have yet to be investigated, including studies in language for specific purposes.

Much of the recent research done with VR in second language acquisition centers on speaking and listening (e.g. Chen, 2018; Wang, Petrina and Feng, 2017), or in using non-interactive 3D videos in pre-writing activities (e.g. Dolgunsöz et al., 2018; Patera et al., 2008), but no research has emerged that uses VR to teach and learn writing structure. It may seem natural to focus on oral and aural language skills, as one of the key affordances of VR is the immersion in unique and specific contexts, allowing for a broad spectrum of situations to supply input and to elicit key output. The adaptation of 2-dimensional text into a 3-dimensional environment may seem counterintuitive, however VR has other qualities that are conducive to learning other than the creating of specific virtual worlds and their respective language portfolios. Elements of immersion and presence, as aspects of the user experience of VR, have important educational benefits (Mikropoulos & Natsis, 2011; Dalgarno & Lee, 2010) and warrant exploration in the language acquisition context.

Given the novelty of VR technology, especially in its more contemporary iterations, and the scarcity of research in its applications to teaching writing structure, an exploratory study into the attitudes and opinions of English language learners (ELLs) on using VR for this purpose is called for. As VR technology can bring many unique qualities which could benefit language learning and teaching, and as research into these benefits is still quite young, many avenues of research are becoming available.

LITERATURE REVIEW

Relevant Terms

Due to the recent and rapid development of VR technology, a short review of the key terminology and concepts as they apply in this study is necessary. Although VR is a term used liberally to describe a variety of 3-D technologies, such as massive multiplayer online games (MMOGs) like World of Warcraft™, and Augmented Reality (AR) as applied in the popular smartphone game Pokémon GO™, VR is understood in the current study wherein "the real world is completely occluded from the field of view" (Martirosov & Kopecek, 2017), delivered by such platforms as the Oculus Rift™ or HTC Vive™. The key difference in this type of VR is in *immersion*. Immersion has been defined as "a psychological state characterized by perceiving oneself to be enveloped by, included in, and interacting with an environment that provides a continuous stream of stimuli and experiences" (Witmer & Singer, 1998). Although this definition allows for purely psychological immersion, such as that experienced when identifying with a character in a good book, the immersion experienced in VR is delivered via visual, aural and haptic feedback. This immersion, as a measurable asset of the environment, leads to a sense of *presence,* which is the subjective sense of being in a place (Witmer & Singer, 1998). Thus, the immersive aspects of VR can be argued to come from the technological components, while presence is psychological (Dalgarno & Lee, 2010). Presence is a key attribute to VR environments used in educational contexts, as it is what allows the students a feeling of "being there". VR environments or other 3-dimensional environments that are used for learning purposes are known as Virtual Reality Learning Environments (VRLEs).

VR in Language Education

Typically, VR devices that are wearable and provide a fully immersive experience that totally occludes the real world are not employed in educational research, probably due to pragmatic reasons such as cost and scale. Most studies on the topic of VR employ 3D virtual worlds, which users interact with through a computer screen, and therefore are not totally occlusive. However, both VR and 3D virtual worlds can be designed and constructed for almost any context, which makes them particularly useful for language learning (see Thomas & Christel, 2018; Hsu, 2015, for examples using Second Life™). As Kluge and Riley (2008) note, VRLEs are highly adaptable to different learning strategies, are student centered, and instill a "learning by doing" model of education. A recent review of language-

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