



A Review of Virtual Reality and English for Academic Purposes: Understanding Where to Start

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ABSTRACT

Virtual reality (VR) has garnered increasing attention as a pedagogical tool for language learning. Yet, despite the many affordances of using virtual reality learning environments (VRLEs), there remains a paucity of research investigating the use of VRLEs for English for academic purposes (EAP). While BALEAP '19 conference presentations related to VR were well attended, suggesting there is interest in VR and EAP, many practitioners and researchers may be hesitant to explore using VR for EAP due to difficulties in selecting suitable equipment, understanding VR related terminology, and selecting or creating appropriate VRLEs for their pedagogical and research purposes. The objective of this article is to reduce the difficulty of some of these initial obstacles by providing overviews of relevant literature, VR terminology, technology, and software, as well as providing examples of potential uses of VR for EAP and a framework for investigating VR in EAP pedagogy and research.

KEYWORDS

Augmented Reality, EAP, English for Academic Purposes, English for Specific Purposes, ESP, Extended Reality, Virtual Reality, Virtual Reality Learning Environments

INTRODUCTION

The availability of affordable, high-quality VR equipment has led to an increased interest in using VR technology for training and educational purposes. While there is growing interest in exploring VR as a pedagogical tool in second language acquisition (SLA), there remains a scarcity of research regarding how VR technology could be utilized for English for Specific Purposes (ESP) (Lin & Lan, 2015), including English for Academic Purposes (EAP).

Hoping to encourage language teachers and researchers to explore the possibilities of using Virtual Reality Learning Environments (VRLEs) as pedagogical tools in the field of EAP, the purpose of this article is to assist EAP practitioners and researchers who are interested in using VR for their own teaching and research contexts, but may be hesitant to spend the time and resources to explore these possible uses. First a review of relevant literature will be given. This will be followed by an

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overview of prominent VR terminology, technology, and software. After which examples of potential uses of VR for EAP will be discussed, and a framework for investigating VR in EAP pedagogy and research will be given.

LITERATURE REVIEW

VR is a technology which possesses unique qualities, and therefore can afford unique benefits. Burdea and Coiffet's (2003) seminal book identified the three I's of VR technology, which are still widely used as the framework for studying VR today. These I's are Immersion, Interaction, and Imagination.

Immersion is the quality of feeling present in, and a part of, a virtual world. Blyth (2018) saw immersive virtual environments as a new frontier for experiential learning through creating increasingly authentic contexts for learners to engage with.

Interaction, the second characteristic of VR technology, can be understood in several ways. Interaction in VR environments can be very different from using a computer mouse or a touch screen smartphone because VR offers the ability to interact as one would in a real-world environment. Users of VR can walk around a virtual room with their feet and pick up virtual objects with their hands. But interaction can also be understood in terms of users engaging in real-time contact, communication, and collaboration with other users.

The third component of the framework is imagination, which Burdea and Coiffet (2003) define as the attribute of VR applications to solve real world problems. A VR application, if designed well, can evoke a user's imaginative and creative abilities to "perceive non-existent things" (Burdea & Coiffet, 2003 p.3). For example, a VR flight simulator can be used to see if a pilot in training is capable of landing a particular airplane on an aircraft carrier. In other words, as Dalgarno and Lee (2010) describe it, imagination is the capability of putting users in improbable or impossible scenarios, such as inside a human heart or the surface of Europa, where they can increase perceptual knowledge or discover new connections between ideas.

In research, VR technology has been found to be conducive to constructivist learning (Girvan & Savage, 2019), and the majority of studies on VR technology in language learning use the constructivist framework to focus on such things as interaction, transfer, and experiential learning (Wang, Lan, Tseng, Lin & Gupta, 2019; Lin & Lan, 2015). Researchers and practitioners have been using VR technologies in this context to better understand its uses and efficacy, however the focus in language learning has been focused more on task-based activities and general English, leaving academic uses of the technology yet unexplored.

While the question of how VR may best be applied in the realm of EAP is still being explored, a number of studies have investigated the leveraging of VR for more general aspects of language learning which could be adapted to EAP. In regards to the writing process, virtual worlds have been used as platforms for digital story telling (Xu, Park, & Baek, 2011) and investigative writing (Warren, Stein, Dondlinger & Barab, 2009); VR 360 degree videos have been used to provide context and information for academic writing assignments (Dolgunsöz, Yildirim, & Yildirim, 2018); and Google Earth VR has been used in expository writing (Chen, Smith, York, & Mayall, 2019). Speaking skills have also been a focus in research. Hassani, Nahvi and Ahmadi (2013) found the use of virtual environments to be effective in improving speaking and listening skills among English learners, and Niebuhr and Michalsky (2018) observed an improvement in public speaking and presentations skills when learners practiced in front of a virtual audience as opposed to practicing alone.

General pedagogical benefits of using VR include a reduction of anxiety and affective filters (Schwienhorst, 2002; Lin & Lan, 2015), the enabling of social interactivity and connectivity (Schwienhorst, 2012), increased motivation (Reinders & Wattana, 2014), and long-term retention of information (Dolgunsöz, Yildirim, & Yildirim, 2018). However, not all studies have yielded encouraging results. Wang (2017) encountered multiple technical difficulties in her study of using the social virtual world Second Life in an English course, citing unreliable functionality as well as

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