

The Effects of Virtual Reality Infused Instruction on Elementary School Students' English-Speaking Performance, Willingness to Communicate and Learning Autonomy

Yu-Han Sally Wu

Department of Applied Foreign Languages, National Taiwan University of Science and Technology

Abstract

In recent years, virtual reality (VR) is often used by teachers and researchers to enhance language learners' speaking ability. For EFL learners, using VR to practice their communication skills is well studied due to its immersive and interactive features. However, little research has focused their participants on the primary level, and few of them have examined the relationship among VR, willingness to communicate (WTC) and learning autonomy. Therefore, this study investigated the effects of VR on elementary school students' English-speaking performance as well as their WTC and learning autonomy. Fifty-six Taiwanese EFL six-grade students, divided into an experimental and a control group evenly ($n=28$ per group), were guided around a natural museum in Taichung, Taiwan. Students in the experimental group were guided with *Cospaces*, a VR software, and with VR headsets while their counterparts in the control group were guided with pictures only. Followed by the tour, both groups of students learned and practiced dialogues and vocabulary related to the museum. Instruments included a validated speaking test developed by a reputable language testing institution in Taiwan, Language Training and Testing Center, to evaluate students' English-speaking performances on 1) pronunciation, fluency and intonation and 2) grammar and lexical use, adopted questionnaires to examine WTC and learning autonomy, semi-structured interviews to explore the perceptions of the participants. Two independent raters helped rate students' oral exams. The inter-rater reliability reached .992.

Results from the independent t-tests demonstrated that VR significantly increased students' grammar and lexical use in their speaking performance. Nevertheless, no significant improvement was found in pronunciation, fluency and intonation, WTC and learning autonomy between the experimental and control group. Additionally, the experimental group expressed their interest towards using VR to learn English and their advice for future VR activities. It can be concluded that VR can enhance elementary EFL students' oral proficiency in terms of grammar and lexical use. However, it is suggested that future research should consider incorporating feedback and adding interactive features in *Cospaces*, as well as extending time for intervention before drawing a sound conclusion on the effects of VR on pronunciation, fluency, intonation, WTC and learning autonomy.

Keywords: virtual reality (VR), learning autonomy, willingness to communicate (WTC), English-speaking performance, elementary school students