

# Student perceptions of virtual reality use in a speaking activity

Samar Kassim<sup>1</sup>, Neil Witkin<sup>2</sup>, and Adam Stone<sup>3</sup>

**Abstract.** The aim of this study was to discover what potential benefits of Virtual Reality (VR) use students perceived in comparison to smartphone use in an English-speaking activity. Two surveys were conducted over three interventions in order to ascertain these student perceptions. Ten students enrolled in an elective English class at a Japanese university engaged in an English-speaking activity centered around the VR enabled application *Google Expeditions*. Student perceptions showed that the immersive nature of VR prompted communication, invoked a higher sense of presence, and greater enjoyment in this speaking activity. However, a majority of students did not perceive a difference in the amount of English spoken when comparing VR and smartphone use.

**Keywords:** virtual reality, speaking, immersion, presence.

## 1. Introduction

Online technology has been a way of providing more authentic opportunities for language students to practice their communication skills beyond the classroom (Jabbari et al., 2015) and virtual environments helped advance communicative competence without explicit classroom instruction and improve language acquisition (Tang, Sung, & Chang, 2016). These previous studies focused on the application of technology outside of the classroom (e.g. social media). On the other hand, VR is a technology that could be used in the classroom to benefit students. Thus far, VR has shown a potential to reduce distractions, and immersion has helped students make real-world connections between the subject matter and their lives (Bonner & Reinders, 2018; Gadelha, 2018). Classroom

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1. Kyushu Sangyo University, Fukuoka, Japan; kassim@mail.kyusan-u.ac.jp

2. Kyushu Sangyo University, Fukuoka, Japan; witkin@mail.kyusan-u.ac.jp

3. Kyushu Sangyo University, Fukuoka, Japan; adamstone711@gmail.com

**How to cite this article:** Kassim, S., Witkin, N., & Stone, A. (2019). Student perceptions of virtual reality use in a speaking activity. In F. Meunier, J. Van de Vyver, L. Bradley & S. Thouésny (Eds), *CALL and complexity – short papers from EUROCALL 2019* (pp. 223-228). Research-publishing.net. <https://doi.org/10.14705/rpnet.2019.38.1013>

research conducted on VR as a teaching tool compared to two dimensional video viewers (iPods) has shown an increase in student enjoyment and interest (Lee, Sergueeva, Catangui, & Kandaurova, 2017). This study was not done in a language classroom.

While these previous studies showcase the features VR may have to help learners, there is still a lack of research using VR for speaking in the language classroom. This qualitative study seeks to explore what advantages of VR in contrast to smartphone use students perceived when practicing their speaking.

## **2. Method**

### **2.1. Participants**

Ten Japanese university students enrolled in an elective English course participated in this study. Their placement results show their English fluency is approximately A1 to B1 on the Common European Framework of Reference for languages (CEFR).

### **2.2. Technology**

Google Expeditions is a smartphone application designed to allow teachers to take students on virtual field trips in either VR or a handheld 360° mode.

### **2.3. Instrument**

Two Japanese language surveys were administered to the participants of this study, one after the first intervention and another after the third intervention. The first survey contained 19 questions in total. Seven questions utilized a four point Likert scale, allowing responses from *strongly disagree* (1) to *strongly agree* (4), to prevent overuse of the neutral response, which can occur often in a Japanese educational context (Dörnyei & Taguchi, 2009). The survey also contained four multiple-choice questions. Each of these was followed by open-ended questions, which allowed for further elaboration. Lastly, there were four open-ended questions.

The second survey was administered after the third intervention and was identical to the first, bar one exception. The first survey asked students to describe any past VR experiences.

The survey questions focused on student enjoyment in using VR and smartphones for the speaking activity, ease of use of the technologies, and the perceived usefulness of the two mediums.

## 2.4. Procedure

During each intervention, students participated in the same speaking activity utilizing the application *Google Expeditions*. Students were placed in pairs and each student visited two specific locations. The first partner (Partner A) viewed their designated location on their smartphone and described it to their partner (Partner B). Partner B, who could not see what Partner A saw, had to ask follow-up questions to receive more information about the location within two minutes. Partners A and B then switched roles. The same task was then conducted with VR. Each intervention lasted approximately 60 minutes. Three interventions were conducted in order to examine VR use after the novelty had lessened.

## 2.5. Data analysis

The Likert scale questions were analyzed along with survey comments that were translated from Japanese to English. They were then coded by the researchers into seven categories in [Table 1](#).

Table 1. Number of student comments to open-ended questions

	Intervention 1		Intervention 3	
	VR	Smartphone	VR	Smartphone
Immersion-Prompted Communication (IPC)	5	0	9	0
Presence	6	0	7	0
Enjoyment	5	1	4	1
New Experience	3	1	3	2
Visual Appeal	1	1	3	2
Ease of Use	1	3	0	0
Technical Difficulties	7	0	1	0

## 3. Results and discussion

As seen in [Table 1](#), by the third intervention, many students attested to VR's IPC, which is the ability to create a sense of immersion which prompted communication.

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Presence, a product of VR immersion which produces a sense of existing within the virtual world (Mütterlein, 2018), was also featured frequently.

Nine out of ten students had never used VR before. Their unfamiliarity with the technology may explain why the first intervention prompted many technical problems. The results may signal that VR needs to be used more than once for students to be able to focus on the benefits of its usage.

Table 2. Students' perception changes

Likert Scale Question	Number of Changing Students	
Q1. VR should be used more for speaking education.	+4	-1
Q2. VR is a tool that contributes to improving speaking skills.	+3	-1
Q3. During this activity, it was easy to use VR.	+5	-2
Q4. I enjoyed speaking English while using VR.	+2	-1
Q5. I enjoyed speaking English while using a smartphone.	+3	0

+ = change on the scale toward Strongly Agree;

- = change on the scale toward Strongly Disagree

Table 2 illustrates the changes in student perceptions in relation to VR and smartphones between the interventions. The most striking perception change was after the third intervention, four students rated Q1 higher while one student rated it lower. In the open-ended question portion, one student had explained that at first VR was *difficult to use* but now *it looks fun*. Two students attributed their perception change to IPC, while another thought that it made *learning intuitively fun*. The one negative change in perception was due to one student feeling that VR would be *difficult to make common*. Given these results, it hints at ease of use and accessibility being a hurdle for VR. Nevertheless, the student perceived benefits of VR for speaking education seemed to be due to higher enjoyment and IPC.

Similarly, the other measures of student perception increased in positive changes over the course of the interventions. Notably, Q3 increased the most dramatically, which reinforces the idea that as students experience less difficulties with using VR, they can then perceive more value from it.

Overall, Table 3 implies that after students have gained experience using VR, there is no difference between these two mediums. Student comments show that the reason they had chosen smartphones in the first intervention was a result of experiencing difficulty with VR usage.

Table 3. Which equipment helped you speak more English?

	Smartphone	VR	No Difference
First Intervention	3 students	2 students	5 students
Third Intervention	0 students	3 students	7 students

Table 4 demonstrates that smartphones received no positive responses and thus VR use may better contribute toward the improvement of their English-speaking abilities. Four students attributed it to VR’s IPC feature, while one student did not leave a comment as to their reasoning.

Table 4. Which equipment will help improve your English-speaking abilities?

	Smartphone	VR	No Difference
First Intervention	0 students	3 students	7 students
Third Intervention	0 students	5 students	5 students

## 4. Conclusions

This study found that the potential benefits of VR are IPC, students feeling more present within the speaking activity, greater enjoyment, and the perception that VR can possibly help students improve their speaking abilities more effectively than smartphones due to the aforementioned qualities. Additionally, the biggest constraint to VR was found to be the ease of use and technical difficulties, which were overcome with more user experience.

Future research would benefit from the use of a wider range of VR applications and speaking tasks, as well as a quantitative study utilizing the findings presented above with a larger sample size.

## 5. Acknowledgments

We would like to thank Shuhei Mitsuyasu for all of his translation work.

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Published by Research-publishing.net, a not-for-profit association  
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**CALL and complexity – short papers from EUROCALL 2019**  
Edited by Fanny Meunier, Julie Van de Vyver, Linda Bradley, and Sylvie Thouéšny

**Publication date: 2019/12/09**

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ISBN13: 978-2-490057-54-2 (Ebook, PDF, colour)

ISBN13: 978-2-490057-55-9 (Ebook, EPUB, colour)

ISBN13: 978-2-490057-53-5 (Paperback - Print on demand, black and white)

Print on demand technology is a high-quality, innovative and ecological printing method; with which the book is never 'out of stock' or 'out of print'.

British Library Cataloguing-in-Publication Data.  
A cataloguing record for this book is available from the British Library.

**Legal deposit, France:** Bibliothèque Nationale de France - Dépôt légal: décembre 2019.