

Using virtual reality and peer feedback to reduce L2 speaking anxiety: an exploratory study

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Abstract. The present study explored whether the use of Virtual Reality (VR) technology can help lower public speaking anxiety in the L2. To this end, we conducted an exploratory effect-of-instruction study using a one-group pre-test/post-test design with nine learners of English as an L2. The results from the post-test show that using VR in combination with peer feedback offers an interesting gateway to reducing public speaking anxiety.

Keywords: virtual reality, peer feedback, oral presentation skills.

1. Introduction

Although oral presentation skills in the foreign language (L2) are considered to be crucial for academic achievement and career success, most students are faced with many linguistic and psychological challenges when presenting in public in an L2 (Kim, 2020). In this context, recent advances in VR technology offer an interesting gateway to the enhancement of oral presentation skills since they allow students to train in an immersive learning environment and, at the same time, to benefit from tools such as video recordings and automated feedback on behavioural aspects of presentation delivery.

So far, educational research into the effectiveness of such VR-based applications has reported positive effects (Van Ginkel et al., 2019). However, these studies

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have neglected to look into how these applications can help students present in the foreign language, especially for aspects that are more challenging for L2 learners such as the lack of linguistic autonomy or difficulties linked to fluency or speaking anxiety (Teimouri, Goetze, & Plonsky, 2019). Furthermore, the role of feedback as one of the most crucial components in every learning process should also be examined in such contexts. Whilst feedback research has extensively investigated the effect of different feedback techniques on different aspects of L2 learning, feedback on oral presentations in the L2 still remains a relatively underexplored domain (Tsang, 2020). In this context, it is important to note that peer feedback has been found to be beneficial to reduce foreign language classroom anxiety and increase self-confidence (Motallebzadeh, Kondori, & Kazemi, 2020).

In order to fill this research gap, the present study seeks to investigate the impact of such VR-based training environments on L2 learners' public speaking anxiety. Accordingly, we addressed the following research questions.

- To what extent does training combining VR and peer feedback help reduce students' speaking anxiety?
- How does training combining VR and peer feedback affect L2 learners' self-efficacy beliefs and perceived usefulness?

2. Method

2.1. Design of the study and sample

In order to see whether training combining VR and the use of peer feedback improves L2 oral presentation skills and reduces speaking anxiety before and/or during the presentation, we used a pre-test/post-test study design. Accordingly, the participants were tested on their oral presentation skills and their speaking anxiety both before and after the training sessions.

The sample of the study consisted of eight French-speaking and one German-speaking students from UCLouvain (Belgium), five women and four men, aged between 21 and 27. They all learn or have learned English as an L2 but felt the need to improve their oral presentation skills in English, be it for study, work, or everyday life. Their self-assessed level of English ranged from B2 to C1.

2.2. Materials and treatment

The tool OVATION VR allows students to train their presentation in front of simulated audiences. It offers the possibility to record and share the presentation with peers, teachers, or other OVATION VR users for further analysis. In order to ensure that all participants were able to give relevant and well-argued feedback with suggestions for reflection and improvement, we organised two feedback training sessions, including the understanding and appropriation of the evaluation grid and some trial practice.

2.3. Data collection instruments

With regard to anxiety about public speaking in an L2, we used McCroskey's (1970) Personal Report of Public Speaking Anxiety (PRPSA) questionnaire, which allows for a general analysis of public speaking in the context of an oral presentation. The PRPSA questionnaire consists of 34 questions such as *I get anxious when I think about a speech coming up*, which participants answer on a scale of one (strongly disagree) to five (strongly agree). The scores can range between 34 and 170, with scores above 131 indicating high anxiety, scores between 98 and 131 moderate anxiety, and scores below 98 low anxiety.

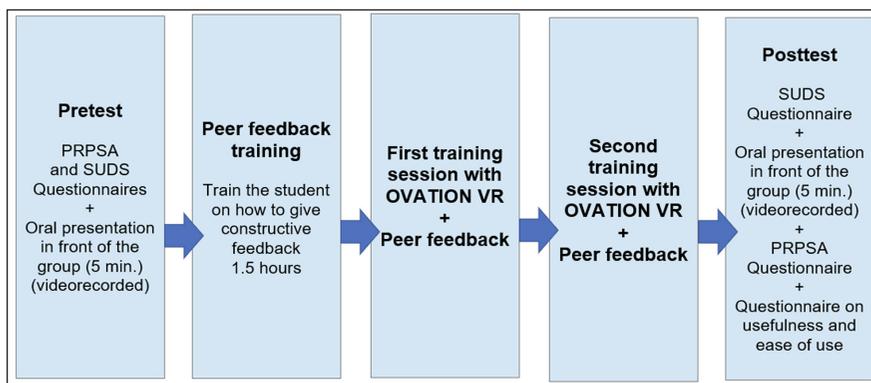
In addition to the PRPSA, we also used Wolpe's (1969) Subjective Units of Distress Scale (SUDS), which allowed us to measure the degree of anxiety at a specific moment (e.g. two minutes before the presentation) on a scale of 0 to 100, where zero represents a state of total relaxation and 100 a state of fear that makes it impossible to deliver the presentation. Whilst the SUDS is frequently used in clinical and mental health settings (e.g. Kiyimba & O'Reilly, 2020), its use in SLA research has – to our knowledge – not yet been documented.

Finally, we asked some questions using a five-point Likert-scale based Davis's (1989) Technology Acceptance Model (TAM), about the self-efficacy beliefs and perceived usefulness regarding VR-based training tools and the use of peer feedback (e.g. OVATION VR is a valuable tool to counteract the anxiety of presenting to an audience).

2.4. Procedure

Figure 1 shows the timeline of the treatment, the data collection instruments, and the different measurement time points.

Figure 1. Timeline of the study



3. Results and discussion

With regard to public speaking anxiety, the pre-test showed two participants with high anxiety, four with moderate anxiety, and three with low anxiety. The post-test analysis indicated an improvement with only one participant narrowly meeting the threshold for high anxiety, five participants meeting the threshold for moderate anxiety, and three for low anxiety. Overall, five participants had a lower anxiety score on the post-test, two other participants an equal score, and two a score only slightly higher (Table 1, left).

Regarding participants' anxiety just before their presentation, we can see a decrease for most participants (see Table 1, right⁵). In the pre-test, three participants had a state of moderate anxiety (above 50) and two participants a state of high anxiety (80). One participant scored at exactly 50 and three below 50. The post-test showed that two participants scored above 50, three at exactly 50 and four below 50. Overall, five participants were less anxious. Three experienced the same level of anxiety and one a slight increase (from 0 to 10). As Table 1 shows, no remarkable differences were observed between the results from both speaking anxiety measures (PRPSA and SUDS). The decrease in student's anxiety is well-aligned with previous research on VR (see literature review by Van Ginkel et al., 2019).

5. See the ratings for the simplified version of the scale with guide points under the following link: <https://www.verywellmind.com/what-is-a-suds-rating-3024471>

Table 1. Left: results from PRPSA questionnaire; right: results from SUDS before presenting

Participants	PRPSA Pre-test	PRPSA Post-test	SUDS Pre-test	SUDS Post-test
1	142	132	70	60
2	119	119	70	60
3	79	79	10	10
4	146	125	80	50
5	67	71	0	10
6	114	104	60	50
7	103	102	50	50
8	63	64	30	30
9	118	108	80	30
Average of all participants	105.67	100.44	50	38.89
Low	Moderate	High		

We also asked the participants about the perceived usefulness of the training. Most students indicated that it was an interesting and pleasant experience. Sixty-six percent of the students stated that OVATION VR helped them improve their L2 oral presentation skills and 78% felt that they could better manage the related stress during the post-test. Eighty-nine percent of the students found that OVATION VR is a useful tool, but they also pointed to some technical problems faced during the training.

With respect to peer feedback, it was perceived as less stressful than teacher feedback. Most of the participants found the peer feedback useful, which is consistent with previous research (Motallebzadeh et al., 2020). However, some would also have liked to receive feedback from a teacher who was considered as more experienced and more qualified.

4. Conclusions

The analysis of the results shows that the intervention helped students reduce their speaking anxiety and feel more confident. Future research should consider testing whether combining peer and teacher feedback techniques during such a VR-based training might prove more efficient and have a more positive impact on self-efficacy. Finally, it is important to note that such VR-based training could also be implemented in other contexts such as teacher training programmes, since pre-service L2 teachers sometimes also suffer from a lack of linguistic autonomy and anxiety.

References

- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>
- Kim, K.-R. (2020). Oral presentations as an alternative approach to enhance L2 learning and communication skills. *Journal of Digital Convergence*, 18(7), 111-122. <https://doi.org/10.14400/JDC.2020.18.7.111>
- Kiyimba, N., & O'Reilly, M. (2020). The clinical use of Subjective Units of Distress scales (SUDs) in child mental health assessments: a thematic evaluation. *Journal of Mental Health*, 29(4), 418-423. <https://doi.org/10.1080/09638237.2017.1340616>
- McCroskey, J. C. (1970). Measures of communication-bound anxiety. *Speech Monographs*, 37, 269-277. <https://doi.org/10.1080/03637757009375677>
- Motallebzadeh, K., Kondori, A., Kazemi, S. (2020). The effect of peer feedback on EFL learners' classroom anxiety. *Language Teaching Research Quarterly*, 18, 40-52.
- Teimouri, Y., Goetze, J., & Plonsky, L. (2019). Second language anxiety and achievement: a meta-analysis. *Studies in Second Language Acquisition*, 41(2), 363-387. <https://doi.org/10.1017/S0272263118000311>
- Tsang, A. (2020). Enhancing learners' awareness of oral presentation (delivery) skills in the context of self-regulated learning. *Active Learning in Higher Education*, 21(1), 39-50. <https://doi.org/10.1177/1469787417731214>
- Van Ginkel, S., Gulikers, J., Biemans, H., Noroozi, O., Roozen, M., Bos, T., van Tilborg, R., van Halteren, M., & Mulder, M. (2019). Fostering oral presentation competence through a virtual reality-based task for delivering feedback. *Computers & Education*, 134, 78-97. <https://doi.org/10.1016/j.compedu.2019.02.006>
- Wolpe, J. (1969). *The practice of behavior therapy*. Pergamon Press.

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