Students' Attitudes on the Use of Immersive Virtual Reality for Oral Presentation Preparation and the Challenges

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Abstract: The study aimed to investigate ESL students' attitudes towards the use of immersive virtual reality (iVR) mobile application in preparing for oral presentation. This study involved 24 postgraduate students from a public university in Malaysia. They were introduced to a free version of the Virtual Speech mobile application using VR Box to simulate a virtual classroom for oral presentation preparation. Then, a questionnaire consisting of 30 Likert-scale items was administered to investigate their attitudes towards the use of iVR for oral presentation preparation. Next, the researcher conducted spoken interviews to further investigate participants' perceptions of the use of iVR in preparing for oral presentations. The findings revealed a notable lack of knowledge and familiarity among the participants when using iVR for oral presentation preparation. Last but not least, the challenges reported by the participants are associated with limited familiarity and exposure to iVR, increased anxiety, and health consequences due to the use of iVR.

Keywords: Immersive virtual reality, oral presentation, second language learning, attitudes

Introduction

With the advancement of technology, the education realm has transformed tremendously. Unlike the old days when classrooms were highly dependent on traditional methods, technology has made learning interesting and flexible. Immersive virtual reality (iVR) is now one of the technologies that is getting the attention of many. According to Pellas et al. (2021), there is a growing interest in employing immersive virtual reality (iVR) applications to support numerous instructional design methods and outcomes not only in primary and secondary school but also in higher education settings. The inculcation of technology in teaching and learning is seen to have many significant effects for the learners. This also includes the teaching and learning of English as a second language (ESL). In an ESL context, iVR is seen to be useful in the preparation of oral presentations. Many ESL students are worried when they need to do oral presentations in front of a crowd. This is because learners consider speaking the most difficult skill, as it requires courage and preparation to speak well, especially when using their second language (Pervaiz, 2022). Despite years of learning English and having utilised various methods in class to help the ESL learners, there are still a few students who are unable to use the language effectively, particularly when conducting an English oral presentation (Hussein, 2021).

For ESL learners, one of the issues that they face is the lack of an English-speaking environment for them to practice their speaking skills, especially in rehearsing their oral presentations. Chien et al. (2019) stated that students generally have fewer opportunities to communicate with people in English and get any feedback from others to improve their skills. However, the real representation of reality by iVR makes it helpful for the students in their oral presentation preparation. This is because iVR can offer environments that can simulate authentic scenarios, which enable learners the opportunity of "immersing" themselves in the created contexts and exploring them (Lan,

2020). In this case, ESL learners can prepare and rehearse their oral presentation in a more realistic context using iVR. By allowing virtual simulations of real-life performance situations, the transfer of learning to actual situations can be enhanced tremendously (Makransky et al., 2019). Thus, this shows that the use of the iVR application in the preparation of oral presentations can be acknowledged as one of the effective ways for ESL learners to ace their presentations and remove their worry during the actual oral presentations.

Despite the growing interest in immersive virtual reality (iVR) applications in education, there remains a significant research gap in exploring its use for oral presentation preparation among ESL learners. While iVR has been explored in school classrooms and lower-level ESL education (Chien et al., 2019), less attention is given to understanding its role for higher education students, particularly postgraduates, who may face different challenges in oral presentations. As a response to this fact, therefore, this study aimed to examine the attitude of university students, specifically the postgraduates, toward using iVR to help them prepare for oral presentations. This study will also identify the challenges they may face while using the application.

Literature Review

Immersive Virtual Reality

According to Taguchi (2021), immersive virtual reality (iVR) comprises a head-mounted display that offers its users a 360° view of computer-generated world, forming a high sense of immersion, as if they are in the environment. Meanwhile, Makransky and Petersen (2021) stated that iVR allows for head and position tracking and can render a distinct image for each eye, which produces visual cues for depth perception and enhances the size of the visual field of view as compared to a monitor. Due to the advanced technology, iVR can be effectively utilised in simulation, training, and distance learning. It can encourage students' motivation, enjoyment, personalised learning, and deep learning (Kavanagh et al., 2017). This is also supported by a study by Liao and Chen (2007) as cited in Zhang (2021) which highlighted how iVR technology along with interactive simulations had a better effect on students' content mastery as compared to the traditional methods. In terms of ESL learning, a tool like iVR possesses an interactive voice-response system that provides engaging language practice for students and indirectly boosts their learning through the interactive voice-response system (Nazara, 2019).

Past Studies on Students' Attitude towards the Usage of iVR in ESL Learning

Dooly et al. (2023) mentioned that iVR environments for language learning have recently garnered attention from researchers and practitioners due to their realistic replications of actual environments where the target language is used for "authentic-like" interaction. Wang et al. (2023) also mentioned the wide usage of iVR in the language learning field to improve students' motivation and learning outcomes. There are also several other studies that have been conducted aiming to examine the use of iVR in ESL learning.

First, Alsaffar (2021) conducted a case study on the use of virtual reality software as a preparation tool for English oral presentation. The study involved five ESL learners who are native Chinese and university students taking Academic English Program at Saint Michael's College. In this qualitative study, the participants used a specific mobile application called VirtualSpeech and noted their experience while using the application in their learning logs. Besides, a survey was also distributed to the participants, and individual interviews were also conducted to get detailed results from each participant. By using VirtualSpeech, the participants were able to upload their PowerPoint presentation slide and rehearse their delivery in a virtual reality setting with the attendance of a virtual audience. For this application, the participants were not able to interact with the virtual audience, but the application measures the speaker's talking time and detects the filler words used and the eye contact of the speaker with the audience. It also guided the users with specific ways to enhance the speaker's performance during the presentation. This study highlighted several major findings on the students' attitude toward using IVR for their oral presentation's preparation. First, all the participants acknowledged the application had helped them in reducing their public speaking anxiety because they

felt a decreased level of nervousness during the actual presentation after using the application during practice. It was found that the students gained speaking confidence because this tool offered them a safe environment that allowed them to practice their oral presentation without feeling embarrassed about making mistakes. Finally, the feature of the application that provides the students with proper guidance on managing their eye contact was also mentioned to have helped the participants in improving their eye contact with a real-life audience.

Next, in a Malaysian context, there is a study by Zulkifli and Swanto (2023), which aimed to investigate the perception of rural secondary school students on the utilisation of virtual reality in oral skill lessons. There were 39 respondents involved in the study. A mixed method design that involved the use of questionnaires and physical interviews with 10 students was employed in measuring the students' general perception, motivation levels, interest, and development of skills in using iVR. The researchers used head-mounted Displays (HMDs) as its main iVR tool, which would bring the experience of virtual reality to the user together with a personal computer. Based on the data collected, the study found that the experience of using iVR specifically for oral skills lessons helped to increase students' motivation levels because they were allowed to try new methods of learning. Although there was no direct finding that demonstrated the improvement of students' oral skills, the study noted that the students had shown more interest in lessons on oral skills after using iVR. This would subsequently help in enhancing the ESL learners' speaking skills. The study also highlighted that the perceptions of the ESL learners towards the usage of iVR in oral skill lessons were positive. This resulted from the interactivity, innovation, and experience that the learners gained while using the application.

Challenges Students Face when using iVR

Despite many studies pointing out the positive attitude of students toward using IVR in ESL learning, there are also some challenges that need to be examined to ensure this tool is fully effective for its users. Among the challenges raised by many studies is, firstly, the usability of this tool for ESL learners. Feng and Ng (2023) reported that VR-assisted language learning is not ideal for learners who are dependent on instructors and peers because they may not be able to put sufficient focus in the virtual environment due to the novelty or lack of skills in handling the application. Meyer et al.'s (2019) study also suggests that learners unfamiliar with this tool may encounter challenges when using it during the learning process. Zhang (2021) stated that the motivation of teachers and learners in using iVR also depends on the usability of the application. The study mentioned how complicated applications will not be attractive to them. Zulkifli and Swanto (2023) also provided a notable concern on how the usability of this tool was questioned by some students because the introduction of iVR in ESL classes may divert their learning experiences to an environment in which they are playing, rather than learning.

Secondly, since iVR is not yet being commonly used in the education setting, one of the most frequently mentioned challenges by the users is its cost. Urueta (2023) stated that the development cost of iVR may be high because the skills to create iVR scenarios are relatively uncommon. Alternatively, there are also relatively affordable iVR tools that can be used if the users cannot afford the expensive ones. This was used in the study by Zulkifli and Swanto (2023), which utilised a relatively cost-effective application. However, some of the participants commented on the disappointing quality of the iVR application, specifically in terms of the graphical fidelity and sound quality. This may not be effective when practicing their oral presentation since they are unable to focus on the representation of the picture due to improper graphics.

Finally, many studies have also identified health concerns associated with the use of iVR. Alsaffar (2021) mentioned that some users experienced eye strain and dizziness from prolonged use of the tool. Other side effects include the risk of seizures and nausea (Zulkifli & Swanto, 2023). Another study reported that some users experienced mild vertigo during the use of iVR (Feng & Ng, 2023). Urueta (2023) also highlighted the risk of disease transmission when multiple users share the tool. This is because VR headsets have many nooks and crannies, as well as porous foam and cloth. Thus, when placed in close contact with the eyes, nose, and mouth during speaking practice, diseases can be transmitted easily, especially if the tool is not properly sanitised.

Theoretical Background

The current study adopted Experiential Learning Theory (ELT) proposed by Kolb (1984). To begin with, ELT proposed by Kolb (1984) is a holistic model that integrates six propositions from the works of other experiential learning scholars:1) Learning is best conceived as a process, not in terms of outcomes; 2) All learning is re-learning; 3) Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world; 4) Learning is a holistic process of adaptation; 5) Learning results from synergetic transactions between the person and the environment and 6) Learning is the process of creating knowledge. Learning is defined as the process of creating knowledge through the transformation of experience, and it is the result of the combination of grasping and transforming experience. This definition is based on the cycle of experiential learning proposed by James (1977) that emphasises the involvement of experiencing, reflecting, thinking, and acting.

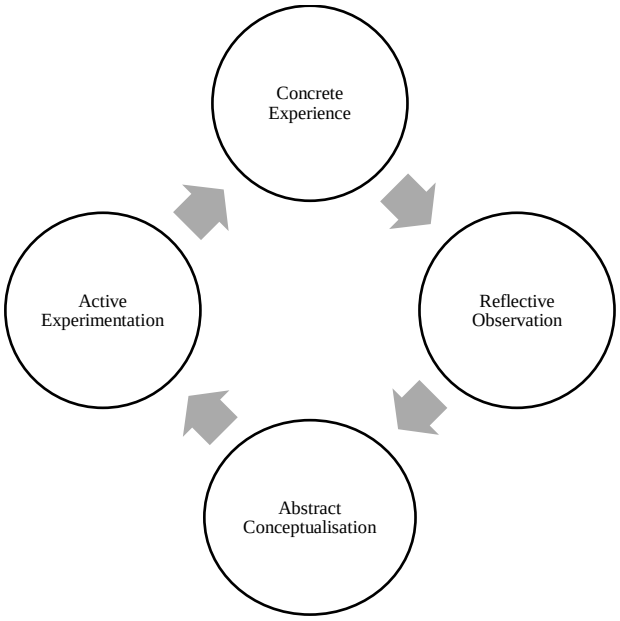

Fig. 1 The cycle of experiential learning

Methodology

The sample of this study consisted of 24 master ESL students from the education department of a public university in Malaysia. Firstly, each participant was introduced to the free version of the Virtual Speech mobile application using VR Box to experience the immersive virtual classroom environment created for oral presentation preparation. Each participant was provided with a two-hour session to independently engage, interact, and experience the immersive VR technology. Then, a set of questionnaires of 30 Likert-scale items on students' attitudes toward the use of immersive virtual reality (iVR) for oral presentation preparation was employed. Each item addressed only a single issue in order to avoid confusion and frustration among respondents. There were also intentional redundancies among items in order to develop internal consistency and reliability. The items were categorised into three themes, which were general knowledge on the technology, effectiveness of the technology, and motivation. A reliability test was conducted, and the overall internal consistency value Cronbach's Alpha is .85. Table 3.5 presents the internal consistency value Cronbach's Alpha.

Table 1. Reliability statistics for questionnaire on students' attitude on using iVR for oral presentation preparation

Cronbach's Alpha[a]	N of Items
.853	30

Subsequently, the researchers then proceeded with an oral interview to gain deeper insights on the participants' perceptions in ESL context. The question posed by the researcher was as follows:

1. What challenges have you encountered while using the immersive VR application for oral presentation preparation?

This question was given to identify the challenges that were faced by the participants while using the iVR application. This question was constructed to see whether the usage of iVR for oral presentation preparation by postgraduates' students was positively accepted or not. Challenges in terms of the efficiency of the application, difficulty in handling the technology, and any potential health issues that they may receive were expected to be some of the responses from the participants. Identifying the challenges is crucial for maximising the usage of iVR for the participants if iVR were to be used to prepare for their oral presentation in the future.

Findings and Discussion

Students' attitude toward the use of iVR for oral presentation preparation

The respondents rated each item by using a five-point Likert Scale ranging from 1 (strongly disagree) to 5 (strongly agree). In this analysis, mean scores that were more than 3.50 were considered 'almost agree', while the mean scores ranging from 3.00 to 3.5 were considered neutral, and hence items that have neutral scores were not further discussed. Table 2 indicates that overall, the participants had negatively rated their knowledge on iVR for oral presentation preparation (mean = 2.10, SD = .746). It can be concluded that there is a lack of knowledge and familiarity on iVR for oral presentation preparation. Besides, the knowledge on the utilisation for oral presentation preparation was also rated negatively.

Table 2. Descriptive statistics on students' attitude on the use of iVR for oral presentation preparation for general knowledge theme

	Mean	Std. Deviation
I have knowledge on iVR for oral presentation preparation.	2.04	.690
I am familiar with iVR for oral presentation preparation..	2.21	.932
I have knowledge on how to use iVR for oral presentation preparation.	2.04	.751
I know how to use iVR for oral presentation preparation.	2.12	.612
Overall Mean	**2.10**	**.746**

Table 3 demonstrates participants' strong agreement on the enjoyment and their perceived benefits provided by iVR for oral presentation preparation. The effectiveness of iVR in oral presentation preparation is evident by participants' belief that its use could lessen their anxiety, tension, and fear both during the act of presenting and the idea of oral presentation generally. This also aligns with their positive attitude toward the use of iVR in promoting a sense of relaxation, calmness and facilitating more structured oral responses, including fluency. Besides, they also believed that the use of iVR for oral presentation preparation could increase their confidence in presenting. These findings corroborate

the study of Alsaffar (2021), which reported that the students acknowledged the application had helped them in reducing their public speaking anxiety because they felt a decreased level of nervousness during the actual presentation after using the tool during practice. However, participants' perspectives differed on the effectiveness of iVR in easing their apprehension of unforeseen audience enquiries during oral presentations. They also disagree on iVR's ability to improve their pronunciation. Generally, participants appear to exhibit strong belief in the effectiveness of iVR in preparing for oral presentations.

Table 3. Descriptive statistics on students' attitude on the use of iVR for oral presentation preparation for effectiveness of iVR theme

	Mean	Std. Deviation
I believe iVR provides me a valuable learning experience for oral presentation preparation.	4.13	.612
I believe iVR is beneficial for oral presentation preparation.	4.04	.550
I believe the use of speaking virtual reality applications reduces my anxiety and tension that I feel while presenting.	3.88	.850
The use of speaking virtual reality applications reduces my fear of presenting.	3.83	.761
The use of speaking virtual reality applications makes me more calm and relax while presenting.	3.83	.702
The use of speaking virtual reality application reduces my fear of unexpected questions from audience during presentation.	2.21	.833
The use of speaking virtual reality application increases my confidence in presenting.	4.00	.590
The use of speaking virtual reality application helps me control my anxious and tense feelings while presenting.	4.04	.624
The use of speaking virtual reality applications provides realistic situations of presenting.	4.04	.751
The use of speaking virtual reality applications in preparing for a presentation is more interesting than any other methods.	4.00	.722
The use of speaking virtual reality improves my fluency which is crucial for a presentation.	3.67	.868
The use of speaking virtual reality improves my pronunciation which is crucial for a presentation.	2.25	.847
The use of speaking virtual reality applications helps me convey my idea in a clearer and more organized manner.	4.04	.624
Generally, speaking virtual reality applications are a great tool to practice and improve fluency, pronunciation and interaction for a presentation.	4.13	.537
Generally, speaking virtual reality applications are better than other methods in preparing for a presentation due to its experiential nature.	3.92	.584
Generally, the use of speaking virtual reality applications helps me become a better presenter.	4.04	.550
Generally, I believe speaking virtual reality applications ease my presentation apprehension.	4.00	.590

Generally, the more I practice my presentation skills using speaking virtual reality applications, the better I will be at presenting.	4.08	.776
Overall Mean	**3.79**	**.687**

Last but not least, Table 4 exhibits participants' strong interest in the use of iVR in preparing for oral presentation. Furthermore, they are motivated to use iVR to develop their oral presentation skills in the future. This is aligned with the study of Zulkifli and Swanto (2023), which investigated the usage of iVR with primary school students for their oral skills lesson. It was found that the experience of using iVR had assisted in enhancing students' motivation levels because they were allowed to try new methods of learning. Despite their enjoyment of using iVR in preparing for oral presentation, they did not anticipate the presentation and did not intend to invest financially in iVR for oral presentation preparation purposes.

Table 4. Descriptive statistics on students' attitude on the use of iVR for oral presentation preparation for motivation theme

	Mean	Std. Deviation
I am interested to use iVR in preparing for my oral presentation.	4.17	.702
I would use iVR to develop my oral presentation skills in future.	4.04	.624
As I expose to the use of speaking virtual reality applications, I am looking forward to presentation.	2.96	1.042
I enjoy preparing for a presentation with the use of speaking virtual reality applications.	3.96	.690
I am willing to spend money on speaking virtual reality applications.	3.00	.834
Overall Mean	**3.63**	**.778**

Challenges on using iVR for oral presentation preparation

During the interview session, the participants shared the challenges encountered when using iVR in preparing for oral presentations. The most prevalent issue was the participants' limited familiarity with the technology, which had led to operational impediments. They highlighted the need to spend a significant amount of time to attain competence in its utilization. The respondents' lack of exposure to integrating this technology into language learning had likely contributed to these challenges. Its unique features demand specific skills from the users. This aligns with the study by Feng and Ng (2023), which reported that VR-assisted language learning is not ideal for learners who are dependent on instructors and peers because they may struggle to focus in the virtual environment due to its novelty or their lack of skills in handling the application. However, the participants asserted that this challenge could be easily resolved. As said by Respondent 1 in the interview, "Once the user knows how to operate this technology, everything will become easy. The process will be smooth.".

Moreover, the participants expressed their concern about the possibility of experiencing increased anxiety due to the difference between the actual physical environment and the virtual reality environment, despite its immersive feature. It was reported that this could be due to the conflicting expectations. One participant emphasised this challenge by exemplifying the presence of foreign native characters in a virtual audience that is different from the actual experience with a local audience. It was also reported that iVR had caused discomfort to the respondents. Few participants reported experiencing eye strain, nausea, and headaches while using iVR and after using iVR. Similar health concerns had also been reported in several studies, such as Alsaffar (2021) and Zulkifli and Swanto (2023), who reported that the participants experienced eye strain, dizziness, and nausea, and there was a risk of seizure when using VR for a long period of time.

To conclude, the respondents' lack of knowledge on the use of VR technology might be due to their unfamiliarity of the technology itself. However, this could be improved by providing some time for users to explore and learn how to use the technology itself. Besides, the respondents' concern about the possibility for one to develop more anxiety due to the conflicting environments is reasonable. The worry is in line with previous research. It is similar to their concern about the symptoms caused by the VR technology. Hence, it is important to take these challenges into consideration, especially in maximising the outcomes in easing oral presentation apprehension.

Conclusion

The aim of the present research was to examine students' attitudes toward the use of iVR and its challenges for ESL oral presentation preparation. Despite participants' low rating on their knowledge and familiarity with iVR for oral presentation preparation, they certainly believed that iVR is effective in reducing oral anxiety, promoting relaxation, increasing fluency, and boosting confidence. However, the opinions vary on its effectiveness in managing audience enquiries and improving pronunciation. Furthermore, the findings reveal a strong interest and motivation in using iVR for oral presentation preparation, especially for oral presentation skills development. Their motivation had increased due to the opportunity to explore the new learning method. Nevertheless, the participants' enthusiasm for actual oral presentation remains low, and the situation is similar for their inclination to invest financially in iVR for oral presentation preparation. During the interview, participants delineated the challenges they experienced when employing iVR in preparing for oral presentations. They emphasised the need for a significant time investment to acquire knowledge and familiarity in its utilization. Additionally, the participants expressed their concerns about the potential escalation in anxiety resulting from disparities between physical and virtual settings, which were attributed to conflicting expectations. It was also noted that adverse reactions such as eye strain, nausea, and headache were among the challenges. The small sample size in this study did not allow for the generalisation of the results to the overall population.

Suggestion for Future Research

It is imperative for future research to be conducted with a larger sample to ascertain the results. Besides, since the current study was not experimental, the actual efficacy of utilising immersive virtual reality (iVR) for the preparation of oral presentations remains unexplored. Therefore, future studies should explore the effectiveness of the use of iVR for oral presentation preparation.

Co-Author Contribution

All the authors contributed significantly to the research. Author 1 conceptualised the study, designed the methodology, collected the data, and conducted the data analysis. Author 2 assisted in refining the methodology and conducted the literature review. Author 3 provided feedback on the analysis and improved the discussions.

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