Enhancing English Oral Skills among Malaysian Rural School Students through the Implementation of Virtual Reality (VR)

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Abstract

This research aims to determine the perception of rural secondary school students on the implementation of virtual reality (VR) as an alternative to the traditional classroom setting, more specifically in the setting of an oral skill lesson. In addition, the perception of the students includes the general perception, motivation levels, interest as well as the skill development of the students when subjected to a VR classroom and their effects on the mentioned aspects. A total of 39 respondents from Sekolah Menengah Kebangsaan Desa Kencana were involved in this research. This study employed a multi-method research design. Based on the results, it is found that the perception of the respondents was generally quite positive and a majority preferred a VR environment compared to a traditional setting in the context of learning speaking skills. Respondents have stated that the interactivity and new experience presented with the VR environment brings new light to their motivation and interest and they showed a keen interest in learning English compared to traditional settings. However, there are several subjects who view the implementation in a negative light, as would be portrayed in the data findings. In conclusion, both research objectives were answered, and several implications were discovered. Several suggestions are recommended in order to further this topic at the end of the research. In conclusion, this research believes that the implementation of VR would be able to increase the motivation, interest and skill development of ESL learners, specifically in speaking skills and therefore investigate whether VR classrooms appear as a better alternative to our current learning environment.

Keywords: *ESL Speaking, Virtual Reality, Rural School*

INTRODUCTION

Language learning has been a staple in classrooms for as long as civilization prospered for its people with the gift of learning. Multiple techniques, processes and reformations have been implemented in the hopes of improving and increasing the quality and scale of education to improve the capabilities of humanity in achieving success and creating innovations. Through the advent of the computer, more and more efficient means of learning have been created and brought upon students to further enhance their learning experience. Czerkawski (2020) pointed out that although current techniques of language learning now negotiate complex realities and continuously changing contexts, the lack of worthwhile activities (activities that engage the students through more interactivity, beyond the usual arsenal of writing on books, reading and

such) that engage pupils beyond vocabulary and grammatical structures has emerged as a problem. An immersive experience is frequently necessary for fluency. Many people find it impractical to travel to a place and speak with locals while they are there. The resources needed to even partake in such a journey proves much for the common person, and it is more common to partake in localized imaginary scenarios to recreate such immersive experiences. As an alternative, the rise in popularity of virtual reality (VR) headsets has propelled the idea of online language instruction into uncharted territory. Inside the space of VR technology, the imagination of an idea could be projected into a second reality, allowing yourself and others to experience that reality all through the viewpoint of a headset. The importance of this is mainly due to the unparalleled immersion VR brings into the table. The use of VR technology in the classroom opens up a world of possibilities for access to experiences that would otherwise be out of reach, for example, a trip to Japan or perhaps the Moon? In conclusion, Loup (2016), and Yang (2010) states that VR technology is considered as one of the emerging and highly promising technologies for learning and training.

According to Enba et al. (2021), everyone should work on developing their speaking and listening skills. This is because it affects almost every aspect of life that relies on communication, including education, employment, and even a person's relationships with those around them. A typical listening or speaking session in Malaysia would commonly include a scenario, which becomes the precedent for students to discuss, and practise their speaking skills based on it. Safranj (2015) claimed that 62% of the participants from their study showed that their sample preferred watching movies. Furthermore, Yurko & Styfanyshyn's (2020) study shows that hearing actual conversations in a foreign language is crucial for language learning. Based on what could be deducted, speaking classes tend to not have versatility in the techniques used to conduct such classes.

What is clear is that a breakthrough in this field is currently required to re-energize the speaking skills classes. This is where VR integration comes into play. Virtual reality, through the integration of virtual spaces paired with physical movement tracking, allows untold materials of various topics and cultures to be immersed while also enabling locals to interact with actual native speakers of Western countries without the need to travel to their location, bringing unparalleled potential in the education space. The reality of classrooms nowadays is that we tend to create learning based on our own experiences and others. But this could be limited in a way that could be repetitive or predictable. Not only is this stagnating, reducing the motivation to even revel in language learning, but it also does not provide stimulation, which further hampers the effort. Therefore, a breakthrough in this field of education is desperately needed, as the coming of advanced technology upon us should be utilised and integrated properly, not just for entertainment but also in improving our education lifestyle, to provide a more quality learning experience. Therefore, this study aims to provide a baseline for future endeavours planning to form a VR implemented classroom for learning English, in which they can see the perception of such technology being utilised in a school environment and determine whether it is worth the risk and effort.

Due to these circumstances, this research proposes two research questions that will be the main focus of this study, which are: -

1. Does Virtual Reality (VR) implementation have any effects on the development of ESL learners' speaking skills?
2. What are the students' perceptions on the usage of VR as a language learning tool?

The researcher believes that the findings of this study will benefit educational institutions, as well as non-profit organizations and individuals in Malaysia, because it promotes a certain level

of understanding on the current perception of students in rural areas regarding the use of VR in their classes. Due to the extensive work, expertise, and funds required to successfully implement such classes, particularly in rural areas, the results can be used as a guideline to indicate the current risk to reward ratio of implementing such classes. Furthermore, the findings of this study could be used as a foundation for developing more cohesive lessons centred on VR experiences, with modifications to meet the needs of the students.

Therefore, this present paper aims to investigate rural secondary school students' perceptions of the use of virtual reality (VR) as an alternative to the traditional classroom setting, specifically in the context of an oral skill lesson. Furthermore, the students' perceptions include general perception, motivation levels, interest, and skill development when exposed to a VR classroom. Further sections of this paper would discuss the procedures employed to obtain data, provide analysis on the data obtained throughout this study, as well as discussions, comments, and recommendations for future research as a conclusion.

LITERATURE REVIEW

Virtual Reality in Education and Related Fields

The first use of VR can be traced back to the 1960s, when Morton Heilig developed the Sensorama, a machine that used multi-sensory feedback to create a sense of immersion in a simulated environment (Biocca, 1997). However, it was not until the 1990s, with the development of more advanced computer graphics and the availability of cheaper, more accessible VR hardware, that VR began to gain widespread attention and adoption (Burdea & Coiffet, 2003). Since then, VR has been used for a variety of purposes, including entertainment (e.g., video games, movies), training (e.g., military, medical), and education (e.g., virtual field trips). It has also been used in therapy and rehabilitation, such as helping individuals with phobias or post-traumatic stress disorder (PTSD) confront their fears in a controlled environment (Gaggioli, Riva, & Wiederhold, 2017).

A study by Elmgaddem (2019) describes the use of VR as a tool for historical education as another illustration. According to the study, using VR to increase students' presence and engagement in historical contexts can help them better comprehend and remember historical events. W. Martin and C. Schifter (2018). This evidently shows that the interactivity, which is one of the main focuses of VR technology, if properly retrofitted for English learning syllabuses, could also improve overall comprehension and learning, especially when referring to areas such as speaking.

Furthermore, based on meta-analysis of VR in education research by McCabe (2018), students who used VR in their instruction were found to perform better on tests of content knowledge compared to students who did not use VR. Moreover, a study by Rau (2019) found that the use of VR in education could improve students' spatial reasoning skills, a key component of STEM education. The integration of VR with instruction and the teacher's role in the VR classroom are noted to be essential for improving student learning. Teachers need to have a solid understanding of the technology and how to use it in their lessons if VR is to be successfully integrated into the classroom. Proper training or a crash course would be needed for instructors who are not too familiar with the technology, as it may have an effect on the overall performance of virtual reality users, especially learners. As a further reinforcement to the previous statement, it is crucial to remember that the quality of the planning and implementation of the technology-based resources determines how well VR works in education. According to a study by Dede (2017), the degree of engagement and interactivity of the VR experience was highly correlated

with the effectiveness of VR in education, with more interactive and engaging experiences leading to better learning outcomes.

Parmaxi (2020) discusses that language teachers have a plethora of options thanks to VR's rapidly developing features. The primary contribution of this study is that it demonstrates the growing potential of VR in language instruction and learning. Future researchers and practitioners should focus on areas like aligning VR features with a strong pedagogical foundation, as per theories and models such as TPACK, or CALL, aligning VR features with learners' strategies, cognitive processes, and practises, researching less-researched abilities like writing, reading, cultural awareness, and critical thinking, and utilising fully immersive, reasonably priced virtual technologies in parallel with English language learning.

Previous Studies on VR Classrooms in Education

The trend, acceptance level, advantages, and challenges associated with the implementation of VR in tertiary education in Malaysia are examined in a paper published in 2020 by Rachel Wong et al. The conclusion of the paper is that VR is still not widely used in Malaysia's higher education. Additionally, it is not significant how widely VR technology is accepted in tertiary education. Despite this, the majority of students believe that incorporating VR into their experiments and practical classes will improve their learning. Last but not least, technical issues and educators lacking strong technical skills due to inexperience are the main obstacles Malaysia's tertiary education faces in implementing VR. Concluding from this study, Even if a large portion of students prefer a new experience in their learning experience, it seems that limited knowledge of such technologies, particularly on the side of the educators, paired with the quite expensive price of equipment to foster such method of education would likely become a main factor in blocking VR technology from ever being implemented in Malaysia.

Chen (2009) states that VR's theoretical limitations in the classroom are rarely discussed. In fact, more fundamental research, such as design-based research that aims to generate theories on virtual reality learning, should be further encouraged in order to enable the effective and proper integration of such technology into an educational setting. However, the recent developments made in VR technology have allowed much easier and more compatible learning capabilities compared to previous iterations of the model, in which VR could be accessed through a variety of headsets specifically designed for the endeavour, and at a lower cost. Although this study was made previously in the context of Malaysian and global education infrastructure, and despite the technological leaps that VR has reached, has not warranted change as of date, with the main culprit possibly being cost-effectiveness, and re-training of teachers in adapting this tech into their pedagogy and syllabus.

METHODOLOGY

This study obtained 39 questionnaire respondents and 10 interviewees at SMK Desa Kencana in Lahad Datu. The questionnaire was distributed in hard copy form, and the interviews were done physically. The participants were purposefully chosen based on the convenience of the population, which is already available in the form of current school students, as well as their availability for the researcher, which in this case would include students from Forms one and two.

This study used a multi-method research design in which both questionnaires and interviews were used to collect the data needed for this research. The interview session was conducted by choosing a total of ten respondents from the questionnaire sample for further qualitative sessions. The questions that were asked of them included *"Did the VR classroom excite*

you / Perception of VR learning in English", as well as *"Do you have any comments about VR implementation in English classes?"*. The answers provided were then analysed using descriptive analysis, while the interviews, through thematic analysis, were used as supporting data to help answer the research questions posed in this study. Each interview session was done in a duration ranging around two to five minutes, and the respondents' answers were written down on the section provided at the back of the questionnaire by the researcher for further analysis.

A number of paraphernalia were incorporated during the portion of this study, among them which would be the inclusion of an Meta Quest 2 Headset, more commonly referred as Head-mounted Displays (HMDs) which would bring the experience of virtual reality into a user. Included with this headset would be a personal computer, used to power the software needed for the VR experience, a projector, to showcase what is being viewed by the user wearing the VR headset to the rest of the class, as well as the lesson plan, which would be needed to conduct the classroom and teach the syllabus. Methods of data collection included in this study would include Likert Scale Questionnaires, and interviewing sessions, to fulfill both quantitative and qualitative needs. During the experiment, incorporating a personal computer and a projector will also be included as supporting peripherals, mainly tasked with showing what students would see in the HMD to the rest of the classroom.

To ensure the validity of this study, an acknowledged lecturer from the Faculty of Psychology and Education at Universiti Malaysia Sabah acknowledged and certified the questionnaire. The questionnaire contains eight items and is derived from Campos's (2022) study, modified to fit this research. This study's reliability is measured using Cronbach's Alpha reliability method and shows a value of 0.687, signifying a moderate level of reliability.

Table 1 Reliability Statistics of the Questionnaire

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.699	.687	8

Data from the qualitative study would be transcribed on paper and documented, analysed through the use of thematic analysis, focusing on keywords and general perspective taken note and deemed as each participants' general view of the VR experience. As for quantitative measures, an analysis through the usage of SPSS version 28.0 would show the significance of VR integration on the overall improvement of speaking sessions, as well the respondents' general perception on the implementation of VR in their English classes.

FINDINGS

Results Analysis

Table 2.0 indicates the overall analysis of the questions present in the questionnaire. Question (1) of the questionnaire inquires the respondents on whether they are familiar with the term "Virtual Reality" (VR) or witnessed and experienced VR technology before this investigation. Table 4.4.1 indicates that the respondents generally agreed on the statement presented by Question 1, showing that they are indeed familiar with the term "Virtual Reality" and its mechanics. The mean value of 2.74, as well as the mode frequency of 3 (Agree) as shown in Figure 4.4.1 is supporting

evidence for this indicator. Therefore, a majority of the respondents are familiar with VR technology prior to this research.

Table 2 Descriptive Statistics of All Questionnaire Data

Statistics

		Question1	Question2	Question3	Question4	Question5	Question6	Question7	Question8
N	Valid	39	39	39	39	39	39	39	39
	Missing	0	0	0	0	0	0	0	0
Mean		2.74	2.79	2.97	3.08	2.92	2.74	2.74	2.85
Std. Deviation		.751	.833	.778	.739	.984	.910	.966	.904

Question (2) deals with whether the VR learning experience is consistent with the teaching method that is desirable for the respondents in an English learning classroom. The mean value of the analysis, which indicates a value of 2.79 shows that a majority of respondents agree with the question, with 23 (59%) respondents agreeing while 6 (15.4%) strongly agreeing. 10 respondents (25.7%) however disagreed or heavily disagreed with the statement, likely showing that they prefer a more traditional classroom as opposed to VR learning. This concludes that many prefer VR learning over the traditional method of learning.

The analysis for question (3) shows that 19 (48.7%) of the respondents agreed that implementation of VR technology would be able to inspire them to learn better. A further 10 (25.6%) respondents strongly agreed on the question. In contrast, 9 (23.1%) respondents disagree on this statement, while one (2.6%) respondent heavily disagreed. The mean value of this range sits at 2.97, the second highest of the eight questions presented in the questionnaire, which shows that many respondents agreed with this question.

The analysis for question (4) shows that a large majority of the respondents agree on the question in which VR technology could improve the quality of speaking lessons in English. This is indicated by the total of respondents that agreed and heavily agreed, totalling to 32 (82%) of the total respondent count. In addition, the mean value for this question is the highest, sitting at 3.08, which concludes that most respondents resonate with this question.

Analysis for question (5) asks the respondents whether they would prefer VR-centred classes over traditional classes. Based on the data obtained from the questionnaire, as well as from Table 4.4.5, it is shown that 11 (28.2%) of the respondents as well as 3 (7.7%) of the respondents disagreed with this statement, opting to stay in traditional classes. A number of 11 (28.2%) respondents have shown that they somewhat preferred VR classes over traditional ones while a further 14 (35.9%) respondents heavily favour VR classes. Therefore, this graph shows that at least two-thirds of the respondents' view VR classes as superior to the standard traditional ones, and prefer them more in learning.

Question (6) asks the respondents about their thoughts on whether VR implementation could allow them to retain more information compared to a traditional learning experience. This is in the context of speaking skills, in which students primarily delved in when they were experiencing their VR learning classroom. After their learning session was over, it is seen through this data that 10 respondents disagreed, while 4 strongly disagreed, making up a total percentage of 35.9% of the total respondents. The rest of the respondents generally favour this statement, shown by the total of respondents that agreed with the statement amounting to 25 respondents (64.1%).

Question (7) asks the respondents whether VR learning helps them concentrate in class. This is in the context in which they were conducting speaking classes. Based on the data, 19

(48.7%) respondents agreed with the statement, while an additional eight respondents (20.5%) strongly agreed. Six respondents disagreed and heavily disagreed respectively amounting to 30.8% of the total respondent count. Therefore, it is sufficient to say that at least two-thirds of the respondents feel that they can do better in speaking classes when they utilise VR technology.

Finally, for question (8), respondents were inquired whether their understanding of the lesson (speaking lessons) improved when the utilisation of VR was present. Out of the 39 respondents, 26 (66.6%) agreed with this statement. 13 (33.3%) respondents generally disagreed with this question, which shows that their opinion on whether VR technology could improve their speaking experience is met with no enthusiasm.

Based on the majority of the statements given by the interviewees (10 Students), The general view on the implementation of VR in Oral English Classes were met with quite the positive review. Interviewees had a positive experience during the VR class, especially since it was a new experience for the students. Their exposure to VR classes also brought with them some comments about the implementation of VR, which included both positive and negative reviews.

> *"The graphics could really use improvement cause it hurts my eyes. Education wise, it's a bit hard to learn when using VR because it's more towards playing games in my opinion. Additionally, the sound is a bit underwhelming."*
>
> *"The utilisation of VR is innovative, interactive. Would be nice to learn science based English using it."*
>
> *"I'm a bit intimidated because of health reasons. But it's nice having a new experience."*
>
> *"VR is, in my opinion, more geared towards playing games than learning, It can be challenging to learn. The sound is also a little lacklustre."*

For instance, one of the interviewees stated that the VR classes are innovative and interactive, which could be a strong point in increasing motivation and attention retention during English classes. In addition, the use of gamification using VR shows that the fun factor in English classes could be increased. However, Interviewees also stated that VR classes have their negatives. For example, they stated that the VR application's quality needs to be improved, in terms of graphical fidelity and sound quality. In addition, health issues are an important factor in VR classes, as some have concerns about the side effects of using VR. Furthermore, some interviewees think VR classes could lead to more play time than learning.

DISCUSSION

Based on the findings of the research, we will now discuss the related aspects of the research questions and correlate them with the findings concluded by the data obtained in this research. For the research questions, an emphasis was put on the improvement of speaking skills (Oral Skills) through the implementation of VR. Oral skills generally have less methods of innovation due to their nature that emphasises on verbal interaction, which would be advantageous in a media-oriented setting. However, the current standard of using audiovisual media has become stale through the years as students are getting used to the technology, not only in a school setting but also in their own time.

The introduction of VR not only brings a new experience for the students to indulge in, but the emphasis is placed on their increased motivation levels as they try new things. With that increased interest translated to a learning experience, it is possible that students can actually learn, and improve their skills as they continue diving into that new experience, and therefore could potentially improve their oral skills as a result. Klimova (2021), stated that the integration of VR could bring benefits to the typical classroom, which could be the case considering the results of the data obtained. higher motivation is present for several respondents regarding attending and learning English classes, as well as indulging in oral learning.

Does Virtual Reality (VR) implementation have any effects on the development of ESL learners' speaking skills?

It could be noted that their increased development in the speaking skills to be beneficial and present assuming the right circumstances. Although the data obtained does not explicitly show the improvement of the ESL learners, it is noted that their increased motivation and interest in oral learning could be a main factor in driving their increased performance, as noted by Elmgaddem's (2019) study, which claimed that the use of VR helped engagement among students in history. Therefore, it could be concluded that the implementation of VR does indeed contain a positive effect on the development of ESL learners' speaking skills.

What are the students' perceptions on the usage of VR as a language learning tool?

It is implied that, because of the nature of the study being conducted in a rural secondary school, the researcher initially assumed that the introduction of VR technology would be met with critically positive review. However, after analysis of the data obtained, it is shown that not all students have that opinion. Some deemed that the introduction of VR classes would cause their learning experiences to become an experience in which they play, rather than learn. In addition to such issues, the concern in health issues, stemming from the fact that side effects such as seizure and nausea could occur during the process of learning, is not that attractive, among other things such as disappointing quality in terms of graphical fidelity and sound quality. Regardless of these factors, the data obtained by respondents show that the majority are content and enjoyed the implementation of VR in their classroom.

Overall, the perception of the implementation of VR in oral speaking classrooms in English would be met initially with positive reviews. However, the implementation must abide by the standards set by traditional classes, providing lessons in range with the students' expectations and requirements to improve them. Otherwise, such efforts would only be a waste of time for educators and students. Through this research, educators in Malaysia could get a small grasp of the general perception of students, particularly located in very rural parts of Malaysia, and set their benchmark on the prospects of implementing a VR classroom, or hub in such places. This study could act as a reference for the ministry, NGO's or individuals who are keen on going forward with such an endeavour. In addition, this research could also guide learners on ways to conduct VR classes in both urban and rural areas and provide them with expectations that they might face when they will conduct such classes in schools all over Malaysia.

In conclusion, the results of the data show that the general perception of the respondents towards the implementation of VR is generally positive. Interactivity, innovation, as well as new experiences were among the main factors that contributed to the positive reaction of the respondents towards the VR classroom. In terms of their plausibility in improving the quality of speaking classes in English, a majority of the respondents have noted that such an endeavour was possible, however should be conducted in the right circumstances, as issues such as low

graphical fidelity, mediocre sound quality, health issues and the potential for a classroom to not conduct a lesson but instead opt to play around is possible.

LIMITATIONS OF THE STUDY

It is important to acknowledge some of the research's limitations. The data gathered for this study cannot represent a population due to time restrictions. In addition, the sample size is too small to represent even the population of the school itself, that being the students of SMK Desa Kencana. The data findings could only prove that the general perception of the respondents involved in this research show positive feedback in regard to classes with VR. In addition, the findings for Research Question 1 (RQ1) is somewhat unsatisfactory, due to the time constraints and difficulty in conducting a more expansive research such as this in a rural area, as well as the obstacles in conducting such a research that requires other equipment, as well as the need to cash out funds in order for the research to succeed.

Furthermore, to better determine the effectiveness of VR implementation in the effort to improve oral skills among students, a study with a control group and an experimental group is highly recommended to see the actual influence VR has on the rate of improvement among students, particularly in speaking skills. In light of this, it is clear that such a project would necessitate a significant amount of funding, as using only a single headset for a larger sample size would be too time consuming, especially when conducted in an environment that does not facilitate an easy experience when conducting such a research, such as that found in rural areas where SMK Desa Kencana is located.

Implication of the Research

Through this research, educators in Malaysia could get a small grasp of the general perception of students, particularly located in very rural parts of Malaysia, and set their benchmark on the prospects of implementing a VR classroom, or hub in such places. This study could act as a reference for the ministry, NGO's or individuals who are keen on going forward with such an endeavour. In addition, this research could also guide learners on ways to conduct VR classes in both urban and rural areas and provide them with expectations that they might face when they will conduct such classes in schools all over Malaysia. This study is particularly unique. in which it is research placed in a location and environment that is less likely to be conducted. The nature of this study serves as further reference for those who are inclined towards conducting similar research in areas that are less common for consideration, due to distance and convenience, while also fulfilling a niche that is currently underexplored in this country.

CONCLUSION

Ultimately, the purpose of this research is to look into rural secondary school students' perceptions of the use of virtual reality (VR) as an alternative to the traditional classroom setting, specifically in the context of a speaking skill lesson. Furthermore, when exposed to a VR classroom, students' perceptions include general perception, motivation levels, interest, and skill development, as well as their effects on the aforementioned aspects. In general, both research goals in this study were met, and further studies in this topic is highly recommended as the researcher believes that the implementation of VR, IR or AR is the next step towards improving the quality and experience of education worldwide. Finally, this study believes that implementing VR would be able to increase

the motivation, interest, and skill development of ESL learners, particularly in speaking skills, and thus investigate whether VR classrooms appear to be a better alternative to our current learning environment.

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