

Optimizing Innovation in Knowledge, Education and Design

EXTENDED ABSTRACT



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Assalamualaikum warahmatullahi wabarakatuh,

First and foremost, I would like to express my gratitude to the organizing committee of i-Spike 2023 for their tremendous efforts in bringing this online competition a reality. I must extend my congratulations to the committee for successfully delivering on their promise to make i-Spike 2023 a meaningful event for academics worldwide.

The theme for this event, 'Optimizing Innovation in Knowledge, Education, and Design,' is both timely and highly relevant in today's world, especially at the tertiary level. Innovation plays a central role in our daily lives, offering new solutions for products, processes, and services By adopting a strategic approach to 'Optimizing Innovation in Knowledge, Education, and Design,' we have the potential to enhance support for learners and educators, while also expanding opportunities for learner engagement, interactivity, and access to education.

I am awed by the magnitude and multitude of participants in this competition. I am also confident that all the innovations presented have provided valuable insights into the significance of innovative and advanced teaching materials in promoting sustainable development for the betterment of teaching and learning. Hopefully, this will mark the beginning of a long series of i-Spike events in the future.

It is also my hope that you find i-Spike 2023 to be an excellent platform for learning, sharing, and collaboration. Once again, I want to thank all the committee members of i-Spike 2023 for their hard work in making this event a reality I would also like to extend my congratulations to all the winners, and I hope that each of you will successfully achieve your intended goals through your participation in this competition.

Professor Dr. Roshima Haji Said RECTOR UITM KEDAH BRANCH

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WELCOME MESSAGE (i-SPiKE 2023 CHAIR)

We are looking forward to welcoming you to the 3rd International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education 2023 (i-SPiKE 2023). Your presence here is a clear, crystal-clear testimony to the importance you place on the research and innovation arena. The theme of this year's Innovation is *"Optimizing Innovation in Knowledge, Education, & Design"*. We believe that the presentations by the distinguished innovators will contribute immensely to a deeper understanding of the current issues in relation to the theme.

i-SPiKE 2023 offers a platform for nurturing the next generation of innovators and fostering cutting-edge innovations at the crossroads of collaboration, creativity, and enthusiasm. We enthusiastically welcome junior and young inventors from schools and universities, as well as local and foreign academicians and industry professionals, to showcase their innovative products and engage in knowledge sharing. All submissions have been rigorously evaluated by expert juries comprising professionals from both industry and academia.

On behalf of the conference organisers, I would like to extend our sincere thanks for your participation, and we hope you enjoy the event. A special note of appreciation goes out to all the committee members of i-SPiKE 2023; your dedication and hard work are greatly appreciated.

Dr. Junaida Jemail

Chair 3rdInternational Exhibition & Symposium Productivity, Innovation, Knowledge, and Education 2023 (i-SPiKE 2023)



LEARNING THROUGH METAVERSE: EXPLORING THE ROLE OF VIRTUAL REALITY TO ENHANCE ENGLISH LANGUAGE PROFICIENCY

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ABSTRACT

Conventional English language pedagogy falls short in offering immersive and engaging learning environments for students, both of which are required for growing English language competency. Virtual reality (VR) has emerged as a potentially useful tool in the domain of language learning, offering students a unique and comprehensive educational experience with the potential to improve language competency through customised instructional methods. In this study, the benefits of immersive virtual reality simulation; using the platform Metaverse; on English language acquisition for language proficiency enhancement were assessed using a mixed-methods approach. Data was collected through surveys, interviews, and classroom observation which were then evaluated using a descriptive approach of frequency counts, averages, and percentages. The research transcriptions wereused to determine students' motivation for Second Language Acquisition (SLA) outside of conventional classroom instruction and its impact in enhancing English language proficiency. Despite the obstacles the researchers found in implementing virtual reality simulations in educational settings, the research results showed an increase in performance, motivation, and language acquisition. The findings of this study contribute to the current body of literature on the use of virtual reality technology in educational settings and its potential for creating customised virtual reality content. The limitations of conventional language learning methods and the need for innovative approaches to boost language proficiency is also highlighted. Further investigation and advancement in the field of virtual reality are necessary to comprehensively examine its potential in language education and evaluate its influence on learners' language proficiency and multilingual abilities.

Keywords: Virtual Reality, Metaverse, English language proficiency, SLA, VR



INTRODUCTION

Language acquisition is a complex process that requires learners to engage with a variety of linguistic and cultural elements for the purpose of acquiring a foreign language's proficiency. Conventional methods of language acquisition often involve the use of printed materials, audio resources, and in-person teaching, which may not consistently offer an engaging and participatory educational setting. According to the framework outlined by UNESCO's Education for Sustainable Development (ESD) 4.0, virtual reality (VR) technology has the potential to facilitate the development of language skills essential for effective communication. By means of immersive experiences, learners can engage in authentic and contextualised practise of their speaking, listening, reading, and writing abilities, thereby enhancing their proficiency in these areas. VR-based language learning modules enhanced vocabulary acquisition, grammatical comprehension, and overall language competency, contributing to SDG 4.0 of promoting quality education (UNESCO, 2020).

The integration of VR technology in language education offers a distinctive and captivating approach that amplifies students' motivation and engagement. According to Cheng and Tsai's (2020), the immersive nature of VR can enhance the sense of presence and enthusiasm, leading to increased engagement and commitment to the language learning process. VR technology also offers learners the opportunity to engage in immersive and realistic environments that replicate real-life situations. This enables them to effectively practice and apply their English language skills within a contextualized setting. Slater (2019) posits thatthe integration of contextualised environments can enhance the process of language acquisition among learners by facilitating authentic communication while encouraging the acquisition of situational language proficiency. Thus, VR has emerged as a potentially effective instrument for language acquisition, affording learners a fresh and inventive approach to develop linguistic proficiency.

This paper investigates the use of virtual reality (VR) technology in the context of language learning with a focus on the *Metaverse* platform. The focus is on the potential benefits, obstacles, and effectiveness of this method for promoting language acquisition and enhancing English language proficiency. The research project employs the *Technology AcceptanceModel* (TAM) and the *Technological Pedagogical Content Knowledge* (TPACK) frameworks to examine the pedagogical knowledge of instructors and their ability to effectively engage language learners through the integration of technology. These frameworks aid instructors and the efficacy of its use to help students learn languages. Innovative VR-based language learning experiences can be designed, implemented, and evaluated by instructors who consider both the technology acceptability model (TAM) and the pedagogical implications model (TPACK). In addition, the paper analyses potential obstacles and provides recommendations for the successful incorporation of virtual reality technology into English language education.

RESEARCH OBJECTIVES

The primary purpose of the research was to assess the attitudes, opinions, and perceptions of students regarding the integration of virtual reality technology in their English language classroom instruction. With the presence of the chosen variable i.e., the virtual reality simulation delivered through metaverse, the current researchers have assessed the motivation



of learners in acquiring English as SLA, evaluated the learner's attitude towards learning the language outside of the classroom context and identified their proficiency in English.

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RESEARCH METHODOLOGY AND RESULT FINDINGS

A group of 52 tertiary students from UiTM Mukah and Betong Vocational College ofSarawak were administered a survey form consisting of questionnaires that utilised the 5- Point Likert scale. The purpose of the survey was to gauge the attitudes, opinions, and perceptions of the students regarding the use of virtual reality technology in their English language classes. Subsequently, the participants were subjected to formative evaluations that were conducted concurrently with the implementation of virtual reality technology for language training. The training was facilitated through the utilisation of *YouTube VR* and *Virtual Speech* applications in the *Metaverse*. The findings indicate a significant increase in the students' motivation to utilise their English language skills, specifically in the areas of spoken and listening proficiency. The correlation between interactive virtual reality simulations and the improvement of students' Second Language Acquisition (SLA) in English beyond the classroom context is moderately positive, as evidenced by their performance in speaking English. These indicators demonstrate that the effective utilisation of VR technology can improve learners' proficiency in English language acquisition.







Image 3 Implementation of VR in group discussion context

NOVELTY

Although the use of virtual reality (VR) technology in the field of education is not a new notion, there appears to be a lack of emphasis on its application in the context of language acquisition. Hence, the innovation of introducing Metaverse into the process of English language acquisition can be valued as an adaptation of existing ideas and technologies for knowledge transfer from one domain to another. It is also a novelty of new concepts that challenges the conventional language teaching pedagogy.

COMMERCIALIZATION VALUES

Implementation of virtual reality (VR) technology provide positive impact on education ecosystem by providing student engagement, facilitate skill development, foster collaboration, and cultivate empathy, ultimately leading to a more effective and impactful educational experience, which ultimately improve learning outcomes. This also calls for partnership opportunities to collaborate with any sectors in developing both VR hardware that sustainable and economic and contribute to the development of applications that aresuitable for education settings.

CONCLUSION

Initial findings indicate that the use of virtual reality applications through Metaverse has promising potential as an instructional tool for increasing English language learners' motivation. Consequently, this immersive practise can result in an increase in their English proficiency. It is reasonable to suggest that a reevaluation and improvement of the use of virtual reality methodology is needed to sustain students' interest and facilitate effective language acquisition over time. To maximise the benefits of using Virtual Reality (VR) for Second Language Acquisition (SLA) and enhancing linguistic proficiency for both educators and students, it is vital to evaluate supplementary data comprehensively. In conclusion, the use of virtual reality technology suggests that the virtual language learning approach bears promise in educational contexts.



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