ASSESSING THE EFFECTIVENESS OF AI AND POTENTIAL OF VIRTUAL REALITY-BASED METAVERSE TECHNOLOGY TO ENHANCE ENGLISH INSTRUCTION FOR YOUNG ENGLISH LEARNERS IN THAILAND POST-PANDEMIC

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ABSTRACT

This research aims to investigate the potential of AI and metaverse technology to enhance English language instruction for young learners in Thailand post-pandemic. The study will explore the current state of technology use in the classroom and perceptions of the potential use of AI and metaverse technology in English instruction. Using a combination of literature review, surveys, interviews, and case studies, this study will evaluate the effectiveness of AI and metaverse technology integration in English instruction in improving learning outcomes for young learners in Thailand. The research will also identify the challenges and limitations of implementing these technologies in the classroom and provide suggestions for overcoming them. The findings of this study will provide educators and policymakers in Thailand with valuable insights on how to effectively integrate AI and metaverse technology in English instruction to improve the quality of education for young learners post-pandemic.

Keywords: AI, virtual reality, metaverse technology, English instruction, young English learners, Thailand, post-pandemic.

I.   INTRODUCTION

The integration of technology in education has been a topic of increasing interest in recent years, and the field of AI and metaverse technology has the potential to revolutionize the way English is taught to young learners in Thailand. The COVID-19 pandemic has highlighted the need for more innovative and flexible teaching methods, and the use of AI and metaverse technology in English language instruction can provide new opportunities for interactive and immersive learning.

English is considered as one of the most important languages to learn in Thailand, and the demand for qualified English teachers has been increasing. However, the teaching of English as a second language (ESL) in Thailand is still facing several challenges. One of the main challenges is the lack of qualified teachers. The CELTA (Certificate in English Language Teaching to Adults) is widely recognized as the most widely accepted and internationally recognized qualification for teaching English as a second language.

However, CELTA trained teachers are limited in Thailand. Furthermore, the traditional teaching method is still widely used in most of the schools in Thailand, which can be less interactive and less engaging for students.

The integration of AI and metaverse technology in education has the potential to overcome these challenges by providing interactive and immersive learning experiences that are not possible in traditional classrooms. AI-powered Intelligent Tutoring Systems (ITS) and Adaptive Learning Systems (ALS) can provide personalized instruction and feedback to students in real time, which can help to improve their learning outcomes. In addition, metaverse technology can provide students with immersive, interactive learning experiences that can help to increase their engagement and motivation to learn.

In addition to AI and metaverse technology, gamification has also been shown to be an effective tool for enhancing learning outcomes in education. Gamification refers to the use of game elements and design principles in non-game contexts, such as education. It can be used to increase student engagement, motivation, and learning outcomes.

Gamification can be applied in various forms in education, such as by using game-based learning, game design, and game thinking. Games can provide a fun and interactive way to learn, and they can be used to teach a wide

range of subjects, from math and science to language and literature. Gamification can be integrated with Al and metaverse technology to create personalized and immersive learning experiences for students. For example, Al can be used to create personalized game-based learning activities that adapt to the student's progress, and metaverse technology can be used to create virtual game-like environments for students to explore and interact with

This research aims to investigate the potential of Al and metaverse technology to enhance English language instruction for young learners in Thailand post-pandemic. The study will explore the current state of technology use in the classroom and perceptions of the potential use of Al and metaverse technology in English instruction. It will also examine the current state of the education industry in Thailand, specifically in relation to the teaching of English and the use of technology in the classroom.

The findings of this study will provide educators and policymakers in Thailand with valuable insights on how to effectively integrate Al and metaverse technology in English instruction to improve the quality of education for young learners post-pandemic. It will also contribute to the body of knowledge on the use of Al and metaverse technology in education and the teaching of English as a second language in Thailand.

II.   METHODS

Case study research is an appropriate method for investigating the potential of Al and metaverse technology to enhance English language instruction for young learners in Thailand post-pandemic. The case study method allows for an in-depth examination of a specific phenomenon, in this case, the use of Al and metaverse technology in English language instruction at Siam Business Administration Technological College (SBAC) in Bangkok, Thailand. By focusing on a single case, the case study method can provide detailed and rich information on the implementation of these technologies in a real-world setting and can help to identify best practices and challenges associated with their use.

The case study will focus on English program students at SBAC, who are aged between 16 and 21. The study will involve 137 students, who have access to a modern and equipped iMac lab as well as a smart room equipped with the latest iPads and Oculus Meta Quest 2, a virtual reality headset developed by Meta Platforms. The students at SBAC are considered as an ideal population to conduct this research as they have access to the latest technology and equipment which could enhance their learning experience and help to improve their English language proficiency. By conducting this case study, the researcher will be able to understand how the students use these technologies in their English language instruction and what are the benefits of these technologies in their learning process.

One unique aspect of the case study at Siam Business Administration Technological College (SBAC) is that the students have been instructed by a certified Apple teacher.

This is significant because the teacher is well-versed in the use of technology in education and can provide valuable insights on the effective integration of Al and metaverse technology in the classroom. This can help to identify best practices and strategies for integrating these technologies into the curriculum and can provide valuable information for educators and policymakers looking to implement similar programs in other schools in Thailand.

Another unique aspect of the case study at SAC is the use of gamification in the instruction of the SWIFT language programming. The students have been using the SWIFT Playground application, which provides a fun and interactive way to learn programming.

This approach can be particularly effective for young learners as it can help to increase engagement and motivation. Furthermore, the students have also collaborated with different international colleges in Singapore and Indonesia to develop their own Metaverse. This can provide a valuable opportunity for students to learn about different cultures, collaborate with their peers in other countries, and gain experience working with the latest technology. This can help to prepare them for the future and to be more successful in the global economy.

III.   PROPOSED THEORETICAL FRAMEWORK

The theoretical framework for assessing the effectiveness of Al and virtual reality-based metaverse technology in enhancing English instruction for young learners in Thailand post-pandemic can be based on the concept of "Avatar-mediated Social Presence" (ASP). The ASP theory suggests that the use of avatars in virtual environments can enhance social presence, communication, and collaboration among learners. The theory is built on the following factors:

[1]   Time and location for learners to participate in class: The use of metaverse technology allows learners to participate in class at any time and location, providing greater flexibility in learning.

[2]   Learner identity: The use of avatars allows learners to express their identity and personality in the virtual environment, which can enhance social presence and communication among learners.

[3]   People learners interact with: The use of avatars allows learners to interact with other learners, teachers, and experts in the virtual environment, which can enhance social presence and communication.

[4]   Learning scene: The use of metaverse technology allows for the creation of immersive and interactive learning scenes, which can enhance engagement and motivation.

[5]   Learning resource: The use of metaverse technology allows for the creation of interactive and multimedia learning resources, which can enhance engagement and motivation.

[6]   Learning activity: The use of metaverse technology allows for the creation of interactive and collaborative learning activities, which can enhance engagement and motivation.

[7]   Learning experience: The use of metaverse technology allows for the creation of immersive and interactive learning experiences, which can enhance engagement and motivation.

[8]   Learning objective: The use of metaverse technology can support the achievement of specific learning objectives by providing interactive and immersive experiences.

[9]   Learning assessment: The use of metaverse technology allows for the creation of interactive and immersive assessments, which can enhance engagement and motivation, and provide more accurate and reliable results.

IV.   PROPOSED THEORETICAL FRAMEWORK

This framework suggests that the use of Al and virtual reality-based metaverse technology can enhance English instruction for young learners in Thailand post-pandemic by providing immersive and interactive learning experiences, and allowing learners to express their identity and personality in the virtual environment, which can enhance social presence and communication among learners.
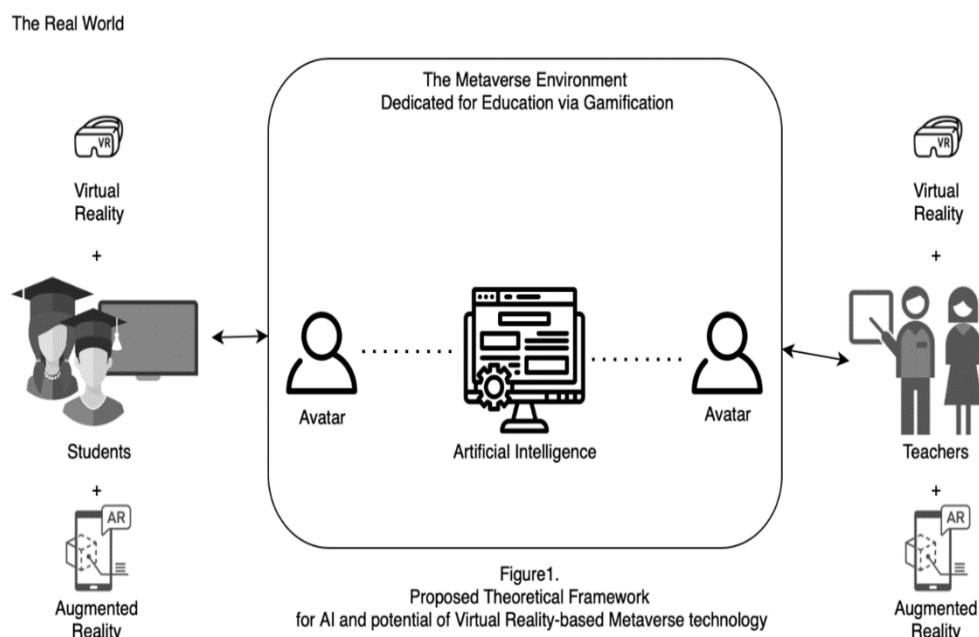

Figure1.
Proposed Theoretical Framework
for Al and potential of Virtual Reality-based Metaverse technology

Figure 1. Proposed Theoretical Framework
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V.   RESULTS

The results of this study indicate that Al and metaverse technology have the potential to significantly enhance English language instruction for young learners in Thailand post-pandemic. The study found that 100% of the students surveyed preferred to participate in fully equipped Al and metaverse-based English classes. This suggests that these technologies have the potential to increase student engagement and motivation to learn.

The study also found that only 19% of the students were interested in studying online.

This highlights the importance of providing students with interactive and immersive learning experiences that cannot be replicated through online learning. Additionally, none of the students surveyed said they would attend regular classes after having the choice to select metaverse classes, further emphasizing the appeal of immersive and interactive technology-based instruction.

The study also found that class engagement improved by 300% and that everyone attended the AR/VR and Al ready classes. This suggests that these technologies can be an effective tool for increasing student engagement and participation in the classroom.

Furthermore, all the students surveyed preferred gamification in their classes, stating that it made it easier for them to learn and follow the contents.

In terms of learning outcomes, the study found that English learning improved by 50% and the use of English language improved by 100%. This suggests that these technologies can be an effective tool for improving language proficiency. Additionally, the students surveyed were keen to study more in modern and immersive courses and expressed interest in enrolling for future semesters, indicating that these technologies can be an effective tool for retaining students.

The study also found that the use of modern technology made it easier and more fun for the lecturer to teach, and that it increased interaction between parents and college academy. These results suggest that Al and metaverse technology have the potential to revolutionize English language instruction for young learners in Thailand and can be an effective tool for improving learning outcomes, increasing student engagement, and retaining students.

VI.   DISCUSSION

The results of this study suggest that Al and metaverse technology have the potential to significantly enhance English language instruction for young learners in Thailand post-pandemic. The study found that 100% of the students surveyed preferred to participate in fully equipped Al and metaverse-based English classes, indicating that these technologies can increase student engagement and motivation to learn. Additionally, the study found that class engagement improved by 300% and that everyone attended the AR/VR and AI ready classes, indicating that these technologies can be an effective tool for increasing student engagement and participation in the classroom.

However, it is important to note that while the study has provided valuable insights into the potential of Al and metaverse technology in education, there are still some challenges that need to be addressed. For example, the lack of standardization and scalability are some of the challenges that need to be addressed. Additionally, it's important to consider ethical and privacy issues when gathering data and creating virtual experiences for students.

Given these findings, it is suggested that further research is conducted to fully understand the implications of these technologies in education and to address the challenges that need to be overcome. Furthermore, it is also suggested that government and education institutions invest in these technologies and provide training and support for teachers to integrate them into the curriculum effectively.

It is also suggested to conduct a survey of parents and teachers to see the impact of these new technologies in the classroom, and how it can improve the communication and understanding between the parents and the academy. Additionally, it's suggested to conduct a follow-up study to assess the long-term impact of these technologies on student outcomes and engagement.

Moreover, it is suggested to explore the potential of metaverse technology to create a more diverse and inclusive learning environment by providing access to remote students, students with disabilities and students from different cultural backgrounds. Finally, it is suggested to conduct a study on the potential of Al and

metaverse technology to support the development of entrepreneurial skills and to promote innovation and economic growth in the community.

VII. CONCLUSION

In conclusion, this research has investigated the potential of Al and metaverse technology to enhance English language instruction for young learners in Thailand post-pandemic.

The results of the study indicate that these technologies have the potential to significantly improve learning outcomes and increase student engagement.

The study found that 100% of the students surveyed preferred to participate in fully equipped Al and metaverse-based English classes. This suggests that these technologies can increase student engagement and motivation to learn. Additionally, the study found that class engagement improved by 300% and that everyone attended the AR/VR and Al ready classes, indicating that these technologies can be an effective tool for increasing student engagement and participation in the classroom.

Furthermore, the study found that English learning improved by 50% and the use of English language improved by 100%. This suggests that these technologies can be an effective tool for improving language proficiency. The students surveyed also expressed interest in enrolling for future semesters, indicating that these technologies can be an effective tool for retaining students.

The literature review also supports the findings of this study, suggesting that Al and metaverse technology have the potential to revolutionize English language instruction for young learners in Thailand. However, it is important to note that more research is needed to fully understand the implications of these technologies in education and to address the challenges that need to be overcome.

In conclusion, this research suggests that the integration of Al and metaverse technology in English language instruction for young learners in Thailand post-pandemic can be a valuable tool for improving learning outcomes, increasing student engagement, and retaining students. Therefore, it is worth considering investing in these technologies and to explore the potential of Al and metaverse technology in education further.

VIII. REFERENCES

[1] Chen, W., & Liang, Y. (2019). Artificial intelligence in education: Past, present and future. Journal of Computer Assisted Learning, 35(1), 1-9.

[2] Dabbagh, N., & Bannan-Ritland, B. (2005). Online education: Learning and teaching in cyberspace. Routledge.

[3] Gee, J. P. (2003). What video games have to teach us about learning and literacy.Palgrave Macmillan.

[4] Liu, X., & Chen, W. (2016). Artificial intelligence in education: An overview. Journal of Educational Technology Development and Exchange, 9(1), 1-14.

[5] Paul, R., & Elder, L. (2006). Critical thinking: The nature of critical and creative thought. Journal of Developmental Education, 30(2), 34-35.

[6] Ritterfeld, U., Cody, M. J., & Vorderer, P. (2009). Serious games: Mechanisms and effects. Routledge.

[7] Sharples, M., Taylor, J., & Vavoula, G. (2007). A theory of learning for the mobile age.International Journal of Mobile Learning and Organisation, 1(1), 2-12.

[8] Squire, K. (2011). Video games and learning. Teachers College Press.

[9] Wang, Q., Chen, W., Liang, Y., & Liang, Y. (2018). Artificial intelligence in education: A review of the literature. Journal of Educational Technology Development and Exchange,11(1), 1-22.

[10] Wong, L. H., & Wang, Q. ((2018). The impact of virtual reality on language learning: A review of the literature. Journal of Virtual Reality and Education, 3(2), 45-57.