

Enhancing Foreign Language Learning through Educational Technology

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Abstract: Nowadays, the demand for foreign language learning has become a necessity due to globalization but traditional strategies are not free from problems. Educational technologies (EdTech), especially those powered by Artificial Intelligence (AI), augmented reality (AR) and/or virtual VR are following the trend and introducing new ways to enhance the efficiency of foreign language learning. Behavior and 2) This study examine the use of these technologies in foreign language learning through quality education. The study used descriptive qualitative methodology with a systematic review of related literature. The study results show that EdTech enables more interactive, personalized and integrated learning, which significantly enhances foreign language competency. However, there are known obstacles such as lack of infrastructure, inadequate teacher training and inaccessible areas. To overcome this, there is a need for E2E (EdTech to Ends) which aims to achieve maximum in foreign language education by using the power of EdTech.

Keywords: Artificial Intelligence; Augmented Reality; Education Technology; Foreign Language Learning; Virtual Reality.

1. Introduction

Foreign language learning is increasingly important in the current era of globalization. The ability to communicate in various languages not only opens up wider opportunities in a career, but also enriches cultural insights and facilitates cross-border interactions in various sectors, including business, education, tourism, and diplomacy [1]. The increasing international mobility and global interactions require individuals to have good foreign language skills. Therefore, enhancing foreign language learning through education technology is a top priority in the education system in many countries, including Indonesia. Meanwhile, there are still many challenges in foreign language learning.

The foreign language learning process often faces a variety of complex challenges. Conventional learning methods that are limited to face-to-face meetings in the classroom are often unable to meet the needs of students with varied backgrounds and ability levels. Lack of variety in teaching methods can lead to boredom and low student motivation [2]. In addition, limited time and resources are also major obstacles in achieving optimal language competence. Students who do not have access to additional learning materials or foreign language environments will find it difficult to improve their language skills [3]. Therefore, breakthroughs in teaching methods are needed that can overcome these challenges.

Educational technology or often referred to as education technology (EdTech) is the application of technology to facilitate and improve the teaching-learning process [4][5]. EdTech offers various solutions to overcome challenges in education, such as the lack of access to quality educational resources, the difficulty in building interactive learning experiences, and the need to provide education that can be accessed anytime and anywhere. Examples of EdTech implementation at the international level include the use of platforms such as Khan Academy and Coursera that provide online courses from reputable institutions [6][7]. In Indonesia, EdTech began to develop with the presence of platforms such as Ruangguru and Zenius that provide learning materials for various levels of education [8]. The target users of EdTech are very diverse, ranging from students, teachers, to parents. Although EdTech offers many advantages, such as flexibility and accessibility, there are also some disadvantages such as dependence on internet access and technology, and the need for adaptation from educators and students.

The use of education technology (EdTech) offers innovative solutions to address a multitude of challenges inherent to the process of acquiring a foreign language. The effectiveness of this approach has been demonstrated in a multitude of contexts across the globe. In a growing amount of educational institutions, such as universities and schools, technology-enhanced language learning has yielded encouraging outcomes [9][10][11]. The usage potential of EdTech is in accordance with the application of AI, AR, and VR [12]. AI can provide immediate feedback and customize learning materials according to students' abilities [13][14]. Meanwhile, AR and VR foster the creation of more interactive yet realistic learning environment, so that enable students to perform speaking practices in real situations without having to be in the country where the target language is spoken [15]. The benefits of these technologies enable students to increase their proficiency in foreign languages, to foster an increased student motivation and engagement [16]. Student will gain enthusiasm since the proficiency is highly valued in business environments, where the companies seek employees in communicating with partners and international clients [17]. The following benefit is related to the more effective and efficient learning, since the AI-powered platforms, including Memrise and Duolingo, usually tailored exercises that adapt to individual student needs, maximizing the learning process [18].

Moreover, it also employs a more immersive learning experiences, as they offer students various chance to practice language skills in such a realistic environments, including virtual conversations with the native speakers and explore the linguistic and cultural context of target countries [19]. This is followed by the ability of AR and VR in developing the comprehension, pronunciation, and practical application, for example in healthcare to proceed an effective patient communication in multicultural societies; whereas in law, it aids in the translation of legal documents and assisting non native speakers in understanding the legal procedures [20].

Previous studies underlined EdTech technology usage in general context. For example, research performed by Alwis *et al.* (2024) examined the role of technology in advancing the quality of education at MTsN 1 Sijunjung. The results of this study indicating that the technology plays a pivotal role in advancing the quality of education at MTsN 1 Sijunjung. Technology application in learning process has helped to increase students' enthusiasm for learning and participation. Teachers and students alike benefit from technology integration, although there remain various obstacles such as limited infrastructure and lack of training [21].

Research by Hazaymeh (2021) also explored the role of technology in the implementation of the online distance learning for enhancing English Language Learning during COVID-19 pandemic [22]. The results of this study show that technology has become a crucial element in improving the quality of classroom teaching, as well as improving acquired English proficiency by 86.66%. With the help of digital technology, students can learn with the flexibility of time and place. In addition, they can also access various learning resources to get the information needed in learning. Furthermore, a study conducted by [23] which aims to examine the

influence of digital technology in language teaching, especially in the context of foreign language teaching. This research shows that digital technology has great potential to improve language teaching with various tools and platforms that can spur learning enthusiasm and improve student learning achievement. Similar research was conducted by Yen *et al.* (2020) who evaluated students' views on the application of gamification of mandarin learning in MARA Beranang Professional College. The research employed a survey method with a questionnaire to collect data from 56 students. The study showed that the majority of students had a positive view of the use of gamification methods in learning Mandarin, although not all students were able to use it efficiently [24].

In general, previous studies show that technology can improve accessibility, flexibility, and effectiveness of learning both in general learning and foreign language learning. However, there are still some focuses that have not been widely studied, especially the application of EdTech technology in foreign language learning and its impact. The novelty of this research is to explore the use of AI technology to provide adaptive feedback, AR to create an interactive learning environment, and VR for realistic simulation of language practice. This research is expected to provide new insights in the development of foreign language education and educational technology, by highlighting how these technologies can increase student engagement, learning effectiveness, and overcome the limitations of conventional methods. Given the background that has been presented, this study will formulate several main questions, including what are AI, AR, and VR technologies, how EdTech resulting in foreign language learning quality improvement. The provisional hypothesis of this study is that the use of EdTech able to significantly improve the quality of foreign language learning. This study aims to outline the concepts and applications of these innovative technologies in educational context.

2. Related Work

In recent years, technology integration in education has become an increasingly relevant topic in various parts of the world. Many studies have documented how technology is used to improve learning effectiveness, especially in the context of language learning. These studies focus on various approaches, ranging from the use of mobile devices, web-based applications, to advanced technologies such as artificial intelligence (AI) and virtual reality (VR). One aspect that is often discussed is the influence of technology in improving language skills, as reported by Indriani and Wirza (2020). They found that teachers' practices in utilizing technology in English classes can improve learning effectiveness by providing a more interactive learning experience [47]. This is in line with the findings of Kustini (2020), which showed that technology integration can improve students' multiliteracy skills, especially in the context of English language learning [48]. In another study, Melati *et al.* (2023) highlighted that technology-based teaching methods have a significant impact on students' speaking skills in secondary schools, indicating that technology can help students master oral communication skills [49]. In addition, the use of mobile devices in language learning is also a major highlight. Research by Nasution, Siddik, and Manurung (2021) shows that mobile learning is effective in improving English language skills at the Vocational High School (SMK) level [37]. This approach allows students to learn flexibly anytime and anywhere. Similar findings were also found by Setiawan and Wiguna (2021), who developed mobile-based learning media using Unity for children at the kindergarten level. This study shows that mobile devices can be used to create fun and interactive learning experiences for students of various age groups [38].

On the other hand, web-based technology also plays an important role in language learning. Several studies have explored the benefits of web-based e-learning in improving student learning outcomes. Marifatulloh and Fajarina (2022) developed an e-learning platform for English language learning that has proven effective in improving students' skills [33]. Romadhon, Sungkar, and Firmansyah (2021) also found that using websites such as VOANEWS.COM can improve students' listening skills [34]. In addition, Setyawan and Nawangsari (2021) reported that web-based e-modules can help students improve their speaking skills, which is an important aspect of language learning [35]. In addition to mobile and web-based technology, artificial intelligence (AI) has also been integrated into language learning. Yulianti *et al.* (2023) highlighted the potential of AI in transforming education in Indonesia. They found that AI can be used to provide personalized learning experiences, allowing students to learn according to their needs and abilities [14]. Another study by Daniarti *et al.* (2024) showed that AI can be used to support English learning, especially in helping students develop speaking and listening skills [30].

Other technologies that have attracted attention are virtual reality (VR) and augmented reality (AR). Petersen, Petkakis, and Makransky (2022) showed that the immersion and interactivity offered by VR can enhance students' learning experiences [19]. In the context of English language learning, Pahlevi, Degeng, and Ulfa (2024) found that AR-based storybooks can significantly improve students' learning outcomes. This technology allows students to engage in a more immersive and interactive learning experience, which can ultimately increase their learning motivation [29]. The COVID-19 pandemic has also been a catalyst for the adoption of technology in education. Jumiaty (2021) noted that the pandemic forced educational institutions

to shift to online learning, highlighting the importance of technology in ensuring the continuity of education [8]. Rasman (2021) found that YouTube can be used as an effective learning medium during the pandemic, especially in helping students develop listening and speaking skills [50]. Hazaymeh (2021) also reported that online-based distance learning can improve students' English skills, despite challenges related to accessibility and infrastructure [22].

In addition, there are also other innovative approaches, such as gamification and educational games, which are used to increase students' learning motivation. Ulfiah and Wahyuningsih (2023) showed that crossword puzzle games can increase elementary school students' learning motivation [2]. This approach is in line with research by Makhovych (2024), which found that gamification can increase students' motivation in learning English, especially among computer science students [18]. However, although technology has many benefits, there are several challenges that need to be overcome. Firdaus and Ritonga (2024) highlighted that inadequate infrastructure in remote areas can hinder the adoption of technology in education [6]. In addition, Yasinta and Tasrifin (2024) noted that the success of technology integration in education depends on teacher training and competence [5]. Therefore, teacher training is a very important aspect. Sundari (2024) emphasized the importance of learning transformation in the digital era, which involves training teachers in using technology effectively [7]. However, the success of technology integration in education depends on various factors, including accessibility, teacher training, and infrastructure support. By addressing these challenges, technology can be used to create more effective, interactive, and inclusive learning experiences for students at all levels of education.

3. Research Method

This chapter outlines the research methodology used to explore the role of educational technology (EdTech) in foreign language learning. The research was conducted through a series of stages, ranging from data collection to analysis and interpretation, to gain a clear and detailed understanding related to enhancing the quality of foreign language education. An overview of the methodology used in this study is presented in Figure 1.

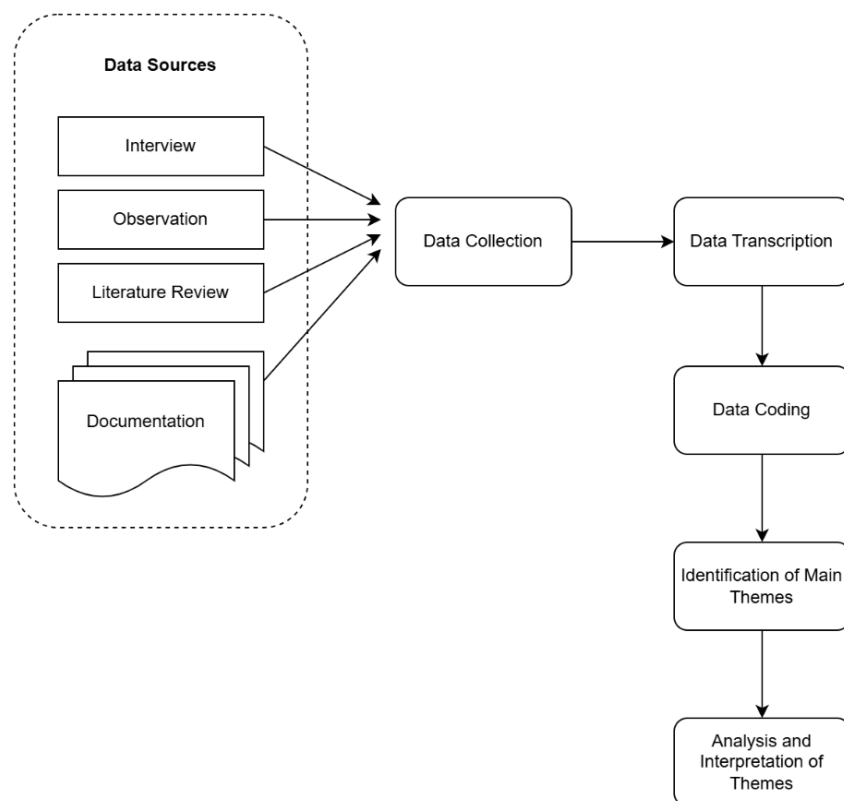


Figure 1. Research Methodology

The flowchart consists of several steps, started by data collection, emphasizing the various methods, including observations, interviews, documentation, and the literature review) used to gather generalized data. It is followed by data transcription, represented as the conversion of raw data into such written format, accuracy and facilitating further analysis. Data coding showcased as the process of organizing and simplifying

qualitative data into meaningful units or codes. The researcher performs identification of main themes, due to illustrating codes categorization into broader themes which encapsulate the study's findings. Lastly, in the final stage, the themes are analyzed in relation to the research objectives to draw insightful conclusions.

3.1 Data Collection

The data collection purpose is strongly related to gain a clear picture of the use of AI, AR, and VR technologies in foreign language learning. This data includes perspectives from both users (teachers and students), classroom interactions, and relevant documentation related to the use of these technologies. The employed data collection method in this study includes interviews, observations, documentation, and literature review. Interviews were conducted as structured conversations aimed at gathering in-depth information from respondents [25]. In this study, interviews were held with four foreign language teachers who use EdTech and ten middle school students. The questions were designed to uncover their experiences, the benefits, and the challenges of using technology in learning. Observations involved directly witnessing the phenomena taking place in the field. The study included observations of five foreign language lessons that utilized the relevant technologies. These observations aimed to record patterns of students-teachers interaction, the effectiveness of the technologies, and student responses to EdTech-based learning [26]. Documentation refers to the collection of data from relevant archives or written sources. In this research, documentation included reports on the use of applications, student learning outcomes, and teaching materials created using EdTech. The literature review was conducted by searching scholarly articles and journals via Google Scholar. Keywords such as "AI in language learning" and "AR/VR for language teaching" were used to find relevant sources. A total of 25 journals from 2020 to 2024 were analysed to strengthen the research findings.

3.2 Data Transcription

Data transcription involves converting recorded interview results into written text. This process was carried out manually to ensure information completeness and accuracy. The aim of this stage was to identify initial patterns emerging from the collected data. All transcripts were read multiple times to recognize important information, highlight keywords, and identify early themes [27].

3.3 Data Coding

Data coding is the stage where qualitative data collected, such as interview results, observations, or documents, is simplified into meaningful units. The purpose of coding is to identify patterns, themes, or categories relevant to the research focus, making it easier to analyze and interpret. The coding process began by selecting relevant sections of data, such as sentences, paragraphs, or key statements. Each section was then labeled or "coded" to represent the core information [28].

3.4 Identification of Main Themes

The identification of main themes is an analytical process aimed at organizing the generated codes into broad themes that reflect the core findings of the research. These themes serve as a framework for understanding the data more deeply, providing insights that are relevant to the research objectives. The process of identifying themes began by reviewing all the codes assigned to the data. This review aimed to find patterns or relationships between the codes.

3.5 Analysis and Interpretation of Themes

Analysis and interpretation of themes are steps taken to connect each theme identified in the research with the primary goal of the study, which is to explore the role of EdTech in foreign language learning. Each theme is analysed to determine its relevance to this objective. Subsequently, conclusions are drawn to illustrate how each theme provides new insights into the use of technologies like AI, AR, and VR in foreign language education.

4. Result and Discussion

4.1 Results

4.1.1 Data Collection Results

This research involved data collection through interviews, observation, documentation, and literature collection. Interviews were conducted with 4 foreign language teachers and 10 students in two schools that have used learning technology (EdTech). Observations covered in-class interactions during 4 learning sessions using EdTech applications such as Duolingo and Mondly. Documentation included student learning outcome reports, app usage data, and teacher notes on learning effectiveness. Literature data collection involved reviewing relevant publications from 2020 to 2024. The data collected provides a clear picture of EdTech

implementation in foreign language learning. The interview results show that 3 out of 4 teachers (75%) consider technology such as AI and AR in learning applications to increase student motivation. The students mentioned that the use of technology, such as interactive features and virtual reality simulations, makes learning more fun and easier to understand. However, one teacher mentioned the lack of training to utilize technology to its full potential. Observations show positive interaction patterns between teachers and students when using technology. Teachers use EdTech apps to provide interactive exercises, while students show increased participation and focus when using features such as automated quizzes and AR-based simulations. However, some technical constraints such as unstable internet connections affected the effectiveness of using the technology. The documentation analyzed showed improved learning outcomes in students using the EdTech apps.

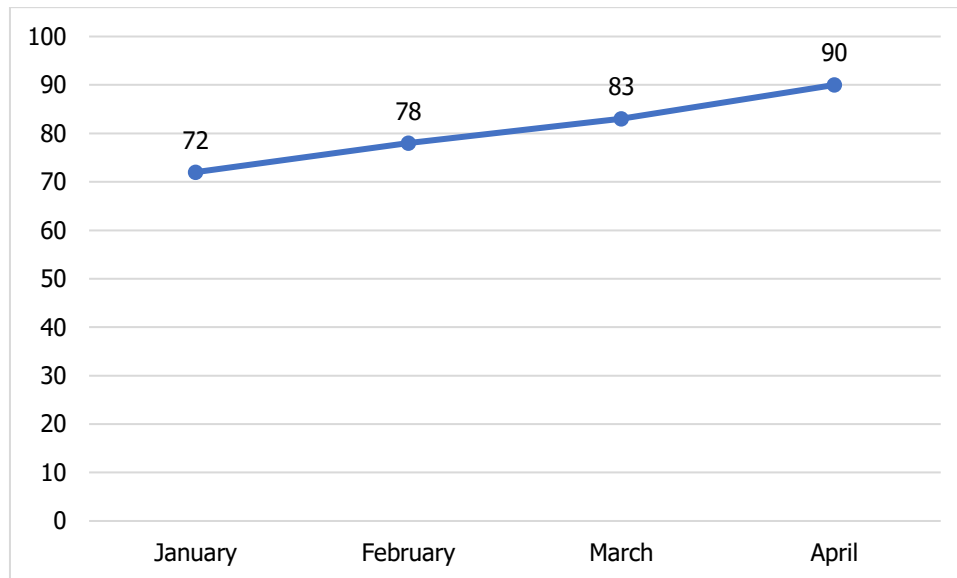


Figure 2. Vocabulary Exercise Score

Based on the exercise score displayed above, it can be inferred that there is an increase of vocabulary score in 3 months (January – April), from 72 to 90, indicating 20% raise of score in app. Furthermore, teachers' notes also showed that students were more confident when communicating using a foreign language after using the VR simulation in the learning app. The selection of literature was limited to publications published in the period 2020 to 2024 to maintain the relevance and currency of the information obtained. A total of 25 journals were selected that met the inclusion and exclusion criteria, with the following details: 3 journals on the AI, AR, and VR usage in foreign language learning [20][21][22], and 22 other journals that discuss educational technology in general, such as the use of websites in learning [29][30][31], smartphones and mobile applications [32][33][34][35][36], speakers and monitors [37][38][39][40], as well as other technologies that have not yet reached AI, AR, and VR technologies [41][42][43][44][45][46].

4.1.2 Data Transcription Results

The transcription process was carried out on the recorded interviews that lasted a total of 90 minutes, resulting in 6 pages of transcripts. The main challenges in this process were ensuring accurate interpretation of technical terms used by teachers and students, as well as the presence of some unclear parts of the recordings due to background noise. This process was successfully carried out using automated transcription software enhanced by manual verification.

4.1.3 Data Coding Results

The coding process generated 15 initial codes which were then grouped into five main categories: use of AI, use of AR, use of VR, role of EdTech in general, and constraints and challenges. The most frequently occurring code was "increased student motivation" associated with the use of AI, followed by "learning interactivity" associated with AR technology. Other significant codes included "use of VR simulation for vocabulary acquisition" and "internet infrastructure constraints."

4.1.4 Results of Identifying Major Themes

From the coding results, five main themes were found:

- 1) Use of AI in Foreign Language Learning
- 2) Use of AR in Foreign Language Learning

- 3) Use of VR in Foreign Language Learning
- 4) The role of EdTech in English Language Learning
- 5) Constraints and Challenges of Using EdTech in Foreign Language Learning

These five themes show strong relevance to this study purpose, which is to proceed with an exploration on how technology can enhance the effectiveness of foreign language learning and identify the challenges faced in its implementation.

4.1.5 The Role of AI, AR and VR

This chapter will discuss the various technologies that play a critical role in the learning of foreign languages. Starting from the use of Artificial Intelligence (AI), which presents a more adaptive and interactive approach to learning. Then, Augmented Reality (AR) will be discussed as a technology that makes the learning process more interesting and fun. Next, Virtual Reality (VR) will be explained as a tool that offers an immersive and realistic learning experience [47]. After that, the overall role of EdTech in foreign language learning will be discussed, which includes the benefits gained as well as its influence on improving the quality of learning [48]. Finally, this sub-chapter will also review the various obstacles and challenges that arise in the application of these technologies.

- 1) Use of AI in Foreign Language Learning
Artificial Intelligence (AI) is a technology that greatly influences foreign language learning. It can carry out tasks that typically demand human intelligence, including speech recognition and language or text processing. In the process of teaching-learning, AI can play a role in innovating adaptive learning systems [51]. This means that teaching materials and methods can be adapted to students' needs and abilities. For example, apps like Duolingo use AI to provide real-time feedback, and adapt lessons to the user's abilities. The use of AI is also reflected in apps like Babbel and Memrise, which utilize this technology to evaluate students' pronunciation and provide appropriate feedback [18]. Thus, AI not only improves the effectiveness of foreign language teaching but also provides more individualized and interactive learning. Research by [29] shows that the use of AI-based applications and platforms can increase students' enthusiasm for learning, especially in learning English. More interactive and personalized learning makes students more motivated to learn, which will further support students in mastering English.
- 2) Use of AR in Foreign Language Learning
Besides AI, AR is the other technology that supports foreign language technology. AR integrates virtual objects with the real environment directly, causing the achievement of such a more dynamic and engaging learning experience. In foreign language learning, AR can be used to make students more engaged with the learning material [52]. Apps like MondlyAR can be used to see words in the target language when pointed at certain objects, while AR games like SeekXR require students to communicate in the target language to complete certain tasks. This makes language learning more fun and easier to understand [52]. In addition, research by [28] suggests that the utilization of AR-based storybooks has a critical impact on improving student learning achievement in English language learning. AR can visualize language concepts in a way that is easier to understand, so that students more quickly master the material being taught. AR technology can also create real situations where students can interact with the target language, deepening students' language understanding in daily context.
- 3) Use of VR in Foreign Language Learning
Virtual Reality (VR) technology offers a more immersive learning experience compared to AR. VR creates a simulated environment that is separated from the real-life context, in which enable students can practice languages in more realistic situations. This contrasts with AR which only adds virtual elements into the real world. In foreign language learning, VR is used to create simulated conversations with native speakers or virtual visits to target language countries. Apps like Mondly VR offer conversation practice in a highly realistic virtual environment, giving students the opportunity to practice the language in a more natural way [45]. Research by [20] found that groups of students who used VR-based systems in the learning process obtained better results in several types of questions compared to students who learned using traditional teaching methods. Students who used VR technology in English learning scored higher in questions such as grammar matching, fill in the blank, and writing. The results of this study show that VR technology brings huge potential to improve the effectiveness of language teaching, as well as provide a more overarching learning experience for the students.
- 4) Use of EdTech in Foreign Language Learning
Based on the results of interviews, observations, documentation, and literature previously described, EdTech, especially AI, AR, and VR, has a crucial role in improving the quality of foreign language learning. These roles include:

- a) **Increased Student Motivation and Interest**
The use of AI and AR-based technology has been proven effective in increasing students' enthusiasm and interest in foreign language learning, especially English. More personalized and interactive learning methods encourage students to be more eager and actively involved in the foreign language learning process.
- b) **More Effective and Efficient Learning**
AI-enabled apps, such as Duolingo and Memrise, can provide students with customized exercises. This makes the learning process more optimal, as students get immediate feedback and materials that are relevant to their individual abilities.
- c) **More Immersive and Realistic Learning Experience**
VR technology provides opportunities for students to practice languages in more realistic situations, such as conversations with native speakers or virtual experiences in target language countries. This immersive learning experience makes students feel more confident and ready to apply the language in everyday situations.
- d) **Improvement of Overarching Language Skills**
The use of AR and VR in foreign language learning allows students to develop language skills thoroughly, both in terms of comprehension, pronunciation, and language use in real contexts. These technologies also give students the opportunity to practice the language in various social situations, which improves practical language skills.

- 5) **Constraints and Challenges of Using EdTech in Foreign Language Learning**
Despite having many positive impacts, the application of EdTech, especially AI, AR, and VR also faces constraints and challenges. Some of the main obstacles include lack of technological infrastructure, teachers training, and an accessibility issue for students in remote areas. Adapting to new technologies also requires a lot of time and resources. In many schools, especially in remote internet and technological resources reduce the potential of this EdTech tools utilization. Moreover, teachers often struggle in maximizing EdTech potential without the availability of adequate training, resulting in advanced features underutilization. To add, students located in underserved or rural regions could face difficulties in accessing necessary resources and technology for effective learning. Implementing new technologies requires significant time for both teachers and students to adapt, as well as additional resources for training and equipment.

4.2 Discussion

The findings of this study suggest that educational technology (EdTech), particularly Artificial Intelligence (AI), Augmented Reality and Virtual Reality (AR/ VR), can contribute positively on the improvement of foreign language learning. Aside from being more flexible and active as a mode of instruction, the system is able to respond to the challenges that usually happen in an ordinary student teaching. Yet the actual success of applying this technology relies heavily upon the maturity of infrastructure, teacher competency and availability of technology by region. AI in foreign language learning implementation potentializes the individual and adaptive approach. AI can be used to offer a more effective learning environment with AI adjusting learning materials to each individual student. To be more specific, for example, Duolingo and Memrise apply AI to find student skills and teach accordingly in the form of assignment that related to their level. Furthermore, the technology is also beneficial for students because it increases their speaking skills on the fly by means of real-time pronunciation assessment, which is consistent with the evidence of AI technology excites students learning motivation with interactive and individualized use [1][13][14]. The major constraint here is lack of teacher training enabling the technology to be fully exploited. AI experts warn that without knowledge of the deeper features of AI, even well-meaning teachers can bypass this potential in the learning process [7][47].

AR also significantly helps to capture and contain the context of learning experiences in a flexible, real-world setting. The technology enables a more realistic simulation wherein students are able to engage with the content directly through overlaying elements to reality. This is such as the application of MondlyAR in which when a student points a device to the object aimed, that word appears in target language. The multimodal learning has been supported by research showing that the combination of visual, sound and physical interaction aids the learning and understanding of language concepts [9][29][49]. In previous studies, AR based AR has significantly impacted the learning outcome of students in the domain of vocabulary disclosure, especially during the vocabulary discourse [29][46]. Nevertheless, the integration of AR is often a barrier due to useful infrastructure like the access to matching hardware and a stable internet service which is usually above difficulties in rural areas [6][16].

Implementation of VR technology offers a better experiential learning milieu than that of AR. From providing students the means to practice a language in context, such as conversations with peers or from real environment visits to native countries or cities that speak the target language; VR is able to simulate a realistic

environment where students converse with one another. I also used applications like MondlyVR to develop the confidence of students in expressing themselves. This is in line with an evidence that VR is definitely able to increase student learning performance in a number of considerations, like vocabulary, grammar and writing skills etc. [19][20][28]. However, creating VR is an expensive process involving a lot of behind-the-scenes equipment and although teachers would need specific training for its use in the classroom as well. Students also have to get used to the technology, which delays the learning process at the beginning [6][15][19]. We all know how critical EdTech is in the context of enhancing quality foreign language learning. Such technologies enhance the student's motivation and interest, but with more learning effectiveness, too. The practice of AI, AR and VR enables students not only to learn but creates an interactive, realistic and personalized process towards their overall language skills. Yet, execution of the tools is very much dependent on the preparedness of the infrastructure, teacher readiness and technology accessibility to all students! Immediate solutions to challenges such as unreliable internet, teacher training and the access gaps for these technologies to be impactful all across [4][6][7]. This calls for a combination of the government, educational institution and technology providers working together to resolve these hurdles with aggressive strategic approach. Technology infrastructure, particularly in rural areas should be adequately funded to give all our students an equal entrance ticket. Also, there will be require for effective and extensive teacher training programmes to guide teachers on how to harness technology. By overcoming these obstacles EdTech can then truly be used to move towards an inclusive, more effective and relevant learning experience with students in the digital age [6][5][21]. The research add significant value to the potential and barriers of EdTech implementations and pave a way for future advancements in technology-mediated education.

5. Conclusion and Recommendations

The study proves that the use of EdTech, including AI, AR, and VR, can significantly improve the quality of foreign language learning. These technologies provide a more personalized, interactive, and immersive learning experience. This not only encourages students' interest in learning but also improves overall language skills. As a result, these technologies have the potential to increase student engagement and motivation, while contributing to improved language skills. The findings suggest that these tools not only support active learning but also foster a deeper understanding of language, providing a more effective and dynamic approach to foreign language education.

The researchers make several recommendations, particularly highlighting the need for further training for educators to ensure they are well-equipped to use tools such as AI, AR, and VR effectively. This includes providing hands-on workshops, ongoing support, and resources tailored to the specific technology being implemented. In addition, there is a need for infrastructure development, such as ensuring reliable internet access, availability of necessary hardware, and dedicated technical support in schools. These steps can address the challenges identified in the study and provide concrete direction for educators and policymakers looking to maximize the potential of EdTech in language education. For future research, it is important to focus on solutions to barriers including lack of technological infrastructure and accessibility for students in remote areas. In addition, the development of training methods for teachers also needs to be considered, so that EdTech can be optimally utilized in learning activities. Further research is also needed to explore the long-term impact of using EdTech in foreign language learning.

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