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A REVIEW OF VIRTUAL REALITY FOR ENGLISH LANGUAGE LEARNING IN HIGHER EDUCATION

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ABSTRACT

Virtual Reality (VR) has seen increasing popularity in the twenty-first century, including in the field of language learning. Considerable studies on VR have explored mainly its advantages and disadvantages for language learning. However, a gap existed about the influential factors considered in incorporating VR technology, particularly for English language learning in higher education settings. Therefore, this study aimed to 1) identify important factors that influence the application of VR technology; 2) provide a systematic review of literature on the implementation categories of VR; and 3) discuss the challenges and opportunities of VR use for English language learning in higher education. A Systematic Literature Review (SLR) was conducted by reviewing articles retrieved from 2018 to 2023 using a digital database library and filtered systematically using exclusion and inclusion criteria. The result showed that advanced technology, teaching and learning facilitation, and effectiveness in language learning were three major factors influencing VR implementation, which were categorized under three key elements: models, frameworks, or approaches. The study also found out that the cost of procurement and maintenance as well as lack of technical skills were the main challenges of VR use; however, the technology offered opportunities such as reducing learners' anxiety, increasing their motivation, facilitating immersive and interactive learning experiences, developing English skills, and improving the quality of language education. It is suggested that further research and development efforts should focus on overcoming the challenges to unlock the full potential of VR technology in education

Keywords: English Language Learning; Higher Education; Virtual Reality

Introduction

The twenty-first century has seen an increasing popularity of virtual reality (VR) as a learning aid, and this technology is believed to have potential learning enhancement (Radianti et al., 2020). For this reason, researchers, organizations, and educators nowadays are scrutinizing this technology intensively. Several studies have identified the benefits of incorporating virtual reality applications in language classrooms. For example, the features of VR tools enabled students to reduce their anxiety in learning language skills because such technology would not reveal students' identities and provide a comfortable environment (Huang et al., 2021). A distinct study revealed the kinds of learning scenarios from which students can benefit when using VR applications. The scenarios included culture-specific and/or everyday topics, accounting for 82.35% of the reviewed VR apps in the study, and professional and academic training topics such as practicing a job interview or giving a speech in public, at 17.65% of the total reviewed VR apps (Berns & Reyes-Sánchez, 2021). Oftentimes, such learning scenarios are difficult

to implement in conventional learning settings, but VR technologies have eased students to learn about them.

The main approach to language learning according to studies on virtual reality (VR) implementation is immersing learners into virtual worlds (Huang et al., 2021). Immersion, which becomes a key point in English language acquisition, means that learners are surrounded by an English-speaking environment with the hope of making the most of the exposure to the target language. VR technologies are popular media used for students to experience immersion in the digital era. Immersion, together with gamification and real-life situation simulation, was also found to be the most effective technique in VR-based foreign language learning (Symonenko et al., 2020). Virtual immersion has always been compared with real-life immersion. Both are believed to benefit language learners in acquiring the target language. While real-life immersion may over-benefit high achievers in second language learning, immersion through virtual reality technology can even help novice learners in their language learning process (Legault et al., 2019).

Despite the benefits of virtual reality (VR), several studies have revealed some challenges to the use of it. For instance, the main focus of VR evaluation was its usability instead of learning outcomes, not to mention the fact that VR usage has been experimental rather than being regularly applied in actual teaching (Radianti et al., 2020). This reflects that the maturity level of VR implementation still becomes a barrier to language learning. In addition, the reviewed applications of VR focused on individual learning, meaning that lacking oral interaction with other learners (Berns & Reyes-Sánchez, 2021), so the lack of opportunities for collaborative learning has become a significant drawback of the use of VR technology.

Considerable studies on virtual reality have explored mainly its advantages and disadvantages for language learning. However, a gap exists about the influential factors considered in incorporating VR technology, particularly for English learning in higher education settings. For this reason, this present work aimed to 1) identify important factors that influence the application of VR technology; 2) provide a systematic review of literature on the implementation categories of VR; and 3) discuss the challenges and opportunities of the VR use for English learning in higher education.

In this study, we carried out a critical review by using a systematic literature review of the existing literature on the application of VR for English language learning in higher education. The objectives of the study are to contribute to the existing literature on the use of technology for educational purposes and to help educators and policymakers identify challenges and potential opportunities so that VR can be more widely used to promote English language learning

Research Method

A systematic literature review (SLR) is a methodologically rigorous research method used to organize, evaluate (Hanson-Abromeit & Sena Moore, 2014), and provide unbiased accounts of existing literature related to a specific topic (Barn et al., 2014); in other words, SLR can reduce researcher bias and define a precise scope of review (Senivongse et al., 2017). The main purpose of conducting a systematic review in education is to present current concepts and replace traditional expert opinions (Ng & Peh, 2010), while also contributing to the continuous improvement of synthesis methodologies (Borrego et al., 2015). This study conducted the SLR based on the guidelines by Kitchenham and Charters (Shahrol et al., 2020) to identify, evaluate, interpret, and analyze existing studies to address specific research questions on the effectiveness of Virtual Reality (VR) to support teaching and learning of the English language. The formulation of specific review questions, a comprehensive search of primary studies, the setting of inclusion and exclusion criteria, and the evaluation of the included studies' quality are the four processes in this study. The following subsections contain the explanation for each step.

Result and Discussion

The factors, the categories, and the comparisons, as stated in Table I, deserve to be considered before continuing the SLR process to select the appropriate research questions.

Table 1. Criteria and Scope

Criteria	Scope
Factors	Existing works that discuss factors in English learning, as well as prospective work utilizing Virtual Reality in higher education
Categories	Papers that propose categories in English learning utilizing Virtual Reality in higher education
Comparisons	Challenges and opportunities of each proposed work using Virtual Reality for English learning in higher education

According to the framework of the study, the specific research questions are as follows:
RQ1: What factors have influenced the application of Virtual Reality for English language learning in higher education?
RQ2: To what extent have VR technologies been implemented in English language learning in higher education?
RQ3: What are the challenges and opportunities of the use of VR for English language learning in higher education?

Search Process

The following steps generate the iterative search technique used in this study.

1. *Conduct an initial search in the online database library*: using Google Scholar with an interval between 2018-2023 with keywords in Table II such as "factors influencing the application of Virtual Reality for English learning in higher education," "implementation of Virtual Reality technologies in English learning in higher education," and "the challenges and opportunities of the use of VR for English learning in higher education."
2. *Refine the search by major indexing databases*: referring to reputable publications such as Scopus, PubMed, Web of Science, IEEE Xplore Digital Library, etc.
3. *Record search result*
4. *Classify the academic papers*: according to types of journal publications

Table 2. Search Keyword Code

Keywords Code	Detailed Keywords
K1	Factors in English learning, as well as prospective work utilizing Virtual Reality in higher education
K2	Categories in English learning utilizing Virtual Reality in higher education
K3	Challenges and opportunities of using Virtual Reality for English learning in higher education

Inclusion and Exclusion Criteria

Several inclusion criteria are considered while conducting a systematic literature review. Priority is given to articles that have been published both in journals or conferences when reviewing and sorting a group of papers from the source library with an interval of 2018-2023. Papers must be written in English as a result. Additionally, the study's subject of discussion must be connected to one of the following: computer science, software engineering, educational technology, or education itself. The article must at least discuss aspects of teaching and learning English. These publications were required to include terms that attempted to define, propose, recommend, or describe current works in teaching and learning English using virtual reality in higher education based on the search process.

The SLR must include certain exclusion rules to guarantee a complete and comprehensive review procedure. While it is crucial to take into account articles from a range of languages and themes, the scope of the review must be restricted to papers that adhere to particular standards. For instance, articles written in a language other than English can be automatically excluded from the review procedure. Moreover, articles from related fields that do not use the specified keywords may also be excluded.

The papers that fulfill the inclusionary standards are then identified through a shortlisting and review procedure once these exclusionary conditions have been established. Each manuscript must go through a thorough review procedure to make

sure it satisfies the standards set forth for the review, such as relevancy to the topic or research issue. In the end, only those publications are chosen for additional research and analysis that satisfy both the inclusion and exclusion criteria.

Table 3. Research Question Structure

Question	Answer
Do the articles report important factors concerning teaching and learning English using Virtual Reality in Higher Education?	(Yes/No/Partially)
Do the articles propose any categories in teaching and learning English using Virtual Reality in Higher Education?	(Yes/No/Partially)
Do the articles discuss the challenges and opportunities of existing works?	(Yes/No/Partially)

Quality Evaluation

To ensure the accuracy and reliability of the data included in this study, it is crucial to select articles that are reliable, pertinent, and connected to the study. To select relevant papers, it is necessary to consider the research technique used, the accuracy of the data and analysis, and the standing of the journal or article publishers. This article validation procedure is crucial to ensuring that only quality articles are selected to accommodate high impact and provide reliable and accurate data to accomplish research objectives. Articles will be selected based on the following evaluation:

1. discussing factors concerning teaching and learning English using virtual reality in higher education,
2. Clearly defining categories and/or
3. Discuss the challenges and opportunities of the proposed works.

To accomplish the quality evaluation, relevant and acceptable information must be retrieved for articles that are partially included in the evaluation process; otherwise, the article will be excluded. The method used in this particular article is crucial to obtaining accurate data extraction findings. The questions that were utilized in the selection of articles are shown in Table III.

Findings and Discussion

Using the keywords K1 "factors that influence the implementation of Virtual Reality for English learning in higher education," K2 "implementation of Virtual Reality technology in learning English in higher education," and K3 "challenges and opportunities for using VR for English language learning in higher education," an initial search in the online database library using Google Scholar with intervals between 2018 and 2023 yielded 37 publications, as shown in figure I.

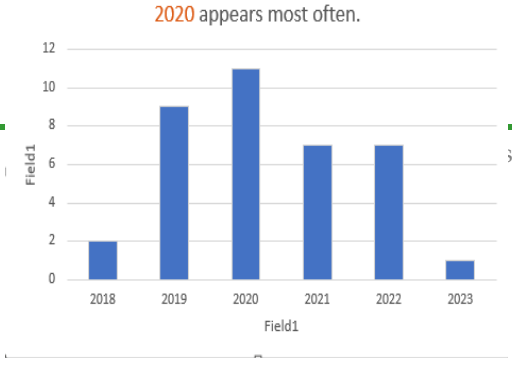

Figure 1. Search Process of Initial

An initial search in the online database library using Google Scholar with year intervals between 2018 and 2023 found that 2020 had more studies with 11 publications, followed by 2019 with 9 publications and 2021-2022 with 7 publications, while in 2018 and 2023 there were 2 publications and 1 publication respectively.

Meanwhile, in the initial search, it was found that there were more K3 (challenges and opportunities for using VR for English language learning in higher education) with a total of 13 studies, then K2 (implementation of Virtual Reality technology in learning English in higher education) with a total of 12, and K1 (factors that influence the implementation of Virtual Reality for English learning in higher education) with a total of 9. The data is pictured in Table IV.

Table 4. Keywords of Initial

Keyword	Number
K3 (challenges and opportunities for using VR for English language learning in higher education)	16
K2 (implementation of Virtual Reality technology in learning English in higher education)	12
K1 (factors that influence the implementation of Virtual Reality for English learning in higher education)	9

Refining is the second step in the process, and it is used to focus on the study's principal objectives and ensure that only relevant articles are included in the analysis. The researchers will review the articles discovered during the search stage to find out whether they fulfill the set inclusion criteria during the refining step. By doing this, the possibility of bias is reduced, and it is ensured that the analysis' conclusions are validly supported by research and pertinent to the proposed study topic. The refine step can assist researchers in identifying research gaps that the corpus of prior material has not yet addressed. In this study, the researchers used official sources such as Scopus, PubMed, Web of Science, IEEE Xplore Digital Library, and other reputable sources to perform more effective searches on significant indexing databases. The results of the database's refining search are shown in Table 5.

Table 5. Refining Database

State	Not Indexed	Scopus	DOAJ	IEEE	Grand Total
Not Continued	21				21
Continued		9	5	2	16
					37

Results from articles in the refined database reveal that, in contrast to 16 other articles, 21 publications are not indexed by reputable publishers. The following are the articles that reputable publishers have listed: Scopus has 9 articles, DOAJ has 5, and IEEE has 2 articles. This revealed that just 43.24% of the articles could proceed to the subsequent step. The inclusion criterion for a systematic literature review was the study's most crucial subsequent step. The research discussion subject must be connected to one of the following: computer science, software engineering, educational technology, or education itself. Published publications in journals or conferences are given preference. To provide a thorough review process, SLR must have specific exclusion restrictions. Publications from relevant fields that do not include certain keywords as well as articles written in languages other than English may be automatically excluded from the review process. Next, using shortlisting and review methods, papers that fulfill the inclusion criteria were filtered. Only the papers that obtained the inclusion and exclusion criteria were selected for further investigation and analysis.

Table 6. Exclusion and Inclusion Articles

Articles	Number
Included	11
Excluded	5
Grand Total	16

Table 6 reveals that 11 articles were selected for additional study after the procedure of excluding and including articles relevant to preset requirements was completed. Five articles, however, were disregarded because one did not adequately address virtual reality and four did not have anything to do with higher education. Figure 2 shows the exclusion criteria for items.

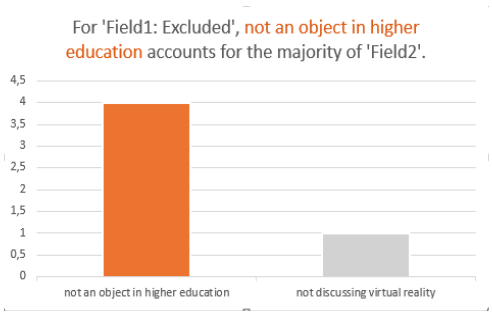

Figure 2. Excluded Articles

Finally, a more thorough investigation was conducted to explore virtual reality usage to teach and learn English in higher education. Following the steps in the search procedure as shown in Table VII, the criteria for the 11 papers that were selected were accomplished.

Table 7. Search Process and Keywords

Search Process	Keywords		
	K1	K2	K3
Initial	9	12	16
Refine	7	4	5
Exclude	1	1	3
Include	6	3	2

The following subsections' discussion will be based on the SLR research questions.
English Language Learning Using Virtual Reality in Higher Education The first research question is "What factors have influenced the application of Virtual Reality for English language learning in higher education?". Several factors relating to English language learning were found in the included studies that were analyzed. Table VIII shows some factors of using virtual reality for English learning in higher education.

Table 8. Factors Concerning English Learning Using Virtual Reality in Higher Education

Factors	Articles
Advanced technology	(X. Wang, 2022; Xue & Wang, 2021)
Teaching and learning facilitation	(Y. Chen, 2022)
Effectiveness in language learning	(Y. L. Chen & Hsu, 2020; Legault et al., 2019; Raj & Tomy, 2023)

Categories of Existing Works
The second research question is "To what extent have VR technologies been implemented in English language learning in higher education?". The SLR study's findings were used to determine the planned work for each article. The outcomes of the model, approach, or framework each article provided are displayed in Table IX. The majority of studies on virtual reality-based English language learning in higher education have referenced models, frameworks, or approaches.

Table 9. Categories of Existing Works

Categories	Articles	Point of Discussion
Approach	(X. Wang, 2022)	Virtual reality technology can increase students' capacity to learn English, based on constructivist theory,

Categories	Articles	Point of Discussion
		resulting in higher overall English levels.
	(Legault et al., 2019)	VR is an effective platform for L2 learning, with individual differences in performance indicating a benefit for less successful learners, with implications for improving L2 education.
	(Y. L. Chen & Hsu, 2020)	VR game-based English mobile learning applications can enhance student learning effectiveness, engagement, and self-regulation.
	(Raj & Tomy, 2023)	MALL can improve English fluency and accuracy with minimal operation and low maintenance cost, with implications for ESL learners worldwide.
	(Soto et al., 2020)	ImmerseMe is an immersive VR platform ideal for enhancing EFL skills and interaction with native speakers in higher education.
	(Xie et al., 2019)	VR tools can improve oral proficiency and encourage active learning in English as a second language.
	(Tai et al., 2022)	VR technology improves vocabulary learning and retention, perceived as motivating and beneficial by learners.
Approach	(Sun et al., 2020)	Virtual reality technology can improve learners' immersion and presence, improving learning engagement and effectiveness.
	(Z. Wang et al., 2021)	Visual prompt scaffolding-based VR VPS-VR approach improves EFL learners' reading comprehension skills and learning experience, improving learning motivation and English learning anxiety.

Categories	Articles	Point of Discussion
Framework	(Xue & Wang, 2021)	We are designing and implementing English listening lessons that mix virtual reality with wireless sensing microprocessors.
Model	(Y. Chen, 2022)	The development of a teaching resource library platform model for higher vocational colleges, integrating shared resource library, course modules, network teaching modules, virtual reality technology, and interactive functions to improve English learning and teaching efficiency.

Challenges and Opportunities of Existing Works

The third research question is "What are the challenges and opportunities of the use of VR for English language learning in higher education?". The challenges and opportunities for each existing work are shown in Table X. It is crucial to understand the challenges and opportunities associated with using virtual reality for English language learning in higher education to design an effective English learning program, make the best use of technology, and understand the use of this technology and how it can be used to improve English language learning.

Table 10. Challenges and Opportunities of Existing Works

Categories	Articles	Challenges	Opportunities
Approach	(X. Wang, 2022)	Hardware, software, and technical skills needed to implement VR technology.	VR technology can improve education and provide better learning experiences.
	(Legault et al., 2019)	The difficulty of learning a second language in adulthood and the lack of knowledge about immersive contexts contribute to its difficulty.	Virtual reality technology can be used to simulate immersive learning situations, allowing researchers to control stimulus delivery and participants' interactions, increasing the effectiveness of learning a second language.

Categories	Articles	Challenges	Opportunities
	(Y. L. Chen & Hsu, 2020)	This study highlights the challenge of ensuring the effectiveness of learning English through a VR game-based mobile application and the problem of student self-regulation.	VR and game-based design can provide immersive and interactive experiences that increase students' motivation to learn English, allowing them to enter a state of flow and increase motivation.
Approach	(Raj & Tomy, 2023)	The main challenge is the cost of procuring, operating, and maintaining infrastructure for language learning technologies.	Mobile-assisted language learning (MALL) with an open-source mobile application can help disadvantaged students and English as a second language students improve their English skills without incurring huge costs.
	(Soto et al., 2020)	VR technology requires significant investment and may be difficult to implement in some higher education institutions due to its cost.	VR technology can be used to improve English skills, especially in immersive and interactive contexts with native speakers.
	(Xie et al., 2019)	VR technology can be expensive to acquire and maintain in developing countries.	VR provides opportunities to improve speaking skills and facilitate active learning.
	(Tai et al., 2022)	Research is needed to understand the potential of VR through HMDs rendered via mobile phones. However, the cost and difficulty of procuring VR devices and the need for training for teachers and students are challenges.	VR provides an authentic, simulated, and interactive learning environment that can enhance English learning.

Categories	Articles	Challenges	Opportunities
	(Sun et al., 2020)	The use of VR technology is expected to increase the involvement and presence of students in learning English. To achieve optimal results, it is necessary to design a learning system that pays attention to the authenticity of the virtual environment and the factors of student involvement in learning. Research results show that the higher the authenticity of the virtual environment, the higher the involvement of students in learning.	VR technology can be used to increase the involvement and effectiveness of learning English.
	(Z. Wang et al., 2021)	The challenge is to create an interesting and effective learning environment with VR technology based on visual prompt scaffolding (VPS-VR) and improve English reading comprehension skills, while also increasing students' acceptance and use.	VR technology increases motivation, reduces anxiety, increases comprehension, and provides an interactive and interesting learning experience.
Framework	(Xue & Wang, 2021)	VR technology is limited in English learning due to hardware and software challenges.	VR technology can improve listening and speaking skills, making phonics teaching more effective.

Categories	Articles	Challenges	Opportunities
Model	(Y. Chen, 2022)	Because using virtual reality technology for English instruction at vocational colleges costs a lot of money, both teachers and students must be educated in its proper usage.	Virtual reality technology can improve the quality of education in vocational colleges and open up better career opportunities for students. It also provides an integrated database of English resources, allowing students and lecturers to access high-quality information and materials, increasing the effectiveness and efficiency of learning.

Critical Review

Influencing Factors of the Use of Virtual Reality in English Language Learning in Higher Education

In higher education, virtual reality can be used for learning English by considering various factors, including technological advances. According to Xue and Wang (2021), virtual reality has the potential to enhance English learning in universities through the application of advanced technology and effective teaching techniques. Furthermore, compared to traditional teaching methods, the use of virtual reality as a constructivism-based technological advance can improve English proficiency in the context of higher education that focuses on mastering English (X. Wang, 2022). In higher education, virtual reality can be used for learning English by considering various factors, including technological advances. According to Xue and Wang (2021), virtual reality has the potential to enhance English learning in universities through the application of advanced technology and effective teaching techniques. Furthermore, compared to traditional teaching methods, the use of virtual reality as a constructivism-based technological advance can improve English proficiency in the context of higher education that focuses on mastering English (X. Wang, 2022).

The efficiency of language learning itself has also been observed in the use of virtual reality in universities. The ability of virtual reality in learning English to simulate deep learning scenarios allows for strict experimental control in the delivery of stimuli and the interaction of participants with the environment. This ultimately has an impact on increasing the accuracy of learning a second language (L2) in the context of virtual reality learning compared to other learning methods. This research shows that virtual reality learning offers many advantages, especially for individuals who cannot master a second

language (Legault et al., 2019b). As a result, the use of a newly developed virtual reality game-based mobile application for learning English demonstrates how the interactive elements of the virtual reality program and the challenging game-based design make it easy for students to achieve a state of focus and increase their enthusiasm for learning (Y. L. Chen & Hsu, 2020).

The Implementation of Virtual Reality in English Language Learning in Higher Education

The data provided shows that the use of virtual reality (VR) technology in learning English has several significant benefits. Several studies have shown that VR can increase the capacity to learn English based on constructivism theory (X. Wang, 2022). This indicates that the learning experience resulting from the use of VR can help students better understand and construct knowledge of English. In addition, VR has also proven effective in second language learning (L2) platforms by providing benefits to less successful learners (Legault et al., 2019b). This shows the potential of VR in helping students who face difficulties in learning English, thereby having positive implications for improving second language education.

Research also highlights the benefits of VR game-based English learning applications in increasing learning effectiveness, student engagement, and self-regulation (Y. L. Chen & Hsu, 2020). This shows that VR can create interesting and interactive learning experiences for students, which has the potential to increase motivation and active participation in learning English. Apart from VR, Mobile-Assisted Language Learning (MALL) technology has also been shown to be able to improve English speaking skills and accuracy with low operational and maintenance costs (Raj & Tomy, 2023). This shows the potential of MALL in helping ESL students around the world improve their English skills practically and efficiently. There is also research showing that VR platforms such as ImmerseMe can help improve English as a foreign language (EFL) skills and interactions with native speakers (Soto et al., 2020). This shows that VR can create immersive experiences that allow students to interact directly with an authentic English environment, and improve communication skills and language comprehension. In addition, the use of VR has also been shown to improve vocabulary learning, learning motivation, and students' immersive experiences (Tai et al., 2022; Sun et al., 2020). This suggests that the use of VR in English learning can provide an engaging visual and interactive stimulus, which has the potential to increase learning engagement and effectiveness.

Research that proposes a visual guidance-based VPS-VR approach also shows an increase in reading comprehension skills and learning motivation in learning English as a foreign language (Xue & Wang, 2021). This emphasizes the importance of using visual guides in VR contexts to help students better understand and interpret English texts. Finally, there is research proposing the development of a VR-based teaching resource

library platform for advanced vocational tertiary institutions (Y. Chen, 2022). This demonstrates efforts to integrate VR technology with shared teaching resources, course modules, and network teaching modules, to increase the efficiency of learning and teaching English. Based on the review of the studies, there is some evidence that supports the use of virtual reality technology in learning English. However, it should be noted that VR resources, infrastructure, and accessibility can be sorts of limiting factors in widely deploying this technology. In addition, further research is needed to understand in depth the long-term effectiveness and broader impact of using VR technology in the context of learning English in colleges and universities.

Challenges and Opportunities of Virtual Reality in English Language Learning in Higher Education

The articles reviewed provide insights into the potential benefits and challenges of using virtual reality (VR) technology in English language learning in higher education. Overall, they highlight the positive impact of VR on various language learning skills, such as speaking, listening, reading, and comprehension. However, they also discuss the limitations and challenges associated with the implementation of VR technology. Several articles, such as those written by Legault et al. (2019b), Y. L. Chen & Hsu (2020), Raj & Tomy (2023), and Soto et al. (2020), emphasize the effectiveness of VR technology in enhancing language learning experiences. They argue that VR provides immersive and interactive learning environments that improve students' motivation, engagement, and participation. The ability to simulate real-life contexts and control stimulus delivery in VR enables researchers and educators to optimize language learning outcomes.

However, the articles also acknowledge the challenges of implementing VR technology. Xie et al. (2019) and Tai et al. (2022) highlight the high cost associated with acquiring and maintaining VR devices, making it difficult for institutions, especially those in developing countries, to adopt this technology. The need for training teachers and students to use VR devices and software is also recognized as a barrier to its widespread implementation (Tai et al., 2022). Furthermore, Xue & Wang (2021) mention hardware and software challenges that limit the effectiveness of VR in English learning. These challenges may include technical issues, compatibility problems, and the need for continuous upgrades. Wang et al. (2021) also discuss the importance of designing an interesting and effective learning environment using VR, which requires careful consideration of visual prompt scaffolding and student acceptance. It is worth noting that some articles, such as those by Sun et al. (2020) and Y. Chen (2022), emphasizes the importance of authenticity in the virtual learning environment. They suggest that the more authentic the virtual environment, the higher the students' involvement and engagement in learning. This implies that to make the most of VR technology, it is urged for developers and educators to create VR content that accurately represents real-life language contexts.

Even though VR will not replace the main necessities of live classrooms, the technology can support and enhance English language learning for university students. In summary, the reviewed articles collectively demonstrate the potential of VR technology in enhancing English language learning. VR offers immersive, interactive, and authentic learning experiences that can improve various language skills. However, challenges related to cost, hardware and software limitations, and the need for training and design considerations must be addressed for effective and widespread implementation of VR in language learning. Future research and development efforts should focus on overcoming these challenges to unlock the full potential of VR technology in education.

Conclusion

The findings of this review have significant implications for educators, researchers, and policymakers in higher education. The use of virtual reality (VR) technology in language learning requires a significant investment in infrastructure, training, and technical support, which should be carefully considered by educational institutions and policymakers. Despite this, incorporating VR technology in English language learning can provide learners with an immersive and interactive learning environment, which can lead to increased engagement and motivation. VR can also offer learners with diverse learning styles and backgrounds the opportunity to practice language skills in a safe and controlled environment. Furthermore, VR can provide educators with a range of tools and resources to support learners in achieving their language learning goals. Further research is needed to explore the long-term effects of VR on language learning outcomes and to identify best practices for integrating VR technology into language education.

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