Policy Research Journal
ISSN (E): 3006-7030 ISSN (P) : 3006-7022 Volume 3, Issue 2, 2025

VIRTUAL REALITY IN ENGLISH LANGUAGE: ISSUES AND CHALLENGES

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DOI: https:/doi.org/10.5281/zenodo.14848337

Article History

Received on 23 December 2024

Accepted on 23 January 2025

Published on 11 February 2025

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Abstract

The convergence of Artificial Intelligence (AI), Computerized Simulation, Virtual Reality (VR), and Artificial Environments (AE) has emerged as a hotspot for innovation in the tech industry due to the exponential growth of these fields. Within the field of educational technology, the combination of Virtual Reality (VR) with language learning offers a promising frontier, providing immersive and interactive experiences for English language acquisition. This paper delves into the complex relationships and synergies among these cutting-edge technologies, investigating their combined influence on different domains. This research article explores the world of virtual reality (VR) within the framework of ESL instruction, illuminating the potential pitfalls and difficulties of this cutting-edge method. The study tackles issues like pedagogical efficacy, accessibility, and learner engagement by investigating the present status of virtual reality (VR) applications in language learning and how they interface with artificial intelligence (AI). It also explores the cultural and linguistic factors that need to be considered while creating and implementing language learning systems that utilize virtual reality. This research adds to our complex knowledge of the possibilities and challenges within the rapidly growing field of Virtual Reality in ESL instruction by critically examining previous literature and case studies. The purpose of this paper is to help educators, technologists, and legislators understand the obstacles standing in the way of fully realizing virtual reality's promise as a tool for equitable and effective language learning.

INTRODUCTION

A resource for artificial intelligence, virtual reality (VR) uses a three-dimensional display to transport viewers to a computer-generated, fully immersive environment. It has found use in a wide range of fields, one of which being education. Virtual reality's immersive experiences have the ability to revolutionize education by making lessons more interesting and engaging for pupils.

A new age of interactive and immersive learning experiences has begun with the introduction of VR into the field of education. Particularly exciting is the prospect of a new, more engaging method of teaching English as a second language as virtual

reality (VR) and traditional classroom instruction come together. In this study, we will investigate the problems and difficulties that come with using VR to teach English. Virtual reality (VR) and language learning present a wealth of possibilities, but also some challenges, as new technologies alter traditional approaches to teaching.

The introduction of virtual reality (VR) has caused a sea change in the field of language learning by providing students with realistic and contextualized settings in which to practice their English. But there are a lot of things to think about when it comes to the effectiveness of these immersive experiences and incorporating AI features. Critical points of focus arise as pedagogical issues, including, but not limited to, the alignment of virtual reality content with language learning objectives and the inclusion of different learners. Further complicating matters in this developing area is the interaction between cultural settings and linguistic subtleties throughout the development and implementation of virtual reality (VR) language learning technologies.

Our research seeks to illuminate the possibilities and challenges of using VR in ESL classrooms by analyzing the complex terrain of this technology. Through a thorough analysis of current literature, case studies, and emerging trends, this research aims to shed light on the current situation and lay the groundwork for well-informed solutions to tackle the obstacles presented by this ground-breaking method. It is critical to understand the complexities and take advantage of the opportunities presented by the convergence of technology and education as we venture into the unexplored realm of virtual reality-mediated language learning.

Background

Amidst the ever-changing world of education and technology, virtual reality (VR) has shown itself as a potential tool to improve safety training, remembrance therapies for the elderly, surgical education, lab simulations in science, facility management, and English language learning. The versatility and potential influence of virtual reality were demonstrated by these different applications across numerous domains.

To evaluate the long-term efficacy of VR treatments and keep up with technology developments, longitudinal studies are necessary, as was highlighted in the systematic literature review and meta-analysis on VR for safety training. The scoping review of recollection therapies for older persons using fully immersive virtual reality (FIVR) also highlighted the need to investigate longitudinal trials and perform comparative effectiveness evaluations.

At the same time, longitudinal studies are necessary to fully understand the benefits and drawbacks of online surgical education, and the scoping review of online teaching in undergraduate surgical programs revealed promising hybrid instructional models that combine online and traditional methods of instruction. On the other hand, more research into optimization tactics is warranted due to the fact that the study on immersive VR in scientific lab simulations found a contradiction between higher levels of presence and worse learning outcomes.

In addition, the comprehensive analysis of AI in FM shed light on the industry's dedication to digital technology and the necessity of efficient management approaches all through a building's lifespan. Finally, this study's analysis of virtual reality (VR) for ESL instruction uncovered problems and obstacles, pointing the way toward potential future directions for advancements in this field.

To summarize, these studies show how VR is becoming more important in many areas and how we need to keep researching and inventing new ways to use it so that we can solve complicated problems and improve learning in all kinds of settings.

Sr.	Paper title	Focus of Survey	Publish Year	Survey Approach	Quality Assessment	Research Framework	Teaching and Learning Tools	Content	Targeted Digital Repositories
1	Virtual reality for safety training: A systematic literature review and meta-analysis	The longitudinal work should measure the effectiveness of VR safety training while optimizing engagement, expansion of industries, and alignment to technological advancements.	2023	Informal	×	√	√	√	PubMed
2	The Application of Fully Immersive Virtual Reality on Reminiscence Interventions for Older Adults: Scoping Review	This paper reviews the long-term effects of FIVR reminiscence interventions on older adults through longitudinal studies, efficacy comparisons, and ethical issues.	2020	PRISMA	√	×	√	√	PsycINFO
3	A Scoping Review of Online Teaching in Undergraduate Surgical Training	Future research should focus on longitudinal studies into online surgical education's impact, efficacy, barriers, and hybrid instruction models.	2023	Systematic	×	√	×	√	ERIC
4	Adding immersive virtual reality to a science lab simulation causes more presence but less learning	Students using HMDs in a VR science lab reported a higher presence but lower learning outcomes than those with	2019	Informal	×	√	√	√	Google Scholar

		regular VR goggles.							
5	A Systematic Review of Artificial Intelligence Applied to Facility Management in the Building Information Modeling Context and Future Research Directions	Global tech trends drive facility managers to adopt digital technologies, optimize management, and innovate throughout a building's life cycle.	2022	Formal	√	√	×	√	Conceptualization, R.P.S
6	Virtual Reality in English language (issues and challenges)	The survey is focused on i ssues and challenges while usin g Virtual Reality for English language learning.	2024	SLR	√	√	√	√	Web of science

Methodology:

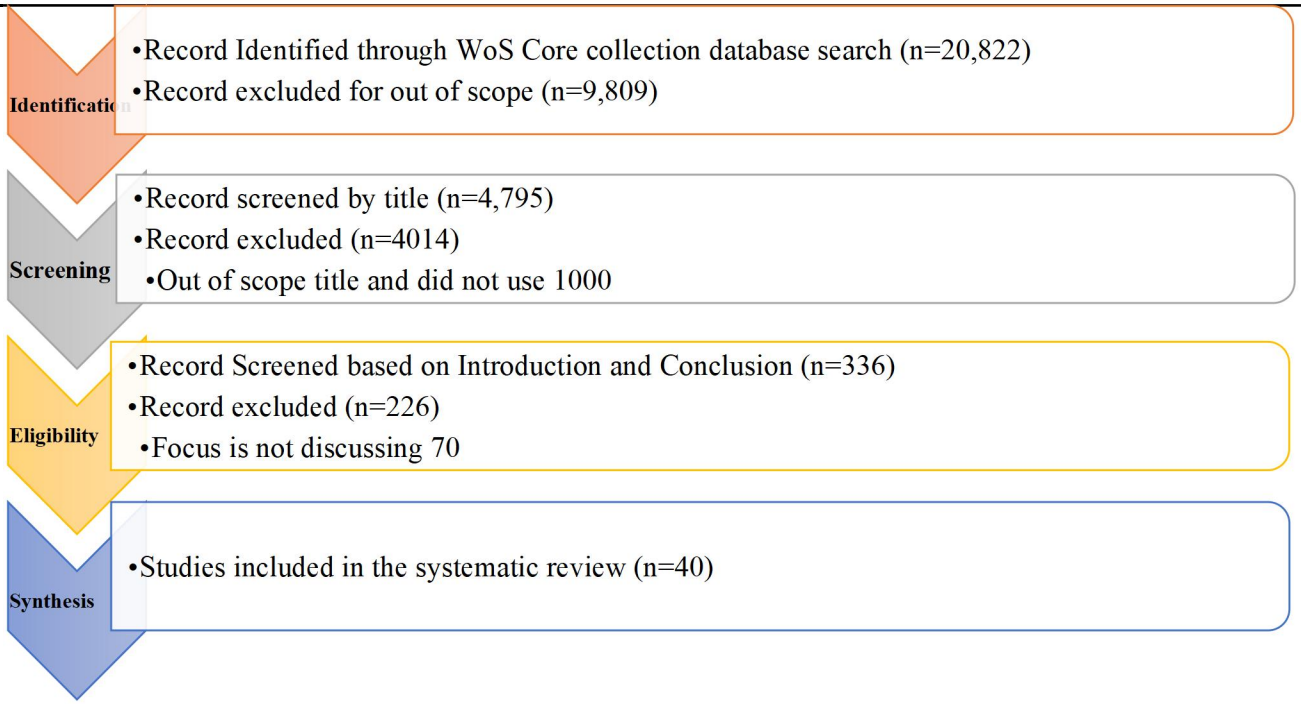
Studying "Virtual Reality in English language (issues and challenges)" requires a multi-pronged strategy to answer all of the research concerns. First, we will find high-quality publication channels that focus on VR and language acquisition by conducting a comprehensive literature study. We will use academic databases such as Scopus and Web of Science to find relevant publications, and we will map out where people are doing research to see if there are any patterns or differences in focus between regions. In order to gauge the consistency and validity of previous studies' results, we will also review the quality assessment criteria that were used.

In addition, we will evaluate the usability and effectiveness of language-specific educational VR apps by surveying their users. This will help students learn on their own time. In order to gather a complete inventory of VR apps, this survey will scour several app stores, educational platforms, and scholarly journals. To find out if these apps are good for language learning, we'll look at user evaluations, expert opinions, and empirical data.

In addition, we will evaluate the available virtual reality solutions to the problems associated with language learning. In order to find solutions to the problem of language proficiency in virtual reality settings, the current literature will be studied. Through the use of empirical evidence and user testimonies, we will evaluate the effectiveness of these solutions and get insights into how they can potentially improve language learning results.

Lastly, this study will look at the potential effects of emerging VR trends on ESL classrooms. The purpose of this research is to examine and forecast the possible effects of new technology on the accessibility, cost, and pedagogy of language acquisition. These technologies include sensory immersion and multimodal virtual reality experiences. The purpose of this study is to comprehend "Virtual Reality in English language (issues and challenges)" and what it means for language education practices by using this mixed-methods technique.

(RQ)	RQ Statement	Objectives and Motivation
1	What were the high-quality publication channels for "Virtual Reality in English language (issues and challenges)", and which geographical areas have been targeting "(issues and challenges)" research over the years?	Understanding the worldwide distribution of research efforts and contributions in the specific junction of virtual reality and language acquisition is the goal of the geographical areas targeting "issues and challenges" research topic. A better understanding of possible trends, regional variances, or gaps in knowledge can be gained by placing your research in the context of important geographical locations. It sheds light on the many viewpoints and worldwide cooperation that have gone into solving the problems of VR in ESL classrooms.
2	What are the quality assessment parameters used in "Virtual Reality in English language (issues and challenges)"?	To guarantee that studies including VR for ESL attain high quality standards, it is necessary to establish quality assessment criteria. Researchers can determine the study's credibility and validity by looking at how it was conducted, what data was collected, how it was analyzed, how it was ethical, and what it added to our knowledge base. This makes it more likely that the study will really help develop the field's understanding and guide policy and practice choices. Researchers can promote a culture of honesty and excellence in scientific inquiry by enhancing transparency, accountability, and reproducibility in research processes by defining important quality evaluation indicators.
3	What about the free Educational VR applications are available that students can easily use with minimum direction from a teacher?	Virtual reality can improve education because it gives students access to unforgettable and immersive experiences that would be impossible without technology. To add insult to injury, it might all take place in a school setting. All students have access to virtual reality, and instructors may easily monitor their progress.
4	What solutions have been purposed in "Virtual Reality in English language (issues and challenges)" to overcome the problems?	Use of immersive virtual reality technology is another strategy for helping English as a foreign language (EFL) students overcome difficulties with language competence, particularly in writing. Writers who have used the IVR to expand their vocabulary have shown improvements in areas such as distribution richness, task completion, lexical density, and utilization of target words.
5	What kind of future does "Virtual Reality in English language (issues and challenges)" have?	In the future, multimodal experiences will be increasingly popular in virtual reality. In addition to sight, users can also smell, taste, and touch. A more lifelike virtual environment provides a more interesting and engaging experience for the user.



Assessment and Discussion of Research Questions:

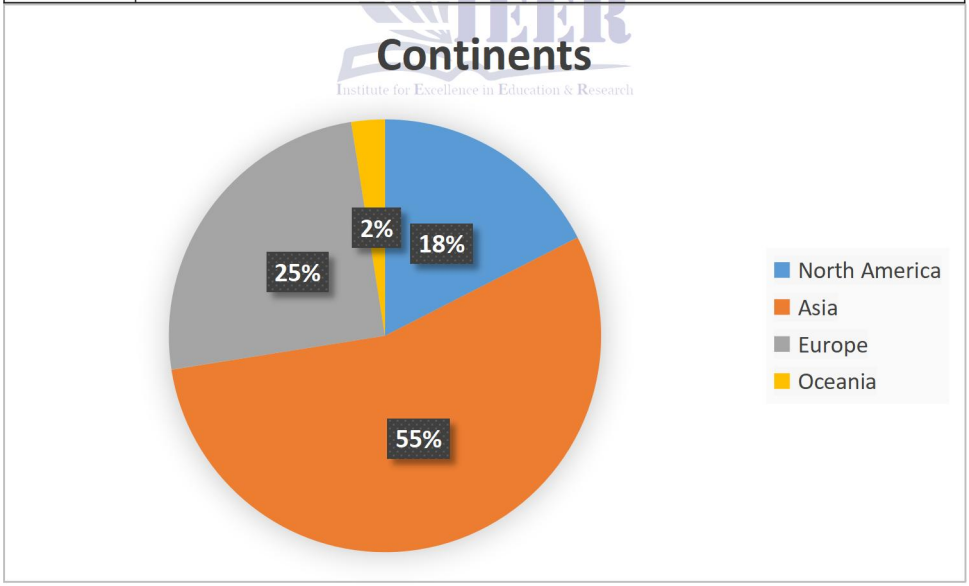
Q#1 What were the high-quality publication channels for "**Virtual Reality in English language (issues and challenges)**", and which **geographical areas have been targeting "(issues and challenges)"** research over the years?

Sr. No	Publication Source	No. Of Publications
1.	Taylor and Francis	17
2.	Springer	10
3.	Elsevier	8
4.	Routledge	3
5.	BMC	1
6.	MDPI	1
Total	**40**	

Table 01 shows that most of the papers come from respected publications that are indexed in the Web of Science. A single contribution came from a prestigious conference. Particularly noteworthy is the role of the Taylor and Francis journal, which contributed seventeen articles in all. The next most numerous are Springer and Elsevier journals, with ten and eight papers in the chosen dataset, respectively.

Table: Geographical Areas:

Sr. No	Continent	Countries	No. Of Publications
1.	North America	United States	7
2.	Asia	Saudi Arabia Dubai China Korea Singapore Korea India Taiwan China Turkey Malaysia	1 1 3 2 1 2 2 5 2 2 1
3.	Europe	Greece Denmark Turkey United Kingdom Spain Russia Germany	1 1 1 3 1 2 1
4.	Oceania	Australia	1
Total	40		



A total of 40 publications were collected from different regions globally, reflecting a diverse international interest in the subject matter. Of these, the largest number came from Asia, with 22 publications, indicating a significant contribution from this region. Europe followed with 10 publications, while North America contributed 7. In contrast, Southeast Asia and Oceania each submitted only one publication, showcasing a comparatively lower representation from these regions, as outlined in the table above. This distribution provides a comprehensive overview of the geographical spread of scholarly work on the topic.

Q#2 What are the quality assessment parameters used in "**Virtual Reality in English language (issues and challenges)**"?

Sr.No	Journal or Conference (J/C)	Publication Year	Research Type	Methodology	a	b	c	d	Score
(Lan, & J,2020).	Journal	2010	Experimental Research	Yes	1	1	0	4	6
(Chen & Hung et al.,. 2021).	Journal	2011	Qualitative Research	Yes	1	1	1	4	7
(Tanasijević & Janković et al., 2021).	Journal	2010	Qualitative Research	Questionnaire	1	1	3	3	8
(Monteiro & Ribeiro et al.,2020).	Journal	2010	Experimental Research	Yes	1	1	2	4	8
(Lin, T. J., & Lan,2015).	Journal	2019	Qualitative Research	Yes	1	1	2	4	8
(Parmaxi, & A. ,2023).	Journal	2019	Qualitative Research	Yes	1	1	0	4	6
(Symonenko & Zaitsevaet al.,2020).	Journal	2019	Qualitative Research	Yes	1	1	2	4	8
(Li, & Wong,2021).	Journal	2020	Evaluation Research	Survey	1	1	2	3	7
(Nersesian,& Spryszynski et al.,2018).	Journal	2021	Qualitative Research	Yes	1	1	1	4	7
(Alfadil & M. ,2020).	Journal	2022	Experimental Research	Yes	1	0	3	3	7
(Morrison & R,2016).	Journal	2022	Qualitative And Quantitate Research	Questionnaire	0	1	2	4	7
(Dobrova, & Trubitsin et al.,2017).	Journal	2022	Experimental Research	Yes	1	0	2	3	7
(Chen & Y. L,2016).	Journal	2022	Experimental Research	ANOVA	1	1	2	4	8
(Ahmet & Cavas, B, 2020).	Journal	2023	Quantitate Research	Questionnaire	1	1	0	4	6
(Yang & Chen,2010).	Journal	2023	Experimental Research	Yes	1	0	2	3	6
(Acosta & Tejada,2022).	Journal	2023	Experimental Research	Yes	1	1	1	4	7
(Pinto & Peixoto, 2021).	Journal	2023	Geological Knowledge	No	1	0	1	3	5
(Jung & H. J,2022).	Journal	2023	Qualitative Research	Yes	1	0	2	4	7
(Cheng & A., 2017)..	Journal	2023	Experimental Research	Yes	1	1	2	4	8

(Kim & Park et al.,2022).	Journal	2023	Qualitative Research	Questionnaire	1	1	2	3	7
(Georgiou & S, 2022).	Journal	2023	TAM	Yes	0	1	1	4	6
(Chung & Y, (2012).	Journal	2023	Experimental Research	Questionnaire	1	1	2	3	7
(Lin & Barrett et al.,2023).	Journal	2023	Quantitate Research	Tam Tap	1	1	2	4	8
(Soto & Ocampo et al.,2020).	Journal	2023	Experimental Research	No	1	0	2	3	6
(Esmaeili & S,2016).	Journal	2023	Experimental Research	Yes	0	0	2	3	5
(Peixoto & Pinto,2019).	Journal	2023	Experimental Research	Yes	0	1	2	4	7
(Berns & A,2021).	Journal	2023	Experimental Research	Yes	1	1	2	4	8
(Khatoony& S,2019).	Journal	2023	Quantitate Experimental Research	Test	1	1	2	4	8
(Jin & S,2021). .	Journal	2023	Quantitate Experimental Research	Questionnaire And Interview	1	1	2	3	7
(Wang & Lian etal.,2021).	Journal	2023	Experimental Research	ANOVA	1	1	2	4	8
(Peixoto & Pinto et al.,2021).	Journal	2023	Quantitate Experimental Research	Questionnaire	1	1	2	4	8
(Alwafi & Almalki et al.,2022).	Journal	2023	Experimental Research	PQP-PTVR	1	1	2	3	7
(Chen & Hsu et al.,2020).	Journal	2023	Experimental Research	Yes	0	0	2	3	5
(Solak & Erdem et al.,2015).	Journal	2023	Experimental Research	Video based	1	1	2	4	8
(Alizadeh & M,2019).	Journal	2023	Quantitative Research	Quantitative Research	1	1	2	3	8
(Adnan & Ahmad et al.,2020).	Journal	2023	Quantitative Research	Questionnaire	1	1	2	3	7
(Panagiotidis & P,2021).	Journal	2023	Experimental Research	Yes	1	1	2	2	8
(Ma & L,2021).	Journal	2023	Evaluation Research	Interview base	1	1	3	3	8
(Bahari & A,2022).	Journal	2023	Quantitative Research	Quantitative Research	1	1	2	3	7
(Chen, & Wang,2022).	Journal	2023	Evaluation Research	Survey	1	1	3	4	8

References	Total	Score
(Tanasijević & Janković et al., 2021), (Lin, T. J., & Lan,2015), (Symonenko & Zaitsevaet al.,2020), (Chen & Y. L,2016), (Cheng & A., 2017), (Lin & Barrett et al.,2023), (Berns & A,2021)., (Khatoony& S,2019), (Wang & Lian etal.,2021), (Peixoto & Pinto et al.,2021), (Solak & Erdem et al.,2015), (Alizadeh & M,2019), (Panagiotidis & P,2021), (Ma & L,2021), (Chen, & Wang,2022)	16	8
(Chen & Hung et al.,. 2021), (Li, & Wong,2021), (Nersesian,& Spryszynski et al.,2018), (Alfadil & M. ,2020), (Morrison & R,2016), (Dobrova, & Trubitsin et al.,2017), (Acosta & Tejada,2022), (Jung & H. J,2022), (Kim & Park et al.,2022), (Peixoto & Pinto,2019), (Jin & S,2021), (Alwafi & Almalki et al.,2022), (Adnan & Ahmad et al.,2020), (Bahari & A,2022)	14	7
(Lan, & J,2020), (Parmaxi, & A. ,2023), (Ahmet & Cavas, B, 2020), (Yang & Chen,2010), (Georgiou & S, 2022), (Chung & Y, (2012), (Soto & Ocampo et al.,2020),	7	6
(Pinto & Peixoto, 2021), (Esmaeili & S,2016), (Chen & Hsu et al.,2020)	3	5

After conducting quality assessment on the selected studies focusing on Virtual Reality in the learning of the English language, results show that with varying methodological rigor. Of the total number of studies under review, 16 were given an 8 score, thereby indicating strong reliability and relevance. In addition, 14 received a score of 7, which represents a moderate level of methodological soundness. Meanwhile, 7 studies scored 6, which means that there are some limitations in the study design or execution, and 3 studies received a score of 5, which means that their findings should be interpreted with caution. These variations show the diverse quality of research in this domain, emphasizing the need for further high-quality investigations to address existing challenges and improve the effectiveness of Virtual Reality in English language education.

Q3) What about the free educational VR applications are available that students can easily use with minimum direction from a teacher?

1. A fresh approach to language acquisition—Mondly

Discover the incredible potential of immersion when it comes to learning a new language with Mondly VR, the pioneering platform for virtual reality chatbots and speech recognition.

Revolutionizing language learning with real-life interactive scenarios, Mondly VR is a game-changer. With its built-in voice chatbot and speech recognition technology, this software can help you become fluent in up to 30 different languages. It provides instant feedback on your pronunciation and tips for expanding your vocabulary. Immersive and state-of-the-art, Mondly is compatible with mobile VR, Oculus Rift, and Steam, making it an ideal tool for boosting confidence and fluency in communication.

Features:

- Conversational AI Voice Chatbot
- Voice recognition software
- In-built vocal instructor
- An extensive collection of typical expressions and conversations
- Experience lifelike situations in virtual reality settings.
- When it comes to teaching languages, Mondly VR is an excellent tool for creating engaging and interactive lessons for pupils.

Sr. No.	Feature	Description
1	Conversational AI Voice Chatbot	AI-powered chatbot for interactive language practice.
2	Voice Recognition Software	Detects and processes speech for accurate language learning.
3	In-built Vocal Instructor	Provides real-time pronunciation feedback and guidance.
4	Extensive Expression Collection	Offers common phrases and dialogues for practical learning.
5	VR-Based Lifelike Experiences	Simulates real-world conversations in immersive VR settings.

6	Mondly VR for Language Learning	Engaging VR tool for interactive and dynamic language lessons.

2. Experience the genuine thing with ImmerseMe!

Learn a new language and immerse yourself in a new culture with ImmerseMe, the best academic language tool in the world. With the help of interactive lessons designed for students interested in learning how to order tapas at a Spanish restaurant or how to buy groceries while abroad, you can become a global citizen with the click of a button. The game unlocks nine languages and more than three thousand immersive scenarios, allowing you to practice real-life conversations anywhere from Paris to Tokyo.

Features:

- An expanding collection of more than 3,000 scenarios sourced from across the world.
- Learn 9 languages with short, engaging courses based on real-life conversations.
- You and your pupils can keep tabs on your progress with detailed reporting.

3. Virtual Reality Language School—Become Fluent in German, Spanish, or English

The virtual reality (VR) program House of Languages is a game-changer for classroom vocabulary instruction. The app presents users with practical vocabulary for everyday application in a variety of contexts, including airports, cafes, cinemas, zoos, museums, and schools, as well as interactive mini-games like word guessing quizzes and riddles.

Features:

- Ten and a half spaces, including an airport, a café, a movie theater, a zoo, a museum, a school, and more
- Pleasant Mr. Woo instructs pupils in a very immersive setting
- Practical expressions for everyday discourse
- Table of review terms including all sources
- Word guessing tests and puzzles are examples of mini-games.

Sr. No.	Feature	Description
1	Ten and a Half Spaces	Includes immersive settings like airports, cafés, and more for real-life practice.
2	Pleasant Mr. Woo as Instructor	Provides a friendly, immersive learning experience with personalized instruction.
3	Practical Expressions for Discourse	Teaches useful phrases for daily conversations and interactions.
4	Table of Review Terms	A comprehensive collection of review terms from all learning sources.
5	Mini-Games (Word Guessing Tests)	Engaging puzzles and games to reinforce learning in a fun way.

Science-Related Apps

The scientific community has made growing use of virtual reality (VR) technology to investigate and test data in a three-dimensional setting. Virtual reality apps are becoming vital resources for researchers across many fields, including medicine (for example, to practice surgical operations) and astronomy (to examine stars and galaxies). Virtual reality (VR) apps are facilitating researchers' access to previously inaccessible data by immersing them in the experience and allowing them to engage with it.

4. Space Titans—a Journey Around the Solar System

Virtual reality (VR) educational experiences like Solar System with Titans of Space are revolutionizing the way science is taught. With the help of a helpful "Flying Professor Alien" and up-to-date information on more than 40 different celestial bodies, this one-of-a-kind app takes you on an exciting journey around the Solar System.

The planets and stars will appear much larger to the students, they will experience different gravitational pulls, they will view different planet maps, and they will even have the opportunity to float around in zero gravity! An intriguing complement to any curriculum, Solar System with Titans of Space features an interesting score and side-by-side comparisons.

Features:

- Tour at your own pace with the option to go at a more leisurely pace
- Exact images and information on forty different heavenly bodies

- Travel agent also known as the "Flying Professor Alien"
- Direct comparisons
- Use a gravity probe to measure variations in the force of gravity
- Observation of celestial bodies in the night sky

Sr. No.	Feature	Description
1	Tour at Your Own Pace	Explore the universe at a relaxed pace, adjusting speed as needed.
2	Exact Images and Information on Heavenly Bodies	Provides accurate visuals and details of forty different celestial objects.
3	"Flying Professor Alien" as Travel Agent	Offers expert guidance and insights from a virtual space guide.
4	Direct Comparisons	Allows comparisons between different celestial bodies for easier understanding.
5	Gravity Probe Usage	Measure variations in gravitational force across space.
6	Observation of Celestial Bodies at Night	View and observe various celestial objects in the night sky.

5. Virtual explorations using Discovery VR

With an emphasis on social effect, VR for Good finances, cultivates, and promotes immersive storytelling.

The Discovery (channel) could occasionally appear on our television. Well, their VR app is now available to you too. Discovery VR allows users to view a wide variety of documentary content in 3D, making it ideal for usage in a variety of subjects including engineering, history, geography, biology, and the natural sciences. Several shows have been adapted for virtual reality, including Discovery Atlas and DNewslabs.

Virtual reality (VR) from Discovery is a fantastic tool for enhancing students' learning of engineering, history, geography, biology, and the natural sciences. Your pupils can see several documentaries in immersive 3D with Discovery VR. Shipwrecks and the world's windiest street may be explored virtually, giving students a one-of-a-kind chance to study and grow.

Students can watch instructional videos on their own time or in class using the Discovery VR app. Beyond this, they offer an immersive experience that motivates kids to engage in VR excursions.

Sr. No.	Feature	Description
1	Ease of Use	Designed for effortless navigation, allowing users to quickly find and explore content.
2	High-Quality 3D Video	Features immersive 3D video for a fully engaging viewing experience.
3	Handpicked Information	Curates a wealth of reliable, in-depth information for exploration.
4	Videos for Learning	Provides educational videos for school or personal study.

When it comes to teaching subjects like engineering, history, geography, biology, and the natural sciences, the Discovery VR app is, all things considered, an excellent tool. Students can delve deeply into a wide range of subjects with the help of its intuitive interface and top-notch 3D content.

RQ: 04 What solutions have been purposed in "Virtual Reality in English language (issues and challenges)" to overcome the problems?

The use of Virtual Reality in ESL classrooms has many advantages; however, there are several challenges that have to be overridden to achieve maximum gain from it. Several solutions have been propounded for these problems and ensuring the effectiveness of using VR in learning a language. The most significant solution is to create real speech practice environments such as grocery stores, police stations, and hospitals, so students can experience scenarios in an immersive, practical manner. Another very important factor is proper teacher training, including exposure to VR devices, incorporation of VR into lesson plans, and troubleshooting technical problems. The other challenge is the fear of students for VR due to motion sickness or lack of availability of the devices;

this can be deterred with alternative talking practice methods or equal access for everyone to VR gear. Additionally, with the increasing awareness of privacy and security in the use of VR, one can reduce these with strong security measures and proper handling of user data. Finally, gathering feedback from the users, both students and instructors, can help fine-tune and improve VR applications, providing valuable insights to enhance the overall experience in the classroom.

Sr. No.	Proposed Solution	Description
1	Creation of Realistic Speech Practice Environments	Develop immersive VR scenarios like grocery stores and hospitals for practical language practice.
2	Proper Teacher Training	Ensure teachers are well-versed in using VR devices, integrating VR into lessons, and resolving technical issues.
3	Addressing Student Concerns	Provide alternative practice methods or ensure equal access to VR equipment to address motion sickness and lack of gear.
4	Implementation of Security Measures	Protect privacy and data by implementing robust security measures in VR platforms.
5	Collecting User Feedback	Gather feedback from students and instructors to continuously improve the VR learning experience.

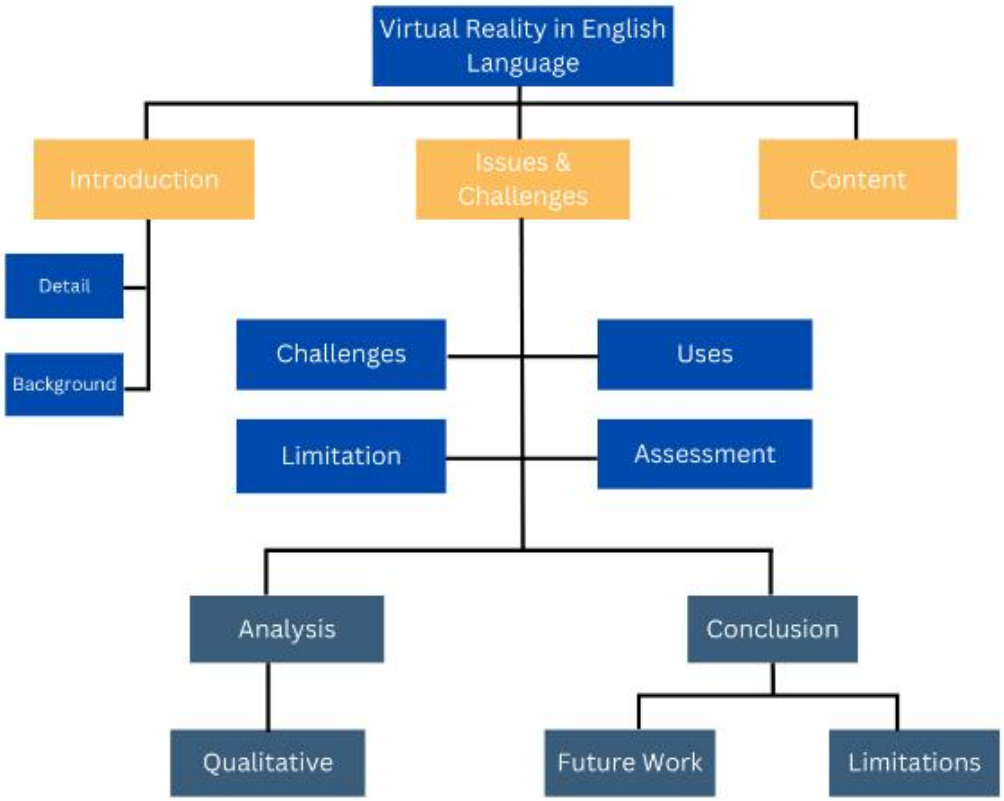
RQ: 05 What kind of future does "Virtual Reality in English language (issues and challenges)" have?

Virtual Reality (VR) holds great promise for the future of learning English, as the technology develops further and discovers new applications in educational fields. As the VR technology evolves and becomes more accessible, many of the present-day limitations will be effectively surmounted, and its use will become more engaging and efficient for language learning. It will allow the immersion of VR into classrooms, enabling learners to practice real-world conversations, thereby increasing language acquisition in a more interactive and dynamic manner. Moreover, it will provide an opportunity for individualized learning experiences, adjusted to the pace and level of each student, thus making language learning more personalized. ESL teaching will probably be coupled with VR in the future as technology evolves to meet technical features, like motion sickness and accessibility issues. Given the huge demand for immersive learning experiences and, of course, the potential for innovation in VR, one can be sure that this technology will fuel new developments in language education into the future.

Sr. No.	Future Aspect	Description
1	Improved Access and Affordability	As VR technology becomes more affordable and widely available, it will be integrated into more language learning environments.
2	Personalized Learning	VR will allow tailored language learning experiences, adapting to individual student progress, preferences, and learning styles.
3	Overcoming Technical Limitations	Advancements in VR will address motion sickness, accessibility issues, and improve ease of use for students and instructors.
4	Immersive Real-World Language Practice	VR will simulate real-life settings and provide learners with immersive environments for more authentic language practice.
5	Integration with Other Learning Technologies	VR will combine with AI, speech recognition, and data analytics to offer more dynamic and responsive language learning tools.
6	Increased Teacher Training and Support	Future development will provide better training programs and resources for teachers to effectively integrate VR into their lesson plans.
7	Global Language Learning Communities	VR can connect students from all over the world, creating global learning environments where learners can practice with diverse speakers.
8	Collaboration and Social Learning	VR will support collaborative language learning experiences, allowing students to work in groups, engage in discussions, and solve problems together.

9	Continuous Feedback and Assessment	VR will incorporate real-time feedback mechanisms, helping students track progress and allowing instructors to monitor and assess learning outcomes.
10	Gamification and Motivation	VR-based learning will likely integrate more gamified elements, making language learning more enjoyable and engaging for students.
11	Enhanced Cultural Understanding	Through VR simulations, students will experience cultural contexts of the language they are learning, enhancing their understanding and usage of the language in real-world situations.

Taxonomy:



Conclusion and Future Directions

Conclusion:

Industries such as gaming, education, and healthcare are being revolutionized by virtual reality (VR) due to its unprecedented immersion. Challenges such as motion sickness and the price of content generation hinder virtual reality from reaching its full potential. Industrial training and healthcare are only two of its many potential uses outside of the entertainment industry. Some worry about the ethical implications and privacy implications of virtual reality's social influence. Virtual reality experiences are getting better as technology evolves, with improvements like haptic feedback and higher resolution. Even more immersive experiences are promised with integration with technologies like AR and AI. Although there are still many unanswered questions and ethical concerns, virtual reality (VR) has the ability to revolutionize several industries.

Future work:

The travel business might be drastically changed in the future by the use of augmented and virtual reality (AR) in tourism. The impact of virtual reality and augmented reality booths at tourist information centers and travel agencies on customer comprehension and satisfaction should be the subject of future studies. Further, innovations in

technology that are purpose-built for use in the tourist industry are required in order to solve problems and improve the user experience. Opportunities abound for those involved in the sector as virtual reality and augmented reality provide fresh avenues for the dissemination of information in the fields of education, marketing, and cultural preservation. Before virtual reality and augmented reality can completely revolutionize the tourism industry, several limitations, such usability and cost, must be overcome. Research should also look into new technologies like Sensor, developed by Linden Lab, that can help virtual tourism experiences feel more real and immersive. Future research and commercial projects aiming at effectively exploiting VR and AR in tourism might benefit greatly from the insights provided by this comprehensive study, despite the review's limitations.

Limitations:

The subject may miss out on useful insights from non-English sources and other fields since it is centered on travel and hospitality literature written in English. The evaluation mostly looks at academic literature, therefore it can miss new industry practices or developments in virtual reality and augmented reality for tourism. The completeness and impartiality of the evaluation could also be impacted by the subjective interpretation of results and any biases in the selection criteria for included studies. Finally, staying up-to-date with the ever-changing VR and AR technology and their uses in tourism may require continuous updates and adjustments to the study. It is important to note that due to the fast-paced nature of technical improvements, the study may not cover all the current advancements and trends in virtual reality and augmented reality applications in the tourist industry. Therefore, it is necessary to regularly update and revise the study to ensure its correctness and relevance.

REFERENCES:

1. Adnan, A. H. M., Ahmad, M. K., Yusof, A. A., Mohd Kamal, M. A., & Mustafa Kamal, N. N. (2020). English Language Simulations Augmented with 360-degrees Spherical Videos (ELSA 360-Videos):'Virtual Reality'Real Life Learning!. SSRN.
2. Ahmet, A. C. A. R., & Cavas, B. (2020). THE EFFECT OF VIRTUAL REALITY ENHANCED LEARNING ENVIRONMENT ON THE 7TH-GRADE STUDENTS'READING AND WRITING SKILLS IN ENGLISH. MOJES: Malaysian Online Journal of Educational Sciences, 8(4), 22-33.
3. Alfadil, M. (2020). Effectiveness of virtual reality game in foreign language vocabulary acquisition. Computers & Education, 153, 103893.
4. Alizadeh, M. (2019). Virtual reality in the language classroom: Theory and practice. Call-Ej, 20(3), 21-30.
5. Alwafi, G., Almalki, S., Alrougi, M., Meccawy, M., & Meccawy, Z. (2022). A social virtual reality mobile application for learning and practicing English. International Journal of Interactive Mobile Technologies, 66(8).
6. Bacca-Acosta, J., Tejada, J., Fabregat, R., Kinshuk, & Guevara, J. (2022). Scaffolding in immersive virtual reality environments for learning English: an eye tracking study. Educational technology research and development, 1-24.
7. Bahari, A. (2022). Affordances and challenges of teaching language skills by virtual reality: A systematic review (2010–2020). E-Learning and Digital Media, 19(2), 163-188.
8. Berns, A. (2021). A review of virtual reality-bassed language learning apps. RIED. Revista Iberoamericana de Educación a Distancia.
9. Chen, B., Wang, Y., & Wang, L. (2022). The effects of virtual reality-assisted language learning: A meta-analysis. Sustainability, 14(6), 3147.
10. Chen, C. H., Hung, H. T., & Yeh, H. C. (2021). Virtual reality in problem-based learning contexts: Effects on the problem-solving performance, vocabulary acquisition and motivation of English language

learners. Journal of Computer Assisted Learning, 37(3), 851-860.
11. Chen, Y. L. (2016). The effects of virtual reality learning environment on student cognitive and linguistic development. The Asia-Pacific Education Researcher, 25, 637-646.
12. Chen, Y. L., & Hsu, C. C. (2020). Self-regulated mobile game-based English learning in a virtual reality environment. Computers & Education, 154, 103910.
13. Cheng, A., Yang, L., & Andersen, E. (2017, May). Teaching language and culture with a virtual reality game. In Proceedings of the 2017 CHI conference on human factors in computing systems (pp. 541-549).
14. Chung, L. Y. (2012, March). Virtual Reality in college English curriculum: Case study of integrating second life in freshman English course. In 2012 26th International Conference on Advanced Information Networking and Applications Workshops (pp. 250-253). IEEE.
15. Dobrova, V., Trubitsin, K., Labzina, P., Ageenko, N., & Gorbunova, Y. (2017, November). Virtual Reality in Teaching of Foreign Languages. In 7th International Scientific and Practical Conference" Current issues of linguistics and didactics: The interdisciplinary approach in humanities"(CILDIAH 2017) (pp. 63-68). Atlantis Press.
16. Esmaeili, S. (2016, August). Improvement of second language learning process with virtual reality technology. In 1st International Conference New Perspective in Electrical And Computer Engineering (Vol. 9).
17. Ioannou-Georgiou, S. (2002). Constructing meaning with virtual reality. Tesol Journal, 11(3), 21-26.
18. Jin, S. (2021). The Effects of Digital Virtual Reality Game-Based Language Learning on English Language Learners' Development of Vocabulary and Cultural Knowledge and Affective Attitudes. Journal of English Teaching through Movies and Media, 22(3), 78-94.
19. Jung, H. J. (2002). Virtual reality for ESL students. The internet TESL journal, 8(10), 1-7.
20. Khatoony, S. (2019, December). An innovative teaching with serious games through virtual reality assisted language learning. In 2019 International Serious Games Symposium (ISGS) (pp. 100-108). IEEE.
21. Kim, J., Park, S. M., Joo, M., Park, J., Lee, Y. L., Jang, J. H., & Cardoso, W. (2022). Preliminary investigations for the development of a virtual reality-based English-language communication program: Using the Delphi method. Plos one, 17(3), e0264850.
22. Lan, Y. J. (2020). Immersion into virtual reality for language learning. In Psychology of learning and motivation (Vol. 72, pp. 1-26). Academic Press.
23. Li, K. C., & Wong, B. T. M. (2021). A literature review of augmented reality, virtual reality, and mixed reality in language learning. International Journal of Mobile Learning and Organisation, 15(2), 164-178.
24. Lin, T. J., & Lan, Y. J. (2015). Language learning in virtual reality environments: Past, present, and future. Journal of Educational Technology & Society, 18(4), 486-497.
25. Lin, V., Barrett, N. E., Liu, G. Z., Chen, N. S., & Jong, M. S. Y. (2023). Supporting dyadic learning of English for tourism purposes with scenery-based virtual reality. Computer Assisted Language Learning, 36(5-6), 906-942.
26. Ma, L. (2021). An immersive context teaching method for college English based on artificial intelligence and machine learning in virtual reality technology. Mobile Information Systems, 2021, 1-7.
27. Monteiro, A. M. V., & Ribeiro, P. N. D. S. (2020). Virtual reality in English vocabulary teaching: An exploratory study on affect in the use of technology. Trabalhos em Linguística Aplicada, 59, 1310-1338.

28. Morrison, R. (2016). Virtual reality in the language learning classroom. The Morning Watch: Educational and Social Analysis, 44(1-2 Fall).
29. Nersesian, E., Spryszynski, A., Thompson, U., & Lee, M. (2018, December). Encompassing english language learners in virtual reality. In 2018 IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR) (pp. 200-203). IEEE.
30. Panagiotidis, P. (2021). Virtual reality applications and language learning. International Journal for Cross-Disciplinary Subjects in Education, 12(2), 4447-4455.
31. Parmaxi, A. (2023). Virtual reality in language learning: A systematic review and implications for research and practice. Interactive learning environments, 31(1), 172-184.
32. Peixoto, B., Pinto, D., Krassmann, A., Melo, M., Cabral, L., & Bessa, M. (2019). Using virtual reality tools for teaching foreign languages. In New Knowledge in Information Systems and Technologies: Volume 3 (pp. 581-588). Springer International Publishing.
33. Peixoto, B., Pinto, R., Melo, M., Cabral, L., & Bessa, M. (2021). Immersive virtual reality for foreign language education: A PRISMA systematic review. IEEE Access, 9, 48952-48962.
34. Pinto, R. D., Peixoto, B., Melo, M., Cabral, L., & Bessa, M. (2021). Foreign language learning gamification using virtual reality—a systematic review of empirical research. Education Sciences, 11(5), 222.
35. Solak, E., & Erdem, G. (2015). A content analysis of virtual reality studies in foreign language education. Participatory Educational Research, 2(5), 21-26
36. Soto, J. B., Ocampo, D. T., Colon, L. B., & Oropesa, A. V. (2020). Perceptions of ImmerseMe virtual reality platform to improve English communicative skills in higher education.
37. Symonenko, S., Zaitseva, N., Osadchyi, V., Osadcha, K., & Shmeltser, E. (2020). Virtual reality in foreign language training at higher educational institutions.
38. Tanasijević, M. J., & Janković, N. Z. (2021). The new virtual reality: Teachers' and students' perceptions and experience in English language learning and teaching online. Inovacije u nastavi-časopis za savremenu nastavu, 34(4), 167-186.
39. Wang, C., Lian, X., Zhuang, C., Kwok, P. K., & Yan, M. (2021, May). A virtual reality-based spoken English learning platform. In 2021 IEEE 24th International Conference on Computer Supported Cooperative Work in Design (CSCWD) (pp. 867-872). IEEE.
40. Wilang, J. D., & Soermphongsuwat, A. (2018). Virtual Reality for Undergraduate English Language Learners: A Formative Study. Online Submission.

Yang, J. C., Chen, C. H., & Jeng, M. C. (2010). Integrating video-capture virtual reality technology into a physically interactive learning environment for English learning. Computers & Education, 55(3), 1346-1356.