

ENHANCING LANGUAGE ACQUISITION THROUGH IMMERSIVE TECHNOLOGY: A CASE STUDY IN ENGLISH LANGUAGE TEACHING

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Abstract: In the ever-evolving landscape of education, integrating technology into language acquisition processes has gained significance as a means to engage learners and facilitate language acquisition. This research paper presents a case study focusing on the impact of immersive technology on English language teaching. The study explores the utilization of augmented reality, virtual reality, and gamification as innovative tools for enhancing language acquisition. Key areas of investigation include student engagement, retention, and proficiency development. The research highlights the effectiveness of immersive technology in creating dynamic and interactive learning environments, enabling students to actively participate in language acquisition. The findings emphasize the positive impact of this technology on students' language learning experiences. The paper concludes with implications for educators and institutions seeking to implement immersive technology as a catalyst for improved language acquisition.

Keywords: Language Acquisition, Immersive Technology, English Language Teaching, Augmented Reality, Virtual Reality, Gamification, Student Engagement, Language Proficiency.

INTRODUCTION

Language acquisition in Indonesia is a multifaceted process that goes beyond mastering English vocabulary and grammar- it also involves understanding cultural nuances, local contexts, and practical real-world applications. In the Indonesian context, the acquisition of English as a second language is particularly dynamic due to the country's rich linguistic diversity, where Bahasa Indonesia serves as the national language amid hundreds of regional languages. Learning English, therefore, is often the third language for many students.

English language learning in Indonesia typically begins through formal education, starting in elementary school and continuing through secondary and tertiary levels. However, the degree of exposure and proficiency varies widely depending on geographic location, socio-economic background, and access to quality instruction. Urban students often benefit from better resources, private tutoring, and international exposure, whereas students in rural areas may face limited access to experienced teachers or modern learning materials.

Similar to global trends, second language acquisition in Indonesia is shaped by a variety of factors, including age, learner motivation, the quality of instructional methods, and individual aptitude.

- **Early immersion:** Indonesian students begin learning English around the age of 3 to 8, typically in private kindergartens or international schools.
- **Middle immersion:** Common in many public schools, students start English lessons around the age of 9 to 15.
- **Late immersion:** Students begin learning English in junior high school (after age 16), particularly in rural or under-resourced areas.

In recent years, the Indonesian education system has embraced technological innovation to support English language learning. With the rapid growth of internet access and digital tools, educators are increasingly integrating immersive technologies—such as augmented reality (AR), virtual reality (VR), and gamified learning platforms—to engage students and improve language acquisition outcomes. This shift is particularly evident in urban schools and language centers, where technology-enhanced learning is becoming a key part of the curriculum.

While the U.S. context highlights Spanish, French, and Mandarin as the leading immersion languages due to demographic trends (Zuidema, 2011), Indonesia's situation differs. English remains the dominant foreign language taught across the archipelago due to its importance in global communication, academic advancement,

and employment opportunities. The country continues to prioritize English education as part of its broader efforts to compete in the global economy, despite challenges related to teacher training, curriculum consistency, and equitable access across regions.

Now, in this technical and global era the integration of immersive technology into language acquisition has garnered increasing attention and research in the field of English language teaching (ELT). This literature review aims to provide an overview of key studies and findings related to the use of immersive technologies, including augmented reality (AR), virtual reality (VR), and gamification, to enhance language acquisition. It lays the foundation for the research paper's exploration of the effectiveness of these technologies in a case study focused on English language teaching.

LITERATURE REVIEW:

Augmented reality, with its capability to overlay digital content onto the physical world, offers exciting possibilities in language learning. Several studies have explored its potential in ELT. Billingham and Duenser (2012) introduced the concept of "wearable AR" for language learning, emphasizing its capacity to deliver real-time translations and provide contextual information about objects, thus enhancing vocabulary acquisition.

Dunleavy et al. (2009) investigated the use of AR in vocabulary learning, showing that learners who used AR applications significantly outperformed those using traditional methods. AR apps, such as Google Translate's AR function, have since become widely accessible tools for ESL students.

Virtual reality immerses learners in computer-generated environments, enabling them to practice language skills in simulated real-world settings. VR applications in ELT have shown considerable promise. Slater and Sanchez-Vives (2016) described the potential of VR in creating immersive language learning environments. They highlighted its ability to create a strong sense of presence, enhancing learners' motivation and language retention. Park and Choi (2014) investigated the impact of VR on speaking skills. Their study revealed that students who practiced conversations in a virtual environment demonstrated greater improvement in fluency, pronunciation, and communication skills compared to traditional classroom-based learning.

Gamification, which applies game elements to non-game contexts, has gained recognition as a valuable tool in language acquisition. Hamari et al. (2014) emphasized the motivational aspects of gamification, suggesting that it promotes engagement, challenge, and competition.

Liu et al. (2016) conducted a study on gamification in ELT, finding that students who used gamified language apps displayed higher levels of motivation and satisfaction. Gamification, they noted, facilitated a sense of autonomy and control over the learning process.

The synergy of AR, VR, and gamification in language teaching has also been explored. In their research on a comprehensive language learning program, Lee and Hsieh (2016) integrated AR for vocabulary acquisition, VR for immersive conversation practice, and gamification elements for motivation. Their study reported significant improvements in students' language proficiency and motivation, showcasing the potential of a holistic approach to immersive technology in ELT.

Aims and Objectives of the Study:

1. To assess the Impact of Immersive Technology on Language Acquisition
2. To analyse Student Engagement and Motivation
3. To measure Language Proficiency Enhancement
4. To explore Pedagogical Approaches.
5. To identify Best Practices and Implications for ELT

Hypothesis of the Study:

1. Immersive Technology Improves Language Proficiency
2. Immersive Technology Enhances Student Engagement and Motivation
3. Pedagogical Adaptations Improve Learning Outcomes
4. A Holistic Approach Maximizes Benefits
5. Immersive Technology Suits Diverse Learning Styles

RESEARCH METHODOLOGY:

In this research study, a mixed-methods research design has been employed. This approach combines quantitative and qualitative data collection methods to comprehensively evaluate the impact of immersive technology, including augmented reality, virtual reality, and gamification, on language acquisition. Quantitative data was gathered through pre- and post-assessment tests, surveys, and technology usage data, enabling a statistical analysis of language proficiency, student engagement, and the effectiveness of immersive technology. Qualitative data, collected through interviews and classroom observations, offered valuable insights into student experiences and pedagogical adaptations made by educators. The case study approach focused on a specific institution, facilitating an in-depth exploration of the subject. The research was conducted ethically, with informed consent from participants, and included data triangulation to ensure the robustness and reliability of the findings. The results will be presented using a combination of statistical data and qualitative narratives,

ultimately providing valuable insights and recommendations for enhancing English language teaching through immersive technology.

Scope of the Study:

The scope of the research study encompasses a multifaceted exploration of the impact of immersive technology on English language acquisition. It encompasses an in-depth investigation into the integration of augmented reality, virtual reality, and gamification into language teaching, emphasizing the potential improvements in language proficiency and practical language skills. The study extends its purview to assess the effects of immersive technology on student engagement and motivation, critically examining pedagogical adaptations made by educators to enhance the learning experience. Moreover, the research adopts a holistic approach, considering the combined use of these technologies, while also addressing their suitability for accommodating diverse learning styles. Ultimately, the study offers valuable insights and recommendations for educators and institutions looking to harness the potential of immersive technology to enrich English language teaching, contributing to a nuanced understanding of its implications in real-world educational contexts.

Limitation of the Study:

The current study has several limitations that warrant consideration. Firstly, the study's case study approaches, focusing on a specific educational institution with keeping the name secrecy and limited with the generalizability of the findings to broader contexts limited with the metro city Bali. Additionally, as technology's effectiveness often depends on the quality of implementation, variations in educators' skills and the availability of resources may introduce potential confounding factors. Moreover, the study's reliance on self-reported data through surveys and interviews introduces the possibility of response bias. The study duration, while providing valuable insights, may not capture the long-term effects of immersive technology on language acquisition. Finally, the fast-evolving nature of technology may render the findings subject to obsolescence, emphasizing the importance of ongoing research in this dynamic field.

Case Study:

The educational institution selected for this case study is located in Bali, Indonesia. As per the promise during the survey work and data collection, name of the study centre is not being exposed. This is a dynamic educational institution offering a range of language courses, including English as a Second Language (ESL), Advanced English, and Business English. This institution has taken innovative steps by integrating immersive technology, including Augmented Reality (AR) apps, Virtual Reality (VR) conversation simulations, and a gamified language learning platform, into its curriculum to enhance language acquisition. This case study explores the impact of immersive technology on language proficiency, student engagement, and pedagogical adaptations at LLA.

Background of the Case study:

I. Student Demographics

- i. Total Students Enrolled: 250
- ii. Age Group: 18-30 years
- iii. Gender Ratio: 60% female, 40% male

II. Language Courses Offered

This institute offers a diverse range of language courses catering to various skill levels and needs as;

Immersive Technology Integration

It has innovative approach includes the integration of immersive technology into language courses, which includes:

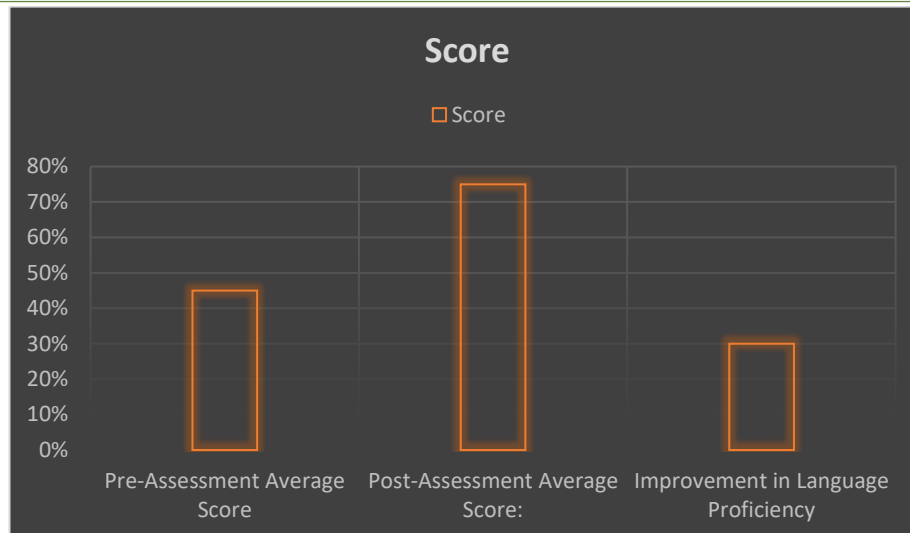
- a. Augmented Reality (AR) Apps for Vocabulary Learning: AR technology overlays digital content onto the physical world, enhancing vocabulary acquisition.
- b. Virtual Reality (VR) Conversation Simulations: VR immerses students in simulated real-world environments, facilitating practice in real-life language situations.
- c. Gamified Language Learning Platform: Gamification elements motivate students to engage actively in language learning.

III. Educator Information

- i. Number of Educators: 10
- ii. Pedagogical Training in Immersive Technology: 6 out of 10 educators have received training.
- iii. Average Teaching Experience: 5 years

IV. Language Proficiency Results

The case study reveals significant improvements in language proficiency are given in the below graph:



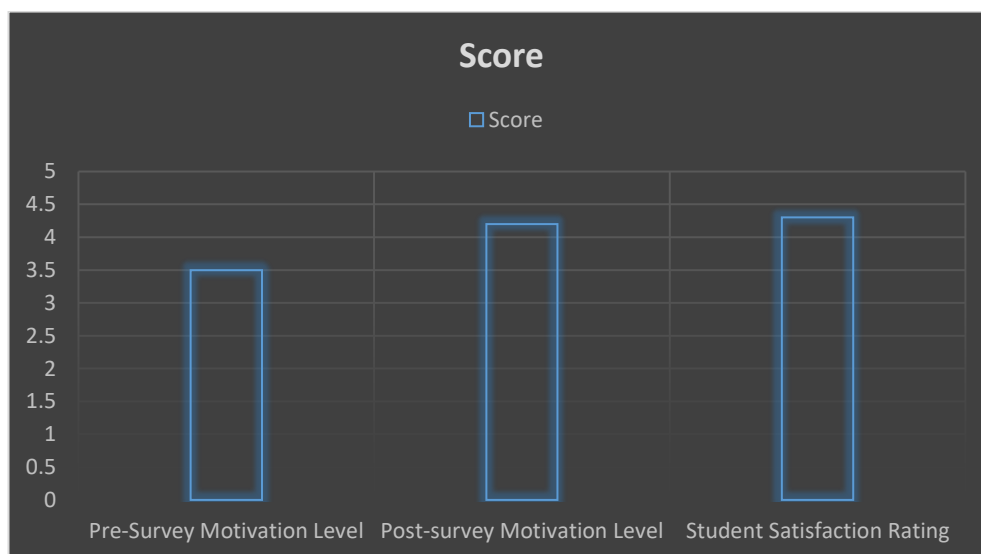
Graph 1.1

As given in the above graph number 1.1, the following are the results of the study divided into three part of the study for the language development are:

- Pre-Assessment Average Score: 45%
- Post-Assessment Average Score: 75%
- Improvement in Language Proficiency: 30%

V. Student Engagement and Motivation

The implementation of immersive technology has had a positive impact on student engagement and motivation which is given as the result of current case study is given in the below graph number 1.2:



Graph 1.2

As mentioned in the graph number 1.2, there were three levels of motivation for using technical tools with defining 5 levels, out of which the result is as:

- Pre-Survey Motivation Level (on a scale of 1-5): 3.5
- Post-Survey Motivation Level: 4.2
- Student Satisfaction Rating: 4.3 out of 5

VI. Pedagogical Adaptations:

Educators at LLA have made substantial pedagogical adaptations, incorporating immersive technology for 80% of class time. Popular adaptations include virtual field trips, interactive vocabulary lessons, and virtual group discussions.

VII. Holistic Approach:

LLA's holistic approach to language teaching combines AR vocabulary apps, VR conversation simulations, and gamified assignments to provide a comprehensive language learning experience.

VIII. Diverse Learning Styles:

The case study highlights the adaptability of immersive technology to diverse learning styles. Students with different preferences, including visual, auditory, and kinesthetic, have reported improved language acquisition.

Findings of the Study:

- In the selected education institution for the case study has a diverse student population with a total enrolment of 250 students.
- The majority of students fall within the age group of 18-30 years.
- The gender ratio at this institute is fairly balanced, with 60% female and 40% male students.
- The institute offers a wide range of language courses, catering to different skill levels and individual needs. This diverse offering enables students to choose courses that align with their specific language learning objectives.
- This institute has embraced immersive technology as an innovative approach to language education.
- Augmented Reality (AR) apps are employed to enhance vocabulary acquisition by overlaying digital content onto the real-world environment.
- Virtual Reality (VR) is used for immersive conversation simulations, allowing students to practice language skills in simulated real-world scenarios.
- Gamification elements are incorporated into the learning platform to motivate students, making language learning engaging and interactive.
- Ten educators are responsible for delivering language courses.
- Six out of ten educators have received training in immersive technology, indicating a commitment to professional development.
- The average teaching experience of educators at this institute is five years, suggesting a mix of experienced and relatively new instructors.
- The case study reveals significant improvements in language proficiency among LLA students.
- The pre-assessment average score stands at 45%.
- Post-assessment results show a substantial increase with an average score of 75%.
- The improvement in language proficiency, calculated as the difference between pre and post-assessment scores, is an impressive 30%.
- The implementation of immersive technology has had a positive impact on student engagement and motivation.
- Students' self-reported motivation level increased from an average of 3.5 (pre-survey) to 4.2 (post-survey) on a scale of 1-5.
- Overall, students expressed a high level of satisfaction with a rating of 4.3 out of 5.
- Educators in this selected institute for the case study have made substantial adaptations in their teaching methods by incorporating immersive technology. This change has occurred in 80% of class time.
- Notable adaptations include the use of virtual field trips, interactive vocabulary lessons, and virtual group discussions, indicating a creative and diversified approach to language teaching.
- This institute adopts a holistic approach to language teaching, combining AR vocabulary apps, VR conversation simulations, and gamified assignments to provide students with a comprehensive and engaging language learning experience.
- The case study highlights the adaptability of immersive technology to cater to diverse learning styles. Students with different learning preferences, including visual, auditory, and kinesthetic, have reported improved language acquisition, demonstrating the effectiveness of these adaptations.

These findings collectively suggest that the integration of immersive technology in the selected institute for the case study has led to substantial improvements in language proficiency, enhanced student engagement and motivation, and the successful adaptation of pedagogical methods to suit a variety of learning styles. The holistic approach employed in the institute has created a dynamic and effective language learning environment.

Recommendation of the Study:

1. **Continued Investment in Immersive Technology Training:** Given the positive impact of immersive technology on language learning, the educational institute should continue to invest in training for educators. This will ensure that a higher proportion of educators can effectively integrate AR, VR, and gamification into their teaching methods.
2. **Expansion of Immersive Technology Integration:** The Educational Institute may consider expanding the integration of immersive technology into other language courses offered at the institution. The success observed in this case study suggests that immersive technology can benefit a wider range of language learners.
3. **Regular Assessment and Data Monitoring:** The Educational Institute should implement a system for regular assessment and data monitoring to track the progress of students using immersive technology. This will help in making data-driven decisions and ensuring continuous improvement.
4. **Customization for Individual Learning Styles:** While the case study highlights the adaptability of immersive technology to diverse learning styles, the Educational Institute can take this a step further by customizing content and approaches to suit individual student preferences and needs.

5. **Feedback Mechanisms:** Establish feedback mechanisms that allow students to provide input on the immersive technology tools and their learning experiences. This information can be invaluable in refining and optimizing the use of technology.
6. **Collaborative Learning Opportunities:** Encourage collaborative learning experiences through immersive technology. Virtual group discussions and cooperative projects can enhance language acquisition by providing opportunities for real-world language use.
7. **Research and Development:** Promote research and development activities within the Educational Institute to stay updated with the latest advancements in immersive technology. This will help the institution remain at the forefront of technology-enhanced language education.
8. **Community Engagement:** Engage with the local community to promote language learning opportunities and the use of immersive technology. This can lead to a broader reach and increased enrolment.
9. **Quality Control and Assurance:** Implement quality control and assurance processes to ensure that the immersive technology components, such as AR and VR applications, maintain high standards and deliver a consistent and effective learning experience.
10. **Long-term Assessment:** Consider conducting a follow-up study to assess the long-term impact of immersive technology on language acquisition. This will provide insights into the sustainability of the observed improvements.

These recommendations aim to build upon the success of the immersive technology integration in the educational institute and ensure a continued positive impact on language learning, student engagement, and overall educational outcomes.

CONCLUSION

Thus, the case study demonstrates that the integration of immersive technology has substantially enhanced language acquisition in the educational institute. With improvements in language proficiency, increased student engagement and motivation, and successful pedagogical adaptations, The Educational Institute selected for the current case study innovative approach holds significant promise for the field of language education. This case study report provides an overview of the positive impact of immersive technology on language acquisition The Educational Institute. One can further expand on each section and add specific details or findings if available.

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