STUDENTS' PERCEPTION ON AUGMENTED REALITY-BASED ENGLISH LEARNING USING ASSEMBLR EDU

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ABSTRAK

Augmented Reality (AR) telah menjadi alat yang kuat dalam dunia pendidikan, menawarkan pengalaman yang interaktif dan imersif yang meningkatkan keterlibatan siswa, khususnya dalam pembelajaran bahasa. Penelitian ini bertujuan untuk mengeksplorasi persepsi siswa terhadap pembelajaran Bahasa Inggris berbasis AR menggunakan aplikasi Assemblr Edu. Desain studi kasus kualitatif digunakan dalam penelitian ini, yang dilaksanakan di sebuah SMK di Depok dengan melibatkan sepuluh siswa kelas 10 jurusan Desain Komunikasi Visual (DKV), terdiri dari empat laki-laki dan enam perempuan. Instrumen penelitian berupa kuesioner tertutup dan wawancara semi-terstruktur. Kuesioner berfokus pada persepsi siswa terhadap kemudahan penggunaan, motivasi, dan efektivitas pembelajaran, sementara wawancara menggali pengalaman siswa, manfaat yang dirasakan, keterlibatan, serta tantangan penggunaan AR. Hasil penelitian menunjukkan bahwa sebagian besar siswa memberikan tanggapan positif terhadap penggunaan Assemblr Edu. Mereka merasa aplikasi ini menarik, mudah digunakan, dan meningkatkan motivasi serta pemahaman mereka terhadap materi Bahasa Inggris. Beberapa kendala teknis seperti keterbatasan perangkat dan koneksi internet tidak terlalu memengaruhi persepsi mereka secara keseluruhan. Penelitian ini merekomendasikan integrasi yang lebih luas dari teknologi AR dalam pembelajaran Bahasa Inggris dengan dukungan pelatihan guru dan infrastruktur teknis.

Kata kunci *:* Augmented Reality, Assemblr Edu, Pembelajaran Bahasa Inggris

ABSTRACT

Augmented Reality (AR) has emerged as a powerful tool in education, offering interactive and immersive experiences that enhance student engagement, particularly in language learning. This study aims to explore students' perceptions of AR-based English learning using the Assemblr Edu application. A qualitative case study design was employed, conducted in a vocational school in Depok involving ten 10th-grade students from the Design, Communication, and Visual (DKV) program, consisting of 6 males and 4 females. The research instruments consisted of a close-ended questionnaire and semi-structured interviews. The questionnaire focused on students' perceptions regarding usability, motivation, and effectiveness, while the interviews explored their experiences, perceived benefits, engagement, and challenges. The findings revealed that the majority of students responded positively toward Assemblr Edu. They found the application engaging, easy to use, and beneficial for enhancing motivation and comprehension in English learning. Minor technical issues, such as limited device capability and unstable internet connections, were mentioned but did not significantly affect the overall positive perception. This study recommends the broader integration of AR tools like Assemblr Edu in English education, supported by adequate technical infrastructure and teacher training.

Keyword: Augmented Reality, Assemblr Edu, English Language Learning

INTRODUCTION

The advancement of digital technology has significantly influenced educational practices by providing tools that can increase student engagement and enhance the learning experience. One of these technological innovations is Augmented Reality (AR), which has been widely recognized for its ability to integrate virtual content into real-world settings, creating immersive learning environments. According to

Hwang and Wu (2014), AR supports interactive and engaging learning by offering real-time feedback and fostering student participation in meaningful learning tasks. This interactive nature of AR also facilitates experiential learning, which can lead to better knowledge retention and deeper understanding, especially in abstract subjects such as language learning (Dunleavy et al., 2009). Therefore, AR has the potential to transform traditional learning models into more student-centered and exploratory approaches.

In the context of language education, AR holds particular promise. Language learning often involves abstract concepts such as vocabulary and grammar, which can be challenging for students to grasp using conventional teaching methods. AR helps make these concepts more concrete through visualization and contextualization, allowing learners to interact with language elements in a multi-sensory way. Research by Aritmanto (2018) has shown that AR positively influences student motivation and comprehension, particularly in English classes where visual aids are beneficial. Furthermore, AR provides an authentic context for language use, bridging the gap between theoretical knowledge and practical application (Chen et al., 2020). This contextualized learning can help learners build stronger cognitive connections and facilitate better language acquisition.

Assemblr Edu, an AR-based educational application, offers an interactive platform where students can explore 3D models and multimedia content tailored to specific learning materials. This aligns with Kurniawan et al. (2020), who observed that Assemblr Edu fosters active learning and enables teachers to enhance lesson delivery through engaging AR features. This app allows students to visualize objects, follow animations, and manipulate learning content interactively, which supports various learning styles and preferences.

The ability to manipulate and explore digital content independently may also empower learners by giving them control over their learning pace and style, which is important for differentiated instruction (Tomlinson, 2014). Assemblr Edu thus presents a promising tool for addressing diverse learner needs in the classroom.

Furthermore, the success of AR integration into classrooms depends heavily on user perception and experience. Billinghurst and Duenser (2012) emphasize that students are more likely to adopt and benefit from AR when it is perceived as useful, enjoyable, and easy to use. This highlights the importance of understanding how students interact with and respond to AR-based learning platforms to inform effective implementation strategies. Positive perceptions can enhance motivation and willingness to use technology, whereas negative experiences may hinder adoption. Thus, evaluating students' perceptions provides crucial insights for educators and developers aiming to optimize AR tools for educational purposes (Wang et al., 2018).

In the Indonesian educational context, studies by Setiawan and Wahyudin (2019) and Rahmawati and Prasetyo (2021) confirm that AR applications like Assemblr Edu can improve vocabulary mastery and learning motivation. However, these tools are still not widely adopted due to infrastructural limitations, lack of teacher training, and limited access to compatible devices. As Dede (2009) noted, immersive technologies require strategic integration to ensure their pedagogical benefits are maximized. Without addressing these systemic barriers, the full potential of AR in enhancing educational outcomes cannot be realized. Therefore, understanding the challenges alongside benefits is essential for sustainable AR implementation in Indonesian classrooms.

Therefore, this study aims to investigate students' perceptions of AR-based English learning using Assemblr Edu. By focusing on students' experiences, challenges, and attitudes, this study provides insights into the effectiveness of AR in language instruction and its potential to reshape traditional classroom practices. This exploration is timely, considering the increasing demand for digital literacy and innovative learning approaches in Indonesia and globally, where technology integration is seen as a critical component of modern education (UNESCO, 2019).

METHOD

This study employed a descriptive qualitative design to explore students' perceptions of AR-based English learning using Assemblr Edu. The study was conducted at a vocational high school in Depok, West Java, and involved ten 10th-grade students from the Design, Communication, and Visual (DKV) program consisting six males and four females. Participants were selected voluntarily with purposive sampling to ensure that they had

prior experience with digital platforms and were capable of using mobile technology for learning.

The data collection process involved two primary instruments: a close-ended questionnaire and semi-structured interviews. The questionnaire, adapted from Al-Emran et al. (2016), consisted of ten items grouped into three themes: ease of use, motivation and interest, and learning effectiveness. Each item was rated using a Likert scale to quantify student responses and identify general trends in perception.

The semi-structured interviews provided deeper insights into the participants' learning experiences. Five students who had completed the questionnaire volunteered to participate. The interviews covered four main themes: learning experience, perceived benefits, engagement and motivation, and challenges or suggestions. Each interview lasted approximately 5–7 minutes and was recorded and transcribed for analysis.

Data analysis was conducted using Braun and Clarke's (2012) thematic analysis framework. This six-step method involves familiarization with data, generating codes, identifying themes, reviewing themes, defining and naming themes, and producing the final report. This approach was chosen due to its flexibility and suitability for identifying patterns and experiences in qualitative research.

Ethical considerations were observed throughout the research process. Participants were informed about the study's purpose, and their consent was obtained before data collection. Anonymity and confidentiality were assured by using pseudonyms and storing data securely. The findings were presented in a way that respects participant privacy while capturing meaningful insights into their experiences.

RESULT AND DISCUSSION

Results from the conducted research showed that students generally perceived Assemblr Edu positively. Most students found the application easy to use, noting that its interface was intuitive and did not require prior experience with AR tools. The ability to access the application on their smartphones provided convenience and flexibility for learning both in and outside of the classroom

Students also expressed high levels of motivation when using the application. The interactive 3D content and animations created a learning experience that was perceived as enjoyable and stimulating. Many students reported being more interested in English lessons when using Assemblr Edu compared to conventional methods. The integration of visual and motion-based elements helped maintain their focus and enhanced their willingness to participate actively.

In terms of learning effectiveness, the students believed that Assemblr Edu helped them better understand vocabulary and reading material. They appreciated how the 3D visualizations allowed them to grasp the meaning of words and concepts more easily. This visualization was particularly helpful in learning concrete nouns and descriptive terms, where the digital representation directly supported meaning-making.

The interviews reinforced these findings, with students describing how AR helped them associate new vocabulary with visual objects, making it easier to recall the words later. The interactive nature of the learning experience encouraged independent learning and exploration, contributing to deeper understanding.

Despite the overwhelmingly positive feedback, some challenges were identified. A few students mentioned that their devices were not always compatible with the application, leading to occasional lagging or freezing. Internet instability was also reported, particularly when accessing online AR content. However, students stated that these technical issues were manageable and did not significantly hinder the overall learning experience.

Discussion

These findings indicate that AR-based tools such as Assemblr Edu have the potential to significantly enhance students' engagement, comprehension, and motivation in English language learning. The high levels of acceptance and enjoyment align with previous studies that have shown AR can improve student focus and facilitate deeper understanding of complex content (Wu et al., 2013).

The role of Assemblr Edu in increasing motivation and interest reflects the findings of Rahmawati and Prasetyo (2021), who reported that AR applications can turn passive learners into active participants through visual stimulation and interactivity. This transformation is critical for language learning, where motivation directly

impacts performance.

The ability of Assemblr Edu to present vocabulary in 3D contexts supports Mayer's (2009) multimedia learning theory, which posits that people learn better from words and pictures than from words alone. This integration of modalities enables students to form stronger mental connections with the learning material, thereby improving retention.

The motivational impact of Assemblr Edu confirms the findings of Rahmawati and Prasetyo (2021), who emphasized that AR increases participation and makes learning more enjoyable. The immersive nature of AR creates an engaging environment that is particularly effective for students who struggle with abstract learning. This sense of novelty and exploration appears to be a driving factor in keeping students attentive and involved.

However, the implementation of AR-based tools also requires addressing logistical challenges. As Fatahi et al. (2022) and Dede (2009) observed, successful integration of AR into educational settings depends on infrastructure readiness and teacher training. Without proper support, the full benefits of AR may not be realized. While students in this study were largely enthusiastic, their experiences could be improved further with smoother technical performance and more diverse content offerings.

The findings also support the relevance of AR to differentiated learning. As Horton (2000) noted, digital platforms that cater to various learning styles provide greater inclusivity. Assemblr Edu's mix of visual, auditory, and kinesthetic components allows it to reach learners with different needs, making it a versatile tool in diverse classrooms.

CONCLUSION

This research concludes that students hold a generally positive perception of using Assemblr Edu in English learning. The platform is seen as accessible, motivating, and effective in helping students understand vocabulary and texts through interactive and visual support. Students reported increased engagement and satisfaction when using AR, and noted that Assemblr Edu helped them learn independently and more effectively. Although technical challenges such as connectivity issues and device limitations were mentioned, these did not significantly affect students' overall experience. Their enthusiasm

for continued use of AR suggests strong potential for long-term adoption.

To maximize the benefits of AR-based learning, schools and educators must ensure that adequate infrastructure and training are provided. Teachers should be equipped with the skills to integrate AR meaningfully into the curriculum, and students should be supported in using the tools effectively.

Future research could examine the long-term impact of AR on learning outcomes across different subjects and student populations. It would also be beneficial to explore how AR can support language production skills, such as speaking and writing, to create a more comprehensive English learning environment.

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