

**EXPLORING PRE-SERVICE ENGLISH TEACHERS'  
PERCEPTIONS OF USING AUGMENTED REALITY  
IN EFL CLASSROOMS**

**THESIS**

Submitted in Partial Fulfillment of the Requirement for  
Bachelor Degree of English Education Department



Arranged by:

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**2025**

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## **MOTTO**

*"Stay foolish to keep learning, and stay hungry to keep starving."*

**-Steve Jobs**

*"Keberhasilan bukanlah milik mereka yang pintar,  
Keberhasilan ialah milik mereka yang senantiasa  
berusaha."*

**-B. J. Habibie**

*"You may not know the exact outcome of your actions, but  
if you don't act, you are guaranteed to never achieve any  
results."*

**-Mahatma Gadhi**

# THESIS APPROVAL



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## ABSTRACT

**TITLE : EXPLORING PRE-SERVICE ENGLISH  
TEACHERS' PERCEPTIONS OF USING  
AUGMENTED REALITY IN EFL  
CLASSROOMS**

**NAME : Shovi Zaidatul Ma'rifah**

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This study aims to explore the perceptions, perceived benefits, challenges, and intentions of prospective English teachers regarding the integration of Augmented Reality (AR) into English as a Foreign Language (EFL) teaching. Grounded in Constructivist and Experiential Learning Theories, the research highlights AR's potential to enhance student engagement and learning outcomes. Using a qualitative method with semi-structured interviews, data were collected from pre-service teachers at UIN Walisongo Semarang. The findings indicate that AR is generally perceived as useful in boosting student motivation and supporting interactive learning, although challenges such as technical issues, lack of institutional support, and limited pedagogical training were identified. Nevertheless, most participants expressed their intention to use AR in the future, provided sufficient training and resources are available. This study contributes to educational technology literature and recommends teacher training and institutional support to enable the effective use of AR in language education.

*Keywords: Augmented Reality, Constructivist Learning Theory, Educational Technology, EFL, Preservice Teacher*



## **DEDICATION**

The thesis is dedicated to:

1. Praise is given to Allah SWT who has blessed the researcher so that the researcher could finish the thesis.
2. My beloved parents Mr. Suyanto and Mrs. Sumitra always give me endless support, advice, and prayers.
3. My beloved older brothers Mas M. Said Kamaludin, and Mas Agung Dwi Saputra.
4. All the English teachers.
5. All my friends.

## ACKNOWLEDGEMENT

Bismillahirrahmanirrahim

All praises are given to Allah Subhanahuwata'ala, who has been giving us blessings and the most mercies who blessed the researcher to finish this thesis. Peace and great salutation may always be delivered to our Prophet Muhammad SAW, who has guided us from the darkness to this bright modern era.

While arranging the thesis, the researcher was truly grateful, and the deepest thanks to all support systems, who contributed to the research. Therefore, the researcher would like to express his wholehearted gratitude and appreciation to:

1. Prof. Dr. Fatah Syukur, M. Ag., as the Dean of the Education and Teacher Training Faculty of UIN Walisongo Semarang.
2. Nuna Mustikawati Dewi, M.Pd. as the Head of English Language Education.
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8. All the members of KKN MIT 18 Posko 104 Kedungsuren.
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13. Special thanks to SZA, Post Malone, and Chase Atlantic for keeping me company through the long hours of writing this thesis. Your music brought comfort and rhythm to the process.

14. And the last to myself, Shovi Zaidatul Ma'rifah—  
thank you for not giving up. For showing up on the  
hard days, for pushing through the doubts, and for  
turning late nights into progress. This thesis is proof  
that you kept going.

Finally, the researcher will happily accept  
constructive criticism to make this thesis better and the  
researcher hopes this research can be helpful for everyone  
who needs additional reading related to the topic of this  
research.

Semarang, 27 February 2025  
Regard Researcher

A handwritten signature in black ink, appearing to read 'Shovi Zaidatul Ma'rifah', with a stylized flourish at the end.

Shovi Zaidatul Ma'rifah  
2103046086

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# **CHAPTER I**

## **INTRODUCTION**

This chapter describes background of the research, reason for choosing the topic, the research questions, the objective of the research, the significance of the research.

### **A. BACKGROUND OF THE RESEARCH**

The use of technology in education has received a lot of attention lately, especially in the area of language learning. The integration of technology into teaching and learning has been widely recognized as an essential strategy for enhancing the effectiveness and engagement of educational practices. Newly emerging technologies like Augmented Reality, Virtual Reality, and Artificial Intelligence have the potential to revolutionize education by delivering immersive learning experiences that go beyond the constraints of users' actual sensory perceptions. Additionally, these technologies enable the creation of personalized and adaptable content while offering real-time support for students (Ko & Shin, 2023). Among the emerging technologies, Augmented Reality (AR) has shown promising potential to enhance the educational experience by creating immersive and interactive learning environments. Embedding AR into

education produces effective teaching and learning results (Alkhatabi, 2017). AR technology superimposes digital information, such as images, videos, and text, onto the real world, providing a unique and engaging way for learners to interact with educational content (Laato et al., 2021). Among these technologies, AR is notable for its capacity to merge real and virtual elements, providing distinct benefits in language education, especially in the context of learning English as a Foreign Language (EFL).

The use of AR in English as a Foreign Language (EFL) learning is a relatively new but rapidly growing area of interest. Augmented Reality (AR) offers an immersive and interactive learning experience that can engage students more thoroughly than traditional techniques by superimposing digital knowledge over the actual environment. Traditional language learning methods often rely on textbooks, rotary memorization, and repetitive exercises, which can lead to decreased motivation and engagement among learners. In contrast, AR technology overlays digital content onto the real world, fostering an interactive learning environment. In EFL education, AR offers a dynamic and immersive approach for students to engage with language material,

surpassing traditional methods that typically depend on textbooks and rote memorization. One notable technological advancement in augmented reality is the ability to blend virtual elements with the actual world in real - time smoothly (Padwika et al., 2023).

Despite its potential, the adoption of AR in EFL education is still in its infancy, particularly in many developing regions. One of the key factors influencing the successful implementation of AR in the classroom is the preparedness and willingness of teachers to integrate such technologies into their teaching practices. Pre-service English teachers, who are still undergoing their professional training, represent an important group as they will soon enter classrooms equipped with the responsibility of fostering language skills in a rapidly changing educational landscape. Understanding their perspectives on AR technology is crucial, as their attitudes and perceived readiness could impact how effectively AR is utilized in future EFL classrooms.

Moreover, there is limited research exploring how pre-service teachers view the use of AR in EFL education. Specifically, there is a lack of research on preservice teachers' views regarding the integration of AR. Understanding teachers' perspectives is essential

for maximizing the benefits of AR technology in education, as it is ultimately the teachers who determine whether to incorporate it into their classrooms (Perifanou et al., 2022). While studies have focused on the effectiveness of AR in improving student outcomes, little attention has been given to the perspectives of the educators who will be responsible for implementing this technology. By exploring pre-service English teachers' perceptions, challenges, and perceived benefits of AR for EFL students, this study aims to fill a gap in the literature and provide insights that could inform teacher education programs.

This research, therefore, seeks to explore the perspectives of pre-service English teachers regarding the use of augmented reality for EFL students. The findings of this study could contribute to the development of more effective teacher training curricula, ensuring that future educators are equipped with the knowledge and skills necessary to integrate AR technology into their teaching practice.

## **B. REASON FOR CHOOSING THE TOPIC**

Technology integration has become a cornerstone of modern education, particularly in

language learning. The focus on AR as an emerging technology for EFL education is motivated by the following reasons:

1. AR adoption in EFL classrooms remains relatively limited, particularly in developing regions. Investigating the factors influencing its implementation is essential, especially from the perspective of pre-service teachers who will play a critical role in its future integration.
2. Pre-service English teachers' perceptions, readiness, and attitudes toward AR are vital for its successful adoption. However, limited research exists on their views, leaving a significant gap in the literature.
3. Traditional EFL teaching methods often lack engaging and interactive components. AR addresses these limitations by enhancing student engagement, motivation, and learning outcomes. Exploring the perceived benefits and challenges can help identify solutions to support professional development.
4. This research has the potential to contribute significantly to teacher education programs. By understanding the needs and challenges faced

by pre-service EFL teachers, it can inform the design of curricula that equip them with the necessary skills and confidence to use AR technology effectively.

5. The topic aligns with broader educational trends emphasizing the integration of advanced technologies into teaching. By exploring AR's applications in EFL education, this study addresses a timely and relevant issue, contributing to both theoretical and practical advancements in the field.

### **C. RESEARCH QUESTIONS**

Based on background of the study above, the researcher outlines the research questions of the research as follows:

1. How do pre-service English teachers perceive and intentions to use augmented reality in EFL teaching?
2. What specific benefits and challenges do pre-service English teachers perceive in using augmented reality to support students' learning outcomes, including its impact on motivation and engagement?

## **D. OBJECTIVE OF THE RESEARCH**

Based on what has been described in the background of this research, the objectives of this study are:

1. To explain pre-service English teachers' perceptions and intentions regarding the use of augmented reality in EFL teaching.
2. To describe the specific benefits and challenges pre-service English teachers perceive in using augmented reality to support EFL students' learning outcomes, including its impact on motivation and engagement

## **E. SIGNIFICANCE OF THE RESEARCH**

This research has three main significances, namely theoretical, practical, and pedagogical:

1. Theoretical Significance
  - a) Contribution to Educational Technology Literature: This study adds to the literature on the use of advanced technologies, specifically AR, in language education. By examining preservice teachers' perceptions of AR, this study helps broaden the theoretical understanding of how technology can be effectively integrated

into language teaching and contributes to the development of relevant models or frameworks for implementing educational technology.

- b) Understanding Psychological and Environmental Factors: This study helps identify psychological factors such as perceived usefulness, ease of use, and environmental influences (e.g., student and peer influences) that influence preservice teachers' intentions to use AR. These insights could inform behavioral models of technology adoption among educators, particularly in language education.
- c) Foundation for Future Research: The findings of this study provide a foundation for further research, particularly those seeking to understand how technologies such as AR can be more widely used in EFL classrooms. Future research could build on these findings by examining other variables or examining AR implementation in different contexts.



## 2. Practical Significance

- a) **Enhancing Pre-Service Teacher Skills:** This study is expected to enhance pre-service English teachers' practical understanding of how to use Augmented Reality (AR) to enhance language learning in EFL classrooms. By understanding the benefits and challenges associated with using AR, pre-service teachers will be better prepared and skilled in integrating this technology to enhance student engagement, increase learning motivation, and enrich the learning experience.
- b) **Guidance for Teacher Education and Training:** The findings of this study can be used by curriculum developers and teacher education program providers to design training modules that are more responsive to the needs of technology in EFL classrooms. The practical recommendations generated can help prepare teachers to utilize technology effectively and overcome the barriers they may encounter in AR-based teaching.

- c) Recommendations for Technology Implementation in Schools: The results of this study can provide insights for policymakers and stakeholders in education on the importance of adopting AR technology in language learning. These recommendations can serve as guidelines for developing educational policies that support technological innovation in the classroom.

### 3. Pedagogical Significance

- a) Enhancing Language Learning Methodologies: This study provides insights into how AR can support innovative pedagogical approaches in EFL teaching, aligning with communicative and constructivist teaching methodologies. The integration of AR can promote contextualized and experiential learning, enabling students to engage with authentic language use in interactive environments.
- b) Supporting Differentiated Instruction: AR offers opportunities for personalized learning, catering to diverse learning styles

and proficiency levels. The study highlights how AR can be used to support differentiated instruction, allowing teachers to design adaptive learning experiences that address individual student needs more effectively.

- c) Encouraging Student-Centered Learning: The findings reinforce the importance of student-centered learning, where students actively participate in their learning through exploration, collaboration, and hands-on experiences. By integrating AR, teachers can facilitate engaging and immersive learning activities, fostering higher-order thinking skills and communicative competence.
- d) Bridging the Gap Between Theory and Practice: This research provides pedagogical guidelines on how pre-service teachers can transition from theoretical knowledge of AR to practical classroom application. By understanding AR's role in EFL pedagogy, teachers can develop more effective lesson plans that incorporate

digital tools meaningfully into their instruction.

By addressing these areas, this study aims to bridge gaps in the literature and provide actionable recommendations for improving the integration of AR into EFL teaching practices, ensuring its pedagogical effectiveness for both teachers and students.

## **CHAPTER II**

### **REVIEW OF RELATED LITERATURE**

This chapter reviews relevant studies and literature to provide a theoretical foundation and context for this research. The discussion is organized into three sections: Previous Studies, Literature Review, and Conceptual Framework.

#### **A. PREVIOUS STUDIES**

The purpose of this section is to compare the findings of prior research with the current study, identifying strengths, weaknesses, and gaps in the literature by reviewing relevant international publications that explore the integration of Augmented Reality (AR) in education. A field that has garnered increasing attention due to its potential to enhance student engagement and learning outcomes. particularly in understanding prospective language teachers' perspectives on using AR technology in EFL classrooms, as well as factors influencing its adoption in language learning and education.

One significant study by Koutromanos et al., (2015) examined the use of AR games in educational settings, highlighting that AR-based games could

increase student motivation and make learning more interactive. The findings showed that AR games could enhance complex concepts by providing engaging and stimulating learning experiences. Similarly, Cheng (2017) investigated parents' perceptions of AR learning, revealing that while parents supported the use of AR, concerns about screen time and content quality remained. This study emphasized the importance of understanding AR's broader societal perceptions, especially from a parental viewpoint, to ensure balanced adoption in educational contexts.

In the realm of science education, Alzahrani (2025) reviewed the application of AR and other Information and Communication Technologies (ICT) in preschool science education. The review found that AR could foster conceptual understanding and hands-on learning, particularly in science, by making abstract concepts more tangible. However, it also pointed out the need for teacher training and proper curriculum integration for effective implementation. Zhang et al., (2023) further supported this notion by examining the role of AR in chemistry education. They found that AR could effectively visualize chemical reactions and molecular structures, aiding students' comprehension of

complex topics. These studies underscore the transformative potential of AR in science education, though they also highlight the challenges of incorporating such technologies into existing educational frameworks.

When it comes to language education, Nikou (2024) explored the factors influencing teachers' intention to use mobile AR in science teaching. The study identified that perceived usefulness, ease of use, and educational value significantly impacted teachers' willingness to adopt AR. These findings resonate with the results of Karacan & Polat (2022), who investigated pre-service English teachers' intentions to use AR in their future classrooms. They found that firsthand experience with AR technology positively influenced prospective teachers' perceptions, making them more likely to adopt AR in language teaching. However, both studies pointed to challenges such as technical limitations and the need for training, emphasizing the importance of equipping teachers with both the skills and confidence to effectively integrate AR into their teaching practices.

In a related study, Okumuş & Savaş, (2024) examined the acceptance and self-efficacy of AR among

prospective English teachers. The study found that while acceptance of AR increased after exposure to the technology, self-efficacy did not improve significantly, suggesting that teachers need more intensive training to feel confident in using AR in the classroom. This finding aligns with Gökhan Karacan (2019) study, which applied the decomposed theory of planned behavior to understand the factors that predict pre-service teachers' intention to use AR. Karacan found that positive attitudes toward AR, particularly its potential to increase student motivation, were the strongest predictors of teachers' intention to use AR. These studies collectively emphasize the role of teachers' attitudes and self-efficacy in the adoption of AR, suggesting that while positive perceptions are critical, additional support and training are necessary to enhance teachers' confidence and competence in using AR.

Finally, Fan et al., (2020) provided a broader perspective by reviewing 53 studies on AR applications in early language learning. They identified key design strategies, such as 3D multimedia content, gamification, and location-based features, that enhance the effectiveness of AR in language education. Their findings align with the studies of Karacan & Polat



(2022) and Gökhan Karacan (2019), which highlight how AR can improve student engagement and motivation, but also underscore the importance of well-designed AR applications to maximize learning outcomes.

Together, these studies offer a comprehensive understanding of the factors influencing the adoption of AR in education, highlighting the potential of AR to transform teaching practices while also identifying challenges such as the need for effective training and technical support. Despite the promising findings, the research also reveals significant gaps, including the need for more long-term studies and practical insights into the integration of AR into curricula. These gaps provide a foundation for further exploration, particularly regarding the pedagogical challenges faced by teacher.

The nine previous studies collectively show that Augmented Reality (AR) holds great promise in enhancing educational experiences across various fields, including education and language learning. This study aims to fill this gap by exploring the perspectives of pre-service teachers in more depth, including identifying the benefits and challenges of AR technology from their perspectives. Previous research consistently shows that

Augmented Reality (AR) has strong potential to enhance learning motivation, engagement, and understanding across different educational fields, including science and language learning. Studies highlight that positive attitudes, perceived usefulness, and immersive experiences encourage pre-service teachers to adopt AR, although challenges such as technical barriers, limited training, and curriculum integration still persist. Overall, while AR is viewed as a valuable educational tool, there remains a need for deeper exploration of its practical application and strategies to strengthen teacher preparedness, particularly in future EFL classrooms.

In addition, this study also aims to provide practical insights that can support the adoption of AR technology in English language teaching, thereby making a significant contribution to the development of technology-based pedagogy in the future.

## **B. LITERATURE REVIEW**

The integration of augmented reality (AR) in language education has gained considerable attention in recent years due to its potential to enhance language learning experiences and student engagement (Akçayır & Akçayır, 2017). AR in the English as a Foreign Language (EFL) context is particularly promising as it

offers immersive, interactive, and contextualized learning experiences, allowing students to engage with content in ways that were previously impossible. However, the success of AR in the classroom depends largely on teachers' preparedness, attitudes, and intentions to implement it effectively. This literature review examines key factors influencing pre-service English teachers' perspectives on AR in EFL education, drawing on relevant theoretical frameworks, existing empirical studies, and emerging trends in the field.

## **1. Augmented Reality (AR) in Language Teaching**

### **a. Definition and Features of Augmented Reality**

Augmented Reality (AR) is a technology that allows users to interact with real environments augmented with digital elements. In the context of language learning, AR provides an interactive and immersive learning experience that can increase student motivation and engagement. Augmented reality is a next-generation technology that enables the visualization of videos, images, 3D objects, or the playback of audio when a marker image is scanned on mobile devices (Rauschnabel et al.,

2018). This technology bridges real and virtual spaces (Manuri & Sanna, 2016). The field of education provides many possibilities for incorporating augmented reality technology and applications into both teaching and learning processes (Wang, Callaghan, Bernhardt, White, & Peña-Rios, 2017). Since ubiquitous learning involves the use of smartphones (Joseph & Uther, 2009), AR could serve as a valuable tool to support learning in real-world environments (Dede, 2011). Johnson, Smith, Willis, Levine, and Haywood (2011) noted in their study that AR has potential as an emerging technology with pedagogical applications.

(Akçayır & Akçayır, 2017) showed that the use of AR in foreign language learning can make complex concepts easier to understand through visual and interactive representations.

In the research of technology-enhanced learning (TEL), technology plays a vital role in the learning and teaching process. It can enhance learning effectiveness and efficiency (Goodyear & Retalis, 2010). (Ahmadi, 2018) believe that technology can support interactions

between teachers and students and can help students develop thinking skills and make learning more efficient.

**b. The Impact of AR on Student Engagement and Understanding**

Augmented Reality (AR) has been shown to enhance student engagement and comprehension across a range of learning domains. AR enhances visualization and interactivity by blending digital content with real-world contexts, resulting in an immersive experience (Huang et al., 2021). AR tools support contextual learning by providing authentic scenarios, reducing learning anxiety, and increasing motivation and engagement among learners (Akçayır & Akçayır, 2017; Huang et al., 2021). According to Fan, Antle, & Warren (2020), AR applications designed with three-dimensional multimedia elements, location-based features, and gamification can significantly increase students' learning motivation. This strategy not only improves learning outcomes but also motivates students through interactive exploration. This is relevant

for language learning where students often need contextual visualizations to better understand abstract concepts. Furthermore, they found that discovery learning-based strategies have a positive effect on the development of students' critical thinking skills. AR has been shown to enhance students' motivation in language learning. Studies by Sun and Gao (2020) and Taskiran (2019) show that AR helps create a more immersive learning experience, increases student engagement, and reduces learning anxiety. This technology allows students to learn in a more interactive and engaging way, bridging the gap between the real and virtual worlds (Singh et al., 2024). Another study emphasized that the use of AR can create an immersive learning environment, where students can "interact with learning materials directly, which increases retention and engagement" Tsai (2020). Prospective teachers can use this technology to teach vocabulary, grammar, or pronunciation in a more engaging and interactive way.

## **2. Pre-Service Teachers' Perspectives and Intentions on the Use of Augmented Reality**

Pre-service teachers play a critical role in integrating new technologies such as augmented reality (AR) into the classroom. Research by Karacan and Polat (2022) and Karacan (2019) highlights the importance of understanding their intentions and perspectives in using AR. Their findings suggest that pre-service teachers' intentions to use AR in their teaching are influenced by several factors, including perceived usefulness, perceived ease of use, and student influence.

Teachers who have positive experiences with AR during training are more likely to be motivated to integrate this technology into their classrooms. Karacan (2019) found that perceived usefulness and ease of use were the main factors influencing pre-service teachers' intentions. Teachers are more likely to adopt AR if they believe the technology can improve student learning outcomes and is not difficult to implement in the classroom. In addition, student influence and internal motivation also play an important role in their decision to integrate AR into their teaching.

Positive intentions towards using AR are also influenced by pre-service teachers' level of confidence in their technological skills. Research by Faqih and Jaradat (2021) and Hashim et al (2022) showed that hands-on experience and intensive training with AR can increase this confidence, thereby strengthening their intention to use the technology. AR is considered a tool that can connect abstract concepts with real contexts, making learning more relevant and interesting for students.

Thus, positive experiences during training, perceptions of benefits and ease of use, and internal and external motivation are important factors that encourage pre-service teachers to adopt AR in learning. This technology has the potential to create more engaging and meaningful learning experiences, as long as teachers feel confident and supported in using it.

### **3. Benefits and Challenges of Using Augmented Reality in EFL Teaching**

#### **a. Benefits of Using Augmented Reality**

The use of augmented reality (AR) in teaching English as a Foreign Language (EFL) offers many advantages, especially in increasing



student engagement and motivation. AR creates a more immersive learning experience by combining real-world and virtual elements. Wedyan et al (2022) reported that AR can help improve students' language skills, reduce their anxiety, increase creativity, and encourage student collaboration and engagement in learning. In line with this, Akçayır and Akçayır (2017) showed that AR can improve student learning outcomes in terms of performance, motivation, and understanding of the material, as well as creating a fun learning experience that can strengthen the overall learning experience. Karacan & Polat (2022) reported that AR helps improve student understanding through interactive visualizations and more immersive learning experiences. They also noted that AR can attract students' attention, increase learning motivation, and facilitate more engaging learning. Similar findings were found in a study by Cheng & Tsai (2020), which showed that the use of AR in teaching a foreign language can help enrich learning by providing more practical and contextual experiences. AR, they argue, is

able to enhance students' learning experience by providing a more real context for the material being studied.

Research by Hwang et al. (2017) also supports these findings, stating that AR increases student engagement by providing a more interactive and responsive learning environment, which supports better understanding of the learning material. Along with that, Li et al (2021) added that AR not only motivates students to learn, but also improves their ability to use language more effectively by combining visual and contextual elements in their learning. Thus, AR has proven to be an effective tool in increasing student engagement, deepening their understanding, and creating a fun and comprehensive learning experience.

**b. Challenges of Using Augmented Reality in EFL Teaching**

Despite AR's many benefits, its implementation also faces several challenges. One of the main challenges is the lack of technical knowledge required to create and manage AR content. This is compounded by the

limited technological infrastructure that exists in some educational institutions, which can hinder the widespread adoption of AR. As noted by Belda-Medina and Calvo-Ferrer (2022), the lack of technical training for teachers is a major barrier to the use of AR in the classroom. This is also reflected in a study by Huang et al. (2021), which highlights that although AR can reduce cognitive stress and enhance the learning experience, many AR teaching methods are not yet fully accepted by educators, as they are not yet familiar with this new tool and method.

Another study by Chien et al (2019) also found that although many educators recognize the potential of AR to enhance learning, the main challenges they face are limited training and technical readiness. Teachers often find it difficult to design effective teaching materials using AR due to a lack of technical skills. The same thing was highlighted by Park and Lee (2022), who showed that many schools do not yet have adequate infrastructure to support the optimal use of AR. These limitations, they argue, are a

major barrier to integrating AR into everyday teaching.

In addition, research by Hwang and Chen (2023) added that although AR technology can improve student engagement and understanding of the material, challenges in terms of teacher training and updating technological infrastructure in schools are still very relevant. They argue that the success of implementing AR in the classroom is highly dependent on the technological readiness and training received by teachers.

Overall, although AR offers great potential to improve English language learning, challenges in adopting this technology need to be addressed by providing adequate training and improving technical infrastructure in schools. Developing teachers' technical skills and investing in better infrastructure are key to enabling wider adoption of AR in education.

#### **4. Implications for Teacher Education in the Use of Augmented Reality**

Practice-based training and technological skills development are important elements to

improve pre-service teachers' readiness to use augmented reality (AR). Mishra and Koehler (2006) introduced the Technological Pedagogical Content Knowledge (TPACK) framework that can help teachers understand how to effectively integrate technology into the curriculum. This framework emphasizes the importance of balanced skills in content, pedagogy, and technology to create effective learning experiences.

In addition, collaborative projects involving AR content creation can help teachers overcome technical and pedagogical challenges. According to Kim & Lim (2019), "collaborative learning environments encourage teachers to share knowledge, develop creative solutions, and build confidence in using new technologies." This is in line with the findings of Okumuş & Savaş (2024), who emphasized the importance of hands-on experience in increasing pre-service teachers' self-confidence. This experience allows teachers to be more confident in implementing new technologies in their teaching.

Another study by Hwang et al. (2019) showed that collaborative environments not only

help in the development of technical skills but also enrich teachers' pedagogical understanding. They found that collaboration in technology-based projects allowed teachers to develop creative solutions to teaching challenges and strengthen their skills in designing innovative learning. A similar point was also discussed by Pedró (2020), who noted that collaboration between teachers and technology experts can accelerate the adoption of new technologies and improve the quality of the resulting learning.

Furthermore, research by Sánchez-García & Pavón-Vázquez (2021) added that collaborative projects in the context of AR training can improve teachers' understanding of the application of technology in various teaching contexts, as well as encourage them to share their best practices and experiences with their colleagues. This plays a significant role in creating a technology-based culture within schools and accelerating the widespread adoption of AR. Thus, practice-based training, the TPACK framework, and collaborative projects are key to improving pre-service teachers' readiness to use AR, overcome technical challenges,

and increase their acceptance of this new technology in education.

### **C. CONCEPTUAL FRAMEWORK**

This study is grounded in constructivist learning theory (Vygotsky, 1978) and experiential learning theory (Kolb, 1984), which emphasize the importance of interactive, student-centered, and experiential learning environments in improving knowledge construction and engagement. Within this theoretical foundation, the conceptual framework explores the perceptions and intentions of pre-service English teachers toward the use of Augmented Reality (AR) in English as a Foreign Language (EFL) teaching.

The framework consists of three key components: perceptions, perceived benefits and challenges, and intention to use AR. The first component, perceptions of AR, refers to how pre-service teachers interpret the usefulness and potential of AR in the EFL classroom based on their prior experiences and knowledge. These perceptions shape their views on the second component, benefits and challenges, which includes their recognition of AR's ability to enhance learning outcomes, such as improving students' comprehension of abstract concepts, increasing

engagement and motivation, and supporting personalized instruction. This component also captures the challenges they foresee, such as technical difficulties, lack of institutional support, and insufficient pedagogical training.

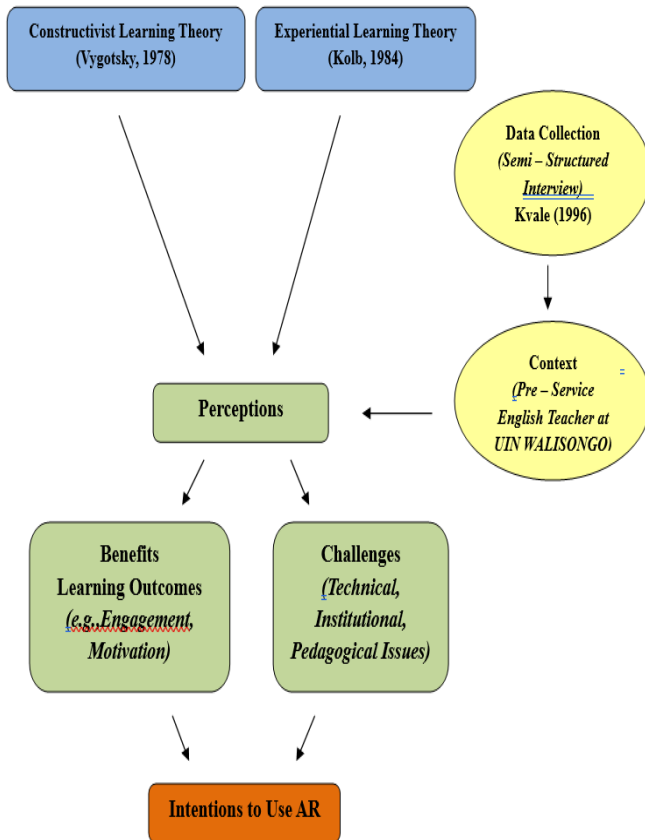
By integrating the previously separated aspect of motivation and engagement into the broader category of perceived benefits, the framework acknowledges that motivational outcomes are a key part of AR's educational impact. These insights are consistent with Self-Determination Theory (Deci & Ryan, 1985), which explains how tools like AR can foster intrinsic motivation through autonomy, competence, and relatedness.

The final component, intention to use AR, is shaped by the pre-service teachers' overall perceptions, as well as their evaluation of the benefits and challenges. This reflects their likelihood of adopting AR in their future classrooms, assuming proper training and institutional support are provided. Data collected through semi-structured interviews help explore how these components are interconnected and how they influence teachers' readiness to integrate AR in language teaching.



In summary, the conceptual framework connects theoretical foundations with the contextual experiences of pre-service teachers to offer a comprehensive understanding of the factors influencing AR adoption in EFL education.

**Figure 2.1 Conceptual Framework**



## **CHAPTER III**

### **RESEARCH METHOD**

This chapter covers the research design, research setting, participants, data source, data collection methods, instruments, and data analysis methods.

#### **A. RESEARCH DESIGN**

This study uses a qualitative research design with an exploratory case study approach. This approach was chosen to explore the experiences, perceptions, and understandings of prospective English teachers regarding the use of AR in EFL teaching (Yin, 2018). According to Creswell (2013), qualitative research is a process of inquiry aimed at understanding social or human problems through in-depth exploration.

The exploratory case study approach allows for a detailed examination of a specific phenomenon—prospective teachers' interactions with AR in this case—within its real-life context (Yin, 2018). Semi-structured interviews were selected as the primary data collection method due to their flexibility and ability to generate rich, detailed data. Kvale (1996) emphasizes that semi-structured interviews strike a balance between structure

and openness, enabling researchers to probe participants' perceptions and experiences in depth. This design aligns with the study's aim of uncovering individual factors shaping prospective teachers' views and intentions regarding AR integration in EFL classrooms.

## **B. RESEARCH SETTING**

This research was conducted at the Faculty of Tarbiyah and Teacher Training, UIN Walisongo Semarang. The physical and virtual environments where prospective teachers interact with AR-based learning materials serve as the backdrop for this study. The semi-structured interviews took place in quiet, designated areas to facilitate uninterrupted discussions.

## **C. PARTICIPANTS**

Participants for this study were selected using purposive sampling, ensuring they met specific criteria relevant to the research objectives. The inclusion criteria were:

1. Enrollment in the teacher education program at UIN Walisongo Semarang.
2. Basic knowledge or prior exposure to AR technology.

3. Willingness to participate in interviews and share their experiences.

A total of 6 prospective English teachers were included in the study. This sample size aligns with the principle of saturation in qualitative research, as described by Creswell (2013), where data collection continues until no new significant information emerges.

#### **D. DATA SOURCE**

The main data source in this study is the results of semi-structured interviews conducted with prospective teachers. Interviews were chosen because they allow for more in-depth exploration of individual views, experiences, and challenges related to the use of AR. These interviews provide rich and detailed data about participants' perceptions and experiences.

#### **E. METHOD OF COLLECTING DATA**

The study employed semi-structured interviews as the sole method of data collection.

##### **1. Semi-Structured Interviews**

Semi-structured interviews were conducted to explore participants' views and experiences of using Augmented Reality (AR) in EFL teaching. This method, supported by

Kvale (1996), allows for the collection of rich and detailed information while maintaining the flexibility to explore unexpected topics that may arise during conversations.

The interviews were guided by open-ended questions organized into thematic areas:

- a. General Perceptions of AR: Participants' familiarity with AR and its potential in education.
- b. Benefits of AR: How AR enhances language learning outcomes and understanding of complex concepts.
- c. Challenges of AR: Technical and institutional barriers to AR adoption in classrooms.
- d. Impact on Students: AR's influence on student motivation and engagement.
- e. Intention to Use AR: Participants' willingness to integrate AR into their future teaching practices.

The interviews were conducted in English or the participants' preferred language to ensure clarity and comfort.

## **F. INSTRUMENT**

This study used one main instrument to support data collection: Interview Guidelines. The instrument was designed to ensure that the data obtained were relevant and in-depth.

### **1. Interview Guidelines:**

This guide is a list of open-ended questions used to direct the conversation during the semi-structured interviews. The aim is to ensure that the discussion remains relevant to the research objectives and can explore information about the perceptions, benefits, challenges, and impacts of using Augmented Reality (AR) in teaching English as a foreign language (EFL). According to Kvale (1996), such guides are important to provide structure to the conversation while allowing for the flexible exploration of ideas. Here are some sample questions that will be asked:

#### **Part A : General Perception of AR**

1. What do you know about AR?
2. How would you describe its potential in education?

#### **Part B : Benefits of Using AR**

1. How can AR improve student learning?
2. What are its specific advantages for teaching English?

#### Part C : Challenges in Using AR

1. What difficulties have you faced or foresee with AR?
2. How prepared are institutions for AR adoption?

#### Part D : Impact on Students

1. How does AR affect student motivation?
2. Does it engage students more effectively?

#### Part E : Intention to Use AR

1. Do you plan to use AR in your future teaching?
2. What improvements would make AR more accessible?

## **G. METHOD OF DATA ANALYSIS**

The data obtained from this study will be analyzed using a thematic analysis approach, as explained by Braun and Clarke (2006). Thematic analysis was chosen because it is able to systematically identify, analyze, and report patterns or themes that



emerge from qualitative data. The data analysis process will be carried out in the following stages:

1. Data Transcription

All data from the semi-structured interviews were transcribed verbatim to ensure that every detail of the conversation is recorded.

2. Familiarization with Data

The researcher read and reviewed the transcripts to gain a deeper understanding of the data. This stage allowed the researcher to identify initial ideas or general impressions of potential themes.

3. Initial Coding

The data were given an initial code using an inductive approach. This process involved labeling sections of the data that were relevant to the research objectives, such as preservice teachers' perceptions of AR benefits, technical challenges faced, or the impact of AR on student motivation.

4. Identify Themes

Initial codes were grouped into larger themes that reflected patterns or relationships in the data. For example, possible themes might

have included "perceived benefits of AR," "technical challenges," or "impact on student engagement."

#### 5. Review Themes

The identified themes were evaluated and refined to ensure consistency and relevance. The researcher checked that each theme supported the overall data and aligned with the research objectives.

#### 6. Definition and Naming of Themes

Each theme was given a clear and descriptive name, along with a definition that explained the scope and focus of each theme. The researcher also selected representative quotes to strengthen the interpretation.

#### 7. Reporting Findings

The results of the analysis were reported in the form of a descriptive narrative that described each theme in depth. The data were presented logically with the support of participant quotes to provide validity and clarity to the interpretation.

By using this thematic analysis approach, the study can reveal the various perspectives, experiences,

and challenges of prospective teachers in using AR technology in EFL learning. This approach also allows complex data to be presented systematically and meaningfully in accordance with the research objectives.

## **CHAPTER IV**

### **RESEARCH FINDINGS AND DISCUSSION**

This chapter presents the research findings based on the thematic analysis of the semi-structured interviews conducted with pre-service English teachers. The findings are structured according to the key themes identified during data analysis: (1) Pre-Service English Teachers' Perceptions and Intentions Regarding AR Use in EFL Teaching, (2) Benefits of AR in EFL Teaching, (3) Challenges in Implementing AR, and (4) The Impact of AR on Student Engagement and Motivation. Each section includes a discussion comparing the findings with existing literature.

#### **A. RESEARCH FINDINGS**

The findings are organized into four main themes, corresponding to the research objectives:

##### **1. Pre-Service English Teachers' Perceptions and Intentions Regarding AR Use in EFL Teaching**

Based on the results of interviews with prospective teachers in the English Department of UIN Walisongo, Participants expressed a generally positive perception of AR as an innovative tool with significant potential to improve EFL teaching. Most participants were familiar with AR through

educational applications and games, and they viewed it as a way to make learning more interactive and engaging. Participants' positive perceptions regarding AR included increased interactivity, more engaging visualization of materials, and a more immersive learning experience. AR was considered capable of creating a more lively learning environment, where students could interact directly with virtual objects to understand abstract concepts more clearly. Perceived barriers included infrastructure limitations, such as a lack of adequate devices and unstable internet connections, as well as a lack of technical training that made some teachers feel less confident in implementing it.

*“AR is a technology that combines the real world with digital elements that can be accessed via smartphones. In the context of education, AR can be used to add learning materials so that there can be real visuals so that students can understand the material better.” (PT 5)*

*“If it is possible to use AR, I will definitely use it, because it is very interesting because AR offers new technology to explain materials visually and interactively. But if my school cannot facilitate it, then I cannot use it.” (PT 4)*

The intention to use AR is influenced by factors such as access to training, availability of technology, and institutional support. Teachers who have access to resources and training tend to be more motivated to try this technology in their learning. In addition, a positive attitude towards technological innovation is also a strong driving factor.

*“To make AR easily accessible, there should be an increase in technological facilities in schools, such as providing adequate devices and stable internet access, in addition, there should also be training for teachers on how to use AR because there are still many teachers who don't know, especially older teachers, so that teachers can use AR effectively because this is important so that they can utilize AR in their teaching.” (PT 5)*

## **2. Benefits of AR in EFL Teaching**

Participants identified several benefits of AR in EFL teaching, including:

- a. **Enhanced Comprehension:** AR was perceived to facilitate better understanding of abstract or complex topics by providing visual and interactive elements. Participants highlighted that AR helps bridge the gap between theoretical knowledge and real-world application. For

example, body part material which is usually only in the form of 2D images in books, can be visualized in 3D so that students can understand it thoroughly.

*"In AR, we can see up to the back area so children can see all parts of the body and the picture is clearer."  
(PT 6)*

This aligns with cognitive theories suggesting that visual aids and interactive content enhance information processing and retention, as they engage multiple senses simultaneously.

- b. Increased Student Engagement: Many participants believed that AR can make learning more fun, leading to higher student motivation, and increase students' motivation to actively participate in class. Interesting and interactive visualizations stimulate students' curiosity and reduce boredom. AR introduces gamification elements, such as interactive tasks, visual storytelling, and real-time feedback, which make learning more dynamic and immersive. Students become active participants rather than passive recipients of knowledge.

*"They start to enjoy it, they grasp the material faster, they understand it better and they even become addicted to asking more questions."  
(PT 6)*

*"In English teaching, AR can be used to improve speaking, listening and reading skills through interactive experiences such as conversation simulations and storytelling" (PT 4)*

This finding is consistent with engagement theories that emphasize the importance of interactive learning environments in sustaining students' attention and interest.

- c. Personalized Learning: Many participants believed that AR could make learning more enjoyable, leading to higher student motivation. AR introduces elements of gamification, such as interactive tasks, visual storytelling, and real-time feedback, which make learning more dynamic and immersive. Students become active participants rather than passive recipients of knowledge. Example: Vocabulary lessons using AR flashcards with 3D models allow students to explore objects from different



angles, making the learning process interactive and fun.

*"AR can bring English to life by allowing students to interact with virtual objects or environments, making learning more memorable."  
(PT 3)*

This finding is consistent with engagement theories that emphasize the importance of interactive learning environments in sustaining students' attention and interest.

### **3. Challenges in Implementing AR**

Despite recognizing its benefits, participants also identified several challenges in integrating AR into EFL teaching, including:

- a. **Limited Access to Technology:** Some participants pointed out that not all schools have the necessary infrastructure to support AR technology. This includes a lack of devices such as smartphones, tablets, or AR-compatible headsets, as well as inadequate internet connectivity, particularly in rural or underfunded schools. Limited budgets also limit the ability of

institutions to invest in the latest technology.

In certain schools, students have to share devices due to insufficient resources, which limits opportunities for individualized AR-based learning experiences.

*“The difficulty in implementing AR lies in the availability of the media. If the media is available, all teachers can definitely learn and use it. However, challenges arise when the facilities are not yet available, especially considering the limited state of education funds in Indonesia.” (PT 2)*

*“In my opinion, the readiness of schools to adopt AR technology cannot be generalized. Large schools with adequate funds and technology should try AR because they have felt the benefits of other technologies. Meanwhile, in small schools, implementing AR may be more difficult even though there are teachers who understand the benefits, because the decision still depends on the policy and support of the institution.” (PT 2)*

This challenge highlights the digital divide that exists between well-resourced

and under-resourced educational institutions. It underscores the importance of equitable access to technology as a prerequisite for integrating AR into classrooms effectively.

- b. Technical Difficulties: Concerns were raised about potential technical issues, such as software malfunctions, device compatibility issues, and unstable internet connections that could disrupt the learning process. Teachers reported frustration with applications that were not user-friendly or that crashed during lessons, which could result in lost learning time and decreased student engagement.

One participant mentioned frequent app crashes during AR activities, which disrupted the flow of the lesson and frustrated both the teacher and students.

*"The difficulty is, if you use an application like this and the internet connection is bad, the application becomes slow. This can take a lot of time, even class hours can be used up just waiting for the application to run properly." (PT 1)*

Technical difficulties may reduce the perceived reliability of AR as a teaching tool. This is in line with the Technology Acceptance Model (TAM), which suggests that perceived ease of use significantly influences technology adoption. If teachers perceive AR tools as too complicated or unreliable, they may be less interested in integrating them into their teaching practices.

- c. Lack of Training: Several participants expressed uncertainty about how to use AR effectively due to a lack of training and institutional support. Teachers often feel unprepared to integrate AR into their lessons because they have not received adequate professional development or guidance on best practices. This lack of confidence can hinder AR adoption, even in schools with the necessary technology infrastructure.

Several preservice teachers mentioned that while they recognized the potential of AR, they felt overwhelmed by

the technical aspects and elements of how to design meaningful AR-based activities.

*"For teachers who are still unfamiliar with AR, training should be held for introduction, such as how to use and utilize it in learning." (PT 3)*

*"Training for teachers on how to use AR is very important, considering that there are still many teachers who are not familiar with this technology, especially older teachers. This training aims to enable teachers to use AR effectively and utilize it optimally in the learning process." (PT 5)*

This challenge reflects the need for ongoing professional development that focuses not only on the technical operation of AR devices but also on pedagogical strategies for effective integration. Institutional support, including training workshops, mentoring, and access to AR learning communities, can play a critical role in building teacher confidence and competence.

#### **4. Impact of AR on Student Motivation and Engagement**

Participants generally agreed that AR has a positive impact on student engagement and motivation. They highlighted how AR tools can transform the learning experience through interactive, immersive, and visually stimulating content, which appeals to students' curiosity and desire for active involvement. The key impacts identified include:

- a. Make learning more interactive and enjoyable.

AR provides a dynamic, hands-on learning experience that goes beyond traditional classroom methods. By allowing students to interact with 3D models, simulations, and virtual environments, AR creates an engaging environment where learning feels more like exploration than routine.

In a vocabulary lesson, students can manipulate virtual objects that represent new words, bringing abstract concepts to life. Rather than simply memorizing

definitions, they engage in active discovery, fostering deeper understanding.

*"The advantage of AR in teaching English is that it supports a variety of teaching styles, especially with the student-centered approach that is currently being promoted. Through AR, students can practice the material using their own devices, so they have the freedom to choose the learning method that best suits their learning style, whether through visualization, simulation, or direct interaction. This creates space for learning that is tailored to the needs of each student, thereby increasing the effectiveness of English learning."  
(PT 1)*

This interactive approach aligns with experiential learning theory, which emphasizes learning through hands-on experience. Multisensory engagement—visual, auditory, and kinesthetic—increases retention and makes learning fun, reducing the monotony often associated with traditional methods.

- b. Encourage students to participate actively in lessons.

AR promotes a student-centered learning environment, where students take an active role rather than being passive recipients of information. Features such as gamification elements (e.g., AR-based quizzes or treasure hunts) motivate students to participate, collaborate, and compete in a friendly way.

In speaking activities, AR can create role-play scenarios where students interact with virtual characters, encouraging direct use of language in context. This not only improves speaking fluency but also increases students' self-confidence.

*"In English language teaching, AR can be used to improve speaking, listening, and reading skills through interactive experiences, such as conversation simulations and storytelling." (PT 4)*

Active participation is essential for language acquisition, as proposed by the Communicative Language Teaching (CLT) approach. AR facilitates meaningful communication by providing authentic



contexts that require students to actively use the target language, thereby increasing motivation and language proficiency.

- c. Reduce student boredom, particularly in traditionally passive learning environments.

AR helps combat disengagement by transforming passive activities—like reading from textbooks—into dynamic experiences. It breaks the routine of traditional lectures, making lessons more appealing, especially for digital-native students who are accustomed to interactive media.

A history lesson enhanced with AR might allow students to explore ancient landmarks in 3D, making the content come alive compared to static textbook images. In EFL, this could translate to exploring virtual environments where students practice descriptive language or storytelling.

*"In English language teaching, AR can help students understand the language through visual context.*

*For example, when learning about a country's culture, students can see pictures or videos of those places in real time. In addition, AR also allows students to practice speaking and listening skills in a more realistic context." (PT 5)*

This aligns with Self-Determination Theory (SDT), which emphasizes the role of intrinsic motivation in learning. AR supports autonomy by allowing students to control their learning pace and path, competence through interactive problem-solving tasks, and relatedness via collaborative AR activities—all of which contribute to sustained engagement and reduced boredom.

## **B. DISCUSSION**

This chapter discusses the research findings related to the perceptions, benefits, challenges, and impact of Augmented Reality (AR) in EFL teaching, as identified through semi-structured interviews with pre-service English teachers. The discussion integrates these findings with existing literature to provide a comprehensive understanding of AR's role in language

education. The findings reveal significant insights into the potential and limitations of integrating AR into English as a Foreign Language (EFL) teaching, offering a deeper understanding of its educational impact.

### **1. Pre-Service English Teachers' Perceptions and Intentions Regarding AR Use in EFL Teaching**

The findings of this study revealed that pre-service English teachers generally viewed AR positively, considering it an innovative tool that enhances interactivity and engagement in the classroom. This aligns with Azuma (1997), who defined AR as a technology that blends digital content with the real world, thereby enriching the learning experience. Pre-service teachers believed that AR creates a dynamic environment where students interact with virtual objects, making abstract concepts more concrete. This perception is consistent with previous studies highlighting AR's ability to foster interactive and immersive learning experiences (Akçayır & Akçayır, 2017; Yuen et al., 2011). Participants' enthusiasm for AR reflects the growing awareness of the importance of integrating technology into education, especially in the context of 21st century skills.

However, the adoption of AR in teaching is influenced by several factors, including access to technology, training, and institutional support. This is consistent with the Technology Acceptance Model (TAM) proposed by Davis (1989), which emphasizes that perceived usefulness and ease of use are important determinants of technology adoption. Pre-service teachers with access to adequate resources and training were more likely to integrate AR into their teaching practice.

Conversely, barriers such as limited access to technology, lack of training, and inadequate institutional support hindered AR implementation. These challenges align with Radu (2014), who noted that technical difficulties and resource constraints often limit the effective use of AR in the classroom. Additionally, participants expressed concerns about their technical skills, highlighting the need for comprehensive training programs to equip teachers with the necessary competencies.

Overall, intentions to adopt AR in their future teaching practice were strongly influenced by the availability of resources, training, and institutional support. Pre-service teachers who felt

confident in their ability to use AR and had access to the necessary infrastructure were more likely to implement it effectively in their classrooms. These findings underscore the need for strategic investments in technology, professional development, and policy support to facilitate AR integration in EFL teaching.

## **2. Benefits of AR in EFL Teaching**

Participants identified several key benefits of Augmented Reality (AR) in EFL teaching, including enhanced comprehension, increased student engagement, and support for personalized learning. These findings are consistent with constructivist learning theory (Vygotsky, 1978), which emphasizes the importance of interactive and experiential learning in fostering deeper understanding and retention of knowledge.

### **a. Enhanced Comprehension:**

AR's ability to visualize abstract concepts and provide interactive content was seen as a significant advantage. This aligns with cognitive theories suggesting that visual and interactive aids improve information processing and retention (Mayer, 2005). For example, the

use of 3D models to teach vocabulary or cultural concepts allows students to explore and interact with material in ways traditional methods cannot replicate. AR facilitates a better understanding of complex topics by combining verbal and visual materials, supporting Mayer's (2001) Cognitive Theory of Multimedia Learning, which highlights the effectiveness of multimedia in enhancing comprehension.

b. Increased Student Engagement:

Participants highlighted AR's potential to make learning more enjoyable and motivating. This finding is supported by engagement theories, which suggest that interactive and gamified learning environments sustain students' attention and interest (Fredricks et al., 2004). AR's immersive and interactive features, such as virtual simulations and storytelling, create a sense of curiosity and excitement, encouraging active participation. This aligns with the findings of Bacca-Acosta et al., (2014), who noted AR's ability to boost student engagement through immersive learning experiences.

c. Personalized Learning:

AR's ability to cater to diverse learning styles and preferences was also noted as a key benefit. This aligns with the principles of differentiated instruction, which emphasize tailoring learning experiences to meet individual student needs (Tomlinson, 2014). AR allows students to learn at their own pace and explore content in ways that suit their learning preferences, fostering a more inclusive and effective learning environment. This benefit resonates with Vygotsky's (1978) Social Constructivist Theory, which underscores the importance of interactive, context-rich environments in supporting student development.

Thus, the integration of AR in EFL teaching offers significant benefits by enhancing comprehension, increasing engagement, and supporting personalized learning, contributing to more dynamic and effective educational experiences.

### **3. Challenges in Implementing AR**

Despite its potential to transform EFL teaching, the integration of Augmented Reality (AR) faces several significant challenges. These include limited access to technology, particularly in under-resourced schools; technical difficulties such as software malfunctions and unstable internet connections; and a lack of training and institutional support. These barriers are consistent with previous research (Radu, 2014; Akçayır & Akçayır, 2017) but highlight the unique challenges faced in the Indonesian context, where disparities in technological infrastructure and teacher preparedness are particularly pronounced.

#### **a. Limited Access to Technology:**

Inadequate access to devices and poor internet connectivity are significant barriers, particularly in under-resourced schools. Participants noted that many schools, especially in rural or underfunded areas, lack the necessary infrastructure to support AR. This reflects the digital divide discussed by Warschauer (2004), which highlights disparities in technology access across different educational contexts.



The digital divide underscores the need for equitable access to technological resources as a prerequisite for successful AR integration.

b. Technical Difficulties:

Participants raised concerns about software malfunctions, device compatibility issues, and unstable internet connections, which can disrupt the learning process and reduce the perceived reliability of AR as a teaching tool. These technical challenges are consistent with the findings of Yuen et al. (2011), who noted that technical issues are common obstacles in AR implementation. Moreover, these difficulties align with the Technology Acceptance Model (TAM) (Davis, 1989), which suggests that perceived ease of use is a critical factor in technology adoption. Frequent technical problems can negatively impact teachers' willingness to integrate AR into their instructional practices.

c. Lack of Training and Institutional Support:

Many teachers feel unprepared to use AR effectively due to insufficient professional development and limited institutional support.

Participants expressed uncertainty about both the technical and pedagogical aspects of AR integration. This finding aligns with Ertmer's (1999) research, which identified teacher training as a critical factor in the successful adoption of educational technologies. The lack of training underscores the importance of ongoing professional development programs that not only focus on the technical operation of AR tools but also provide guidance on effective pedagogical strategies. Institutional support is equally vital to foster an environment conducive to technology integration, including administrative backing, resource allocation, and continuous teacher support.

In summary, while AR holds great potential for enhancing EFL teaching, its effective implementation requires addressing challenges related to technological access, technical reliability, and teacher preparedness. Overcoming these barriers is essential to fully realize the benefits of AR in educational contexts.

#### **4. Impact of AR on Student Motivation and Engagement**

The study confirms that Augmented Reality (AR) has a positive impact on student motivation and engagement by making learning more interactive, enjoyable, and relevant. Participants generally agreed that AR's interactive and immersive features create a dynamic learning environment that appeals to students' curiosity and desire for active involvement. This finding aligns with Self-Determination Theory (SDT) (Deci & Ryan, 1985), which emphasizes the role of intrinsic motivation in learning. AR supports key components of SDT, including autonomy, competence, and relatedness. It allows students to control their learning pace and path (autonomy), engage in interactive problem-solving tasks (competence), and participate in collaborative activities (relatedness).

##### **a. Interactive and Enjoyable Learning:**

AR transforms passive learning activities into dynamic experiences, making lessons more appealing and reducing boredom. This is particularly significant for digital-native

students who are accustomed to interactive media. By incorporating features such as virtual simulations, storytelling, and 3D models, AR creates an engaging learning environment that fosters curiosity and enthusiasm for learning.

b. Active Participation:

AR promotes a student-centered learning environment where students take an active role in their education. Features such as gamification, virtual role-play scenarios, and interactive exercises encourage students to participate actively, collaborate with peers, and use the target language in authentic contexts. This aligns with the Communicative Language Teaching (CLT) approach, which emphasizes meaningful communication and real-world language use to enhance language proficiency. AR provides opportunities for students to practice language skills in immersive, context-rich environments, making learning both meaningful and effective.

c. Reduced Boredom:

By breaking the routine of traditional lecture-based instruction, AR helps combat

disengagement and sustain students' interest over time. This aligns with engagement theories, which highlight the importance of interactive and immersive learning environments in maintaining students' attention and motivation (Fredricks et al., 2004). AR's ability to introduce novelty and interactivity into the classroom helps reduce monotony, making learning experiences more stimulating and enjoyable.

In conclusion, AR significantly enhances student motivation and engagement by supporting intrinsic motivation, promoting active participation, and reducing boredom. Integrating AR into EFL classrooms fosters a dynamic, student-centered learning environment that sustains interest, promotes active language use, and enhances learning outcomes.

However, effectively integrating AR requires addressing challenges such as technological access, system reliability, and teacher readiness. Investing in infrastructure, offering targeted training, and fostering institutional support can help educators maximize AR's potential in creating dynamic and effective learning environments. Future research should explore the long-term impact of AR on

language learning outcomes and examine strategies for scaling AR integration in diverse educational contexts.

## **CHAPTER V**

### **CONCLUSION AND SUGGESTION**

The chapter includes the researcher presenting a conclusion, and suggestions for the following findings of the study.

#### **A. CONCLUSION**

Based on the findings of this study, it can be concluded that pre-service English teachers generally have a positive perception of Augmented Reality (AR) as an innovative and interactive tool for teaching English as a Foreign Language (EFL). They view AR as a dynamic technology that enhances student engagement, improves learning effectiveness, and makes abstract concepts more tangible, creating a more participatory learning environment. Regarding the first research question, pre-service teachers perceive AR as beneficial for enhancing students' understanding of complex topics, increasing student engagement, and providing personalized learning experiences. They believe that AR can foster intrinsic motivation by promoting students' sense of autonomy, competence, and relatedness, making language learning activities more enjoyable and interactive.

As for the second research question, the study identified several challenges in implementing AR in EFL classrooms. These include limited access to technology, technical difficulties such as software malfunctions and device compatibility issues, and a lack of training and institutional support. These challenges are particularly significant in educational settings with limited resources, where digital infrastructure and pedagogical readiness are insufficient to fully support the adoption of AR. Despite these challenges, most pre-service teachers expressed a strong intention to use AR in their future classrooms, provided that they receive adequate training and institutional support. This highlights the importance of not only technological readiness but also pedagogical preparation and institutional policies in ensuring the effective integration of AR in EFL teaching.

This study confirms that AR has significant potential to transform EFL teaching into a more interactive, engaging, and student-centered experience. However, its successful implementation requires addressing technological, pedagogical, and institutional challenges. Further research is needed to explore the long-term impact of AR on language acquisition and



professional development for teachers, as well as to establish best practices for integrating AR in EFL classrooms. These findings have implications for educators, policymakers, and curriculum designers, emphasizing the need for collaborative efforts to maximize the benefits of AR in language education.

## **B. SUGGESTION**

The researcher makes suggestions for the teachers and future researchers from the research.

### **1. For the Teachers**

Pre-service and in-service teachers should seek continuous professional development opportunities to enhance their technical skills and pedagogical knowledge regarding AR integration. Participating in workshops and training programs can help build confidence in using AR effectively in the classroom.

### **2. For Future Researcher**

Future researchers should explore several areas to build on this study. Longitudinal studies are needed to examine AR's long-term impact on language learning outcomes, such as proficiency and retention. Additionally,

research should investigate AR implementation in diverse contexts, including primary schools, rural areas, and non-formal education, to address context-specific challenges. Further studies should also focus on teacher preparedness, exploring how attitudes, beliefs, and prior experiences with technology influence AR adoption. Finally, developing AR assessment tools to measure its effectiveness in enhancing learning outcomes and engagement would provide valuable insights for educators and researchers.

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## **APPENDICES**

### **Appendix 1 : Guidelines of Research-Interview Data Collections Technique**

#### **Interview Guide for Pre-Service English Teacher**

Date :  
Time :  
Activity : Interview with Pre-Service English  
Teacher 1, Pre-Service English  
Teacher 2, Pre-Service English  
Teacher 3, Pre-Service English  
Teacher 4, Pre-Service English  
Teacher 5, and Pre-Service English  
Teacher 6  
Interviewee : PT1, PT2, PT3, PT4, PT5, and PT6  
Interviewer : Shovi Zaidatul Ma'rifah  
Location : UIN WALISONGO and Offline by  
Face to Face

1. Used an exploratory case study approach to examine prospective English teachers' perceptions of Augmented Reality (AR) in EFL teaching.
2. Conducted at the Faculty of Tarbiyah and Teacher Training, UIN Walisongo Semarang, data were collected

through semi-structured interviews in a calm atmosphere to gain clarity.

3. In-depth individual interviews of up to ten minutes were conducted.
4. Interviews were conducted informally to ensure your comfort.
5. If you have any confusing questions, you are welcome to ask for clarification.
6. The open-ended interview questions asked were divided into five parts: a) General Perception of AR, b) Benefits of Using AR, c) Challenges in Using AR, d) Impact on Students, e) Intention to Use AR.

#### A. Interview Questions about General Perception of AR

These questions assess participants' foundational knowledge of AR and its perceived role in education. Understanding their prior awareness helps contextualize their responses in later sections.

##### Part A : General Perception of AR

1. What do you know about AR?
2. How would you describe its potential in education?

## B. Interview Questions about Benefits of using AR

This section examines how participants believe AR enhances language learning, focusing on engagement, comprehension, and practical classroom applications.

### Part B : Benefits of Using AR

1. How can AR improve student learning?
2. What are its specific advantages for teaching English?

## C. Interview Questions about Challenges in Using AR

Identifying obstacles, including technical, pedagogical, and institutional barriers, provides insight into the feasibility of AR implementation.

### Part C : Challenges in Using AR

1. What difficulties have you faced or foresee with AR?
2. How prepared are institutions for AR adoption?

## D. Interview Questions about Impact on Students

These questions explore how AR influences student motivation, participation, and learning outcomes, helping gauge its effectiveness.

### Part D : Impact on Students

1. How does AR affect student motivation?
2. Does it engage students more effectively?

## E. Interview Questions about Intentions to Use AR

This section determines whether participants see AR as a viable tool in their future teaching and what support they might need for adoption.

### Part E : Intention to Use AR

1. Do you plan to use AR in your future teaching?
2. What improvements would make AR more accessible?



## **Appendix 2 : Transcript of Interview**

### **Interview Transcript of Pre-Service English Teacher One (PT1)**

Date : 11 January 2025  
Time : 13.39 – 14.05 WIB  
Activity : Interview with Pre-Service English  
Teacher One  
Interviewee : PT1  
Interviewer : Shovi Zaidatul Ma'rifah  
Location : UIN WALISONGO

| No. | Question                   | Answer                                                                                                                                                                                                                                                                                |
|-----|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | What do you know about AR? | Augmented Reality (AR), as far as I know, is a learning medium that combines visualization with audio-visual elements. This technology allows visual displays in the form of videos that look like real objects, accompanied by audio as a guide or explanation. Thus, AR can display |

|    |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                    | objects in three dimensions (3D) and provide information interactively.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2. | How would you describe its potential in education? | <p>The potential of technology in education is growing, especially in the digital era like today. In addition, education is currently in the era of the industrial revolution 4.0, where the use of technology is very important. In schools, many students already bring and use mobile phones, so introducing technology early on has become a must for teachers to meet the demands of 21st century skills.</p> <p>In this context, Augmented Reality (AR) technology has great potential in</p> |

|    |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                      | education. AR can help develop skills and expand students' knowledge in a more interactive and interesting way.                                                                                                                                                                                                                                                                                                                                                           |
| 3. | How can AR improve student learning? | In my opinion, the use of Augmented Reality (AR) in learning, especially for children who are trying it for the first time, can create a sense of enthusiasm. At first, they will be curious and want to know more. Over time, this curiosity encourages them to continue trying and exploring deeper. AR also makes learning more interactive, allowing students to explore the digital world or other worlds in three dimensions. Thus, AR can enhance a more immersive |

|    |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                        | and engaging learning experience for students.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 4. | What are its specific advantages for teaching English? | <p>Its particular advantage in English language teaching is that it supports a variety of teaching styles. Moreover, with the increasing adoption of student-centered learning approaches, technologies such as Augmented Reality (AR) allow students to actively practice learning materials using their own devices.</p> <p>In addition, students can choose the learning method that best suits their learning style, whether through visualization, simulation, or direct interaction. Thus, AR can create a more flexible and individualized learning</p> |

|    |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                      | space, thereby increasing the effectiveness of English learning.                                                                                                                                                                                                                                                                                                                                                                                                      |
| 5. | What difficulties have you faced or foresee with AR? | <p>The main challenge in implementing AR technology in education lies in the media used. Because AR is still relatively new, many teachers are not yet familiar with its use. The limited supporting applications and minimal training on AR further hamper its adoption among educators. Although some teachers are already familiar with this technology, many still do not understand how to use it effectively. In addition, many AR applications are premium</p> |

|    |                                                |                                                                                                                                                                                                                                                                                                                        |
|----|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                | <p>or paid, so accessibility is a challenge in itself.</p> <p>Another difficulty faced is the dependence on an internet connection. If the connection is bad, AR applications can be slow, take a lot of time, and can even waste class hours just waiting for the application to run properly.</p>                    |
| 6. | How prepared are institutions for AR adoption? | <p>If teachers have received intensive training, schools or educational institutions can provide devices that support AR technology, such as tablets. For students who do not have such devices, schools can consider providing them. Thus, the implementation of AR in the curriculum can be more easily adopted.</p> |

|    |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7. | How does AR affect student motivation? | <p>Since students, especially children, tend to have a more visual learning style, the use of Augmented Reality (AR) technology can provide a more engaging learning experience. AR allows for realistic visualization through devices such as mobile phones or tablets, which can increase students' motivation to learn.</p> <p>With interactive images, students will be more interested and encouraged to ask questions and explore learning materials. For example, when they see an object through AR, they can immediately understand its shape and concept more clearly.</p> |
|----|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|    |                                           |                                                                                                                                                                                                                                                                                                                                                   |
|----|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                           | <p>Compared to text alone, which is often less interesting and makes students bored quickly, AR offers a combination of visuals and audio that makes the learning process more dynamic.</p> <p>This technology is very useful, especially in learning English, because it can provide a more immersive and enjoyable experience for students.</p> |
| 8. | Does it engage students more effectively? | <p>In my opinion, this method is more effective because students are directly involved in its use. They can directly practice the concepts learned, which indirectly also encourages them to learn independently (student-centered). The role of the</p>                                                                                          |



|  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <p>teacher in this case is more to provide guidance on how to use it and provide explanations without having to use the lecture method.</p> <p>In addition, students can view images and videos independently, so they understand the material better through their own exploration. If they only watch videos from YouTube, they tend to get bored more quickly because they are passive. Meanwhile, with AR technology, students can interact directly, such as enlarging, reducing, and moving objects, so that the learning experience becomes more interesting and interactive.</p> |
|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|    |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9. | Do you plan to use AR in your future teaching? | <p>Most likely, yes. I am interested in technology-based learning because it feels more interesting, although it takes quite a lot of time. This is due to time constraints that often do not match the existing modules.</p> <p>However, in practice, this method is more effective, interactive, and interesting, so it can reduce student boredom. In addition, technology allows students to explore new things. Therefore, I will probably use it if I already have a deeper understanding of AR, including the applications or platforms that can be used.</p> |
|----|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|     |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10. | What improvements would make AR more accessible? | <p>For developers, there should be more features that can be used for free and socialization programs about AR technology, especially for teachers, especially if AR is used in an educational context.</p> <p>Meanwhile, for schools, they should be able to provide, for example, premium accounts if the AR technology used is paid, as well as supporting facilities that support AR-based learning.</p> |
|-----|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Interview Transcript of Pre-Service English Teacher Two  
(PT2)

Date : 18 January 2025  
Time : 16.26 – 17.33 WIB  
Activity : Interview with Pre-Service  
English Teacher Two  
Interviewee : PT2  
Interviewer : Shovi Zaidatul Ma’rifah  
Location : Offline by Face to Face

| No. | Question                   | Answer                                                                                                                                                                                                                                                                        |
|-----|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | What do you know about AR? | AR (Augmented Reality) is a technology that combines two main elements, namely the real world and the virtual world. This is interesting because AR operates in a three-dimensional (3D) environment, allowing for more immersive interactions. With this technology, digital |

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|    |                                                    | elements can be displayed and integrated with the real world in real-time, creating unique and innovative experiences.                                                                                                      |
| 2. | How would you describe its potential in education? | I think the potential in education is very interesting because students, in particular, tend to get bored easily when using traditional methods. Therefore, I see this approach as something unique and not widely applied. |
| 3. | How can AR improve student learning?               | In my opinion, there is a difference between the classic method and the Augmented Reality (AR) based method. The AR method has its own appeal that can increase students'                                                   |

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|    |                                                        | enthusiasm for learning. Moreover, if the features in it are available for free, this will further encourage their interest in learning. Therefore, the AR method has great potential in the world of education.                                                                                             |
| 4. | What are its specific advantages for teaching English? | The first advantage of this teaching method is the ease of achieving learning objectives. This is due to the active involvement of students in the learning process, which automatically increases the achievement of learning outcomes. In addition, in terms of teaching, this method does not require too |

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|    |                                                             | <p>much effort from educators to encourage student participation. With the help of AR technology, students naturally become more motivated and active in learning.</p>                                                                                                                                                       |
| 5. | <p>What difficulties have you faced or foresee with AR?</p> | <p>The difficulty may lie in the availability of AR technology. If the technology is already available, then everyone can learn, and teachers can learn it easily. The main challenge arises when learning media is not yet available, especially considering the limited funding conditions for education in Indonesia.</p> |

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| 6. | How prepared are institutions for AR adoption? | <p>In my opinion, the readiness of schools to adopt AR technology cannot be generalized. Schools that are already large and have sufficient funds may also have other technologies that support learning. Therefore, they can and should try AR technology, because they have previously felt the benefits of other technologies, and have sufficient financial support.</p> <p>However, for smaller schools, the implementation of AR may not be possible. Even though there are teachers who truly</p> |
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|    |                                        | <p>understand and are able to explain the benefits of this technology, the decision still depends on the policy of the school or the institution that oversees it.</p>                                                                                                                                                                             |
| 7. | How does AR affect student motivation? | <p>This AR not only motivates students, but is also beneficial for teachers. This is due to its highly interactive nature and the various features available. In my opinion, this AR is more effective in increasing learning motivation. If learning only relies on books, articles, or other text-based sources, students tend to get bored.</p> |

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| 8. | Does it engage students more effectively?      | <p>It depends on the level.</p> <p>If the children are still in elementary school, they tend to be disobedient if they are not given strict rules, so this method may be less effective. However, for middle school or high school students, I think this method is very effective.</p> |
| 9. | Do you plan to use AR in your future teaching? | <p>Of course, I think that as prospective teachers or teachers, we must accept and adapt to globalization. We should not be trapped only in theory, but must continue to follow the development of the times and always update our knowledge and learning methods.</p>                  |

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| 10. | What improvements would make AR more accessible? | I think this AR application needs to establish cooperation, for example by conducting socialization to schools. In my opinion, this step is important to do. |
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## Interview Transcript of Pre-Service English Teacher Three (PT3)

Date : 26 January 2025  
Time : 20.30 – 21.33 WIB  
Activity : Interview with Pre-Service  
English Teacher Three  
Interviewee : PT3  
Interviewer : Shovi Zaidatul Ma'rifah  
Location : Offline by Face to Face

| No. | Question                   | Answer                                                                                                                                                                                                                                                                                           |
|-----|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | What do you know about AR? | Augmented Reality (AR) is a technology that combines virtual elements, such as images and text, into the real world. This technology allows users to see digital objects in three dimensions (3D) that appear to be present in the surrounding environment. AR is one of the innovations that is |

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|    |                                                    | developing rapidly in the modern era.                                                                                                                                                                                                                                                                                                                                 |
| 2. | How would you describe its potential in education? | The potential in education is very interesting, especially since many students are still unaware of its benefits. If they are introduced to this application, they will most likely be more interested and pay more attention to the subject matter. The use of visual media in learning can increase the appeal compared to lecture methods which tend to be boring. |
| 3. | How can AR improve student learning?               | The improvement of student learning certainly depends on each individual. However, in my opinion, the use of                                                                                                                                                                                                                                                          |

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|    |                                                        | visual elements can make them more interested, motivated, and excited to learn. With new methods or applications, learning can be more interesting and challenging for them.                                                                                                                                                                                        |
| 4. | What are its specific advantages for teaching English? | Since this material is visual, understanding can be gained through the text presented. In addition, the presence of audio elements also contributes to listening skills. Thus, the learning process includes listening, reading, and observing visually. Of the three aspects, the most likely to help are the listening and visual elements, especially since this |

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|    |                                                      | material is presented in three dimensions (3D).                                                                                                                                                                                                                                                                                                                          |
| 5. | What difficulties have you faced or foresee with AR? | There may be some challenges for teachers in using AR, especially since not all teachers are familiar with this technology. Some may be less familiar with technology ( <i>gaptek</i> ), while other obstacles that may arise are limited internet access. Thus, the two main challenges that can be identified are limited technology skills and internet availability. |
| 6. | How prepared are institutions for AR adoption?       | The acceptance of AR in schools seems to depend on the accreditation and conditions of each school. Schools with good accreditation are likely to be more ready to adopt                                                                                                                                                                                                 |

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|    |                                        | AR, while schools in remote areas or with low accreditation may face more obstacles in its implementation. In addition, the readiness of teachers to follow technological developments is also a determining factor, which is related to the challenges mentioned earlier. |
| 7. | How does AR affect student motivation? | In my opinion, the use of technology in learning can provide motivation for students. This is because technology makes the learning process more interesting and not boring, unlike traditional methods. By utilizing technology that is in accordance with the            |



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|    |                                           | development of the times, learning can feel more interactive and fun, like a game.                                                                                                                                                                                                                                                                                                                                                                                                        |
| 8. | Does it engage students more effectively? | In my opinion, the answer can be yes or no. Some students may lose focus when using mobile phones, so the effectiveness of learning can be reduced. However, this also depends on the teacher. If the teacher teaches in an interesting and fun way, students tend to pay more attention and listen. Conversely, if the teaching method is less interesting, students may become less focused. Therefore, the effect of mobile phone use on students' attention can vary depending on the |

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|     |                                                  | individual and the teacher's teaching style.                                                                                                                                                                                                                            |
| 9.  | Do you plan to use AR in your future teaching?   | Yes, maybe I will use this, because as teachers, we do not only introduce applications such as quizzes and the like. By using AR, students can know that there are other innovative learning methods. Therefore, we can introduce it as part of teaching in the future. |
| 10. | What improvements would make AR more accessible? | To make it more convenient for students, it is better if this application can be accessed without an internet connection. If this is not possible, then the Wi-Fi connection at school must always be available and stable.                                             |

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|  |  | <p>For teachers who may still be unfamiliar with AR technology, it is recommended that training be held to introduce how to use this application effectively.</p> <p>In addition, the features in AR can be improved by adding practice questions, so that the application is not only used to study the material, but also to work on questions. If packaged in 3D format, the learning experience will be more interesting. For example, in questions involving images, students can enlarge the image to see the details better, so that learning becomes more interactive and enjoyable.</p> |
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## Interview Transcript of Pre-Service English Teacher Four (PT4)

Date : 26 January 2025  
Time : 21.33 – 21.54 WIB  
Activity : Interview with Pre-Service  
English Teacher Four  
Interviewee : PT4  
Interviewer : Shovi Zaidatul Ma'rifah  
Location : Offline by Face to Face

| No. | Question                                           | Answer                                                                                                                                                                                |
|-----|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | What do you know about AR?                         | I have never used AR before, but I know the concept. AR (Augmented Reality) is a technology that displays images or objects in 3D on devices such as mobile phones and other devices. |
| 2.  | How would you describe its potential in education? | Augmented Reality (AR) has great potential in the world of education, because it can make                                                                                             |

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|    |                                                        | learning more interactive and interesting.                                                                                                                                                              |
| 3. | How can AR improve student learning?                   | In my opinion, Augmented Reality (AR) can improve student learning because it presents material more interactively through 3D models.                                                                   |
| 4. | What are its specific advantages for teaching English? | In English language teaching, Augmented Reality (AR) can be used to improve speaking, listening, and reading skills through interactive experiences, such as conversation simulations and storytelling. |
| 5. | What difficulties have you faced or foresee with AR?   | The difficulty that may be faced is the existence of premium features in AR technology, which can be an obstacle for some users. In addition,                                                           |

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|    |                                                | teachers should be given special training so that they can optimally utilize AR in learning.                                                                                                                                                                                                                                                                                                                    |
| 6. | How prepared are institutions for AR adoption? | In my opinion, the readiness of an institution or school in technology-based learning is very dependent on the ease of access to the technology itself. When I underwent PLP at one of the schools, I found that the supporting facilities for technology-based learning there were still very limited. This shows that the school's readiness in utilizing technology for learning is still less than optimal. |
| 7. | How does AR affect student motivation?         | In my opinion, in motivating students,                                                                                                                                                                                                                                                                                                                                                                          |

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|     |                                                  | learning becomes more interesting, fun, and relevant.                                                                                                                                                                                           |
| 8.  | Does it engage students more effectively?        | In my opinion, this method is more effective and interactive because it encourages students to be more active in learning.                                                                                                                      |
| 9.  | Do you plan to use AR in your future teaching?   | If possible, I would definitely use AR, because this technology is very interesting. AR offers new innovations in explaining materials visually and interactively. However, if my school cannot facilitate the use of AR, then I cannot use it. |
| 10. | What improvements would make AR more accessible? | It would be best if all features were available at no additional cost, and designed to be user-                                                                                                                                                 |

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|  |  | friendly so they are more relevant and accessible. |
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## Interview Transcript of Pre-Service English Teacher Five (PT5)

Date : 31 January 2025  
Time : 15.40 – 16.22 WIB  
Activity : Interview with Pre-Service  
English Teacher Five  
Interviewee : PT5  
Interviewer : Shovi Zaidatul Ma'rifah  
Location : Offline by Face to Face

| No. | Question                   | Answer                                                                                                                                                                                                                                                                                           |
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| 1.  | What do you know about AR? | Augmented Reality (AR) is a technology that combines the real world with digital elements that can be accessed through devices such as smartphones. In the context of education, AR can be used to enrich learning materials by presenting interactive visuals, thus helping students understand |

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|    |                                                    | concepts more clearly and deeply.                                                                                                                                                                                                                                                                                                                                  |
| 2. | How would you describe its potential in education? | The potential of Augmented Reality (AR) technology in the world of education is enormous. This technology can create a more interactive and engaging learning experience. With AR, students are not only passive recipients of material, but can also interact directly with learning content. This can improve their understanding of the material being studied. |
| 3. | How can AR improve student learning?               | Augmented Reality (AR) can enhance student learning because it provides an immersive visual experience. As                                                                                                                                                                                                                                                         |

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|    |                                                        | <p>aspiring English teachers, we can use AR to help students see 3D objects while introducing new vocabulary. In addition, AR also allows them to hear the pronunciation of words clearly, thus improving their understanding of correct pronunciation. With this technology, students can practice speaking English in a more realistic context, making learning more interactive and effective.</p> |
| 4. | What are its specific advantages for teaching English? | <p>In English language teaching, Augmented Reality (AR) technology can help students understand the language through visual context. For example, when</p>                                                                                                                                                                                                                                            |

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|    |                                                      | <p>learning about English culture, students can see pictures or videos of these places directly, making learning more immersive. In addition, AR also allows students to practice speaking and listening skills in more realistic situations, thereby improving their comprehension and language skills.</p> |
| 5. | What difficulties have you faced or foresee with AR? | <p>One of the main challenges in implementing AR technology is its accessibility. Currently, not all students have devices that support this technology. In addition, for teachers, special training is needed so that they can use AR</p>                                                                   |

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|    |                                                | effectively in the learning process. This is important considering our understanding of AR technology is still limited.                                                                                                                                                                                      |
| 6. | How prepared are institutions for AR adoption? | In my opinion, schools' readiness to adopt AR technology varies. Some schools may already have adequate technological facilities and are willing to experiment with new methods like this. However, there are also schools that face obstacles, such as budget constraints or lack of training for teachers. |
| 7. | How does AR affect student motivation?         | Augmented Reality (AR) can increase student motivation by making learning more engaging and fun. Through interactive content and                                                                                                                                                                             |

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|    |                                           | <p>immersive visuals, students tend to be more engaged in the learning process, feel more motivated, and encouraged to explore the material further. This approach can increase their interest in learning and create a more enjoyable learning experience.</p>      |
| 8. | Does it engage students more effectively? | <p>In my opinion, the use of AR technology tends to be more effective in engaging students compared to traditional methods. By giving students the opportunity to interact directly with learning materials, they become more active in the learning process and</p> |

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|     |                                                  | remember information more easily.                                                                                                                                                                                                                                                   |
| 9.  | Do you plan to use AR in your future teaching?   | I will definitely use it, especially since I plan to use AR technology in my teaching in the future—if I become a teacher. I believe this technology has great potential in English learning, making it more interesting and effective.                                             |
| 10. | What improvements would make AR more accessible? | To ensure that Augmented Reality (AR) technology can be easily accessed in schools, it is necessary to improve technological facilities. This includes providing adequate devices and stable internet access. In addition, training for teachers is also very necessary, especially |

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|  |  | <p>considering that there are still many teachers who are not familiar with the use of AR, especially older teachers. This training is important so that they can use AR effectively in the learning process.</p> |
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## Interview Transcript of Pre-Service English Teacher Six (PT6)

Date : 06 February 2025  
Time : 10.45 – 11.39 WIB  
Activity : Interview with Pre-Service English Teacher Six  
Interviewee : PT6  
Interviewer : Shovi Zaidatul Ma'rifah  
Location : Offline by Face to Face

| No. | Question                   | Answer                                                                                                                                                                                                                                                                                       |
|-----|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | What do you know about AR? | What I know about Augmented Reality (AR) is that this technology allows an application to display images that were originally in 2D form into 3D objects that can move. By using the AR application, the prepared images will be recognized and then visualized in the form of animations or |

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|    |                                                    | interactive three-dimensional models.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2. | How would you describe its potential in education? | <p>In my opinion, the use of technology in education, especially in English language learning, is very beneficial. Language learning often feels boring, so it is important for us to find interesting ways to motivate students to learn. If there is something exciting and innovative, it will certainly be more interesting for them. Based on my experience during PLP yesterday, I realized that students are very enthusiastic when learning is accompanied by visuals, such as videos, especially those</p> |

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|    |                                      | in 3D. This will certainly be something interesting and effective for children in their learning process.                                                                                                                                                                                                                                                                                                                              |
| 3. | How can AR improve student learning? | My PLP experience yesterday showed that when students are given questions directly from textbooks or LKS, they tend to get bored more quickly, so the work time becomes longer. On the other hand, when questions are presented in a more interactive way, such as through videos, music, or moving visual media, they are more interested and understand the material more easily. In addition, they actually become enthusiastic and |

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|    |                                                        | continue to ask additional questions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4. | What are its specific advantages for teaching English? | <p>The specific advantages in teaching English, especially in understanding the material, are clearly seen in the use of Augmented Reality (AR). For example, in vocabulary learning, textbooks or student worksheets (LKS) generally only present images in 2D format. Meanwhile, with AR technology, objects can be displayed in 3D.</p> <p>For example, when studying body parts, images in books usually only show the front of the body, such as hands and feet. However, with AR, students can see all parts</p> |

|    |                                                             |                                                                                                                                                                                                                                                                                                                                                     |
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|    |                                                             | <p>of the body, including the back area, so that their understanding becomes more comprehensive. In addition, more realistic and detailed visualizations help students understand the shape and structure of objects more clearly.</p>                                                                                                              |
| 5. | <p>What difficulties have you faced or foresee with AR?</p> | <p>The use of learning media at school level, especially elementary schools, certainly has limitations, especially because students are not yet allowed to bring gadgets. As a result, the use of learning media is entirely dependent on the facilities provided by the teacher. If a school has adequate resources, of course the use of more</p> |

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|    |                                                | diverse media can be done. However, in public schools, limited facilities are often an obstacle, so providing adequate learning tools is a challenge in itself.                                                                                                                                                                                                                                                   |
| 6. | How prepared are institutions for AR adoption? | It seems that it is still not ready, because with the change of ministries, changes are taking place. It is possible that the curriculum currently being used, namely the Merdeka Curriculum, will change—either returning to the previous curriculum or being replaced with a new one. The problem lies in the uncertainty, so it is not yet certain whether it is truly ready or not. However, for schools with |

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|    |                                           | international status or standards, as well as schools that are already advanced, it seems that they are more prepared to face this change.                                                                                                         |
| 7. | How does AR affect student motivation?    | In terms of images, of course it must be interesting. In addition, the visuals also have the advantage of not only being static, but can move and be enlarged. If we are interested, let alone children—they will definitely be more enthusiastic. |
| 8. | Does it engage students more effectively? | Very effective, especially if each student has their own learning tools or media. This will make them more enthusiastic in learning. If the available tools are limited and only                                                                   |

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|    |                                                | <p>displayed through a projector, student involvement tends to be lacking, perhaps only limited to a question and answer session. However, if they can directly use the application, they will be more active and ask more questions, such as: <i>"Miss, how is this?"</i> or <i>"Oh, so it's like this!"</i></p> |
| 9. | Do you plan to use AR in your future teaching? | <p>It seems like there is a plan, because this sounds interesting, especially for home tutoring or private lessons. This is certainly very useful, considering that children tend to get bored quickly when studying alone with a teacher without friends. Therefore, it is important for teachers to find</p>    |



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|     |                                                  | effective ways to attract students' interest so that they stay interested in the learning process.                                                                                                                                                                                                                                                                                                                                       |
| 10. | What improvements would make AR more accessible? | The suggestion might be to hold workshops or counseling in various schools, both for students and teachers. For example, like the Gemini AI introduction workshop that was held previously. Although the technology already exists, many teachers have only just realized that Gemini AI can help in learning. If the same thing is applied to AR, it is likely that this technology will also be very useful in the world of education. |

### **Appendix 3 : Documentation of The Interview**



**Figure 1. The documentation of the interview with Pre-Service English Teacher One (PT1)**



**Figure 2. The documentation of the interview with Pre-Service English Teacher Two (PT2)**



**Figure 3. The documentation of the interview with Pre-Service English Teacher Three (PT3)**



**Figure 4. The documentation of the interview with Pre-Service English Teacher Four (PT4)**



**Figure 5. The documentation of the interview with Pre-Service English Teacher Five (PT5)**



**Figure 6. The documentation of the interview with Pre-Service English Teacher Six (PT6)**

## CURRICULUM VITAE

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### B. Education Background

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The Researcher



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