CHAPTER I

INTRODUCTION

This chapter provides a brief overview of the research. It includes the study background, research question, research purposes, research significance, research scope, conceptual framework, and a review of previous studies.

A. Background of The Study

Vocabulary is a crucial aspect of language learning, especially in English as a Foreign Language (EFL). According to Richards and Renandya (2002), vocabulary is a fundamental component of English proficiency because it supports the development of the four main language skills: reading, writing, speaking, and listening. Nation (2001) also emphasizes that mastering vocabulary enables students to construct meaningful sentences and communicate effectively. Without sufficient vocabulary, students often struggle to understand texts, express ideas, or participate in conversations, both orally and in writing. In other words, vocabulary forms the foundation for all language learning activities, and without it, students' progress can be limited.

Despite its importance, many students learning English as a foreign language still find vocabulary learning challenging and uninteresting. Cognitively, students often struggle due to limited word knowledge. They may not fully understand the meanings of words or know how to use them correctly in sentences, making English learning feel very difficult (Isna, 2024). Students also tend to associate vocabulary learning with memorizing long lists of words, repetitive drills, or reading texts without clear visualization, which can make the learning process tiring and uninspiring (Rohmatillah,2013). This experience reduces motivation and engagement because students often feel bored, stressed, or overwhelmed by traditional learning methods (Apriliani & Suryaman, 2021; Fitri, 2024). As a result, students develop negative perceptions toward vocabulary learning and show less interest in improving their word knowledge, even though they understand its importance. Therefore, the choice of learning methods plays a critical role in shaping students' attitudes and willingness to participate actively in vocabulary learning.

To address these challenges, technology-enhanced learning has emerged as a promising alternative to make vocabulary learning more engaging, interactive, and effective. One technology increasingly used in education is Augmented Reality (AR). AR combines digital content with the real world to create an interactive, immersive learning experience. According to Yildiz, Pelin, and Özcan (2021), AR allows students to see and interact with virtual objects in real-world environments, helping them understand and remember concepts more concretely. By integrating visuals, animations, and interactivity, AR has the potential to transform vocabulary learning from a passive, memorization-based activity into an engaging and meaningful experience (Idul & Syaiful, 2024).

Previous studies have shown that Augmented Reality (AR) can significantly enhance vocabulary learning. Riadin (2024), for example, conducted a pre-experimental study with high school students and reported improvements in vocabulary scores after using Assemblr EDU. Tyson (2021) conducted a quasi-experimental study to examine the effect of AR on vocabulary learning, comparing students who learned with AR to those using traditional flashcards. This study found that students who learned vocabulary through AR scored higher and were more engaged and focused compared to those using traditional flashcards, indicating that AR effectively supports vocabulary acquisition and retention. Similarly, Maysaroh (2024) used a quasi-experimental design with junior high school students and reported that vocabulary learning outcomes were better when using Assemblr EDU than with conventional methods. These studies collectively suggest that AR, especially through Assemblr EDU, positively impacts vocabulary learning across different educational levels.

Assemblr Edu, as a widely used AR platform in education, provides interactive 3D models, animations, digital scenes, and audio that make learning more engaging and contextual. The 3D models help students understand word meanings more clearly and improve memory retention (Ahmad & Nur, 2025). Animations and digital scenes increase motivation and engagement (Ahmad & Nur, 2025), while audio features help students pronounce words more accurately. However, before fully integrating AR into vocabulary learning, it is

important to examine students' perceptions of using this technology. Specifically, it is necessary to investigate whether students feel that AR helps them learn vocabulary, whether it makes learning easier, how it affects their attitudes toward learning, and whether they are willing to continue using it or feel more disadvantages toward learning vocabulary using Assemblr EDU. Moreover, the novelty of this study lies in its specific focus on students' perceptions of vocabulary learning, including their initial experiences and the challenges they face when using AR, and in its deeper focus on vocabulary learning compared to previous studies. Based on this rationale, the proposed study is entitled: "Learning English Vocabulary through Assemblr Edu as an Augmented Reality (AR) Online Media: Students' Perception and Challenges."

B. Research Questions

Based on the problems from the analysis background, the research questions formulated are:

1. How do students' perceive vocabulary learning in English?
2. What are students' perceptions of using Assemblr Edu as an Augmented Reality (AR) Online Media in learning vocabulary?
3. What are students' challenges when learning vocabulary through Assemblr Edu as an Augmented Reality (AR) Online Media?

C. Research Purpose

Based on the research question above, the objectives of this study are:

1. To investigate how students' perceive vocabulary learning in English.
2. To explore students' perceptions of using Assemblr Edu as an Augmented Reality (AR) online media in learning vocabulary.
3. To identify the students' challenges when learning vocabulary through Assemblr Edu as an Augmented Reality (AR) online media.

D. Research Significance

The findings of this study are expected to be theoretically and practically beneficial.

1. Theoretically

Theoretically, this study is expected to contribute to the development of theories on English vocabulary learning with technology, especially Augmented Reality. In addition, this study is expected to extend the application of the Technology Acceptance Model (TAM) in the context of language learning, particularly in examining the relationships between Perceived Usefulness (PU), Perceived Ease of Use (PEOU), students' attitudes, and their behavioral intention to use AR-based learning media.

2. Practically

In practice, this study can help students by showing how AR can make vocabulary learning more interesting, interactive, and meaningful. For English teachers, the results can guide the choice and development of teaching methods that better match the needs and habits of digital-native learners. Schools and education policymakers can also benefit from this study when planning the necessary tools, facilities, and supportive policies to use technology effectively in learning. Finally, other researchers can use the findings as a reference for further studies on how innovative technology can support language learning.

E. Research Scope

This study aims to explore the perceptions and challenges faced by tenth-grade students at MAS YUPI Cianjur in learning English vocabulary through Augmented Reality (AR) Assemblr Edu. Employing a qualitative case study design, the research examines students' perceptions of vocabulary learning in English, students' perceptions of Assemblr Edu as an AR-based online learning medium, and the challenges encountered during the learning process. Data were collected through in-depth interviews and closed-ended questionnaires. The analysis was conducted using the Technology Acceptance Model (TAM),

proposed by Davis (1989), which emphasizes the dimensions of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Using (ATU), and Behavioral Intention to Use (BI).

F. Conceptual Framework

Vocabulary learning is an important part of language education because it supports the four language skills: listening, speaking, reading, and writing (Nation, 2001). However, even though vocabulary is essential, students may have different perceptions of vocabulary learning based on their learning experiences. These differences can be explained through three aspects of perception: cognitive, affective, and conative (Walgito, 2004).

Before using Augmented Reality (AR), students' initial perceptions of vocabulary learning are explored through these three aspects. From the cognitive aspect, students' perceptions relate to how they understand the importance of vocabulary and the difficulties they face in vocabulary learning (Nation, 2001; Alshumrani & Al-Ahmadi, 2024). From the affective aspect, students' perceptions involve their feelings toward vocabulary learning (Matitaputty, 2023). From the conative aspect, students' perceptions are shown in their actions, such as the strategies they use and their willingness to practice vocabulary independently (Maharani, 2023). Understanding these initial perceptions helps identify students' initial conditions in vocabulary learning.

After identifying students' initial perceptions, this study introduces Augmented Reality (AR) through Assemblr EDU as a learning medium. AR combines virtual objects with the real world and provides interactive and visual learning experiences that can support students' understanding and engagement (Idul & Syaiful, 2024). Students' perceptions after using AR are analyzed using the Technology Acceptance Model (TAM) proposed by Davis (1989). In this model, Perceived Usefulness (PU), Perceived Ease of Use (PEOU) , Attitude Toward Using (ATU). Behavioral Intention (BI).

Although AR offers substantial potential, its implementation in vocabulary learning also presents several challenges. Students may experience cognitive

overload because AR requires them to process multiple visual elements simultaneously (Amar, Pal, & Ade, 2022). Technical issues such as unstable internet connections, application errors, and device limitations can further disrupt the learning process. Some students also report insufficient initial guidance, making it difficult to use AR effectively (Amar, Pal, & Ade, 2022). Moreover, AR content may be limited or insufficiently detailed to support deeper vocabulary understanding (Wu, Jiang, & Chen, 2023). Students may struggle to maintain attention when divided between learning tasks and the AR interface (Thees et al., 2020), and many require time to adapt before they can use AR smoothly (Ibáñez & Delgado-Kloos, 2018).

Therefore, this study aims to identify both the benefits (Ahmad & Nur, 2025) and the limitations (Sari et al., 2024) of using Assemblr EDU for vocabulary learning based on students' perceptions and experiences. By examining students' acceptance of Assemblr EDU through the Technology Acceptance Model and exploring the challenges they face, this study seeks to provide a clear understanding of the effectiveness of AR as a learning medium for vocabulary learning.
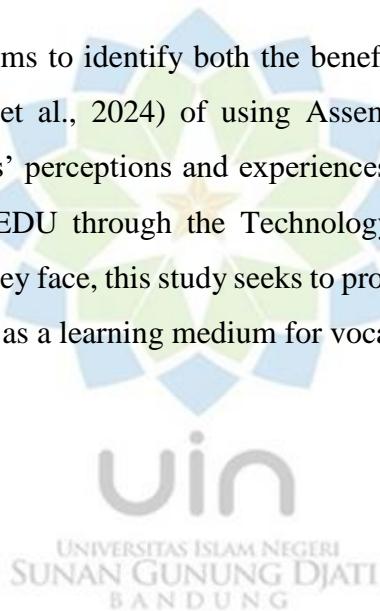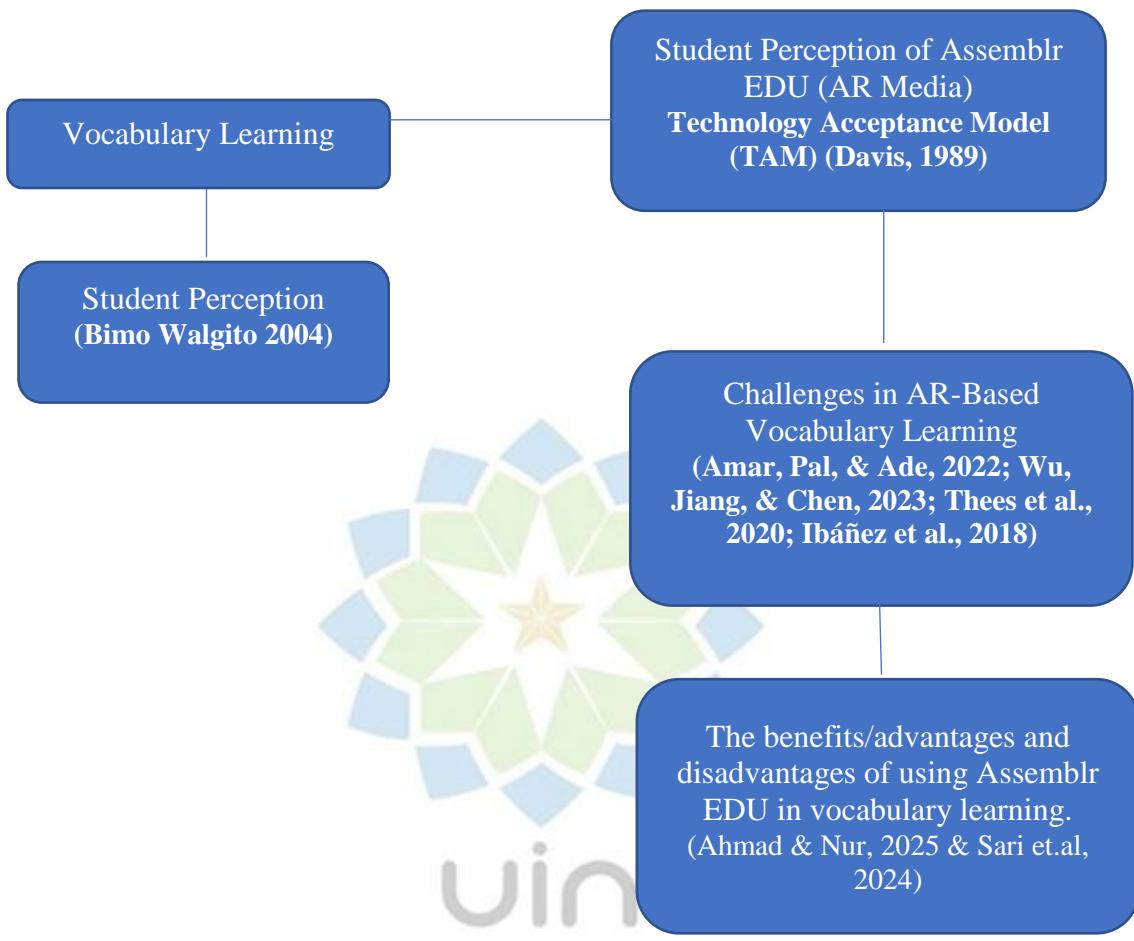
Figure 1. 1 Conceptual Framework

G. Previous Study

Several studies have examined this issue from various perspectives. Firstly, a study by Tyson (2021) examined the impact of Augmented Reality (AR) on vocabulary acquisition and retention among 29 high school students. Using a quasi-experimental design, students were taught vocabulary using AR and traditional flashcards. The results showed higher achievement in the AR group, with students reporting greater engagement and focus. The study was grounded in the Cognitive Theory of Multimedia Learning, emphasizing the role of

interactive media in learning processes. This study shares similarities with the present research on the topic, particularly in its use of AR for vocabulary learning. However, the main difference lies in the research focus and approach. While Tyson's study emphasized student learning outcomes using a quantitative approach, the present study focuses on students' perceptions of vocabulary learning using a qualitative case study, their experiences using Assemblr Edu as an online AR medium, and the challenges they face.

Secondly, a study by Ahmad and Nur (2025) investigated students' perceptions of AR-based English learning using Assemblr Edu at a vocational high school in Depok. Ten 10th-grade students from the DKV program participated in this study, which used questionnaires and semi-structured interviews to examine ease of use, motivation, learning effectiveness, and the challenges they encountered. The results showed that students perceived Assemblr Edu as easy to use, motivating, and helpful for understanding English materials despite some technical issues, such as device limitations and unstable internet connections. This study shares similarities with the present research in its use of Assemblr Edu for English learning. However, the difference lies in the focus and theoretical framework. This study emphasized general aspects such as ease of use, motivation, and effectiveness. In contrast, the present study focuses on vocabulary and students' perceptions, using the Technology Acceptance Model (TAM), which includes perceived usefulness, perceived ease of use, attitude, and behavioral intention, and also using Mayer's (2005) theory that combines visual and audio. In addition, the present study also examines students' general perceptions of vocabulary learning and their familiarity with AR technology as a foundational aspect.

Thirdly, Salehi (2025) conducted a study exploring the perspectives and experiences of junior high school English teachers regarding the use of AR for vocabulary instruction. Seven teachers from Semnan Province, Iran, were interviewed using a qualitative case study design. Thematic analysis revealed four main findings: (1) teachers chose AR tools based on accessibility and engagement potential; (2) teacher readiness involved technological skills,

pedagogical adaptation, content mastery, and soft skills such as creativity and collaboration; (3) AR brought benefits such as improved learning outcomes, enhanced classroom experience, and better student interaction; and (4) challenges emerged in technical, logistical, teacher, student, and content aspects. This study shares similarities with the present research in its use of AR for vocabulary teaching. However, the difference lies in the subject and focus: This study investigated teachers' experiences, whereas the present study examines students' perceptions, particularly regarding ease of use, benefits, and challenges they face in learning vocabulary with AR.

Fourthly, a study by Riadin (2024) focused on developing vocabulary mastery among XI IPS 4 students at SMAN Jatinangor using Assemblr Edu. A pre-experimental quantitative design with a one-group pre-test and posttest was employed with 25 students, and the results were analyzed using SPSS. The study found a significant improvement in vocabulary mastery, with average scores increasing from 46.44 (pre-test) to 72.16 (posttest), and a Wilcoxon test value of $0.000 < 0.05$, indicating a statistically significant effect of Assemblr Edu. This study shares similarities with the present research in its use of Assemblr Edu for vocabulary learning. However, the difference lies in the focus: This study emphasized the effectiveness of AR in improving learning outcomes using quantitative methods, while the present study focuses on students' perceptions of their AR vocabulary-learning experiences using a qualitative case study.

Fifthly, a study by Rosyidah et al. (2023) investigated students' interest in using Assemblr Edu-based AR as a learning medium at Universitas Islam Malang. Using a quantitative survey with 15 students, the study found positive perceptions across almost all variables (highest mean = 3.47), indicating that Assemblr Edu supported English learning, especially in describing 3D objects, and was perceived as fun, motivating, and engaging. This study shares similarities with the present research in its use of Assemblr Edu for English learning. However, the difference lies in focus and method: This study emphasized general student interest through a quantitative questionnaire only,

while the present study focuses on students' perceptions of their AR vocabulary-learning experiences using a qualitative case study.

Sixthly, a study by Maysaroh (2024) investigated the effect of Assemblr Edu on vocabulary mastery among seventh-grade students at SMP Negeri 1 Tambak, Banyumas, using a quasi-experimental pretest-posttest control group design. The paired-samples t-test showed a significant improvement in vocabulary scores ($p < 0.05$), indicating that Assemblr Edu positively influenced vocabulary acquisition and increased students' interest and motivation. This study shares similarities with the present research in its use of Assemblr Edu for vocabulary learning. However, the difference lies in the focus and method: Maysaroh emphasized students' vocabulary-learning outcomes through a quantitative experimental approach, whereas the present study focuses on students' perceptions of their AR vocabulary-learning experiences using a qualitative case study.

Seventhly, a study by Sangkarini et al. (2024) entitled "*The Use of Augmented Reality Assemblr to Learn English Idioms in Senior High School* investigated the use of Assemblr in learning English idioms at MAN 1 Kota Serang, involving 35 students of grade XI Science 3. Using a case-study approach with classroom observations, tests, interviews, and documentation, the study identified six main themes from students' responses: familiarity, process, challenge, understanding, experience, and belief. The findings revealed that students were enthusiastic about using Assemblr, but they faced challenges due to unstable internet connections and device compatibility issues. This study shares similarities with the present research in its use of Assemblr as an AR-based learning medium. However, the difference lies in scope and theoretical framework, as Sangkarini et al. examined students' impressions of learning idioms. In contrast, the present study focuses on students' perceptions of vocabulary learning in general, which is broader and more fundamental in language acquisition. In addition, the present research adopts the Technology Acceptance Model (TAM) framework, specifically addressing perceived usefulness, perceived ease of use, attitude

toward use, and behavioural intention, to explore students' acceptance and challenges in using Assemblr Edu for vocabulary learning.

Eighthly, a study by Idul and Syaiful (2024), titled "Augmented Reality in the Classroom: Revolutionizing Vocabulary Teaching for High School Language Learners," examined the integration of Augmented Reality (AR) into vocabulary teaching for high school students through a comprehensive literature review. This study employed a qualitative approach by reviewing current studies on AR in language education. The findings revealed that (1) AR's interactive features enhance student engagement and vocabulary retention, (2) AR enables contextualized learning that supports practical application of vocabulary, (3) the success of AR integration depends on well-designed content and user-friendly interfaces, and (4) challenges such as content development, teacher training, and technical limitations must be addressed. The study also provided suggestions for overcoming these barriers and optimizing the use of AR in vocabulary instruction. However, the gap between this study and the present research lies in the type of data and research focus. While this research is theoretical and based on secondary sources, the present study adopts a qualitative case study, gathering primary data from teachers through interviews and observations.

Lastly, a study by Amin (2025) titled "The Impact of Augmented Reality on Vocabulary Acquisition and Engagement Among College ESP Students" aimed to explore the effects of augmented reality (AR) applications on vocabulary learning and student engagement in an English for Specific Purposes (ESP) course at the university level. This quasi-experimental study involved 40 students from the College of Science at Majmaah University, in which the experimental group used the JigSpace AR app. In contrast, the control group followed traditional methods. Data were gathered through pre- and post-tests to evaluate vocabulary comprehension and production, as well as questionnaires assessing different aspects of engagement. The findings revealed that students who learned with AR showed significantly higher vocabulary acquisition and engagement levels. While this study demonstrates the potential of AR in supporting vocabulary learning, it focuses on higher-education students in an

ESP context and uses a quantitative experimental design using JigSpace. This creates a gap for further exploration of AR integration in vocabulary teaching at the senior high school level using a qualitative approach to understand students' lived experiences in more depth using Assemblr EDU.

Overall, previous studies on the use of Augmented Reality (AR) in vocabulary learning have primarily focused on its effectiveness and learning outcomes through quantitative or experimental approaches, students' general interest and engagement, teachers' perspectives, or idioms. Some studies were also theoretical in nature and relied on secondary data. However, there is still limited research that deeply explores students' perceptions of vocabulary learning using Assemblr Edu with audiovisual integration from a qualitative perspective, particularly by integrating the Technology Acceptance Model (TAM) to examine perceived usefulness, perceived ease of use, attitude, and behavioral intention. Therefore, the present study addresses this gap by employing a qualitative case study approach to investigate students' perceptions, experiences, familiarity with AR, and the challenges they face in learning vocabulary using Assemblr Edu at the senior high school level.