THE EFFECTS OF AUGMENTED REALITY TECHNOLOGY LESSONS ON VIETNAMESE EFL UNDERGRADUATE STUDENTS' SPEAKING SKILLS IN ENGLISH FOR TOURISM AND HOSPITALITY

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ผลของบทเรียนเทคโนโลยีความเป็นจริงเสริมต่อทักษะการพูดของนักศึกษาชาวเวียดนามในระดับปริญญาตรีที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศในวิชาภาษาอังกฤษเพื่อการท่องเที่ยวและการบริการ

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คำสำคัญ: ความเป็นจริงเสริม (AR)/ แบบจำลองการยอมรับเทคโนโลยี (TAM)/ การรับรู้ของนักศึกษา/ ทักษะการพูด/ ภาษาอังกฤษเพื่อการท่องเที่ยวและการโรงแรม/ การเรียนรู้แบบเสมือนจริง

การศึกษานี้มุ่งวิเคราะห์ผลของเทคโนโลยีความจริงเสริม (Augmented Reality: AR) ต่อทักษะการพูดของนักศึกษาปริญญาตรีชาวเวียดนามที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศในหลักสูตรภาษาอังกฤษสำหรับการท่องเที่ยวและการโรงแรม ณ มหาวิทยาลัยเศรษฐศาสตร์ นครโฮจิมินห์ ประเทศเวียดนาม งานวิจัยนี้มีพื้นฐานจากโมเดลการยอมรับเทคโนโลยี (Technology Acceptance Model: TAM) และได้รับอิทธิพลจากแนวคิดคอนสตรักติวิสต์ (Constructivism), คอนเน็กติวิสต์ (Connectivism) และทฤษฎีการเรียนรู้แบบดื่มด่ำ (Immersive Learning) โดยศึกษาความพร้อม ความเต็มใจ และการยอมรับการเรียนรู้ที่ใช้ AR รวมถึงแนวทางทางการสอนเพื่อพัฒนาความสามารถในการสื่อสารในบริบทวิชาชีพด้านการท่องเที่ยวและการโรงแรม

การศึกษานี้ใช้การวิจัยแบบผสมผสาน (Mixed-Methods) โดยรวมการเก็บข้อมูลเชิงปริมาณและเชิงคุณภาพ ในเชิงปริมาณ มีการใช้แบบสำรวจก่อนและหลังเรียน และแบบทดสอบการพูดก่อนและหลังเรียน ขณะที่ในเชิงคุณภาพ มีการสัมภาษณ์กลุ่มตัวอย่างเชิงลึก (Focus Group) กลุ่มตัวอย่างที่ใช้เป็นนักศึกษาปริญญาตรีชั้นปีที่ 2 และ 3 จำนวน 40 คน ซึ่งคัดเลือกด้วยวิธีการสุ่มแบบเฉพาะเจาะจง (Purposive Sampling) และความสะดวก (Convenience Sampling) แอปพลิเคชัน Halo AR ถูกนำมาใช้ในกิจกรรมการพูดก่อน ระหว่าง และหลังบทเรียนเป็นระยะเวลา 8 สัปดาห์

ผลการวิจัยเชิงปริมาณพบว่าทักษะการพูดของนักศึกษาเพิ่มขึ้นอย่างมีนัยสำคัญ ค่าเฉลี่ยของคะแนนก่อนเรียนอยู่ที่ 6.05 (SD = 0.67) และเพิ่มขึ้นเป็น 7.14 (SD = 0.74) หลังเรียน ($p < .001$) การพัฒนาเฉพาะด้านที่สังเกตได้ ได้แก่ ความคล่องแคล่ว (จาก M = 5.58 เป็น M = 7.53) การออกเสียง (จาก M = 5.38 เป็น M = 7.18) และการใช้ภาษาตามบริบท (จาก M = 5.88 เป็น M = 7.58) แบบสำรวจแสดงให้เห็นว่าความพร้อมและความเต็มใจของนักศึกษาในการใช้ AR เพิ่มขึ้น ค่าเฉลี่ยเพิ่มขึ้นจาก 3.8 เป็น 4.5 บนสเกล Likert 5 ระดับ ($p < .01$)

ข้อมูลเชิงคุณภาพจากการสัมภาษณ์กลุ่มได้ยืนยันผลการศึกษานี้ นักศึกษารายงานว่าองค์ประกอบที่สมจริงและโต้ตอบได้ของ AR ช่วยเพิ่มความมีส่วนร่วม แรงจูงใจ และความมั่นใจ พวกเขาชื่นชมความสมจริงและความเกี่ยวข้องของสถานการณ์ที่ช่วยให้ฝึกภาษาได้อย่างมีความหมายและอย่างสมจริง อย่างไรก็ตาม มีอุปสรรคบางประการ เช่น ความไม่คุ้นเคยกับเทคโนโลยี ปัญหาความเข้ากันได้ของอุปกรณ์ และการเชื่อมต่ออินเทอร์เน็ต นอกจากนี้ ภาระทางปัญญา (Cognitive Overload)

เป็นอีกหนึ่งความท้าทาย เนื่องจากนักศึกษาต้องจัดการทั้งการโต้ตอบกับเทคโนโลยีและการผลิตภาษา อย่างไรก็ตาม นักศึกษาได้พัฒนากลยุทธ์การปรับตัว เช่น การทำงานร่วมกันกับเพื่อน การเรียนรู้แบบกำกับตนเอง และการเพิ่มพูนทักษะดิจิทัลเพื่อแก้ไขปัญหาดังกล่าว

การศึกษานี้สรุปว่าเทคโนโลยี AR มีส่วนช่วยพัฒนาทักษะการพูดของนักศึกษาอย่างมีนัยสำคัญโดยส่งเสริมการมีส่วนร่วมที่สูงขึ้นและความสามารถในการสื่อสารในบริบทที่สมจริง นอกจากนี้ยังเน้นถึงความจำเป็นในการผสาน AR เข้ากับการออกแบบการสอนที่มีประสิทธิภาพเพื่อเพิ่มผลสัมฤทธิ์ทางการเรียน ผลการศึกษามีข้อเสนอแนะเชิงปฏิบัติสำหรับการพัฒนาหลักสูตร การฝึกอบรมครู และการนำเทคโนโลยี AR มาใช้ในระดับอุดมศึกษาอย่างกว้างขวาง สุดท้าย งานวิจัยนี้ส่งเสริมการเปลี่ยนแปลงแนวทางการสอนภาษาอังกฤษ โดยมุ่งเน้นไปที่สภาพแวดล้อมการเรียนรู้ที่มีความสมจริง โต้ตอบได้ และใช้เทคโนโลยีเพื่อเตรียมความพร้อมให้กับนักศึกษาในการสื่อสารอย่างมืออาชีพในอุตสาหกรรมที่เป็นสากล

สาขาวิชาภาษาต่างประเทศ ลายมือชื่อนักศึกษา _____

ปีการศึกษา 2567 ลายมือชื่ออาจารย์ที่ปรึกษา_____

HO MINH THANG: THE EFFECTS OF AUGMENTED REALITY TECHNOLOGY LESSONS ON VIETNAMESE EFL UNDERGRADUATE STUDENTS' SPEAKING SKILLS IN ENGLISH FOR TOURISM AND HOSPITALITY. THESIS ADVISOR: SUKSAN SUPPASETSEREE, Ph.D., 284 PP.

Keyword: Augmented Reality (AR)/ Technology Acceptance Model (TAM)/ student perceptions/ Speaking Skills/ English for Tourism and Hospitality/ immersive learning

This study investigates the effects of Augmented Reality (AR) technology on Vietnamese EFL undergraduate students' speaking skills in an English for Tourism and Hospitality course at the University of Economics Ho Chi Minh City, Vietnam. Grounded in the Technology Acceptance Model (TAM) and informed by constructivism, connectivism, and immersive learning theories, the research examines students' readiness, willingness, and acceptance of AR-enhanced learning, alongside the pedagogical implications for developing communicative competence in professional tourism and hospitality settings.

Employing a mixed-methods design, the study combined quantitative and qualitative data collection approaches. The quantitative phase involved pre- and post-surveys and speaking tests, while the qualitative phase incorporated focus group interviews. A purposive and convenience sampling method selected 40 second- and third-year undergraduate students. The Halo AR app was integrated into pre-, while-, and post-speaking activities over an eight-week period.

Quantitative findings revealed significant improvements in students' speaking skills. The mean pre-test score for speaking was 6.05 (SD = 0.67), which significantly increased to 7.14 (SD = 0.74) in the post-test ($p < .001$). Specific improvements were noted in fluency (from M = 5.58 to M = 7.53), pronunciation (from M = 5.38 to M = 7.18), and contextual language use (from M = 5.88 to M = 7.58). Pre- and post-surveys indicated an increase in students' readiness and willingness to adopt AR, with the mean score rising from 3.8 to 4.5 on a 5-point Likert scale ($p < .01$).

Qualitative data from focus group interviews reinforced these findings. Students reported that the immersive and interactive features of AR enhanced engagement, motivation, and confidence. They appreciated the realism and relevance of the scenarios, which facilitated meaningful and authentic language practice. However, challenges were also identified. Some students faced difficulties with technological unfamiliarity, device compatibility, and internet connectivity. Cognitive overload was another challenge, as students had to manage both technological interactions and

linguistic production. Nevertheless, participants developed adaptive strategies, such as peer collaboration, self-regulated learning, and enhancing digital literacy, to mitigate these issues.

The study concludes that AR technology significantly contributes to enhancing students' speaking skills by fostering higher engagement and communicative competence in authentic contexts. It also highlights the necessity of integrating AR with effective instructional design to optimize learning outcomes. These findings have practical implications for curriculum development, teacher training, and the broader adoption of AR technology in higher education. Ultimately, this research advocates for a paradigm shift in English language teaching, promoting immersive, interactive, and technology-enriched learning environments that better equip students for professional communication in globalized industries.

School of Foreign Languages Student's Signature _____

Academic Year 2024 Advisor's Signature _____

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LIST OF ABBREVIATIONS

AR	Augmented Reality
CALL	Computer-Assisted Language Learning
EFL	English as a Foreign Language
ESP	English for Specific Purposes
ETH	English for Tourism and Hospitality
ICT	Information and Communication Technology
MALL	Mobile-Assisted Language Learning
MR	Mixed Reality
TAM	Technology Acceptance Model
TELL	Technology-Enhanced Language Learning
UEH	University of Economics Ho Chi Minh City
VR	Virtual Reality
XR	Extended Reality
ZPD	Zone of Proximal Development

CHAPTER 1
INTRODUCTION

This study aimed to explore the effects of Augmented Reality (AR) technology lessons on Vietnamese EFL undergraduate students' speaking skills in English for Tourism and Hospitality. Students were involved in a classroom with AR-based learning materials for their courses to improve their speaking skills. This chapter introduces the background, the rationale, the significance, the purposes, the research questions of the study, and the definitions of key terms used in the following parts of the study.

1.1 Background of the Study

English is becoming a global language that is widely used in many countries due to the trend towards globalization. The need for English language instruction is rising daily because of the world's ongoing development. English learners not only want to acquire the material to pass the examination but also want to improve their speaking skills to get employment or study abroad. Speaking is one of the four most important skills for communicating ideas as it enables real-time interaction, fosters immediate feedback, and enhances overall language fluency. Unlike reading and writing, which can be revised and refined over time, speaking requires spontaneous expression, making it a crucial skill for effective communication in personal, academic, and professional settings. Speaking is a way for people to communicate their thoughts and feelings. While lots of people can speak English, there are several issues when they wish to communicate, such as a lack of confidence, a limited vocabulary, and a lack of a practice environment (Nguyen, 2021). As the demand for English proficiency grows, so does the need for innovative and effective teaching methodologies that address these common challenges. The traditional classroom setting, while beneficial, often does not provide adequate engaging and immersive speaking practice. This gap has led to the exploration of alternative educational technologies that can supplement traditional methods by providing immersive, interactive experiences that mimic real-life interactions.

All dimensions of our lives, including education, have been significantly impacted by the rapid growth of technology. Integrating technological applications into education has significantly influenced teaching methods, learning environments, and instructional approaches. The COVID-19 pandemic has increased technology adoption

in education (Holtgrewe et al., 2021; Huber et al., 2020; Steiner et al., 2020). Students today, who are tech savvy, are digital natives since they grew up in a digitally advanced society (Janschitz, G., & Penker, M., 2022). Their regular use of digital media and devices has become second nature to them as a result. Students now learn and receive information in a very different way since it is instantly available to them at any time and from any location. Additionally, students develop their personalities in the context of flexible communities, which require quick reactions and social interactions as well as a desire to be personally connected. Consequently, there have been notable shifts in both the educational requirements of students and their understanding of what makes for successful learning. Students want individualized, meaningful education that is centered on experiences to motivate them to participate and perform better. Additionally, students prefer to actively participate in their education rather than just see it from a distance.

ICT in education in general and EFL education have attracted a lot of interest and investment in policy and practice in the Vietnamese educational system (Peeraer & Van Petegem, 2012; Tri & Nguyen, 2014). The availability of facilities, technical assistance, school culture, and instructors' personal opinions among other factors that restrict the widespread use of ICT in teaching and learning (Le & Vo, 2014). Mobile technology applications in education are still " in its early stages " in Vietnam, particularly with mobile learning (Nguyen & Dang, 2012). Research reports in this field that are insightful are still in short supply. Mobile learning technology presents a clear distinction among the global rising technologies for education reform in the interim. It provides a variety of characteristics to "break the educational system wide open", a fresh strategy to engage digital natives, and the flexibility for individualized learning to occur (McQuiggan, Kosturko, McQuiggan, & Sabourin, 2015, p. 1 & 8). The capacity to study on the move, reach marginalized students and schools, enhance higher-order thinking abilities, and enable alternate learning environments are only a few of the primary standout advantages of mobile learning (McQuiggan et al., 2015, p. 10).

AR technology emerges as a promising tool in this regard. It offers a dynamic platform for language learning where learners can engage in simulated scenarios that require active use of spoken English. These scenarios can range from simple conversational exchanges to complex situational dialogues involving specific jargon and phrases pertinent to fields like tourism and hospitality, which are increasingly important in a globalized economy. Furthermore, the integration of AR in language learning can potentially transform the way learners interact with the language and with each other. By overlaying digital information in the real world, AR creates a blended

learning environment that can make learning more engaging and contextually relevant. This could particularly benefit undergraduate EFL learners in Vietnam, a country experiencing rapid tourism growth and increasing interaction with international visitors. Enhancing English speaking skills through AR not only aligns with global trends but also meets the specific needs of learners aiming to excel in the tourism and hospitality sector.

Additionally, it is more authentic, meaningful, and effective when learning prioritizes student inquiry, develops students' 21st-century abilities, tackles social issues, and uses information and communication technology. Modern technologies can therefore address these concerns by enabling deeper and more meaningful learning when they are at the forefront and utilized to the utmost extent in a student-centered way. Digital devices and emerging technologies are being quickly integrated into teaching and learning activities, replacing non-digital and ineffective teaching and learning materials, enhancing current educational processes, and presenting new educational techniques and approaches. Therefore, technology-enhanced learning should be utilized to deliver high-quality education and meet students' demands. However, it is important to focus on students' abilities, understanding, personality characteristics, hobbies, and preferences in addition to consistently inspiring, motivating, and involving them in the classroom.

The development of 21st-century skills, which may be broken down into intrapersonal, interpersonal, and cognitive competency domains and are essential to the learning process, can be improved by AR and gamification in the educational process. Because it is immersive, interactive, and engaging, AR may be used in a wide range of subjects at all educational levels, producing educational benefits and opening up new possibilities for learning. Gamification has a positive impact on education because it makes it easier to incorporate game mechanics and components into lessons and learning activities, which in turn gives students experiences that are more intriguing, inspiring, and engaging and may improve their academic achievement. The focus of the study, however, is mostly on the applications of AR in improving students' speaking skills. According to Carmigniani and Furht (2011), AR is "a real-time direct or indirect view of a physical real-world environment that has been enhanced and augmented by adding virtual computer-generated information to it". AR has demonstrated its potential to support language teaching and learning (Ramya & Madhumathi, 2017; Zhang, 2018). The obvious relationship between AR and current theories of second language acquisition emphasizes localized, contextual learning, and meaningful connections to the real world (Godwin-Jones, 2016).

Recent studies that investigated the use of AR in language instruction mostly concentrated on whether it might be utilized to increase vocabulary among English language learners. There are still many unanswered research questions, such as how AR could be seamlessly incorporated into the curriculum to improve students' learning performance and motivation; how AR may be applied to enhance speaking, listening, grammar, culture, and other fields of study; how students of varying ages and linguistic proficiency may utilize AR; and how AR could be applied with different teaching methods to make the learning process more effective. By intertwining these pedagogical frameworks, learners are exposed to real-life, contextually meaningful projects that necessitate effective communication in English. Through task sequences designed to challenge linguistic abilities progressively, students collaboratively engage in language-rich activities, fostering both communicative competence and intercultural awareness. Additionally, no study has been done on how to employ AR to enhance the speaking and listening skills of EFL students (Zhang, 2018). The pedagogical integration of AR in EFL instruction has seen a surge of scholarly interest in recent years, as researchers explore its potential to create immersive, context-rich environments for developing speaking skills. Wu, Jiang, and Chen (2024), in a comprehensive meta-analysis, affirmed that AR-enhanced instruction significantly improves oral communication outcomes, particularly fluency and lexical accuracy, due to its capacity to simulate authentic, multimodal interactions. Similarly, Fitayanti (2024) reported that AR-based modules designed for speaking tasks not only elevated Indonesian learners' oral performance but also increased their classroom engagement. Further highlighting the social dimension of learning, Yousefi, Salehi, and Fakhraee Faruji (2024) found that collaborative AR gaming substantially reduced learners' communication anxiety while promoting spoken interaction in EFL settings. Complementing these findings, Schorr et al. (2024) emphasized that immersive AR environments enhance learner motivation and active participation, thereby aligning instructional strategies with real-world communicative contexts. Additionally, Wang (2024) demonstrated that the presence of pedagogical agents in AR applications contributes to measurable gains in learners' fluency, vocabulary, and pronunciation. Collectively, these recent studies underscore the relevance and promise of AR as a transformative tool for enhancing EFL speaking instruction through authentic, interactive, and emotionally supportive experiences.

In the context of globalization, English for Tourism and Hospitality assumes a pivotal role, acting as a bridge that connects diverse cultures and facilitates international commerce. Particularly in the tourism sector, proficiency in English is

indispensable, enabling professionals to communicate effectively with tourists from various linguistic backgrounds, manage services more efficiently, and promote cultural exchange. Globally, this has led to an increased demand for workers who are not only skilled in hospitality management but are also proficient in English, which enhances the travel experience for international tourists and fosters a more inclusive and accessible service environment. In Vietnam, the significance of English in the tourism and hospitality industry is particularly pronounced due to the country's burgeoning tourism sector. As one of the fastest-growing tourist destinations in Southeast Asia, Vietnam sees an ever-increasing influx of international visitors drawn to its rich cultural heritage and breathtaking landscapes. The ability to communicate in English thus becomes a crucial asset for local workers, enhancing interactions with tourists, expanding career opportunities, and contributing to the national economy. Developing English language skills specific to this sector is therefore not only an economic imperative but also a cultural one, as it plays a critical role in shaping the global perception of Vietnam as a welcoming and accessible destination. In 2023, Vietnam welcomed approximately 12.6 million international tourists, generating about 37.8 trillion VND (approximately 1.56 billion USD) in revenue (Vietnam News, 2024). Given that a significant portion of these visitors rely on English for communication, proficiency in the language among tourism professionals directly influences customer satisfaction, repeat visitation, and the country's overall competitiveness in the regional and global tourism market.

Developed by Davis (1989), TAM posits that perceived ease of use and perceived usefulness are critical determinants of individuals' acceptance and usage of new technologies. The integration of technology and Virtual Reality (VR) in education has attracted significant attention in recent research, particularly focusing on the readiness and willingness of both educators and learners to adopt these innovations. These studies provide valuable insights into the multifaceted factors influencing the acceptance and effective implementation of these technologies. Readiness to use technology and VR in educational settings encompasses several dimensions, including technical readiness, pedagogical readiness, and psychological readiness. Technical readiness refers to the availability and accessibility of necessary technological infrastructure, such as hardware, software, and internet connectivity. Research by Al-Azawei et al. (2016) highlights that the presence of reliable technological infrastructure is critical in facilitating the adoption of VR and other advanced technologies in education. Institutions that invest in up-to-date technology and provide adequate technical support are more likely to foster a higher level of readiness among educators

and students. First, pedagogical readiness refers to the extent to which educators are prepared to integrate technology into their teaching practices, which includes possessing the necessary skills and knowledge to design and implement technology-enhanced lessons. Studies by Gikas and Grant (2013) indicate that professional development and training are essential for fostering pedagogical readiness. Educators who receive comprehensive training in using VR and other technologies demonstrate increased confidence and competence in incorporating these tools into their curriculum, thereby enhancing the overall educational experience. Second, psychological readiness involves the attitudes and perceptions of educators and learners towards technology. Positive attitudes towards technology, coupled with a willingness to experiment and innovate, significantly contribute to psychological readiness. Davis et al. (1989) found that educators and students who perceive technology as beneficial and relevant to their learning objectives are more likely to embrace its use. Developing a positive technological culture within educational institutions is crucial for the successful integration of advanced tools like VR and AR. This integration requires readiness on multiple fronts: technical, pedagogical, and psychological. For instance, in an English for Tourism and Hospitality course, technical readiness involves ensuring that both students and educators have access to AR-compatible devices and reliable internet connectivity. Pedagogical readiness entails training instructors to effectively incorporate AR applications, such as Halo AR, into their teaching strategies to enhance language learning experiences. Psychological readiness is reflected in students' openness to engaging with new technologies, which can be fostered through collaborative activities and guided exploration. Studies have shown that such immersive technologies can significantly improve vocabulary acquisition and learner motivation in language education (Huang et al., 2021).

Willingness to adopt technologies such as Virtual Reality (VR) and Augmented Reality (AR) in educational settings is closely linked to three key factors: perceived ease of use, perceived usefulness, and overall attitude toward technology. Perceived ease of use refers to the degree to which individuals believe that using a particular technology are free of effort. Venkatesh and Davis (2000) demonstrated that when technologies are user-friendly and intuitive, both educators and students are more inclined to adopt them. In the context of AR, ensuring a simplified user interface and providing clear instructions can enhance this perception. For instance, a study by Barmaki et al. (2023) on AR tools for anatomy education found that user-friendly designs significantly improved students' learning experiences and engagement. Perceived usefulness is the extent to which individuals believe that a technology

would enhance their performance or learning outcomes. Research consistently shows that when educators and students recognize the tangible benefits of using VR - such as improved engagement, enhanced understanding of complex concepts, and increased motivation - they are more willing to incorporate it into their teaching and learning practices. Merchant et al. (2014) conducted a meta-analysis revealing that VR-based instruction significantly enhances student engagement and motivation by providing immersive and interactive learning experiences. Attitudes toward technology encompass individual beliefs, feelings, and behavioral intentions regarding the use of technology. Positive attitudes are crucial for the successful adoption of VR and AR in education. Teo (2009) suggests that factors such as prior positive experiences with technology, peer influence, and institutional support can shape these attitudes positively. Moreover, a supportive environment that encourages exploration and provides adequate resources can foster a more favorable disposition toward adopting new technologies. Incorporating preliminary findings related to AR's user-friendliness, a study by Barmaki et al. (2023) emphasized the importance of intuitive interface design in AR applications for education. Their research indicated that when AR tools are designed with user-friendly interfaces, students exhibit higher engagement levels and better learning outcomes. This underscores the necessity for developers and educators to prioritize ease of use in AR educational tools to facilitate their acceptance and effective integration into curricula.

This study employs the Technology Acceptance Model (TAM) to provide a theoretical framework for understanding the factors that influence students' adoption of AR technology in EFL instruction. In this research context, TAM was utilized to explore how Vietnamese EFL students perceive the utility and user-friendliness of AR applications, such as the Halo AR app, in enhancing their speaking skills for tourism and hospitality. By integrating TAM, the study examines the practical outcomes of AR-enhanced language learning and explores the psychological and perceptual dimensions that affect students' readiness and willingness to embrace such innovative educational tools. This theoretical underpinning provides the framework for the investigation, offering a comprehensive understanding of the technological acceptance process within the educational context. The current study aims to address the gap in the literature by investigating the viability of incorporating AR into activities designed with a recognized teaching method. Specifically, it describes how AR technology was integrated into classroom activities and investigates student perceptions of AR use in speaking practice. By presenting a strategy that combines AR technology with classroom activities to improve speaking skills, the study establishes a potential design

for this approach. Furthermore, it highlights the strengths and weaknesses perceived by students, thereby contributing valuable insights to the field of language education. The findings of this study could enhance our understanding of the effectiveness of AR in language learning and provide a basis for future research and application in EFL instruction. Ultimately, this study is expected to contribute to both theory and practice by offering empirical evidence on the applicability of the Technology Acceptance Model in AR-enhanced language learning, proposing a pedagogical model that integrates AR into EFL speaking instruction, and informing educators, curriculum designers, and policymakers about the practical and perceptual factors that support or hinder the successful implementation of AR technologies in language education.

1.2 Statement of the Problem

Although technology is increasingly used in education, AR remains underutilized in enhancing EFL speaking skills, especially in vocational fields like tourism and hospitality. Vietnamese universities, though progressively incorporating digital tools, often lack a systematic approach to evaluating students' readiness and willingness to engage with emerging technologies. This gap is especially visible in EFL instruction, where traditional methodologies still dominate, and immersive tools like AR remain underutilized. Consequently, there is a need to explore whether Vietnamese EFL students are prepared to embrace AR and how this technology can be effectively integrated to enhance their speaking skills in alignment with future professional demands.

1.2.1 Traditional Teaching Limitations

The teaching and learning of English for Tourism and Hospitality at the University of Economics Ho Chi Minh City continue to face challenges rooted in conventional pedagogical practices. Instruction in ETH courses still heavily relies on rote memorization and theoretical knowledge, often at the expense of communicative competence and practical application. This imbalance results in disengagement and limited perceived relevance of course content to real-world contexts. In a field as dynamic as tourism and hospitality, traditional methods fail to simulate the spontaneous and interactive nature of authentic communication, thereby impeding students' development of essential speaking and listening skills (Adamska, 2023). Moreover, speaking and listening practice is frequently overshadowed by an emphasis on grammar, vocabulary, and reading comprehension. As a result, students may succeed in written assessments but remain underprepared for oral communication tasks required in industry settings-such as giving guided tours, addressing international

guests, or responding to service inquiries (Pham & Malvetti, 2012). The lack of experiential learning further weakens students' confidence and real-world communicative competence.

1.2.2 Technology Integration Challenges

While UEH has begun incorporating digital tools into teaching, the systematic use of advanced educational technologies such as AR and VR is still lacking. Several barriers hinder their effective adoption. A primary challenge is resource limitation; the high cost of AR-capable devices and the lack of supporting infrastructure create substantial barriers to implementation, particularly in contexts where institutional budgets are constrained. Moreover, faculty members often lack adequate training to deploy these tools effectively in language instruction. Without structured professional development and institutional encouragement, educators tend to default to conventional pedagogies rather than experimenting with emerging technologies (Educators in VR, 2024). The difficulties extend to curriculum alignment, as teachers struggle to integrate immersive technologies into existing course frameworks while maintaining instructional coherence and outcome relevance (Lee, 2024). In addition, technical challenges-including insufficient technical support, low interoperability, and user accessibility-further complicate the sustainable use of AR/VR in education (Digital Defynd, 2025). As such, although AR offers considerable potential to create immersive and contextualized EFL speaking environments, its educational promise is often undermined by systemic, pedagogical, and infrastructural gaps. Furthermore, many educators lack the training needed to confidently implement these tools in pedagogically meaningful ways. Without professional development and institutional support, innovative tools like AR are often sidelined in favor of more familiar methods. Students are deprived of the immersive, contextualized learning environments that AR could provide (Merchant et al., 2014). This underutilization means that students are missing out on the benefits of immersive learning environments that can enhance both engagement and language acquisition. Faculty professional development remains inconsistent, with few opportunities to learn about new teaching methods or to explore the integration of emerging technologies. As Gikas and Grant (2013) note, teacher readiness is crucial for the successful implementation of mobile and immersive learning strategies. Without this foundational support, AR cannot fulfill its potential in enhancing EFL instruction.

1.2.3 Student Motivation

Student attitudes and motivation also significantly influence the success of English for Specific Purposes courses such as ETH. At UEH, some students may lack

intrinsic motivation to develop English speaking skills, particularly if they do not immediately perceive their relevance to future careers. This lack of motivation can result from minimal exposure to industry demands and an overemphasis on academic English rather than practical usage. Low motivation exacerbates the challenges presented by traditional methods and limited practice opportunities, making it difficult for students to stay engaged or actively participate in language learning tasks. As Teo (2009) highlights, students' prior experiences with technology, perceived relevance of content, and institutional encouragement play crucial roles in shaping positive attitudes and engagement. Recent research has underscored the importance of contextual alignment between course content and learners' career goals to sustain motivation in ESP environments. Pinzón (2024) emphasized that strategically designed content that mirrors workplace realities enhances learners' intrinsic motivation and participation. Likewise, Emilizar (2025) found that incorporating interactive activities such as role-plays and simulations significantly increased EFL learners' willingness to speak and engage during lessons. Beyond instructional design, learner autonomy also plays a pivotal role in sustaining motivation. Ni'mah, Nasihah, and Munfaati (2025) reported that EFL students who adopted self-regulated learning strategies demonstrated marked improvement in speaking confidence and classroom engagement. Furthermore, Wang et al. (2025) highlighted the motivational value of translanguaging strategies, especially when learners draw on their multilingual repertoires to navigate EFL tasks. These findings collectively suggest that effective motivational support in ESP contexts requires a multi-pronged approach that integrates authentic content, learner autonomy, and pedagogical interactivity.

1.2.4 Curriculum Alignment

Finally, the ETH curriculum at UEH may not sufficiently reflect the evolving needs of the tourism and hospitality sector. The industry increasingly demands professionals who are not only fluent in English but also capable of navigating intercultural communication and adapting to multilingual environments. However, without regular updates that align course content with current industry standards, the curriculum risks becoming outdated. Curricula must evolve to address the growing complexity of the global tourism landscape. Skills such as spontaneous speaking, guest interaction, and cultural adaptability are essential for career readiness but are not always adequately emphasized in existing syllabi. As Arkoudis et al. (2009) point out, successful curriculum design in ESP contexts must be closely tied to real-world industry expectations to remain relevant and effective. Recent studies emphasize the necessity of integrating intercultural communication competencies into ESP curricula

to prepare students for diverse professional environments (Mihele & Török, 2024). Incorporating digital literacy into ESP instruction has also been highlighted as essential for equipping students with the skills to navigate modern technological tools used in the industry (Chang, 2024). Furthermore, aligning curricula with global sustainability goals ensures that graduates are prepared to meet contemporary industry standards and expectations (Maguire et al., 2024). To address these evolving demands, institutions like UEH must adopt adaptive curricula that incorporate intercultural communication, digital literacy, and sustainability to enhance the relevance and effectiveness of their programs. Despite these challenges, few studies have systematically explored Vietnamese EFL students' readiness for AR-based learning in tourism-related contexts, highlighting a critical research gap.

1.3 Rationale of the Study

The rationale for this study revolves around the potential of AR technology to enhance EFL undergraduate students' speaking skills in the context of English for Specific Purposes (ESP), specifically English for Tourism and Hospitality. English language proficiency is vital for students pursuing careers in the tourism and hospitality industry, as effective communication with diverse international visitors is crucial. Davies' (2000) research in the UK demonstrated the value of foreign language proficiency for those working in the tourism sector, highlighting the various tasks-such as answering the phone, giving destination guides, booking tickets and hotels online, arranging car rentals, and other duties-that require English for interpersonal communication (Al-Khatib, 2005). Most participants in past research indicated that English is essential to their employment (Chumphong & Embree, 2022; Husain et al., 2021; Widiastuti et al., 2021; Almomani et al., 2020). Speaking, listening, and vocabulary were consistently ranked among the most essential skills for workplace communication. Previous studies have shown that classes focused on various language skills can encourage students to speak English more actively (Al-Malki et al., 2022; Chumphong & Embree, 2022; Qaddumi et al., 2021; Amirbakzadeh et al., 2020; Rahayu, 2019; Khoirunnisa et al., 2018).

Pham and Malvetti (2012) found that role plays, group projects, and presentations significantly enhance students' productive speaking skills while also showcasing the value of internet resources in helping teachers access relevant subject matter information. Similarly, Ne'matulla et al.'s (2021) study on international construction workers revealed a comparable demand for English language proficiency. Pek et al. (2019) noted that English is a critical focus in the tourism industry, requiring skills in

speaking, listening, reading, and writing. The study by Arkoudis et al. (2009) emphasized the importance of English in tourism by describing its influence on both university students and the workplace, stressing the need for efficient learning and teaching methods to meet industry goals. Traditional teaching methods often fall short of providing engaging and authentic learning experiences (Adamska, 2023). By integrating AR technology into the design of learning materials, students can interact with virtual environments and objects related to the tourism and hospitality sector, fostering a more immersive and realistic language learning experience. In the local context of teaching ESP in Vietnam, students spend most of their time studying grammar, vocabulary, and reading text materials, while practicing speaking and listening relatively little in class. Hoa and Tuyet (2016) observed that teachers often offer lectures in both the students' original language and English, paying little attention to speaking and listening exercises, resulting in students being able to recall single words but unable to communicate their thoughts in English effectively. Unlike traditional instruction, which focuses heavily on grammar and vocabulary, AR can simulate authentic, spontaneous communication scenarios that mirror real-life tourism contexts.

Few studies have examined how AR can be seamlessly integrated into the curriculum to enhance both engagement and performance. There is also a dearth of research examining how AR can be effectively applied to various language skills, including speaking, listening, grammar, and cultural aspects. Additionally, existing studies fail to address the needs of diverse learner groups in terms of age and linguistic proficiency levels. The synergistic application of AR with pedagogical approaches remains underexplored, leaving room for inquiries into optimizing the learning process. Employing AR to enhance the speaking and listening skills of EFL students represents a substantial avenue for future research. This research gap underscores the necessity for comprehensive investigations that bridge these knowledge deficiencies and contribute to a more holistic understanding of the potential of AR technology in English language teaching. Unlike previous studies, this research specifically focuses on Vietnamese undergraduate students in a tourism and hospitality context, using an AR-supported project-based learning model to target speaking skills. The findings of this research contribute to the existing body of knowledge on innovative language teaching methodologies and provide practical insights for educators seeking to incorporate AR technology into their instructional practices for English language learners in the specific field of Tourism and Hospitality.

1.4 Research Purposes

To help the Vietnamese EFL undergraduate students at a university in Vietnam enhance their speaking skills in the field of English for Tourism and Hospitality, the purposes of this study were:

1) To investigate the acceptance levels of AR technology, in terms of readiness and willingness of Vietnamese EFL undergraduate students to enhance their speaking skills in English for Tourism and Hospitality.
2) To investigate the effects of AR technology lessons on Vietnamese EFL undergraduate students' speaking skills in English for Tourism and Hospitality.
3) To explore the Vietnamese EFL undergraduate students' perceptions of using AR technology lessons to enhance their speaking skills in English for Tourism and Hospitality.

1.5 Research Questions

This study aims to shed light on the impact of integrating AR technology into the English for Tourism and Hospitality course. By investigating the research questions in the present study, this research seeks to contribute to the field of education by providing insights into the effects, students' perceptions, and best practices of using AR-based learning materials to improve speaking skills in the Tourism and Hospitality domain.

The following are the research questions for the present study:

1) What are the acceptance levels of AR technology, in terms of readiness and willingness, of Vietnamese EFL undergraduate students to enhance their speaking skills in English for Tourism and Hospitality?
2) To what extent, do the AR technology lessons affect Vietnamese EFL undergraduate students' speaking skills in English for Tourism and Hospitality?
3) What are the Vietnamese EFL undergraduate students' perceptions of using AR technology lessons to enhance their speaking skills in English for Tourism and Hospitality?

1.6 Significance of the Study

The significance of this study lies in its exploration of the application of AR technology to enhance EFL undergraduate students' speaking skills in the context of English for Tourism and Hospitality. With the growing importance of the tourism and hospitality industry in Vietnam, effective communication in English has become essential for students pursuing careers in this field. By integrating AR-based learning

material design into a course spanning nine weeks, this study aims to provide a novel and engaging approach to language acquisition, enabling students to develop their speaking skills in a realistic and immersive virtual environment. The findings of this research can contribute to the body of knowledge on technology-enhanced language learning and provide valuable insights for educators and curriculum designers seeking innovative methods to improve students' language proficiency and their ability to effectively interact with international tourists in the tourism and hospitality sector.

Moreover, this study contributes to the field of education by investigating the innovative use of AR technology to improve students' speaking skills within a nine-week framework. By combining established ELT principles with AR integration, the research creates an immersive and interactive environment that encourages meaningful communication experiences. The utilization of AR in designing learning materials offers a unique opportunity to simulate real-world scenarios, helping students to develop not only language proficiency but also practical knowledge aligned with their prospective roles in the tourism and hospitality industry. In doing so, this research aims to bridge the gap between theory and practice by evaluating the effects and feasibility of AR-based instruction in authentic classroom settings.

Importantly, the integration of AR into English language teaching carries substantial benefits for learners with disabilities. AR provides dynamic, multisensory experiences that accommodate diverse learning needs. For instance, voice recognition features support pronunciation practice, while text-to-speech functions offer assistance for visually impaired learners. These features help remove barriers to language access by enabling learners with physical or cognitive challenges to engage more fully with content. Through customizable, multimodal input and output, AR fosters an inclusive environment in which students with disabilities can experience greater autonomy and active participation in language learning.

In addition to supporting learners with disabilities, AR has the potential to address socioeconomic disparities in language education. When deployed via mobile-friendly, low-cost platforms, AR technologies can help reduce the digital divide by offering accessible learning opportunities to underprivileged students. The interactive and gamified aspects of AR increase motivation and engagement, particularly among those who may lack prior exposure to innovative educational tools due to financial or infrastructural constraints. By making high-quality language learning experiences more widely available, AR contributes to equitable educational access and promotes the development of essential communication skills among marginalized and socioeconomically disadvantaged learners.

1.7 Definitions of the Key Terms

1.7.1 Vietnamese EFL Undergraduate Students

EFL stands for English as a Foreign Language. EFL students refer to individuals who are learning the English language in an environment where English is not the primary language spoken. These students typically reside in countries where English is not widely spoken or used as the main language of communication. In the case of the present study, Vietnamese EFL undergraduate students refer to learners at the tertiary level at a university in the South of Vietnam, who have limited exposure to English in their everyday lives and require formal instruction or dedicated language learning programs to develop their proficiency in reading, writing, speaking, and listening skills in English.

1.7.2 English for Specific Purposes (ESP)

English for Specific Purposes (ESP) is a subset of English as a second or foreign language. It frequently refers to teaching English with a focus on the vocabulary for speaking and writing skills and abilities required by college students or those in the workforce. As with any language taught for specialized objectives, an ESP course focuses on a single industry or profession, such as Technical English, Scientific English, English for Medical Professionals, English for Nails Workers, English for Tourism, etc.

1.7.3 English for Tourism and Hospitality (ETH)

A specialized field within English for Specific Purposes (ESP), English for Tourism and Hospitality focuses on the language needs of individuals working or aspiring to work in the tourism and hospitality industries. It encompasses the development of vocabulary, written and oral communication skills, and cultural understanding necessary for interacting effectively in tourism-related environments such as hotels, travel agencies, tour operations, restaurants, and customer service. Key components of ETH include language used for reservations, customer inquiries, tour guiding, negotiation with clients, hospitality management, and cultural sensitivity in a globalized context.

1.7.4 Speaking Skills

Speaking Skills refer to a learner's ability to effectively communicate and express ideas, thoughts, and emotions in the English language. These skills encompass pronunciation, fluency, vocabulary usage, grammar accuracy, and the capacity to engage in meaningful conversations, discussions, and presentations with clarity and confidence.

1.7.5 Augmented Reality (AR)

AR is a technological advancement in which, with the use of an electronic device, such as a smartphone or laptop, digital information may be superimposed over a picture to produce an improved representation of reality. Users of AR interact with a real-world environment through computer-generated information that can include visual, audio, haptic, and olfactory components.

1.7.6 Augmented Reality (AR) Technology Lessons

AR Technology Lessons refer to educational sessions that integrate AR technology to enhance the learning experience. AR involves overlaying digital information-such as images, videos, and sounds-onto the real-world environment, typically viewed through devices like smartphones, tablets, or AR glasses. In the context of language education, AR technology lessons aim to create immersive, interactive experiences that facilitate language acquisition and improve specific language skills, such as speaking, through contextual and experiential learning.

1.7.7 Perception

Perception is the psychological process by which people interpret reactions into either positive or negative views based on the information gathered by their five senses. Selection, interpretation, and reaction phases are used to gather responses (Erin & Maharani, 2018). In this study, perception refers to the cognitive process by which individuals interpret and understand sensory information from their environment. It involves the organization, identification, and interpretation of sensory input to form a coherent understanding of the world. In educational contexts, perception can specifically relate to how students interpret learning experiences, assess instructional methods, and form attitudes toward educational tools and resources, which can significantly influence their motivation, engagement, and learning outcomes.

1.7.8 Readiness

Readiness is defined as the degree to which those involved are individually and collectively primed, motivated and technically capable of executing the change as mentioned in this paper, which is a critical factor for successful implementation of system-wide change (Daniel et. al., 2013). In the context of educational research, readiness refers to the extent to which students possess the necessary skills, mindset, and preparatory knowledge to engage successfully in a particular activity or learning process. It is the degree of preparedness and receptiveness to begin learning, adapt to new teaching strategies, or use novel educational tools effectively.

1.7.9 Willingness

Willingness indicates a student's openness, motivation, and intent to participate in a specific learning activity or use new instructional methods or technologies. It refers to the extent to which an individual or group has the confidence, commitment, and motivation to accomplish a specific task (Gyftodimos & Papadimitriou, 2018). It reflects a positive attitude and voluntary commitment to engage in learning processes or explore unfamiliar pedagogical approaches, such as AR-based activities in the classroom.

In summary, the background of the study is covered in this chapter. The study's purpose was to investigate the effects of AR technology on the speaking abilities of EFL students in response to current issues. Specific research questions were outlined following the research objectives. Also highlighted was the study's significance. The following chapter provides a review of and associated research on EFL Speaking skills, ESP, ETH, and AR technology, as well as related learning theories and conceptual frameworks for the study.

CHAPTER 2
LITERATURE REVIEW

This chapter begins with an overview of the learning theories relevant to the study, including constructivism, connectivism, social learning theory, and immersive learning. It then discusses the general principles of teaching English speaking skills and provides an overview of teaching English for Specific Purposes (ESP). Following this, the chapter explains the concept of Augmented Reality (AR) and its various classifications. Then the application of AR in language learning and teaching was reviewed and discussed, as was how it was implemented in some innovative educational environments around the world. This chapter also reviewed the designing of AR-based tasks and how they affected students' performance and attitude in the language learning process. Additionally, technology concepts and frameworks such as TAM, Mixed-Reality and Extended-Reality were discussed to support the study. Simultaneously, reviews of related research about applying mobile AR technology in language teaching and learning around the world and in Vietnam were summarized and synthesized to find a possible theoretical framework for the present study.

2.1 Learning Theories

2.1.1 Constructivism

Constructivism is a learning theory that posits learners actively construct their own understanding and knowledge of the world through experiences and reflection. The idea of constructivism is not new. It has philosophical roots and has been used in anthropology, cognitive psychology, sociology, and education. According to this theory of learning (Gray, 1997), a teacher cannot simply deliver information from the front of the classroom to the students' desks. Learners are the constructors and creators of meaning and knowledge; learners construct knowledge and skills through active participation in the development and learning process (Bruner, 1990; Duffy & Jonassen, 1992; Gray, 1997). Additionally, Serdyukov and Ryan (2008) discuss how the interaction between existing information and new knowledge could help students build their own knowledge. Learning is an ongoing process involving curiosity, collaboration, and critical thinking. The learner should be the focus of attention in a constructivist classroom because the teacher's job is to assist learning.

Constructivism holds that student errors should be seen positively and as a

chance to learn more about how they blend their prior knowledge and experience to create new meanings. To encourage ingenuity, originality, and critical thinking, teachers should create environments and engage with students. For instance, in a constructivist English classroom, instead of completing isolated grammar exercises, students might work in groups to write and perform a short play based on a story they've read. As they collaborate, they negotiate meaning, use language authentically, and reflect on grammar and vocabulary in context-constructing knowledge through interaction and creative use of language. Additionally, the outcome of learning depends not just on the environment but also on the learner's mental and motivational state. The viewpoints of cognitive constructivism and social constructivism are both essential to understanding how knowledge is created. According to Piaget's theory, cognitive constructivism refers to the process of creating meaningful representations based on prior experiences and modifying the preexisting mental models to take new experiences into account (Piaget, 1977). In cognitive constructivism, according to Fosnot and Perry (1996), "students actively construct their ways of knowing as they strive to be effective by restoring coherence to the worlds of their personal experience" (p. 34). As a result, under Piaget's theory, students actively think, investigate, interpret, ask questions, and build knowledge (Lloyd, 1995). In a social constructivist approach, the emphasis is on the social processes that make it meaningless to examine the individual and social components separately. This perspective is centered on how individuals learn (Fosnot, 1996). Language and action are mediatory instruments for learning, according to Vygotsky. It places a strong emphasis on the dynamic interplay between teachers, students, and tasks and sees learning as resulting from social interaction. Additionally, the environment in which language acquisition takes place is crucial to its success. As a result, four key factors might affect the learning process: teachers, students, tasks, and environments. Students can interact with teachers as well as other students or peers who base their learning on the MKO (More Knowledgeable Other) or the ZDP (Zone of Proximal Development). Additionally, MKO may be interpreted as both actual living, breathing individuals and any form of knowledge created by anybody, from the more conventional instructors and open educational materials to all types of digital information (Pea-López 2012). Additionally, MKO is referred to as a learning object or social software that facilitates learning at greater levels of knowledge about the subject matter than the learner already possesses (Attwell, 2010). "Anyone who has a better understanding or higher ability level than the learner" is the MKO. MKOs are "traditionally thought of as a teacher, an older adult, or a peer" (Dahms et al., 2007). In the MKO, the importance of help in the

learning environment is highlighted. Therefore, learning activities should be such that a learner can complete them with the help of peers or teachers who are more experienced but cannot do them on their own.

Honebein (1996) and Jonassen (1999, cited in Kazi, 2005) have identified several pedagogical goals and design principles for constructivist learning environments. Honebein's review focused on seven pedagogical goals, based on the works of Cunningham, Duffy, and Knuth (1993) and Knuth and Cunningham (1993):

a. Providing experience with the knowledge construction process.
b. Offering experience in and appreciation for multiple perspectives.
c. Embedding learning in realistic and relevant contexts.
d. Encouraging ownership and voice in the learning process.
e. Embedding learning in social experiences
f. Encouraging the use of multiple modes of representation.
g. Encouraging self-awareness in the knowledge construction process.

On the other hand, Jonassen presented a set of design principles for constructing learning environments from a constructivist perspective:

a. Employing the relevant learning context in real-world environments.
b. Solving real-world problems with realistic approaches.
c. Employing the strategies of the instructor as a coach and analyzer to solve problems.
d. Emphasizing the interrelationship of concepts to provide various perspectives or representations of content.
e. Negotiating instructional goals and objectives rather than imposing them.
f. Using evaluation as a tool for students to analyze their own progress.
g. Assisting students in interpreting various perspectives of the world using provided tools and environments.
h. Giving students the rights to control and mediate their own learning.

These pedagogical goals and design principles form the foundation for creating effective constructivist learning environments.

Social constructivism and similar theories place a strong emphasis on how individuals learn as a result of interacting with others in a social setting. Lev Vygotsky, a Russian psychologist, is largely credited with developing these beliefs. Vygotsky (1978) assumed that language is a tool used for social interaction that is external to the student; rather than passively receiving information, the learner actively produces knowledge through these exchanges. Knowledge is initially created in a social

environment through collaboration with others, and then it is acquired by individuals (Von Glasersfeld, 1990). Learning occurs in relevant environments in negotiation and collaboration with others through cooperative elaboration (Bruner, 1999). Here it is proposed that modern technology more effectively than ever before facilitates these cooperative learning environments. Social applications offer a flexible setting for individualized learning and improved communication between teachers and students, in contrast to traditional educational models that concentrated on one-way passive transfers of information from educators to students in the form of lectures and textbooks. Building on this idea, extended discussions and collaborative activities that are not bound by time or place further enhance learners' ability to construct knowledge socially. Computer-supported collaborative learning, which is based on students sharing in the construction of knowledge using technology as the primary means of communication, is a new area of research that has been influenced by social constructivist theories and the growing influence of technology in education. Researchers in this field explore how group interaction facilitates knowledge building, and it naturally draws on constructivism, social learning theory, cooperative learning theory, and, more recently, collaboration theory (Hmelo-Silver, 2006). Researchers from a variety of fields are more interested in studying social software and its effects on learning as a result of social media's quick development.

Reviewing constructivism's key aims and guiding principles in the context of education, it can be said that it stresses learning rather than teaching and promotes learner autonomy and personal engagement in the learning process. As one of the most fundamental principles of constructivist language teaching and learning, learner-centeredness is being actively applied by a large number of teachers, researchers, scholars, educators, and writers in the creation and implementation of innovative learning environments. (Wang, 2011). This research gave students several comprehension tasks that they could work on with their group members to collaboratively create and produce AR-based learning materials in order to enhance their communication skills in general. Constructivism emphasizes learner-centered approaches, active participation, and the construction of knowledge through social interaction and experience. AR-based tasks align well with these principles by providing immersive and interactive learning experiences, fostering engagement, and promoting collaboration. AR technology offers learners opportunities to explore and manipulate virtual objects in real-world contexts, enhancing their understanding and application of language skills. Furthermore, the integration of AR in language learning environments can facilitate authentic and meaningful experiences, enabling learners to develop

communicative competence and cultural understanding. By combining constructivism and AR-based task design, educators can create dynamic and effective language learning experiences that empower learners and promote their language acquisition.

This current study integrated the principles of constructivism by designing AR-based learning activities that emphasize active participation, collaboration, and contextualized learning. The constructivist approach guided the creation of tasks where students are encouraged to engage deeply with the material through exploration and interaction. These tasks were designed to simulate real-world scenarios relevant to the tourism and hospitality industry, providing learners with immersive experiences that foster the construction of knowledge and skills. The AR applications were utilized to create realistic environments where students can practice their speaking skills in authentic contexts. For instance, students might use AR to role-play interactions with virtual tourists, navigate digital recreations of tourist attractions, or simulate customer service situations. These activities not only engaged students but also required them to apply their language skills in practical, meaningful ways, thereby enhancing their communicative competence. To promote collaboration, the study incorporated group projects where students work together to solve problems and complete tasks using AR technology. This collaborative approach aligns with the social constructivist emphasis on learning through social interaction. Students were encouraged to share their perspectives, negotiate meanings, and co-construct knowledge, thus benefiting from the diverse insights and experiences of their peers.

Furthermore, the study integrated reflective practices, allowing students to evaluate their own progress and the effectiveness of their learning strategies. Reflective activities, such as group discussions and individual journals, helped students to internalize their experiences and connect new knowledge with their existing cognitive frameworks. By integrating constructivist principles with AR technology, this study aims to create a learner-centered environment that supports active engagement, collaboration, and the practical application of language skills. This approach not only aligns with the theoretical underpinnings of constructivism but also leverages the unique capabilities of AR to enhance the learning experience in a way that is both immersive and contextually relevant. Ultimately, the integration of AR within a constructivist framework holds significant promise for transforming language education into an interactive, learner-driven, and socially enriched experience.

2.1.2 Cognitive Load Theory

Cognitive Load Theory (CLT) emerged from the recognition of the limitations of working memory (WM) capacity and its implications for learning processes.

Developed by Sweller (1988) and expanded by Sweller & Chandler (1991) and Sweller et al. (1998), CLT aims to inform educational practices through empirically supported instructional interventions that account for WM demands during teaching and learning. Building on Miller's concept of a limited WM capacity of '7 plus or minus 2' pieces of information, CLT redefines these units as 'elements' that interact to create schematic links supporting WM processing (Halford, Wilson, & Phillips, 1998; Sweller, Ayres, & Kalyuga, 2011). For instance, solving a simple math equation involves juggling several elements in WM, such as numbers, rules, and symbols. As the number of interacting elements increases, cognitive load also rises until WM resources are maxed out, leading to cognitive overload if capacity is exceeded. This overload results in the loss of elements within WM, hindering the processing of information and negatively impacting learning.

Fundamental to CLT is the notion that WM capacity is limited and cognitive overload results in the loss of information available for processing, leading to several empirically supported instructional principles. One such principle is the goal-free effect, which posits that problem-solving without specific goals imposes a lower cognitive load compared to solving problems with a goal in mind (Sweller, 1988). Another principle, the split attention effect, occurs when learners split their attention between spatially separated text and diagrams, imposing high demands on WM and negatively affecting learning (Chandler & Sweller, 1992; Sweller & Chandler, 1991). Research indicates that integrating text into diagrams or replacing visual text with spoken explanations (modality effect) can reduce cognitive load and facilitate learning (Mousavi, Low & Sweller, 1995; Tindall-Ford, Chandler, & Sweller, 1997). While some CLT effects align with Baddeley and Hitch's Multicomponent Model of WM, others, like the redundancy effect, suggest a closer alignment with alternative conceptions of WM, such as Cowan's single WM system. The redundancy effect shows that duplicated information, whether in the same or different modalities, can negatively impact learning (Chandler & Sweller, 1991; Kalyuga, Chandler, & Sweller, 1999). For example, Kalyuga et al. (1999) found that learners performed better with auditory statements corresponding to visual diagrams than with combined written and auditory statements, challenging Baddeley and Hitch's model and supporting Cowan's theory that duplicated information taxes WM resources.

It becomes evident that CLT provides a crucial framework for understanding how AR can be effectively utilized to enhance learning outcomes. The thesis underscores the potential of AR to create immersive and interactive learning environments, which aligns with CLT's emphasis on managing cognitive load to

optimize WM resources. By reducing extraneous cognitive load through well-designed AR applications, learners can focus more on essential elements, such as language constructs and contextual usage, thereby enhancing their speaking skills. Moreover, AR's ability to spatially integrate visual and auditory information directly addresses CLT's modality effect, which suggests that combining visual and auditory learning materials can make more efficient use of WM resources. This integration can lead to a more profound understanding and retention of language skills critical for Tourism and Hospitality, supporting the thesis's goal of leveraging innovative technologies to meet specific educational needs. Therefore, applying CLT principles within AR-enhanced learning environments not only validates the educational strategies proposed in the thesis but also offers a robust theoretical foundation for developing more effective instructional designs.

In the current study, the principles of Cognitive Load Theory (CLT) were used to optimize the design and implementation of AR-based learning activities. CLT emphasizes the limitations of working memory (WM) and the importance of managing cognitive load to enhance learning outcomes. By applying CLT principles, the researcher created instructional interventions that minimize extraneous cognitive load and maximize the efficiency of WM resources, thereby facilitating the learning process. To achieve this, the study incorporated AR applications that provide immersive and interactive learning environments, which are particularly well-suited to manage cognitive load. For example, AR can spatially integrate visual and auditory information, addressing the modality effect identified in CLT research. By presenting information through both visual and auditory channels, AR can reduce the cognitive burden on WM, allowing students to focus on essential elements such as language constructs and contextual usage. This multimodal approach is expected to enhance the understanding and retention of language skills critical for the tourism and hospitality industry. Furthermore, the design of AR-based tasks adhered to CLT principles such as the goal-free effect and the split attention effect. Tasks were structured to avoid specific goals that can impose high cognitive demands, instead encouraging exploration and interaction within realistic scenarios. This approach reduced cognitive load and promotes deeper engagement with the learning material. Additionally, by integrating text directly into diagrams or using spoken explanations instead of visual text, the study mitigated the split attention effect, ensuring that students' cognitive resources are not overtaxed by having to process spatially separated information. The redundancy effect was also carefully considered in the design of AR learning activities. To avoid cognitive overload, the study ensured that information is not duplicated across different

modalities unless it serves a clear instructional purpose. For example, learners may engage in a simulated AR hotel check-in scenario, where audio-visual prompts guide them step-by-step without overloading them with simultaneous written and spoken instructions, thereby minimizing the redundancy effect. By integrating these CLT principles, the study aimed to create a learning environment that supports the processing of complex information without overwhelming students' cognitive capacities. The use of AR technology enabled the creation of realistic and contextually rich scenarios where students can practice and develop their speaking skills in a manner that aligns with their future professional needs. This approach not only validated the educational strategies proposed in the thesis but also provides a robust theoretical foundation for developing more effective instructional designs. Overall, the application of CLT principles within AR-enhanced learning environments contributed to a deeper understanding of how innovative technologies can be leveraged to meet specific educational needs. By optimizing cognitive load management, the study seeked to improve the efficacy of language instruction and provide practical insights for educators seeking to incorporate AR technology into their teaching practices. This integration of CLT and AR offered a promising pathway to enhance language learning outcomes and better prepare students for careers in the tourism and hospitality industry. Finally, by leveraging AR in line with CLT principles, this study offers a practical, evidence-based framework to improve language acquisition while preventing cognitive overload, making instruction more efficient, engaging, and professionally relevant.

2.1.3 Connectivism

Today's students, according to Prensky (2005), are individuals, who are unwilling to learn in settings that do not mirror their real-world experiences, and they cannot learn in such environments. Students bring their materials to class with them, such as mobile devices, laptops, ... which are all common today. Thanks to the constant flow of information provided by these gadgets, students stay in touch with the changing environments; they are driven and equipped for it. Since there are no longer any educators who are considering offering instructions via blackboard and chalk to reach these students. Outside of the institution, students' lives are abundant with media, communication, and innovative possibilities (Darrow, 2009). The dynamics of power fluctuate in online learning environments. Self-directed consumption demonstrates an attitude of adaptability, independence, and a control mechanism that encourages deliberate "learning activities" and takes part in collective endeavors in participatory settings.

As a result, the strength of connectivism comprises of technology that normalizes behaviors in flexible learning environments (Abrams, 2013). Connectivism is a philosophy of learning that offers a view on the dynamics of networks, environments, and climates that encourage continuous education. This perspective asserts that learning is primarily a network-based process in which students view external sources holistically (Marhan, 2006). Generally, the requirement for the class should depend on increasing student learning from the conventional instruction led by the teacher. Though students benefit from introspection and personal investigation, the lesson has a tendency to use a constructivist approach. When interactions with teachers and other students are key to learning, the course leans toward other students and networks connectivism perception. This trio of paradigms should not be regarded as being entirely independent. In reality, they are able to live together and exist. This produced a learner profile that can access a surplus of information on his own, and every attempt to connect with sources online (creating connections) has the ability to impart knowledge to the learner.

The most popular learning theories in the development of learning environments are behaviorism, cognitivism, and constructivism. However, these theories were developed at a time when technology had not yet significantly altered learning (at least not to the extent that it has today). Technology has altered how we learn, communicate, and live during the past 20 years. The underlying conditions of the contemporary social environment should be reflected in learning demands and theories describing learning processes and principles (Khatibi & Fouladchang, 2015). The connectivism theory is predicated on the idea that decisions are made on continually shifting bases (Yi, Lei, & Jian, 2014). As a result, it becomes crucial to be able to decide what is significant. The capacity to reorient information, reconstruct learning, and recognize when new information would affect previous information also comes to the fore (Loureiro & Bettencourt, 2010)

Learning is said to be enhanced by the availability of online Web 2.0 content and resources. Its ability to make it simple for students to track their own progress is one of its most significant benefits. The use of Web 2.0 technology has also considerably enhanced peer input and collaboration. These components are believed to help learners participate more actively and regulate their behavior, which in turn boosts motivation and, eventually, performance. Social media, especially cloud-based social media sites like Facebook and Google+, are intimately related to the adoption of Web 2.0 in the classroom. In order to improve student achievement, researchers and instructors have developed online application communities utilizing Web 2.0

technology. By classifying the social environment as one of the fundamental components of learning, Doolan emphasizes the significance of social context in learning. Students' engagement with one another, with the teacher, and with learning resources is encouraged by including a social component into learning, active learning, and hence learner participation. As a result, learning takes place within social interactions, cultural context, and debates that help create meaning (Conradie, 2014). The impact of learning in the digital era is increased by the significance of social communication. The effects of being a digital citizen are significant in studying matters in the digital age. Rethinking collaborative learning and experience-based learning has been made possible by the digital age and computer-based communication. According to Aksal, Gazi, and Bahçelerli (2013), the usage of social networks in this context falls under the purview of connective learning theory since it combines a number of elements, including awareness, asking, and critical looking, to form groups for the advancement of conversation.

Corporate e-learning management can use connectivism as a learning philosophy. Connectivism theory's core ideas include networks, numerous data sources, knowledge sharing, making important decisions, and virtual learning communities. Applying e-learning software fosters critical thinking, problem solving, and activities that support and guide the use of a lot of knowledge within the context of connectivism (Ghofrani & Hollister, 2011).

A more fitting theory for the technological age is connectivism, or distributed learning, which allows for action to be performed utilizing knowledge from outside sources before learning ever takes place (Mattar, 2010). The most recent pedagogy to emerge in online learning is connectivism. In the 2000s, it gained popularity over time (Bell, 2010). Canadian scholars Stephen Downes (2007) and George Siemens (Siemens, 2005a, 2005b, 2007) have authored articles outlining this strategy and defining learning as the creation of networks between knowledge, relationships, and resources and the application of those networks to actual issues. Connectivism is built on accessibility to networked technology from everywhere and originated in the information era surrounded by networks (Castells, 1996). With this method, learning is concentrated on creating flexible connections that may be used to solve both current and future challenges. According to the connectivist viewpoint, knowledge is limitless, and the learner's job is to be able to access and use information as needed, rather than to memorize or comprehend everything. According to Siemens (2005), "learning can also occur in non-human beings", a significant portion of cognitive functions and problem-solving should be left to machines.

According to Siemens (2004), the fundamental principles of connectivism place a premium on the ability to acquire new knowledge over the retention of existing information. This perspective is underpinned by the following key propositions: (i) knowledge and learning emanate from a diverse array of sources and concepts; (ii) the act of learning entails the establishment of associations between specific neural pathways and reservoirs of information; (iii) learning processes can extend beyond human cognition and extend into non-human devices; (iv) the act of forming and sustaining connections serves as a fundamental prerequisite for perpetual learning; (v) the ability to discern interconnections among various fields, concepts, and ideas constitutes an indispensable skill; and (vi) the reliance on current and accurate information remains a central principle within the connectivist framework. Selecting what to learn and gaining an understanding of the information are components of the learning process.

A network is a collection of circuits joined together by relationships in connectivism. Circuits that are interconnected in one or more ways make up networks. Everything that the transferor can reach on his own is what he intends to transfer. The three circuit types that connectivism describes are neurological, conceptual, and extrinsic. Concepts like similarity and positive relationships are included in the network at the conceptual level, and they are linked together through conceptual connections, ideas, and thoughts. According to AlDahdouh, Osorio, and Caires (2015), the exterior level of the network consists of individuals connected via the Internet, intranet, or direct contact with other individuals, books, websites, programs, or databases. This idea holds that the state in which knowledge is activated by participation and connection to a learning community is the beginning point of learning.

Learning communities are characterized as groups with shared interests that promote communication, collaboration, sharing, and thinking (Siemens 2005). Participation leads to conversations between newcomers and more experienced community members. In the web 2.0 environment, communication increasingly involves pictures like video and multimedia in addition to words. With the use of technological advancements like Web 2.0 and 3.0, students can establish their own customized learning environments, allowing them to produce as well as consume learning resources (Gerard & Goldie, 2016). According to Wikipedia, the idea of a personal learning environment first surfaced in the 1970s, therefore, it is not exactly a new one. With the introduction of Web 2.0 technology, also known as social networking, which enables users to manage their online profiles, it has, nevertheless, been reinvented and consolidated. In light of this, personal learning environments

combine interactivity and material. In addition to providing contacts and services to people, internet tools and social media memberships also produce information and material through communication channels and cloud resources (Gillet, 2013). The central tenet of connectivism is that students link to a learning community, share knowledge with it, and learn from it. A group of people that regularly communicate and study alongside one another due to their shared interests is known as a learning community. The neighborhood is thought of as one of the nodes in a larger network. The growth of independent, diversified, and creative knowledge is supported by various but interconnected networks. Since information is in a constant state of change, it is essential to continually evaluate its accuracy and dependability using fresh data. The process of producing information in the internet environment has an interdisciplinary component (Boitshwarelo, 2011).

Because the concepts of preexisting ideologies have become outmoded as a result of technological advancements, particularly in the manner that knowledge can now be shared quickly and widely via the Internet, connectivism has evolved. These theories do not account for learning that occurs independently of humans (such as learning that is technologically driven). According to Siemens, the facts that makeup information are continually being updated and rewritten as a result of the speed at which the world is becoming more digital. The major goal of the theory is not to acquire or grow knowledge, but rather to locate it in a system or organization when it is needed, to assess if it is still true or appropriate, and to identify the connections in meta-information (Brill, 2008). Due to its emphasis on considering information in a networked society, connectivism has been developed as an approach to information literacy and is considered a more appropriate theory of learning than more conventional theories like constructivism (Brooks, 2015). The notion of connectivism is built on network autonomy and diversity and presupposes that the community learns through the interaction of various viewpoints. The term "connectivism" can be defined as a type of knowledge and pedagogy in which learning is based on the capacity to create and navigate via networks of connections. Participants have a distinctive perspective that they can offer to the discussion when you let them choose what they read on their own (Downes, 2008). Connectivism is seen as a reflection of how society is constantly changing. Societies are becoming increasingly complicated, socially interconnected, globalized, and supplanted by ongoing technological advancements. It connects to a network and combines complicated thoughts in a harmonious way to produce specific sets of information. It connects to a network and harmoniously combines complicated thoughts to produce specific sets of information.

The multiplicity of concepts is the cause of the various ways to know. When evaluated from the perspective of the existing reality, there is no individual control; rather, there is a collaboration of ideas that are already held. The fundamental ability is the ability to recognize the links among knowledge sources and to keep these connections up in a way that promotes continual learning. Knowledge can constantly change and be replaced outside of the learner, for instance, in a database or other specialized information sources. The learner's exposure to this outside knowledge is more crucial than their existing level of understanding. The individual is the main focus of connectivism. Personal knowledge is part of a system that is made up of networks and involves an organization. By entering and leaving the system, the individual continues the process of acquiring knowledge repeatedly (Duke, Harper, & Johnston, 2013). According to the connectivist theory, learning happens when students connect concepts from their unique learning networks, which are made up of many sources of knowledge and technology. When a learner recognizes the links between the concepts, ideas, and viewpoints he has discovered through Internet technologies like electronic databases, internet search engines, and online information sources, knowledge is said to have been gained. As a result, networked information technologies are considered a crucial component of the learning process by connectivism (Dunaway, 2011) & Foroughi (2015) illustrates how Web 3.0 tools, which are now used at almost all educational levels, are definitely connected to connectivist ideas.

Some have critiqued connectivism theory for having ambiguous elements as a learning strategy because it is still in its early stages of development. However, it is difficult to overlook how social network learning is changing in both formal and informal learning contexts. The biggest problem for teachers is incorporating social media into the classroom while preserving consistency (Jennings & Weatherly, 2013). Other arguments against this hypothesis exist as well. This theory, according to Verhagen (2006), is not a learning theory since it remains at the level of an educational program rather than an educational institution. Connectivism is thus, for him, a pedagogy rather than a philosophy of learning. This argument is backed up by Kerr (2007), who characterizes the scenario as intriguing but not at the level of a learning theory. Additionally, according to Kerr, issues with this notion occur when it comes to skills like reading and writing that cannot be picked up at random. Another objection claims that connectivism is incompatible with other theories, and that it even appears to reject other learning theories (Al-Shehri, 2011). The connectivism notion appears to be appropriate for the learning strategy in the digital era, despite the objections voiced (quoted in Garcia, Brown, & Elbeltagi, 2013).

More studies have been done on connectivism in recent years. There seems to be increased interest in researching this technique as more institutions of higher learning provide digitally enhanced and/or online course offerings. In order to assess commonalities across constructivist learning frameworks, Mattar (2018) did a secondary investigation. While there were many linkages between philosophical beliefs and past learning models, a more intriguing conversation emerged after evaluating the connectivism results. Some researchers in this study argued that it should be a "new learning theory, more appropriate...for a digital age" (p. 11), while others remarked that it was more of a constructivist type of pedagogy. Overall, Mattar's work from 2018 makes the case that connectivism should be seen as "an updated form of constructivism, viewed as a broad philosophy of education for the digital age" (p.13). Additionally, he contends that additional study is necessary to better understand virtual, augmented, and related instructional technologies.

In a research study conducted by Smidt et al. (2017), the connectivism method and problem-based learning were combined to produce a new theoretical framework that would be used moving forward. Within a middle school environment, the researchers sought to "operationalize the connectivism concepts into an executable framework with the inclusion of problem-based learning and contextual learning" (p. 2116). Their research examines elements of connectivism and their application and how they apply to STEM curricula when problem-based learning is incorporated. Although the new strategy appears positive overall, readers are left wondering what comes next because it was not put into practice before the article was published.

In their evaluation piece, Duke et al. (2013) address the long-debated question of whether connectivism is actually a learning theory, instructional theory, or pedagogical philosophy. They begin by defining what constitutes a hypothesis. An instructional theory, on the other hand, must "prescribe processes to permit learning quickly and effectively," according to the authors, who define a learning theory as "one that has emerged through substantial testing and observation incorporating criterion of falsiability" (p. 4). They expressly state that "it is only via personal networks that the learner may gain the viewpoint and variety of opinion to learn to make critical judgments" in numerous lines on how connectivism might be its own unique learning theory (p.7). They express how connectivism has concepts in common with constructivism and behaviorism while also holding contradictory views. Duke, et al. (2013) assert that connectivism is an instructional approach to learning since it "addresses the question of how to support the learner at the instructional level."

A main research study on student engagement at the higher education level was carried out by Rajabalee, Santally, and Rennie (2020), with an emphasis on online courses. Data from completed learning activities from the course, their significance in relation to the course's results, and activities needing presence inside the learning management system were all examined. The learning module comprised exercises created using "an activity-based approach that is more inclusive of constructivist learning than the behaviorist model of learning" as its foundation (p. 16). Results showed a weak, positive connection between learning activity performance and engagement. The poor nature of the link between the two variables underlined the fact that, in online learning, the traditional model of knowledge acquisition primarily through online learning behaviors does have some predictive limitations, according to Rajabalee et al.'s (2020) conclusion (p. 16).

The final study project that was examined focused on professionals who were teachers in the K-12 educational system and linked to create a professional learning community. Thirteen practicing teachers who utilize social media for professional development were invited to a semi-structured interview as part of Oddone, Hughes, and Lupton's (2019) collective case study. The instructors illustrated their professional learning community before the interview, and they related experiences from various parts of the illustration during the interview. The examination of the data on themes was completed. According to the findings, the social media professional learning network enabled instructors to perceive learning as a linked profession in which they were learners, exchanged content with other learners, and acquired fresh information. While the claim that the case study 'ensures the legitimacy of the paradigm' (p. 115) may be ambitious, it nonetheless makes a valuable contribution, but it does contribute well to the connectivism literature.

The integration of connectivism and AR in language learning and teaching has demonstrated significant potential for enhancing educational experiences. Connectivism's focus on networked learning and technology aligns with the interactive nature of AR-based tasks. AR allows learners to engage in authentic language activities, promoting connections between learning and the real world. It fosters collaboration, critical thinking, and problem-solving, providing personalized learning. AR also enhances learner autonomy and motivation. This study explores the potential of AR in English Language Teaching (ELT) in Vietnam, particularly in Ho Chi Minh City. This context is particularly significant due to Vietnam's ongoing efforts to integrate digital technologies into education, as evidenced by initiatives from the Ministry of Education and Training (MOET). MOET has been actively promoting digital transformation in

education, including the development of a shared online training platform known as MOET-MOOC, aimed at enhancing digital learning across universities (Ministry of Education and Training of Vietnam, 2023). Ho Chi Minh City, as Vietnam's economic and educational hub, has been at the forefront of adopting educational technologies. The city has initiated pilot programs to introduce English as a second language in select schools, reflecting a policy shift toward emphasizing English proficiency (Le Nguyen, 2024). Additionally, Ho Chi Minh City has seen a growing presence of private language centers and edtech enterprises, such as Topica Edtech Group, which offer digital platforms for English learning and professional training (Topica Edtech Group, n.d.). These developments underscore the city's commitment to leveraging technology to enhance English language education. The increasing demand for English proficiency, particularly in sectors like tourism and hospitality, further highlights the relevance of this study. By investigating the application of AR in ELT within this dynamic environment, the research aims to provide insights that could inform broader educational reforms and the integration of innovative technologies in Vietnam's language education landscape.

AR technology in education, including Computer-Assisted Language Learning (CALL), Mobile-Assisted Language Learning (MALL), and Technology-Enhanced Language Learning (TELL), offers opportunities and challenges. The primary objectives include investigating how AR facilitates networked learning, enabling students to connect with peers and external knowledge resources. It also explores how AR stimulates exploration and discovery in language learning, fostering critical thinking and information synthesis. Additionally, the study examines how AR projects promote learner autonomy, allowing students to personalize content and learning pathways. The research looks at how AR technology catalyzes knowledge creation and sharing in a networked educational environment, empowering students to generate content and disseminate knowledge. Finally, it explores how AR-based projects facilitate reflection and metacognition, supporting effective learning experiences.

In this current study, the principles of connectivism by leveraging AR technology were integrated to create dynamic, networked learning environments that mirror real-world experiences and facilitate continuous education. Connectivism, as articulated by theorists like Prensky (2005) and Siemens (2005), emphasizes the importance of connections between information sources, learners, and learning communities, which is particularly relevant in today's digital age. By applying these principles, the study designed AR-based activities that encourage students to actively engage with both content and peers, fostering an interactive and collaborative learning

atmosphere. To achieve this, the study utilized AR to embed language learning within realistic and contextually relevant scenarios. AR technology allowed students to interact with virtual environments and objects related to the tourism and hospitality industry, promoting the creation of connections between their existing knowledge and new information (Siemens, 2005; Abrams, 2013). This aligns with the core idea of connectivism that learning is a network-based process where knowledge is acquired through the establishment and maintenance of connections. For instance, students might participate in AR simulations of customer service interactions, where they can practice and refine their speaking skills in a setting that closely resembles real-life situations. Furthermore, the study capitalized on AR's ability to integrate multiple forms of media, thereby supporting diverse learning styles and reducing cognitive overload. This multimedia approach could enhance the accessibility of information and enable students to process and retain language skills more effectively. By incorporating elements such as text, audio, and visual aids within AR tasks, the study would cater to the different ways in which students learn, as suggested by Abrams (2013) and Loureiro & Bettencourt (2010). Additionally, the study emphasized the social aspect of learning, a key component of connectivism. AR-based tasks were designed to encourage collaboration and peer interaction, facilitating the sharing of knowledge and collective problem-solving. This approach helped students develop a sense of community and engage in meaningful dialogues, thereby enhancing their learning experience. By integrating social media and other Web 2.0 technologies, the study provided platforms for students to connect, share insights, and support each other's learning, reflecting the participatory nature of connectivism as noted by Aksal, Gazi, and Bahçelerli (2013). Moreover, the study promoted learner autonomy by allowing students to personalize their learning experiences. AR technology enabled students to explore content at their own pace, select topics of interest, and access resources that suit their individual learning needs. This personalized approach aligned with the connectivist emphasis on self-directed learning and adaptability in acquiring new knowledge. Students were encouraged to take control of their learning journey, fostering independence and intrinsic motivation, as highlighted by Khatibi & Fouladchang (2015) and Mattar (2018).

By integrating connectivism and AR technology, the study aimed to create a learning environment that supports the development of critical thinking, problem-solving, and information synthesis skills. AR projects were designed to stimulate exploration and discovery, enabling students to make connections between concepts and apply their learning to real-world contexts. This approach not only validates the educational strategies proposed in the thesis but also provides a robust theoretical

foundation for developing more effective instructional designs. The application of connectivism principles within AR-enhanced learning environments contributed to a deeper understanding of how innovative technologies can be leveraged to meet specific educational needs. The study seeks to enhance language learning outcomes by optimizing networked learning, fostering exploration and autonomy, facilitating knowledge creation and sharing, and supporting reflection and metacognition. This integration represents a promising strategy for enhancing language education in digitally connected contexts. It explores AR's potential in networked learning, exploration, learner autonomy, knowledge creation, and reflection. This research holds promise for transforming language education and preparing learners for a digitally connected world. While previous studies have explored AR in language learning and connectivism in online environments, few (if any) have integrated these two in a Vietnamese ELT context and this study aims to address that research gap.

2.2. Technology Acceptance Model (TAM)

To understand how learners adopt emerging technologies in educational settings, particularly within AR-enhanced environments, it is essential to draw on established theoretical frameworks. While connectivism provides a macro-level philosophy of learning in digital environments, the Technology Acceptance Model (TAM) offers a complementary micro-level framework. TAM helps explain how users come to accept and use technology by examining factors such as perceived usefulness and perceived ease of use, which in turn shape attitudes, intentions, and actual behavior. This model is particularly relevant to the present study, which explores Vietnamese EFL students' adoption of AR technology in an English for Tourism and Hospitality course. As shown in Figure 2.1, TAM outlines the sequential relationship between users' perceptions, behavioral intentions, and eventual technology usage (Davis et al., 1989).

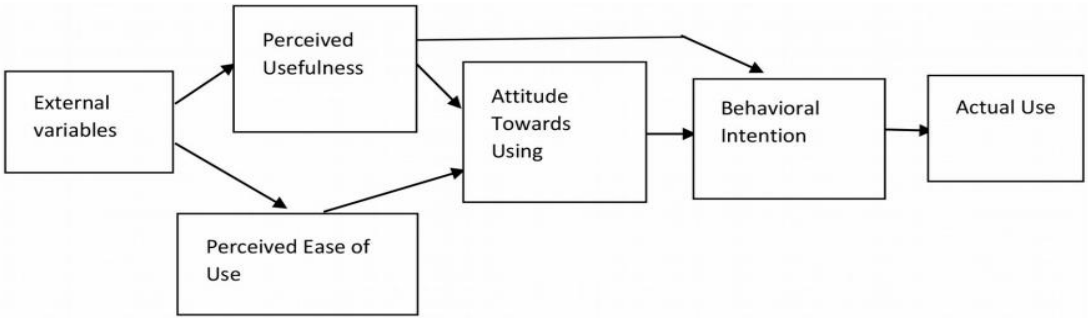


Figure 2.1 Technology Acceptance Model (TAM) (Based on Davis et al. 1989)

The Technology Acceptance Model (TAM) is a theoretical framework that can be applied to understand the acceptance and adoption of technology in language teaching and learning contexts. TAM posits that users' intention to adopt technology is influenced by two primary factors: perceived usefulness (PU) and perceived ease of use (PEOU). In the context of language teaching and learning, perceived usefulness refers to the degree to which learners perceive that technology, such as language learning applications or online platforms, can enhance their language acquisition process. Factors such as the effectiveness of language learning materials, the ability to practice language skills, and the convenience of accessing learning resources contribute to their perceived usefulness. When learners perceive that technology can improve their language learning outcomes, they are more likely to adopt and utilize it in their language learning activities.

TAM is a widely used theoretical framework in the field of technology adoption and user acceptance research. The Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen in 1975, is the theoretical framework on which TAM is built (Davis et al., 1989). A generic model called TRA is concerned with people's desired behaviors. According to TRA, a person's performance is influenced by their attitude and their perceptions of the appropriate conduct. Additionally, a person's ideas and motivations influence their conduct today (Ajzen and Fishbein, 1980). The TAM model was developed by Fred Davis in the 1980s and has since been extended and modified by various researchers. The Technology Acceptance Model seeks to explain and predict individuals' acceptance and usage of technology by considering their perceived usefulness and ease of use. According to the model, individuals are more likely to accept and utilize a technology if they perceive it to be useful for achieving their goals and easy to use. The model proposes that perceived usefulness is influenced by factors such as the perceived impact on job performance, productivity, and effectiveness. Perceived ease of use is influenced by factors such as the perceived effort required to use the technology, the complexity of the system, and the availability of training and support. TAM suggests that perceived usefulness and perceived ease of use directly influence an individual's attitude towards using the technology, which in turn influences their intention to use it. Ultimately, the model suggests that Intention to Use leads to actual technology usage. The Technology Acceptance Model has been applied in various contexts and has provided valuable insights into the factors that influence individuals' acceptance and adoption of new technologies. It has been widely used to understand technology acceptance and

inform the design and implementation of user-friendly and effective technology systems.

Numerous theoretical stances have been produced to comprehend how end users choose to employ technological programs. Theories offer resources for analyzing the success or failure of new IT application implementation procedures. The Innovation Diffusion Theory (IDT; Rogers, 1995), Theory of Planned Behavior (TPB; Fishbein and Ajzen, 1975), Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh et al., 2003; 2012), FITT framework (Ammenwerth et al., 2002), and Technology Acceptance Model (TAM) (Davis, 1989) are the most prevalent theories in IT research. Among all other theories, the Technology Acceptance Model (TAM) (Davis, 1989; Davis et al., 1989) may be the one that is utilized the most (Ma and Liu, 2004; Kim and Chang, 2007; Yarbrough and Smith, 2007). TAM theory is based on ideas taken from the Fishbein and Ajzen (1975) attitude paradigm, which outlines how to measure the behavior-relevant aspects of attitudes, distinguishes between beliefs and attitudes, and outlines the causal relationships between beliefs, attitudes, and behavior as a result of external stimuli. A technology's Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) criteria are what the Technology Adoption Model uses to evaluate user adoption. PU is defined as the extent to which a person thinks that utilizing a specific system would improve work performance. PEOU is defined as the extent to which a person thinks utilizing a specific system requires little to no physical or mental effort (Davis, 1989; Davis et al., 1989; Davis, 1993). The TAM contends that attitude, perceived utility, and perceived usability all have a direct impact on one's intention to adopt technology. According to TAM, a person's desire to utilize technology impacts whether or not they actually use the application. A person's attitude toward technology can also influence their intentions. (Davis et al., 1989; Davis and Venkatesh, 2004; Venkatesh et al., 2012).

To pinpoint cognitive and emotional characteristics as essential elements of technological acceptance, the TAM theoretical model was created. A person's behavior intention (BI) is a factor in determining whether they would embrace and use technology (actual behavior), according to TAM. According to TAM, Attitudes to Use (AU), Perceived Usefulness (PU) and Perceived Ease of Use (PEoU) are "jointly determined" by their behavior. Thus, the degree to which users think that the tools would enable them to do particular activities would provide proof of that individual's PU. Users' descriptions of how simple it was to operate and learn to use a tool would serve as evidence for ease of use.

In the context of the current research, the application of the Technology Acceptance Model (TAM) to an AR-based educational project for university students necessitated a comprehensive examination of various critical considerations. These considerations encompassed several interrelated dimensions that have been meticulously analyzed and delineated. Firstly, the dimension of Perceived Usefulness (PU) was explored in depth. This vital dimension involved highlighting the benefits of AR technology, particularly its role in making abstract concepts more tangible and interactive. Firstly, it involved accentuating the benefits derived from the utilization of AR technology within the educational project. Secondly, it entailed a thorough emphasis on how AR technology could augment the learning experience by rendering complex concepts more tangible and interactive. Moreover, it encompassed the illumination of how AR technology could provide real-world applications and offer immersive simulations. Furthermore, it spotlighted the role of AR in facilitating engagement, critical thinking, and the development of problem-solving skills among students. Simultaneously, the dimension of Perceived Ease of Use (PEoU) was meticulously addressed. This dimension revolved around the user-friendliness and intuitiveness of the AR application. To ensure a high level of acceptance, the user interface was simplified, complemented by clear instructions and guidance for users. Additionally, measures were taken to offer comprehensive training or tutorials to familiarize students with AR technology and its functionalities. Addressing potential technical barriers or challenges that students might encounter was also a priority, with a dedicated focus on providing adequate support. The concept of Perceived Enjoyment (PE) was another pivotal dimension that featured prominently in the study. It encompassed several facets, including a pronounced emphasis on the enjoyable aspects inherent in the use of AR technology within the project. The study highlighted how AR applications could infuse learning with elements of engagement, fun, and interactivity. Moreover, it showcased how AR could create an enjoyable learning environment, offering novel experiences and captivating content. Encouragement was extended to students to share their pleasurable experiences associated with AR, thus fostering a sense of enthusiasm and satisfaction with the technology. Furthermore, the dimension of Attitude towards Use (AU) was scrupulously examined. Cultivating a positive attitude towards AR technology was considered indispensable. To achieve this, the study incorporated success stories and testimonials from students who had reaped the benefits of AR-based projects. It also promoted peer collaboration and the sharing of experiences to create a supportive environment conducive to the acceptance of AR. Furthermore, the study demonstrated the potential impact and value of AR in

enhancing learning outcomes and academic performance, further reinforcing a positive attitude towards its use. Lastly, the dimension of Intention to Use was explored. This involved nurturing students' intention to utilize AR by elucidating the relevance of the technology to their field of study and future career prospects. It included clear communication of project objectives, learning outcomes, and the integral role that AR played in achieving them. Moreover, the study offered opportunities for hands-on exploration and experimentation with the AR application, aiming to build confidence and excitement about its potential.

In short, the study comprehensively examined the multifaceted dimensions within the Technology Acceptance Model (TAM) when applied to an AR-based educational project for university students. Through a systematic analysis of Perceived Usefulness (PU), Perceived Ease of Use (PEoU), Perceived Enjoyment (PE), Attitude towards Use (AU), and Intention to Use, the research aimed to provide valuable insights into the acceptance and integration of AR technology in the realm of higher education. By applying the TAM framework to an AR-based project for university students, the present study intends to assess and address their perceptions of usefulness and ease of use, influence their attitude towards using AR, and ultimately promote the adoption and effective utilization of the technology for enhanced learning experiences.

2.3 English Speaking Skills

2.3.1 Concept of Speaking

Speaking is an oral ability used to communicate our thoughts, feelings, and views to others. Speaking is also a communication and message delivery action that allows the listener to digest the messages. Speaking is a useful oral ability that entails creating orderly verbal utterances to convey meaning, according to Nunan (2003: 48). In speaking, students learn how to form sentences, present ideas under the context in which they are speaking, and express language with clear articulation. Speaking is "an interactive process of constructing meaning that involves producing, receiving, and processing information," according to Brown (2004: 8140). According to the description provided above, speaking is an interactive process of creating systematic meaning that involves both the speaker's production and reception of information. The development of one's English-speaking abilities is a top priority for many second language or foreign language learners, according to Richards (2008:19). As a result, being able to communicate effectively has made speaking a crucial talent to learn. Speaking is an oral expression that, according to Mackey (2001), necessitates the employment of the right rhythm and intonation patterns, as well as accurate grammatical placement

and other language-related elements, in order to convey the intended meaning. As a result, being able to communicate effectively has made speaking a crucial talent to learn. As may be previously inferred, speaking is an oral manifestation of an integrated meaning-building mechanism that entails a phonological and grammatical system and the capacity for collaboration to provide information and ideas in the management of the speaking turn. Speaking is important for social connection since individuals speak all the time and everywhere, according to Gilakjani (2016). It indicates that in order to connect, build relationships, and exchange ideas or information with others, speaking is a linguistic tool and the most crucial ability. To master speaking, one must acquire the elements of speaking, such as pronunciation, grammar, vocabulary, fluency, and comprehension. With these elements, one may communicate with others more effectively and readily.

2.3.2 Components of Speaking

The capacity of students to respond to others and to communicate corresponds to their speaking skills. In addition to the speaker understanding what is stated, a response must also be possible. It should be remembered that when speaking, a person also functions as a respondent or speaker in addition to being a listener. Speaking ability is a useful talent that can be immediately and experimentally examined, claims Brown (2007). These results inherently affect the validity and reliability of an oral output exam by influencing the accuracy and efficacy of a test taker's listening skills. Pronunciation, grammar, vocabulary, fluency, and understanding are just a few of the abilities that students must be taught in order to communicate effectively in English when speaking (Harris, 1969).

2.3.2.1 Pronunciation

The way a word is pronounced is called its pronunciation. Hornby (2005) defined pronunciation as the way a language is spoken, the way a word is pronounced, and the way a person uses the language's words. Students can talk in a simpler language by pronouncing their words correctly. It deals with the phonological process, which is connected to the grammar's constituent parts and ideas that specify the variety and organization of sounds in a language. Good pronunciation may increase learners' self-confidence and have a beneficial impact on listeners' perceptions of a speaker's authority and expertise.

2.3.2.2 Vocabulary

According to Jack, Willy, and Renandya (2002), a learner's ability to speak, listen, read, and write is largely based on their vocabulary. Vocabulary is a fundamental part of language mastery. In this situation, students require media that

can facilitate the development of their vocabulary mastery when learning. It would be simpler for individuals to communicate in a foreign language if they can understand vocabulary (Aminatun and Oktaviani, 2019).

2.3.2.3 Grammar

Learning grammar would make it easier for students to communicate in English since they would be aware of the proper word order, verb tenses, and utterances. Ur (1996) defined grammar as the method by which words are combined to form proper sentences. When communicating ideas and thoughts, using proper language prevents misunderstandings.

2.3.2.4 Fluency

Fluency is the ability to speak clearly and continuously so that the listener may understand the intended message. Fluency, according to Richards (2005), is the use of natural language when a speaker engages in meaningful conversation and can recall it. Despite one's verbal inadequacies, this correspondence would be clear and uninterrupted. It does not imply that we overlook students' faults or errors when we provide feedback on their communications. Local issues should be less of a priority in order to improve students' fluency in their interactions.

2.3.2.4 Comprehension

Harmer (2007) asserts that during speaking exercises, it is expected of each student to understand what was stated. Given that speakers respond more quickly to communications when they are comprehended well, it is implied that understanding is another key element to be examined.

2.3.3 Teaching Speaking and Technology in Teaching Speaking

Speaking is the act of expressing oneself verbally in order to interact with others. Speaking may also be described as the ability of an individual to convey thoughts to others. To communicate successfully, people must speak. According to Brown (2000), instruction talking is a style of speaking that teaches novices how to adopt a direct tactic and have more or less interplay in conversations. It suggests that teaching speaking is a way to communicate something important to students and invite them to come up with the concept before they speak about it in class. Harmer (2007) lists three justifications for instructing speaking: (a) The speaking exercise gives students the chance to practice speaking in real-world situations, so they feel safe in the classroom. (b) In a speaking assignment, students try to utilize one or all of them who are familiar with it and give comments to the teacher and other students. (c) Many students have had the chance to develop more viability or vigor in many facets of the language. In conclusion, there are three benefits to teaching speaking to students: it

encourages active class participation, it gives them a wide vocabulary to build sentences in a foreign language, and it enables them to produce words more effectively, especially in English. Speaking activities also encourage students to voice their diverse opinions in front of their peers outside of the classroom as well as in front of the class. As a result, students must speak authoritatively when they explain the subject or the context of a conversation.

Research on how students are taught speaking, particularly utilizing the English language, is proliferating. This is because teachers are resourceful, as they employ a variety of tactics, techniques, and approaches to cultivate students' speaking abilities. They employ a variety of techniques and strategies to help students become more proficient communicators. They create their courses to make studying English more pleasant so that students may adopt a more positive outlook (Noom-ura, 2008). Numerous studies have been done to determine the finest and most efficient methods and techniques for enhancing communication skills. According to Koşar (2019), there is a substantial difference between students learning English from native speakers and those who do not. After a research investigation, some even advised information and practice for improving speaking abilities. To improve their capacity to apply task-based language teaching while creating and carrying out lesson plans, Murad and Smadi (2009) suggested that teachers incorporate task-based language teaching ideas and processes in their classroom practices and pre-service training programs. The effect of using L1 on EFL learners' L2 speaking abilities as well as their views of L1 usage in encouraging oral production in L2 were explored by Yüzlü and Derin (2020). On the efficacy of a tactic used to improve communication skills, some studies were done. Role play, according to Qing (2011), is a very effective technique for encouraging interaction among students and giving them a chance to practice speaking in the target language. Additionally, it recommended using role play to improve students' multicultural awareness and aid in the development of their general communication skills. Furthermore, role play is a recommended method in task-based language instruction that has a favorable impact on students' speaking abilities, according to Aliakbari and Jamalvandi (2010). Additionally, where it is available and accessible, using technology in teaching techniques is an essential practice in teaching English as a foreign language. There have been suggestions made about using technology to teach speech. To help students develop their oral abilities, CMC (computer-mediated communication) is suggested as a method for teaching pronunciation and dialogue (Hong, 2006). McDougald (2009) found that the technology used to teach language skills is undoubtedly a supplement to traditional instruction, particularly when it comes to

improving English reading, writing, and listening abilities. One of the improvements in how languages are taught in schools that puts more emphasis on using language for communication than merely passing exams is the use of technology in speaking lessons (Thao, 2003). Furthermore, Bahadorfar and Omidvar (2014) pointed out that employing technology has been perceived as a means of assisting students in enhancing their language proficiency. Also, these resources are regarded as the best for teaching speaking abilities. Furthermore, Huang and Hung (2010) state that an e-portfolio is a tool that helps students communicate with a rich vocabulary, which enhances oral performance learning. Student acceptance of using such technology to teach speaking is quite high. Similarly, podcasts, the internet, video conferencing, voice recognition software, blogging, and video conferences are thought to be some of the best teaching tools for speaking skills (Parveen, 2016). It seems clear that technology is essential to surviving in the modern world given that both educators and students now interact with one another through these platforms. Technology is now used as an extra instructional tool to help teachers improve their students' speaking skills. Using technology to teach speaking has become essential, especially when teaching English to speakers of other languages (Hong, 2006). It was mentioned that the first goal of computer-mediated communication in the teaching of conversation and pronunciation was to enhance students' speech performance. Along with many of the modern technological instruments, the speech laboratory is also crucial for teaching speaking and speech articulation (Margret, 2010). Additionally, video conferencing software is regarded as a crucial computer-mediated communication tool for fostering correctness and fluency in speaking. In addition to facilitating social connection, it provides oral reinforcement of course material outside of the classroom for fluency, accuracy, and social skills (Roma Correa, 2015). Likewise, one effective technological technique for teaching speaking is digital storytelling. It creates a unique narrative medium by fusing computer technology and the art of storytelling with visual designs like text, graphics, and audio. More specifically, adopting digital storytelling in the classroom has helped students improve and grow their English-speaking abilities since it enables them to narrate stories in their own words and voices (Somdee and Suppasetseree, 2013). Television and other digital cartoons help students improve their communication skills. Cartoons use music and images to grab the audience's attention and increase students' motivation to learn how to speak (Fata & Wahyuni, 2016). Additionally, the use of information and communication technology (ICT) improves oral performance, motivation, and speaking ability (Idayani & Sailun, 2017). It has a tremendous and significant impact on how well students learn, and students report that their speaking

abilities, understanding, and creativity have all increased as a result. According to Ampa, Rasyid, and Rahman (2013), using multimedia as the learning material as one of the ICT technologies has a substantial impact on improving students' English-speaking skills. As it increases students' enthusiasm to study, video blogging is helpful (Rakhmanina and Kusumaningrum, 2017). Similar to how a smartphone may help with public speaking phobia, according to Machmud and Abdulah's (2017) research, groups of students with high and low anxiety levels performed better on speaking tests when they were taught using smartphones as opposed to when they were taught using a traditional speaking instruction paradigm. The speaking abilities of students change significantly when taught through technology, such as WhatsApp contact, according to Akkara, Anumula, and Mallampalli (2020). Comparing the experimental group to the other group who were taught to speak English using the traditional technique, the experimental group's use of technology in speaking instruction had a greater impact on their English fluency. Additionally, English as a second language students who improve their speaking abilities have higher language competency and improved self-confidence, according to Rodrigues and Vethamani (2015). The use of technology in speaking instruction has a variety of benefits for students. Goh (2016) asserts that the use of technology in speaking instruction improves the accuracy, fluency, and complexity of language. Furthermore, technology-assisted speaking instruction improves students' lexical resources, coherence, pronunciation, and grammatical range, according to Akkara, Anumula, and Mallampalli (2020). More precisely, teaching speaking to students through technology improves their speaking skills, which in turn benefits their fluency, pronunciation, and speaking abilities. It also helps students who have trouble communicating (Hamad, Metwally, & Alfaruque, 2019).

2.3.4 Challenges in Learning and Teaching Speaking Skills: Global and Local Perspectives

Most Vietnamese students find it extremely difficult to acquire English speaking since there are major disparities between the two language systems. The four key characteristics that Ur (2000) identified for learners' speaking challenges are inhibition, lack of ideas, limited involvement, and the habit of using their mother language. One psychological issue that hinders students from speaking is inhibition. They commonly worry about other people's speaking influence, making mistakes in front of their peers, receiving criticism, and seeming foolish when speaking. Some other researchers agreed that when students are expected to do speaking activities, they may experience tension and anxiety. Additionally, many students occasionally lack ideas for the prescribed speaking topic since it is obscure or boring. When students are

unsure whether what they are going to say is accurate, they choose to remain silent or participate very little. Most learners prefer to think in their original language before translating their ideas into the target language (Pathan, Aldersi & Alsout, 2014; Keong, Ali & Hameed, 2015).

According to a few investigations (Tobias & Everson, 1997; Amini, Mojallal, Karimpour & Alizadeh 2014), psychological elements like motivation, anxiety, and confidence may also have a direct bearing on how well students talk. According to Othman & Shuqair (2013), language learners would have better success learning to speak when they are eager, passionate, and willing to participate in speaking activities. Meanwhile, hesitant or pressured English language learners typically refrain from expressing what they are thinking in English. Unpleasant learning environments might make students feel uncomfortable participating in speaking activities, which is another obvious challenge. The creation of an engaging speaking environment gives students additional chances to boost their motivation for speaking. Therefore, having a healthy mental state enables students to speak more fluently.

Thao and Trung (2022), in a study titled "Difficulties Encountered by Students at a University in Vietnam in Speaking English," discovered that Thai Nguyen University's EFL students more frequently encounter linguistic than psychological challenges when speaking English. They encounter problems with pronunciation, grammar, and vocabulary. The most prevalent linguistic issues, which are brought on by the usage of one's native language, lack of practice, and insufficient linguistic education, are grammar ineptitude and a lack of vocabulary. Because they use Vietnamese so frequently in English classes, students frequently forget to pronounce final sounds or mispronounce Vietnamese words. Additionally, due to a lack of linguistic expertise and practice, several English terms and grammar structures are difficult to recall. EFL students at Thai Nguyen University experience psychological issues with attitude, anxiety, and motivation. Although students are highly motivated and have a positive attitude, they also experience significant levels of anxiety, which is related to how they see themselves, the learning environment in the classroom, and the teachers.

Trinh, N. B., and Pham, D. T. T. (2021) found that language challenges were more common for non-English majors than psychological ones. Additionally, psychological issues with students have been found, such as pressure to do well, being outperformed by better students, anxiety related to making mistakes in front of the class, and fear of being criticized or losing their faces. The language challenges include

a lack of vocabulary and subject expertise, an inability to organize ideas rationally, poor sentence-formation abilities, and incorrect terminology.

Quyen et al. (2018) pointed to a variety of factors as the main barriers to students' speaking abilities, including their lack of vocabulary and English-speaking strategies, the lack of native English speakers among teachers, and the limited English-speaking environments around them. Additionally, although Nguyen and Tran's (2015) study on the English-speaking barriers of high school students was slightly different from earlier studies, the findings similarly analyzed problems caused by learners' weaknesses in speaking English and suggested the need for teachers to have ready support by diversifying their teaching activities.

Le (2011) at Ba Ria - Vung Tau University highlighted students' difficulties with their English-speaking abilities related to (1) issues with students, including learning styles, concerns, and language competency; (2) issues with lecturers, specifically their teaching methods; and (3) issues with teaching facilities. Ngo (2011) at Thai Nguyen University conducted a further investigation on the issues with students' speaking abilities in three difficult domains: social culture, linguistics, and psychology.

In short, the studies conducted at different universities in Vietnam reveal that students encounter difficulties speaking English. These challenges can be divided into linguistic and psychological issues. Linguistic challenges include problems with pronunciation, grammar, and vocabulary due to the influence of the native language, lack of practice, and inadequate education. Psychological issues relate to attitude, anxiety, and motivation, with students being highly motivated but also experiencing anxiety related to the learning environment and teachers. Non-English majors face more language-related challenges than psychological ones, including a lack of vocabulary and subject expertise. To improve English-speaking abilities, it is suggested to provide support to teachers, create more English-speaking environments, and address students' learning styles and concerns. Overall, addressing both linguistic and psychological aspects is crucial for enhancing students' English-speaking skills.

2.4 English for Specific Purposes (ESP)

2.4.1 Definitions and the Development of ESP

English for Specific Purposes (ESP) is a term used to describe the teaching and study of English as a second or foreign language in a specific subject. It helps students complete their fieldwork objectives. There have been several definitions of ESP to date. For instance, “ESP is an approach to language teaching in which all decisions as to content and method are based on the student’s needs.”, according to

Hutchinson and Waters (1987, p. 19). Another description offered by Anthony (2018) describes ESP as a method of language instruction that focuses on the language, skills, discourses, and genres necessary to meet students' academic or occupational goals (p. 10). Additionally, ESP entails teaching and acquiring the unique language and abilities required by certain students for a specific goal, according to Day and Krzanowski (2011).

Basically, the idea of ESP emerged in the 1960s when students and entrepreneurs began to see that English language instruction alone was insufficient to satisfy their needs (Li, 2018). The need for ESP is increasing because of English's rapid expansion in several fields, including business, media technology, medical, education, and research. This is especially true in countries where English is used as a tool for national advancement (Bhatia, V., Anthony, L., & Noguchi, J., 2011). The purpose of ESP is to assist students in enhancing their proficiency in English communication in a range of professional situations, including but not limited to accounting, marketing, management, human resources, engineering, and strategic thinking (Xu et al., 2020). Students often study English because they need it for their education or employment, not because they are interested in the language or culture of the English-speaking world. In ESP, English is taught not just for its own sake or for general education but also to facilitate entry into or improve performance within a broader language context, such as that present in academic, professional, or workplace settings (C. Kennedy, 1988)

It has been noted that ESP has its own unique approach to materials, teaching methods, examinations, and other elements that cater to student needs and educational objectives. The variables are changed to reflect the following after that: a) ESP could be connected to or produced for certain fields; b) ESP might use a different teaching method from that of general English in particular teaching contexts; and c) ESP is probably created for adult learners, either at a higher institution or in a professional job setting. The fundamental idea of the target learners' primary language demands should serve as the cornerstone around which the ESP approach is built. To satisfy the needs of the students, this should be supported by suitable instructional materials and practice (N. I. Susanthi, 2019). Since improving students' communicative competence is one of the goals of ESP teaching and learning, the focus of an ESP approach should be on learner-centered activities that prioritize communication. The ESP teaching and learning process in the classroom is learner-centered, which means that the learner's goals for mastering a specific aspect of the English language in the shortest amount of time possible serve as the foundation for the instruction (J. Luo and M. Garner, 2017). This is done in order to effectively satisfy the demands of the

learners.

Alduais (2012) claims that ESP emphasizes certain skill levels and linguistic components that are assessed and determined by the needs, reasons, and awareness of learning the language. ESP has recently been defined as an English variation that encompasses a number of professional sectors and particular knowledge domains by Sarre and White (2017). Due to the current high level of mobility as well as job objectives and requirements as a result of globalization, ESP courses should be tailored to the needs of individual students (Anthony, 2015) and identify the necessary linguistic and non-linguistic skills along with the knowledge needed in the field of expertise (Işik-Taş & Kenny, 2020). Therefore, Li (2018) stated that needs analysis is essential in the various ESP fields of study that need to be taught in order to design teaching materials that adhere to the educational curriculum and include the knowledge of "key terminology and concepts" (Stoller & Robinson, 2018:30) as well as their practical application. The transfer of students from general English instruction provided in secondary school stages to more specialist language use is required for the teaching of ESP courses in higher education programs (Stoller & Robinson, 2018). Grammar, specialized vocabulary, and practice with the four abilities are often taught using topic-based ESP coursebooks that adhere to the course syllabus and curricular requirements. Despite their value, they might occasionally be out-of-date, and the exercises given to students could not always correspond to situations that are appropriate for their requirements. Therefore, it is the duty of ESP educators to create and implement materials that are appropriate for their future professional careers while promoting active learning and pleasant learning environments (Vora, 2020). In order to adequately prepare students for the technologically advanced and globally interconnected world of today, it is imperative that teaching practices, and ESP courses in particular, intentionally integrate ICTs and Web 2.0 apps to enhance students' digital competence.

2.4.2 Challenges in Teaching ESP

Learning ESP has certain challenges, primarily concerning the students themselves. Suzani (2011) claims that the need for ESP among students is not sufficiently satisfied in the following ways: Students are not prepared for ESP courses; ESP classes are frequently overcrowded; ESP classes are occasionally postponed or canceled for no apparent reason; ESP teaching methods are still passive, and in some universities, learners' motivation wanes because they believe ESP is unimportant for their future employment. Second, the challenges faced by teachers are listed by Thi To Hoa and Thi Tuyet Mai (2016), and one of them is the quality of lectures and textbooks in ESP courses. Most materials are created to help students develop their

listening, speaking, reading, writing, and translation skills, but some teachers think that a strong vocabulary is sufficient for their students. As a result, many textbooks created by teachers simply focus on reading abilities and vocabulary exercises, which do not engage students very much. Ho (2011) also claims that issues with course design, activities, assignments, and teaching strategies are a challenge for teachers. Students are required to engage in group projects, give presentations, take notes, and write essays about the material they have learned in class. However, due to a shortage of time, certain courses are occasionally not taught very effectively. The most recent challenges are caused by the environment and others' lack of instructional resources. According to Maruyama (1996), ESP materials that are too advanced for students' skill levels make them uninterested in learning. Additionally, due to their weak grasp of the material, students are unable to deepen their understanding. Many students acknowledge that they learn ESP not because they want to but because they have to, and that after tests they forget what they have learned. Furthermore, according to Maruyama (1996), classrooms with too many students negatively affect the effectiveness of teaching ESP, particularly when there is a disparity in student skills. Most students perceive it to be either too hard or too easy, given their understanding. Students lack interest in studying the subject as a result.

2.4.3 English for Tourism and Hospitality

Business English is currently regarded as the dominant language in business communication and serves as the foundation for establishing and maintaining global commercial relationships. This is also true for the tourism industry, where a strong command of this language is necessary for a significant number of occupations both domestically and internationally (such as tour guide, travel agent, receptionist, manager of tourism activities, hotel or restaurant manager, concierge, etc.). Regardless of whether English is a requirement for work in the tourist industry or not, it is certain that it is a great benefit for both employment and professional progression. Furthermore, considering that outbound visitor flows within the travel and tourism business have consistently expanded at a worldwide level in recent years, it is without a shadow of a doubt that strong capabilities in this language serve as the foundation for ensuring customer satisfaction. (UNWTO, 2023)

These are all facts that language teachers at the academic level should always keep in mind since, among other things, the university has to improve students' language competency so that future graduates could be well-prepared for an extremely competitive job market. English is an essential language for the travel and tourism sector. To function well at work, employees of tourism businesses need to

speak English well. Because employees in the tourism and travel industry do a range of duties, including answering phones, providing location guides, booking hotels and flights online, processing reservations for rental cars, etc., English is frequently used for interpersonal communication. According to experts in the field of teaching ESP, high-quality materials must adhere to a number of criteria, including being authentic, encouraging collaboration and critical thinking among students, meeting their needs, and integrating language skills. The publication of several textbooks that adhere to these principles has recently enriched the book market in the area of English for Tourism and Hospitality.

In the domain of international tourism, the English language unquestionably holds a prominent position (Crystal, 2003). Scholars and policymakers in developing nations and regions emphasize the importance of acquiring English communication skills as a top priority. This emphasis is vital for ensuring high-quality services in tourism, attracting a steady flow of tourism export income, and meeting the aspirations of entrepreneurs and workers. Consequently, the teaching and learning of English for tourism have become a global endeavor. However, it is essential to critically assess the perceived value of achieving 'native-like' English proficiency. International tourist destinations are diverse, multilingual spaces where language use is constantly negotiated based on context and audience (Held, 2018). The linguistic landscape in these destinations is rarely 'English-only,' and oral interactions often involve code-switching and translanguaging. Furthermore, many tourists seek 'authentic' experiences, including exposure to local languages and cultures. Forms of mass tourism, such as cruises and bus tours, often operate exclusively in tourists' first languages, minimizing interactions between locals and visitors (Shambaugh, 2013; Arlt, 2006). While English plays a significant role in international tourism communications, most encounters between local service providers and foreign visitors involve 'non-native' speakers of English (McHenry, 2019). Therefore, teaching communication skills for tourism should embrace plurilingual and intercultural education models (Bosch and Schlak, 2013). Teaching English for tourism should also consider English as a lingua franca (Jenkins, Baker, and Dewey, 2017; MacKenzie, 2014; Jenkins, 2012).

Within the context of hospitality and tourism, proficiency in all four communicative language skills in English, namely listening, speaking, reading, and writing, is widely recognized as essential (Prachanant, 2012). Nevertheless, extensive research findings emphasize that learners in English language classes within the hospitality and tourism sector prioritize the development of speaking and listening skills, given the inherently communicative nature of their work (Ghany & Latif, 2012;

Kaharuddin, Hikmawati, & Burhanuddin, 2019; Putri, Kher, & Rani, 2018). This emphasis on speaking and listening skills is not confined to a specific region; it is a trend observed in various Asian countries. Studies conducted in Pakistan (Yasmin, Sarkar, & Sohail, 2016) and Japan (Bury & Oka, 2017) have both concluded that within the realm of tourism and hospitality, listening and speaking skills hold paramount importance compared to reading and writing skills. This consistent pattern underscores the universal recognition of the centrality of speaking and listening abilities in the context of English language education for hospitality and tourism professionals. It is crucial to acknowledge that the ability to communicate in English remains vital for any tourism-related business endeavor or career. English, in its various forms, prevails in almost every international tourist destination worldwide. Furthermore, English language features have significantly influenced how other languages are used for tourism, from lexical borrowings to rhetorical structures (Raţă, Petroman, and Petroman, 2012). The dominance of English is also evident in academic discourse related to tourism studies, with English serving as the primary language for scholarly discussions, carrying epistemological implications (Korstanje, 2020). Consequently, stakeholders, including academic institutions, consider English an indispensable skill for both studying tourism as a field and engaging in tourism as an economic activity.

Despite the acknowledged importance of English in tourism, the teaching of English for tourism has been overlooked in academia, especially in the field of English for specific purposes (ESP) in North America and Western Europe (Ennis and Petrie, 2019). While research has explored how English is used and translated in tourism marketing materials, travel literature, and other forms of communication, the specific domain of English for tourism as a specialized language has not received adequate attention. The language of tourism encompasses distinct linguistic features at various levels, making it essential to approach its instruction from an ESP perspective (Otilia, 2013; Wade, 2013; Ruiz Garrido and Saorín-Iborra, 2006; Aleson-Carbonell, 2000; Huntley and Gonzales, 2000; Walker, 1995). However, the teaching of English for tourism professionals has often been perceived as a non-academic, remedial service, hindering the development of globally connected academic discourses and communities of practice (Ennis and Petrie, 2019). Historically, English for Tourism has been acknowledged as one of the oldest forms of ESP (Strevens, 1977), yet much of the related research has been confined to specific tourism contexts and not widely accessible across national boundaries (Ennis, 2019). Despite its existence, there has been a lack of consolidated literature reviews in this field. Addressing this gap, an exploratory study was initiated in 2016, building upon prior efforts to generate a

syllabus for an English for Tourism Studies course (Ennis, 2020). This initiative aims to bridge the existing knowledge divide and contribute to a comprehensive understanding of English for tourism within the broader academic and professional discourse. The surge in global tourism necessitates enhanced communication skills to facilitate improved global interconnectivity. English, as an international language, plays a pivotal role in this scenario, making mastery of the language imperative for employees in the hospitality and tourism sector. Effective communication in English ensures efficient service delivery, while poor language proficiency often leads to communication breakdowns and inefficient services (Al-saadi, 2015). Proficiency in English communication is not confined to tourism companies operating in English-speaking countries; it is essential for all sectors within the tourism industry (Chaudhary & Kaur, 2016). In the era of globalization, mastering English is crucial for accessing information, technology, and international communication. English, designated as the Lingua Franca, serves as the unifying language, enabling interactions between people from different countries (Astawa et al., 2019). This significance of English is particularly prominent in the tourism industry, where it has been a means of communication for centuries. Residents of international tourism areas require English language skills to engage intensively with tourists, highlighting the indispensability of practical English knowledge for tourism practitioners (Astawa et al., 2019). Tourism, with its substantial impact on global economic development, has prompted many countries to prioritize the sector, leading to economic growth, job creation, and poverty alleviation. English proficiency is integral to this growth, as it enhances communication between tourism workers and visitors, ensuring mutual satisfaction and potentially increasing the influx of tourists (Wilson, 2018). Moreover, tourists are increasingly seeking specialized experiences, such as exploring local cultures, historic sites, art, performances, religious relics, and culinary offerings. To cater to these needs, tourism employees must communicate effectively in English (Che Hassan & Ong Lok Tik, 2019).

The economic benefits of tourism are multi-faceted, encompassing economic, socio-cultural, environmental, and scientific aspects. Economic growth, a vital indicator for countries worldwide, is closely linked to the tourism sector. Tourism not only boosts local economies but also provides employment opportunities. Proficiency in tourism-specific English is fundamental for professionals in this sector, ensuring comprehensive and holistic service delivery (Zahedpisheh et al., 2017). As a significant component of economic growth, hospitality requires English proficiency among its personnel. The tourism industry, being one of the largest globally, demands effective communication to provide superior services to tourists. English competence

is indispensable in this context, although many practitioners face limitations in English skills and confidence (Fujita et al., 2017). Effective communication is paramount in the globalized business environment, with English emerging as the standard language for business interactions (Astawa et al., 2019). Consequently, proficiency in English, both written and oral, is essential for employees in the tourism sector, ensuring service excellence and contributing to long-term economic growth (Prachanant, 2012). In short, the mastery of English communication skills is fundamental for professionals in the hospitality and tourism industry. Proficiency in English not only enhances service quality but also fosters global interconnectivity, contributing significantly to the economic, cultural, and social development of nations involved in the tourism sector. Researchers continue to explore the potential of language in tourism, emphasizing the need for tailored language curricula and learning materials to meet the specific demands of tourism stakeholders (Irimiea, 2019; Puspitasari, 2018).

Liu, Wu, and Huang (2013) emphasize that practical activities rather than theoretical learning are what attract hospitality and tourism students the most. As a result, to engage students in learning certain programs, teachers must consider their learning preferences when instructing them. The teacher should also adopt some strategies when teaching English to tourism students, such as modernizing the teaching concept and methodology, defining learning objectives, shifting from a teacher-centered to a student-centered approach, integrating curriculum provision and textbook selection with local attractions and culture, and improving school-enterprise cooperation (Qin, 2013). Teaching ESP to tourism students should also place a strong emphasis on choosing and deciding on suitable resources. To better meet the requirements of the students, the ESP teachers must add to and adapt the existing instructional materials (Baghban & Ambigapathy, 2011). According to Masoumpanah & Tahririan (2013), it is challenging to locate a textbook that includes all contents regarding the students' demands; hence, ESP teachers must create supplemental resources to accompany the primary textbook. Similar to that, Leong & Li (2011) demonstrated how easy it is to provide adequate teaching materials given the dearth of pertinent English textbooks for the tourism program. Esteban & Martnez (2014) noted that considering these facts, the use of technology, such as the internet, in teaching ESP encourages the development of teaching materials. The most well-known of these are the ***English for International Tourism*** series (Pearson Education Longman), the ***Oxford English for Careers: Tourism*** series, the ***English for Tourism and Hospitality in Higher Education*** series (Garnet Education), and ***Test Your Professional English: Hotel and Catering*** (Pearson Edu). They are all English courses for tourism that do

not concentrate on any particular brunches, are visually appealing, occasionally include supplemental materials like workbooks, teacher's books, or even test booklets, and would be very appealing to students and useful to teachers if it weren't for their occasionally prohibitive prices. However, despite their high quality, most of these products are rarely used in the classroom in their original state. This occurs for a few reasons. First, they cover a lot of materials-usually over 100 teaching hours-making it necessary to study at a level for more than three semesters. This implies that, for the most part, teachers should modify these materials for use in the classroom, omitting certain tasks or, if needed, extending others. As a result, personalizing these products is the only way to truly satisfy students' requirements. First, following the needs of the students, they can combine generous online resources with specific websites that offer very helpful and varied exercises, such as alison.com/learn/English-for-Tourism, learnenglishfeelgood.com, esl-lab.com, englishformyjob.com, englishclub.com, business-english.com, bbcenglish.com, onestopenglish.com, etc. Additionally, teachers should commit to creating additional activities based on real-world resources, such as travel magazines, TV documentaries from reliable channels, official websites (such as culturalromtour.com, unwto.org, and vietnamtourism.com), travel blogs, brochures, recordings of conversations with travelers, and so on. Additionally, they may use experienced students as a teaching and learning resource who have both job pre-experience (from their role as clients) and job experience (from their position as employees in the area).

The students of tourism and hotel management must be proficient in speaking, listening, reading, and writing, according to Masoumpanah & Tahririan (2013). But speaking abilities are crucial in the tourism sector since, in their employment, students engage in communication tasks like offering directions, soliciting and providing tourist information, providing details about hotel amenities and mealtimes, etc. In addition, Prachanant (2012) showed that speaking skills are thought to receive greater emphasis when developing students' language abilities. His research focused on language use in the tourist business. According to Brown (2000), teaching speaking is the process of imparting accuracy and fluency to students. Teaching language usage or language-focused instruction concerns teaching accuracy. Teaching language usage or message-focused instruction is part of teaching fluency. According to Thornbury (2005), teaching speaking is a collaborative activity that calls for cooperation in the coordination of speaking turns. Therefore, the ESP instructor should offer a range of learning activities, including group discussions, role plays, etc., to enhance students' speaking abilities for tourist reasons (Zahedpisheh, Abu, & Saffari, 2017). It is consistent

with Thornbury's (2005) explanation that autonomy assignments provide students with additional practice opportunities so they can take full advantage of speaking opportunities. Presentations, conversations, and role plays can all be used to accomplish this. It is further supported by Harmer (2007), who claims that speaking exercises, including presentations, conversations, and acting from scripts, may help students improve their speaking abilities.

Vietnam possesses lots of advantages for the growth of tourism thanks to suitable conditions, including beautiful natural beauty and a tropical climate. Therefore, the tourism and hospitality services sector has grown and raised itself to the forefront of the country's economic growth. As a result, English for Tourism and Hospitality is becoming increasingly popular as a niche demand for future graduates in the tourism industry. Tran (2021) analyzes how the COVID-19 pandemic affected human resources training for the tourist industry and the teaching of English for Tourism. Since then, the author has offered suggestions for solutions regarding the teaching and learning of English for Tourism at universities affected by the COVID-19 pandemic to enhance students' learning outcomes and provide a setting where ideas may be gradually developed regarding the quality of teaching the English Language for the Tourism Industry. Additionally, in the period of development and integration following the COVID-19 pandemic, educators also contribute to prompt responses to the nation's growing needs in the language of tourism as well as in the economic, cultural, and social sectors in Vietnam.

2.5 Augmented Reality

2.5.1 Definitions of AR and its Categories

Morton Heilig (1926-1977) was the first to study AR, and Tom Caudell came up with the term in the 1990s (Zhang, 2018). Although Tom Caudell, a former Boeing researcher, invented the phrase "augmented reality" in 1990, the idea of adding virtual data to the actual environment was first employed in a variety of applications in the late 1960s and early 1970s. Some major corporations have employed AR for training and visualization purposes since the 1990s. The notion of AR may now be used in conventional learning contexts like schools and colleges due to the increasing capacity of personal computers and mobile devices. AR has received several interpretations in recent years based on the reality-virtuality continuum.

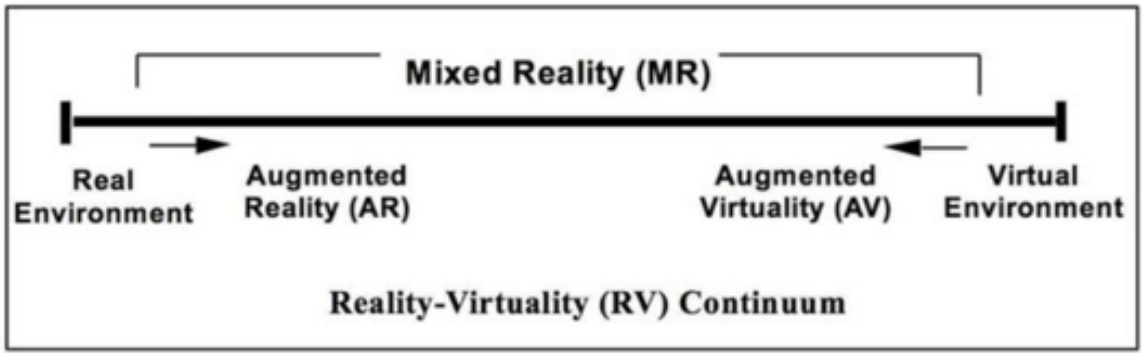


Figure 2.2 Augmented reality: A class of displays on the reality-virtuality continuum (Milgram et al., 1995)

Milgram et al. (1994) describe AR as "augmenting natural input to the operator with simulated cues." The notion of AR may be distinguished from ideas like virtual environments, also known as virtual reality (VR), and augmented virtuality (AV), thanks to the reality-virtuality continuum. While AV is concerned with environments where "the primary world being experienced is in fact [...] predominantly 'virtual' and "augmented with information from the real world," VR deals with settings where "the participant-observer is totally immersed in a completely synthetic world". A more limited definition of AR is provided by Milgram et al. (1994), who define it as "a kind of virtual reality where the participant's head-mounted display is transparent, enabling a clear view of the actual world."

The defining characteristic of AR is the overlaying of certain virtual elements-such as images, movies, or 3D animations-on top of the surrounding world. This real-time blending of physical and digital components contributes to the creation of an enhanced "real" experience. Azuma (1997) identifies three key characteristics of AR systems: a blend of actual and virtual dimensions, real-time interactions, and the use of 3-D. At its very first development, there were two types of AR technology: location-based and image/object-based (Cheng & Tsai, 2012; Wojciechowski & Cellary, 2013). Image/object-based AR utilizes an image or an object to activate the overlaid virtual elements using a smartphone or tablet camera, as opposed to location-based AR, which uses a mobile device's geographic position as a trigger for the GPS sensor for a virtual overlay (Carmigniani et al., 2011). The bulk of applications in this category are image-based since employing the form of an actual object as a trigger presents technological difficulties. The most prevalent type of AR in educational contexts, according to Bacca, Baldiris, Fabregat, Graf, and Kinshuk's (2014) review research, is the usage of images. Zhang (2018) conducted a survey of publications from 2003 to 2018 and found 10 peer-reviewed empirical studies that looked at the usage of AR in

language instruction. Half of the 10 investigations employed image/object-based AR, and the other half used location-based AR. According to Bacca et al. (2014), image/object-based AR's tracking technique provided a better user experience since it was more dependable than location-based tracking.

Up until 2023, it was modified and developed into five different types of AR technology to be compatible with numerous business and educational sectors (StreakByte, 2023). They are: (a) Marker-based AR, also known as image recognition AR, utilizes QR codes or visual markers to trigger interactive experiences. Users scan the marker with their smartphone camera to activate visual effects and view 3D digital images on their screens by moving their mobile devices around the marker. (b) Markerless AR, on the other hand, does not require physical markers like QR codes. Instead, it uses location-based data from GPS or accelerometers in mobile devices to detect and track the user's environment. It determines the location of virtual content, understands spatial relationships and orientation, and superimposes the virtual content accordingly. (c) Projection-based AR relies on projectors to display 3D imagery or digital content on flat two-dimensional surfaces like walls, floors, or objects. It is often used for creating holograms for events and movies but does not offer fully immersive environments. (d) Superimposition-based AR replaces or augments existing physical items with digital content. It identifies specific objects or features in the user's view and overlays relevant digital content onto them. For example, it could replace a book cover, a product label, or a landmark with digital augmentation. (e) Location-based AR is a type of Markerless AR that uses geographic data to deliver digital images at specific locations. It is commonly used in AR gaming, as seen in the popular game Pokémon Go, which relies on location-based AR functionality.

2.5.2 Mixed Reality and Extended Reality

In recent years, there has been a noticeable surge in interest surrounding extended reality (XR) within the realm of education, encompassing various facets ranging from virtual reality (VR) to augmented reality (AR), and even extending to mixed reality (MR), a term that is occasionally used interchangeably with both AR and XR. VR holds the potential for immersive and interactive learning experiences, deeply embedded within fully digital simulated environments (Lan, 2020a). On the other hand, AR offers similar educational potential, yet within real-world settings overlaid with digital data. In a broader sense, AR signifies the dynamic presentation of contextually relevant information and communication channels within real-world environments. Conversely, a narrower definition refers to the direct superimposition of these digital elements onto our perceptions of the real-world setting. Notably, these broad and

narrow definitions are gradually converging as technology continues to advance (Pegrum, 2021).

It is essential to emphasize that while AR commonly involves the addition of digital data to our perceptions, it also has the capability to digitally conceal real-world data from our senses, and intriguingly, it can simultaneously perform both functions (Wen et al., 2023). The immersiveness and directness of XR interfaces are contingent on the hardware utilized; currently, experiences may range from less immersive encounters, such as those on smartphone screens, to highly immersive experiences, such as those facilitated through headsets. There appears to be a discernible trend towards achieving greater levels of immersiveness and direct interaction. Moreover, contemporary dialogues surrounding XR may ultimately converge with proposals within the technology industry, envisioning a global metaverse. In short, the evolving landscape of XR technologies, encompassing VR, AR, and MR, presents an intriguing trajectory for the future of education. As these technologies continue to advance, educators and researchers alike must remain cognizant of the nuanced definitions and possibilities that each variant offers within the educational sphere, ensuring that they are well informed and equipped to harness the full potential of XR in enhancing learning experiences.

In recent years, substantial evidence has surfaced highlighting the educational potential of Virtual Reality (VR) and Augmented Reality (AR) in the realm of language learning (Alfadil, 2020; Lan, 2020b; Lan et al., 2015; Li & Lan, 2022; Chang et al., 2022; Parmaxi & Demetriou, 2020). Research indicates that immersive VR environments, especially those fostering social interaction, play a pivotal role in enhancing learning outcomes (Li & Lan, 2022). Similarly, AR technology has demonstrated its language learning efficacy, particularly through AR language learning trails rooted in digitally supported real-world scenarios (Pegrum, 2019a, 2019b). However, the impact of Extended Reality (XR), encompassing both VR and AR, on language learning varies across different aspects, necessitating a comprehensive investigation into the specific content and tasks conducive to XR approaches and identifying the learners who benefit most (Reinders et al., 2015; Wang, 2017; Wang et al., 2020; Wen et al., 2023). Scholars have emphasized the need for further research in this area, emphasizing the importance of understanding the nuanced ways in which XR technology affects language learning (Buchner & Kerres, 2023; Hockly, 2019; Lan, 2020a).

One compelling area of exploration involves the application of XR technology to cater to learners with special educational needs, addressing their unique

requirements and enhancing their language learning experiences (Lan, 2020b; Lan et al., 2018; Lan et al., 2023). Additionally, scholars have delved into the realm of students' active involvement in creating XR content or contexts, empowering them with agency and autonomy, thereby supporting their own learning as well as that of their peers (Pegrum, 2019b; Yeh & Lan, 2018; Yeh et al., 2018). Examining the XR spectrum, it becomes apparent that VR holds the potential to support telecollaboration, Collaborative Online International Learning (COIL), and Virtual Exchange (VE) initiatives. VR facilitates meaningful communication in second language acquisition by integrating embodied language communication, enriching digital storytelling exchanges, and fostering intercultural awareness and empathy among diverse individuals (Chen & Sevilla-Pavón, 2023). Particularly noteworthy is VR's practical advantage in remote teaching scenarios, such as during the COVID-19 pandemic, where it provides an immersive alternative to conventional teaching methods (Kukulska-Hulme, 2021).

On the other hand, AR technology proves invaluable in leveraging the linguistic diversity present in urban landscapes, where multiple languages and dialects coexist. By focusing students' attention on key information, AR effectively utilizes the richness of everyday environments, promoting language learning within real-world contexts. However, it is essential to acknowledge that AR might also pose challenges, such as narrowing students' focus and potentially overlooking real-world distractions. A common thread across the entire XR spectrum lies in the complexity introduced by 3-dimensional multimodal immersive texts. These complexities necessitate the development of new literacies, particularly XR literacy, as students engage in the creation, interpretation, and exchange of meanings within these immersive environments (Pegrum et al., 2022). Consequently, understanding these intricacies is fundamental to harnessing the full potential of XR technology in language education. Further research in this domain is imperative to unlock the myriad possibilities XR offers, shaping the future landscape of language learning and pedagogy.

2.5.3 AR in Language Education

2.5.3.1 Augmented Reality (AR)-based Designs

AR-based designs are increasingly being used in language education to provide an immersive learning environment. This literature review discussed the various aspects of this rapidly evolving technology and how it has been used to enhance language learning. The use of AR in language education is a relatively new phenomenon. Studies have shown that AR-based language learning activities can be effective in developing language proficiency and improving student engagement (Kim

& Lee, 2018). AR has been used to provide contextualized learning experiences, with students interacting with virtual objects and characters in a simulated environment (Kim, 2018). This allows students to gain a greater understanding of the language and its culture. In addition to providing a more immersive learning experience, AR-based designs also have the potential to improve language learning outcomes. Studies have suggested that the use of AR can increase student engagement and motivation, as well as enhance their learning experiences (Fang & Zhao, 2020). Additionally, AR-based language learning activities may provide a more meaningful learning experience, as students can interact with virtual objects and characters in a more natural way (Kim, 2018). Furthermore, AR-based language learning activities can be tailored to the individual learner's needs. This can help ensure that the learner is receiving the most relevant and effective instruction (Kim & Lee, 2018). Additionally, AR-based language learning activities can be adapted to meet the needs of different types of learners (Kim, 2018). Finally, AR-based designs can be used to create a more engaging learning environment. For example, AR can be used to create virtual field trips, allowing learners to explore a foreign city and its culture in a simulated environment (Kim & Lee, 2018). Additionally, AR-based language learning activities can be used to gamify the learning process, making it more enjoyable for students (Fang & Zhao, 2020). In conclusion, AR-based language learning activities can provide an immersive and engaging learning experience as well as improve language learning outcomes. AR-based designs can be tailored to the individual learner's needs and can be used to create virtual field trips and gamified learning experiences. Therefore, AR-based designs have the potential to revolutionize language education and make learning more effective and enjoyable.

AR technology has been gaining traction in language education since its introduction in the early 2000s. AR technology has been used in language education to create interactive learning experiences, enhance students' engagement and motivation, improve language comprehension, and increase student autonomy. This study seeks to synthesize the current research on how AR-based technology can be used to improve language education. Studies have demonstrated that AR-based technology can be used to create innovative and immersive language learning experiences. For example, a study conducted by Hsu et al. (2020) found that using an AR-based mobile application to teach English as a second language (ESL) resulted in greater student engagement and motivation compared to traditional teaching methods. Additionally, the study found that students achieved better language comprehension when using the AR-based mobile application. This finding is supported

by research conducted by El-Sawy et al. (2019), which showed that AR-based language learning applications can be used to help students improve their pronunciation accuracy and fluency. In addition to improving language comprehension, AR-based technology can also be used to increase student autonomy in language learning. Research conducted by El-Sawy (2018) demonstrated that using an AR-based language learning application can help students become more independent in their language learning. The study found that students were able to use the application to practice their language skills without having to rely on the teacher or other students. This finding is supported by research conducted by Chai et al. (2017), which showed that AR-based language learning applications can be used to help students become more autonomous learners. Overall, the research suggests that AR-based technology can be used to create innovative and immersive language learning experiences, enhance student engagement and motivation, improve language comprehension, and increase student autonomy. This technology has the potential to revolutionize language education and enable students to become more independent and engaged language learners. As AR-based language learning applications become more prevalent, further research is needed to understand the most effective ways to use this technology to improve language education.

In 2019, some researchers utilized AR to create a range of language learning experiences for students. For instance, one study used an AR system to enable students to practice speaking English in a simulated 3D environment (Khan et al., 2019). The researchers found that the AR system helped to improve student engagement, increase focus, and enhance their overall motivation to learn. Other studies have applied AR to language learning in a variety of different contexts, such as providing visual feedback for pronunciation practice (Chen et al., 2019) and creating interactive language activities (Huang et al., 2019). The use of AR in language education has been shown to bring several benefits to students. For example, AR-based language learning has been found to improve student motivation, engagement, and learning outcomes (Khan et al., 2019; Chen et al., 2019). AR also provides students with a more immersive and engaging learning experience, as they can interact with 3D objects and environments (Huang et al., 2019). Additionally, AR can provide students with more individualized instruction, as it enables teachers to tailor the learning content to each student's needs (Chen et al., 2019). While AR-based language learning has many potential benefits, it is not without its challenges. For instance, AR systems can be complex to set up, requiring specialized hardware and software (Khan et al., 2019). Additionally, it can be difficult to ensure that the AR content is relevant and engaging

for students (Chen et al., 2019). Finally, there is a lack of research on the long-term effects of AR-based language learning, as most studies have been limited to short-term evaluations (Huang et al., 2019).

AR technologies have been shown to motivate and engage language learners, making the learning experience more interactive and enjoyable. In a study of French language learners in a middle school, it was found that using an AR game increased student motivation and engagement in the language (Morris, 2012). Similarly, an AR language learning app has been developed to improve student engagement and interest in language learning (Bhugra, 2018). This app provides an interactive and immersive environment for users to practice their language skills and has been found to be an effective way to motivate language learners. In addition to motivating students, AR technology has been used to improve language learning outcomes. In a study of learners of English as a foreign language, it was found that using an AR game improved student performance in grammar and vocabulary (Chen, 2017). Similarly, in a study of Spanish language learners, it was found that using an AR game improved student performance in reading comprehension (Gonzalez et al., 2015). Additionally, AR technology has been used to support language learning in the classroom. For example, an AR game has been developed to help students learn Spanish vocabulary words (Kim et al., 2019). This game provides an interactive and engaging way for students to learn and practice their language skills. Finally, AR technology has been used to create immersive language learning experiences. For example, an AR game has been developed to help language learners explore cultural sites and landmarks in a foreign language (Lopez et al., 2018). This game provides an immersive and engaging way for language learners to explore and learn about a foreign culture. Additionally, an AR app has been developed to help language learners learn about the geography and culture of a foreign country (Kharbanda et al., 2017). This app provides an immersive and interactive way for language learners to explore and learn about a foreign country.

In conclusion, AR-based language learning activities exhibit the capacity to elevate student engagement, motivation, and language comprehension, all while nurturing learner autonomy. The adaptability and customization inherent in AR applications are paramount for addressing the individualized needs of diverse learners. Nonetheless, formidable challenges such as intricate technological setups and the imperative for longitudinal investigations persist. To advance within the academic landscape, it is imperative to consider avenues for mitigating these challenges, optimizing the seamless integration of AR into language education, and undertaking

comprehensive longitudinal studies to gauge its enduring impact. By doing so, this present study can contribute substantively to the advancement of a more efficacious and enduring paradigm for language learning.

2.5.3.2 AR Applications for Education

Due to a limited set of characteristics, AR technology is unique among other technical tools. According to Bursali and Yilmaz (2019), "when the barcodes or markers are scanned, virtual images such as videos, 3D objects, or other images combine with real-world data on the pointer." In line with that statement, the first feature that sets AR apart from previous technical tools is the way it connects the virtual and physical worlds. Users can enter a separate universe without leaving their actual, existing environment. As a result, it presents consumers with accurate and real-world situations. Virtual reality (VR) is also well recognized as a tool that allows users to become fully immersed in a virtual 3D world. While both technologies exist on the same continuum, Wang et al. (2017) note that whereas VR devices are totally cut off from the real world and offer a synthetic 3D virtual environment, AR devices overlay digital material over the real world. In addition, it employs real-time training and offers precise 3D registration of both virtual and physical objects (Soo et al., 2019). In other words, as was already indicated, it allows users to simultaneously experience a separate world through 3D information and visualization.

According to Wang (2017), "With the rapid advancement in educational technology, AR applications could be expanded and could work with various learning devices like tablet PCs and mobile phones." It provides people with the opportunity to choose the devices they want to use. There are two types of AR implementations: marker-based AR and markerless AR. According to Lee et al. (2019), marker-based AR applications rely on a reader (often the camera of a mobile device) to scan a certain form of image called a marker (such as a QR code) in order to create virtual 3D objects that are superimposed on top of the camera picture. Because users do not need to rely on the location sensor to interact with the offered material, marker-based AR is frequently employed indoors. In contrast, markerless AR relies on the location sensors of mobile devices, such as GPS position, velocity meter, etc., to construct virtual 3D objects without the need for any marker images (Lee et al., 2019). Because users must wonder about obtaining the material provided by the AR tool, it is thus typically used in the outside environment, such as in the hot trend of the mobile game Pokemon Go in 2016.

By augmenting the physical environment as it is experienced via the senses, AR seeks to give users a better overall experience. AR employs technical

computer programs to produce a mixed reality that coexists with actual and virtual items in the present. When integrated with other cutting-edge technologies, AR can be made even more versatile and engaging (Yeh & Tseng, 2020). Aside from that, AR has had a significant impact on several industries, including education, due to its capacity to engage users with interactive content and alter their perspectives. AR can provide new learning environments and experiences and encourage an active and connected learning process since it mixes the actual world with digital information. Through its 3D model representation and animations, AR can boost memory retention and motivation (Yuen et al., 2011). It is closely related to education, e-learning, gamification, and human-computer interaction. By enhancing and promoting high-quality education wherever and at any time, AR helps remove barriers to formal education (Marc et al., 2016). These facts, along with the technology's increasing acceptance and usefulness for both teaching and learning, have caused an annual rise in the quality and number of studies on AR in classrooms. Recent bibliometric investigations, scientific mapping, and systematic reviews have provided both the advantages that can be obtained when incorporating student-centered AR into educational settings as well as some of its shortcomings and restrictions (Yeh & Tseng, 2020). Through the immersive, engaging, and realistic learning experiences that AR delivers, learning environments that enable and encourage inclusive, collaborative, centralized, autonomous, problem-based, and ubiquitous learning may be designed (Santos et al., 2016).

According to a few scholars, AR may assist students in learning new information and resolving issues (Liu, 2019). It encourages the creation of an atmosphere where collaborative inquiry learning activities may be carried out (Wang et al., 2012). Students can also be interested in the teaching and learning process. Saffar et al.'s (2016) claim that AR may result in greater word memory and enhance students' attention and satisfaction. Kipper (2013) states that AR deviates in certain ways from virtual reality. Users of virtual reality technology are submerged in a synthetic environment and unable to perceive their surroundings while using the device. With AR, digital or computer-generated data like sound, visuals, and haptic awareness are superimposed on the physical world. According to Kipper (2013), one of AR's capabilities is that it can be used to enhance all the senses of the human body, but its commercial application is in graphics and visual representation. The distinction between AR and virtual reality is that the former enables the technology user to view the real environment while simultaneously including augmented and virtual things that are presented alongside it. As a result, AR simply serves to reinforce reality in those situations, rather than entirely replacing it.

Immersive AR environments can provide more interactive experiences than conventional learning settings while using fewer resources, money, and time. Leblanc et al. (2010) and Martn-Guterrez et al. (2011) find lower long-term costs for AR scenarios than for traditional education. Particularly, Chen and Tsai (2008) draw attention to the cheap cost of hiring employees and the reasonable expenses of constructing and updating the courses. This benefit is acknowledged by Andujar et al. (2011), particularly for virtual laboratories. They continue by saying that AR applications not only cut down on immediate expenditures like supplies, but also on preparation time for lectures. Although AR technology comes with a significant initial expense, this investment is most likely to be profitable in the long run. While one-time acquisition prices were considerable, Leblanc et al. (2010) conclude that the cost per class may be decreased by 93.34%, lowering total expenditures. Students also find the experience more engaging and pleasurable overall, and as a result, they become more inspired and involved in the learning activities. Redondo et al. (2019) found that the benefits of AR outweigh its current drawbacks, allowing it to be incorporated into all stages of education while simultaneously supporting teachers and students. It also facilitates the elimination of barriers to formal education and enhances and promotes high-quality education everywhere. According to Rafiq & Hashim (2018), AR applications can increase students' English language proficiency while also enhancing the 21st century abilities such as teamwork, communication, critical thinking, and problem-solving. Hence, using AR in learning may significantly facilitate and enhance the process of gaining new knowledge. Although it can aid in preparing future professionals for the impending technology era by offering the right and necessary training, it is essential to use the appropriate pedagogical approaches (suitable for each situation) in order to fully profit from AR's educational potential. According to Vate-U-Lan (2012), AR can be included in a variety of academic courses because it is an interactive technology that is closely connected to the actual world and is continually maturing.

Incorporating insights from this literature, this current thesis underscores AR’s distinctive capacity to seamlessly merge the real and virtual worlds, offering a flexible, device-agnostic approach. Marker-based and Markerless AR distinctions inform deployment choices. AR's potential lies in creating immersive, engaging, and cost-effective language learning experiences, fostering collaborative inquiry, and enhancing 21st-century skills. This study underscores AR's potential to revolutionize ELT in Vietnam, enriching language proficiency and modern skillsets while guiding pedagogical approaches for impactful, inclusive, and technologically-informed education.

2.5.3.3 Mobile AR-based Tasks and Assignments for Language Education

Since mobile learning has become increasingly popular over the past ten years, the number of AR applications for education has dramatically expanded, and they are now mostly utilized with mobile devices (Emirolu & Kurt, 2018). Numerous studies have been done to examine how AR can be utilized to enhance learning in specific areas of English language acquisition. Vocabulary development is one area of English language acquisition that has received attention. The study conducted by Solak and Cakir (2015) aimed to investigate the effects of materials designed with AR on the vocabulary learning of undergraduate students who were at the beginner English language level. The study found that students found it challenging to acquire new vocabulary due to a lack of appropriate language learning materials that were tailored to their level. The study's AR materials, which included animation and music to make the content more engaging for the learners, were developed to suggest new language vocabulary words to students at the primary level. The findings demonstrated that students were enthusiastic about learning new words, and this enthusiasm was favorably connected with their academic success.

In a different study by Liu (2009), AR software was used to create the Handheld English Language Learning Organization (HELLO), an environment for learning English that integrated sensors and ubiquitous computing to make it easier for seventh-grade students to listen to and speak the language. To promote learning, various zones (or places) of the school, including the lab and the stationery store, were covered in learning games. According to the study's findings, students were less anxious when practicing their speaking since they felt more comfortable speaking to the VLT's software than to a real person. As a result, the students could learn more effectively while also feeling content and enjoying the exercise.

To improve students' learning experiences, Tobar-Munoz, Baldiris, and Fabregat (2017) conducted a study on reading comprehension in which they combined game-based learning with AR to create an improved 3D book. For this activity, up to 51 third through sixth graders used tablets in pairs. Following their reading of several passages from a book in which an AR app superimposed virtual imagery to draw attention to specific passages, they were required to answer reading comprehension questions. This study found that students enjoyed reading more than they would have if they had only read from a book. In contrast to the control group, which read the book without using AR, students produced more informed, robust, and lengthy responses to "opinion-based" comprehension questions.

These findings showed evidence that AR holds immense promise for transforming pedagogical practices, particularly in areas such as vocabulary development and reading comprehension. By exploring the implications of AR technology on students' happiness and speaking skills within this specific context, the thesis can contribute to a more comprehensive understanding of how AR can be effectively integrated into English language education, ultimately enriching the pedagogical landscape in Vietnam and beyond.

2.5.3.4 AR Technology in Language Teaching in Vietnam

There were only a few research articles about AR technology in language teaching in Vietnam because the integration of technology in education is still relatively new and evolving in the country. Vietnam has been making efforts to enhance its education system through the adoption of innovative teaching methods, but the focus has mainly been on traditional approaches rather than incorporating emerging technologies like AR. Additionally, the limited access to advanced technology infrastructure and the lack of awareness and training among educators about the potential benefits of AR in language teaching have hindered its widespread implementation. Furthermore, financial constraints and limited funding for research initiatives have also contributed to the scarcity of research articles on this specific topic. However, as technology continues to advance and educational institutions recognize the potential of AR in enhancing language learning experiences, it is expected that more research articles would emerge, providing valuable insights and guidance for the effective integration of AR technology in language teaching in Vietnam. The following articles were found and summarized:

The study by Vo and Pham (2021), titled "Using Technology to Teach Speaking Skills Online During the COVID-19 Outbreak in Vietnam-Facts and Recommendations," highlights the results of a study conducted at the University of Foreign Language Studies, University of Danang, Vietnam. The participants were five university instructors between the ages of 35 and 48. The purpose of this qualitative study is to investigate teachers' concerns and obstacles regarding the use of technology in the online teaching of speaking skills to students. Activity Theory (AT) was used to analyze data collected from reflection notes and interviews. The authors found that the teachers faced a variety of issues and challenges when using technology to teach speaking skills online, such as lack of training, technical problems, low student engagement, time management, etc. They also provided some recommendations for improving the situation, such as enhancing teacher training, providing technical support, and designing interactive activities.

Lai Phuong, L. et al. (2021), in their paper “Application of Virtual Reality and Augmented Reality Technology for Teaching English at University Level” present some applications of VR/AR technology for teaching English at the university level in Vietnam. The authors introduce some VR/AR applications that can be used for teaching vocabulary, grammar, listening, speaking, reading, and writing skills. They also discuss some advantages and disadvantages of using VR/AR technology for teaching English. The authors introduced some applications of VR/AR technology for teaching different English skills at the university level in Vietnam, such as VRChat, Google Expeditions, Mondly AR, etc. They also discussed some advantages and disadvantages of using VR/AR technology for teaching English, such as increasing motivation, immersion, interactivity, etc., but also requiring high-cost devices, internet connection, and technical skills.

Vo et al. (2020), in an article named “Evaluating Vietnam’s Pre-service English Teacher Education Program for Technology Integration in Education,” evaluate the pre-service English teacher education program for technology integration in education in Vietnam. The authors use a mixed methods approach to collect data from 120 pre-service teachers and 10 teacher educators. They use the TPACK framework to measure the pre-service teachers’ knowledge and skills in technology integration. They also examine the challenges and opportunities for improving the program. The authors evaluated the pre-service English teacher education program for technology integration in education in Vietnam using the TPACK framework and surveys. They found that the pre-service teachers lacked practical knowledge and skills in technology integration and faced some challenges such as a lack of resources, guidance, feedback, etc. They also suggested some ways to improve the program, such as revising the curriculum and providing more opportunities for practice and reflection.

Diem et al. (2023), in their latest research paper “Exploring the Potential of VR in Enhancing Authentic Learning for EFL Tertiary Students in Vietnam”, investigated the possibilities offered by virtual reality (VR) when combined with language tasks to promote genuine learning experiences for English as a Foreign Language (EFL) learners. The study utilized Herrington et al.'s (2010) authentic task model as a framework to assess the effectiveness of VR-integrated tasks. A total of twenty-four students participated in the VR technology intervention and were subsequently interviewed individually. The findings revealed that VR can enhance various aspects of the ten attributes outlined in Herrington et al.'s (2010) authentic task model. Additionally, recommendations are provided to expand the applicability of the

model in EFL contexts, and the study discusses the practical implications and future research opportunities arising from these findings.

Challenges in technology integration are apparent, both in pre-service teacher education and current instructional practices. Educators encounter impediments such as insufficient training, technical impediments, and difficulties related to student engagement and time management. These challenges underscore the critical need for comprehensive teacher training and ongoing support to harness the full potential of technology effectively. On the other hand, the advantages of VR and AR technology in ELT are conspicuous. These innovative tools demonstrate promise in elevating motivation levels, creating immersive learning environments, and facilitating interactive educational experiences. This potential is especially pronounced when aligned with authentic task models, illustrating the capacity of technology to enhance various facets of language learning. The recommendations presented by the reviewed studies offer a strategic path for overcoming these challenges and maximizing the benefits of technology integration. These recommendations encompass revising curriculum structures, providing increased opportunities for practice and reflection, and extending technical support to educators. This dynamic landscape of challenges and opportunities underscores the evolving nature of technology integration in ELT, particularly in the context of Vietnam. As technology continues to advance and educators gain a deeper understanding of its potential, it is anticipated that further research and implementation would pave the way for a more effective and engaging language learning environment in Vietnam.

2.6 Immersive Learning

Immersive learning has emerged as a powerful approach in the field of language teaching and learning, offering learners dynamic and authentic experiences that go beyond traditional classroom settings. By immersing learners in realistic and engaging language contexts, immersive learning aims to create an environment where learners actively engage with the target language, culture, and real-world scenarios. Immersive learning can be defined as an approach that seeks to replicate real-life experiences and create a sense of presence, enabling learners to interact with language and culture in meaningful and contextualized ways. By simulating authentic situations and providing opportunities for active participation, immersive learning aims to enhance language acquisition, cultural understanding, and learner engagement. Theoretical foundations play a crucial role in understanding the principles that underpin immersive learning. Constructivist theories, such as Vygotsky's Zone of Proximal Development and

Piaget's theory of cognitive development, highlight the importance of active learning, social interaction, and context in knowledge construction. Immersive learning aligns with these theories by providing learners with hands-on experiences and social interactions that facilitate language and cultural learning. In language teaching and learning, immersive learning approaches align with communicative language teaching (CLT), which emphasizes the importance of using language for meaningful communication. Immersive learning complements CLT by providing learners with authentic and interactive language contexts, allowing them to practice language skills and develop communicative competence. The significance of immersive learning in language teaching and learning is multifaceted. Firstly, it creates an environment that promotes language acquisition by exposing learners to authentic language input and opportunities for language production. Learners are immersed in situations that require active language use, enabling them to develop fluency, accuracy, and communicative competence. Secondly, immersive learning enhances cultural understanding and intercultural competence. By immersing learners in culturally authentic scenarios, such as virtual cultural experiences or language exchanges, learners gain insights into cultural norms, values, and practices. This promotes empathy, appreciation for diversity, and the ability to navigate intercultural interactions. Thirdly, immersive learning fosters learner engagement and motivation. The interactive and experiential nature of immersive learning captivates learners' attention and sparks their curiosity. Learners become active participants in their own learning, leading to increased motivation and a sense of ownership over their language learning journey. In conclusion, immersive learning offers a promising approach in language teaching and learning, providing learners with authentic, engaging, and interactive language experiences. By immersing learners in realistic contexts, immersive learning enhances language acquisition, cultural understanding, and learner engagement.

Immersive learning technologies offer innovative and engaging approaches to language teaching and learning, providing learners with interactive and immersive experiences. Three prominent immersive learning technologies in language education are virtual reality (VR), augmented reality (AR), and simulations. Virtual Reality (VR) creates a computer-generated environment that simulates real or imagined scenarios, transporting learners to virtual worlds. In language learning, VR offers opportunities for learners to practice language skills in authentic and immersive contexts. Learners can engage in virtual language exchanges with native speakers, explore virtual cultural environments, or participate in simulated real-life scenarios to enhance their language proficiency and cultural understanding. The immersive nature of VR promotes a sense

of presence and creates a safe space for learners to experiment with language use and develop their communicative competence. AR overlays digital content onto the real world, enriching the learners' perception and interaction with their surroundings. In language learning, AR can provide real-time language support, object labeling, and interactive exercises. Learners can use AR applications on their mobile devices to scan objects, signs, or texts and receive instant translations, pronunciation guidance, or contextual information. AR also enables learners to engage in interactive language tasks and games, fostering engagement and motivation in the language learning process. The contextualized and interactive nature of AR enhances vocabulary acquisition, cultural understanding, and communication skills. Simulations offer virtual or simulated environments that replicate real-world scenarios, allowing learners to practice language skills and problem-solving in context. Language simulations can range from virtual business meetings, role-plays, or simulated travel experiences. Through simulations, learners can engage in authentic language use, make decisions, and experience the consequences of their actions in a controlled and supportive environment. Simulations promote active learning, critical thinking, and communication skills, enabling learners to apply language knowledge and strategies in practical and meaningful ways.

Incorporating immersive learning technologies into language education provides unique opportunities for learners to engage in authentic and contextualized language experiences. These technologies offer interactive and dynamic learning environments that enhance language acquisition, cultural understanding, and learner engagement. By leveraging the benefits of VR, AR, and simulations, language educators can create immersive language learning experiences that foster communicative competence, intercultural awareness, and motivation among learners. The experience of being fully present in a computer-generated environment is known as immersion. Today, we refer to these universes as virtual environments (VE) and virtual reality (VR). Similar to the social virtual world of Second Life, VE enables users to completely interact with a 3D environment that has been digitally produced. This experience does not require special glasses or head-mounted displays (HMD), unlike virtual reality (VR) (de Freitas, Rebolledo-Mendez, Liarokapis, Magoulas, & Poulovassilis, 2010). The ability to create a virtual self (= Avatar), engage socially, and have control over one's own conduct all contribute to the impression of being fully present in these environments. Slater and Wilbur (1997) use the term "presence" to describe the subjective psychological sensation of being in a virtual world if the virtual world is not solely regarded as an objective virtual illusion. The experience of presence may be produced via VR, as Slater

et al. (2006) showed. The authors conducted a Milgram Experiment replication and discovered compelling evidence that the subjects took the therapy seriously. With these results, a window may have opened for more social studies that are not practical in real life because of ethical or other issues. Other research (Dede, 2009; Riva et al., 2007; Shin, 2018) connected virtual reality to feelings, empathy, and learning. According to preliminary research (Krokos, Plaisant, & Varshney, 2018), those who learn via virtual reality have superior memory retention than those who do not (information recall). The benefits of immersive learning are so real and have been put to use in a variety of fields. VR glasses for schools are currently out of reach due to their expensive price tags, as already mentioned. The availability of recently created technology and apps on all mobile devices is a solution. Now that mobile VR is feasible, teachers may employ it in their courses (Cochrane, 2016). When used properly, 360-degree videos, which are employed by many of these apps, may likewise produce the immersive sense (Aitamurto et al., 2018).

Mobile immersive learning is now possible thanks to mobile devices and immersive learning environments. Teachers can introduce far-off or even unreachable locations as genuine real-world experiences in the classroom. There are no restrictions on how much the classroom may grow, either geographically or chronologically. Photo stories, video documentations, or multimedia presentations may now be created using both the local surroundings and the destinations visited, in contrast to the seamless learning strategy (Looi et al., 2010). If the pyramids' theme is used, students may mentally travel there and use the picture feature to capture the local fauna and environment. Time also abruptly takes on a deciding role. Virtual time travel makes it possible to truly experience historical and political events, which then allows for alternative reflection and discussion. Mobile immersive learning makes it feasible for social learning and trade. It could be possible to interact with other students, question the lecturer, and participate in the conversation when attending a virtual lecture at Oxford University, for instance.

Immersive learning technologies have been shown in studies to improve engagement (Hao & Lee, 2019), learning motivation (Taskiran, 2019), and academic achievement (Chen & Chan, 2019; Urun et al., 2017). In addition, they engage students' interest (Jee, 2014), foster social skills (Wu, 2019), lessen anxiety (Hsu, 2017), encourage experiential learning (Knutzen & Kennedy, 2012), and provide learner-centered learning settings (Hong et al., 2014; Hsu, 2019). The integration of immersive learning technologies is on the rise due to the recent advancements in mobile technologies and the increasing number of mobile device users (Akçayır & Akçayır, 2017; Statista,

2020). These technologies have gained significant attention in the field of education and are being studied to determine their impact on learning outcomes, particularly among university students (Bacca et al., 2014; Kavanagh et al., 2017; Turan & Akdag-Cimen, 2019). One reason for their popularity is their easy accessibility (Turan & Akdag-Cimen, 2019). Immersive learning technologies are particularly beneficial in creating an authentic learning environment for English as a Foreign Language (EFL) learners to practice their speaking skills (Taskiran, 2019). They offer a stress-free learning experience (Küçük, Yılmaz, & Göktaş, 2014) and support contextualized learning (Lee & Park, 2019) as well as situated learning (Hsu, 2017).

AR may be a more convenient option for accessing and implementing immersive learning technologies, primarily because smartphones can easily support AR technology (Martin et al., 2011). Furthermore, mobile devices are portable and user-friendly compared to cumbersome headsets or computers (Johnson et al., 2010). The use of immersive learning technologies in English Language Teaching (ELT) offers various advantages. These include increased motivation (Bacca et al., 2014; Kavanagh et al., 2017; Quintero et al., 2019), enhanced attention-grabbing capabilities (Chen & Chan, 2019), enjoyment and entertainment (Lantavou & Fesakis, 2018), reduced anxiety and improved confidence (Taskiran, 2019), better learning outcomes (Akçayır & Akçayır, 2017; Bacca et al., 2014), and support for personalized learning (Bacca et al., 2014; Kavanagh et al., 2017), among other benefits. However, there are also challenges associated with these technologies, such as technical issues or problems related to internet connectivity (Akçayır & Akçayır, 2017; Quintero et al., 2019; Yung & Khoo-Lattimore, 2019).

In conclusion, the incorporation of immersive learning technologies, particularly AR, in English language education has proven to be highly beneficial. Through extensive research and experimentation, it has been established that AR-based learning materials have the potential to enhance motivation, capture learners' attention, provide enjoyment and entertainment, reduce anxiety, increase confidence, improve learning achievement, and facilitate individualized learning experiences. These advantages highlight the immense potential of immersive learning to transform the landscape of English language teaching. However, it is important to acknowledge the existence of challenges, such as technical issues and internet-related problems, that need to be addressed in order to ensure smooth implementation and widespread accessibility. Overall, the integration of immersive learning in AR-based English language learning material design projects holds great promise for creating engaging and effective learning experiences that cater to the diverse needs and preferences of learners.

2.7 Related Studies on Applying AR Technology in English Language Teaching

In language education, AR technology has been harnessed as a pedagogical tool to enhance student learning experiences. Researchers such as Reinders, Lakarnchua, and Pegrum (2015) have explored its application in facilitating students' creation of interactive campus tours in Chulalongkorn University. The incorporation of AR technology in these contexts not only exemplifies innovative instructional methods but also signifies a paradigm shift in language education, offering students immersive and engaging opportunities for learning. Holden and Sykes (2011) conducted a pioneering study centered on the development of a location-based game set in a specific area of Albuquerque in the United States. This innovative game required participants to unravel a historical murder mystery by deciphering local clues, engaging with the surrounding environment, and collaborating with fellow players. Their research indicated that the game gained significant popularity among participants, highlighting their active involvement with the designated locations. Notably, participants displayed a clear preference for activities that necessitated physical exploration of the geographical sites over tasks that transpired off-site. Building upon this foundation, a subsequent study by Liu and Tsai (2013) delved into the realm of immersive educational experiences. In this small-scale study, which involved five participants, students were guided through a concise campus tour where various objects were digitally tagged with pertinent information. This information encompassed details about the objects themselves, as well as relevant vocabulary and expressions. The initial findings of this study were promising, revealing that participants effectively incorporated the acquired vocabulary into their subsequent essays, thereby underscoring the practical application and efficacy of such location-based learning initiatives.

Solak and Cakir (2015) investigated AR's effects on beginner-level undergraduate students, finding that tailored AR materials, enriched with animation and music, enhanced vocabulary acquisition and student enthusiasm, correlating positively with academic success. Liu (2009) implemented augmented reality software in the Handheld English Language Learning Organization (HELLO) for seventh graders, creating a comfortable environment for language practice, resulting in effective learning and reduced anxiety. Tobar-Munoz, Baldiris, and Fabregat (2017) combined game-based learning with AR to enhance reading comprehension among third to sixth graders, leading to increased enjoyment, deeper understanding, and more elaborate responses compared to traditional reading methods. These studies underscore AR's potential in

transforming pedagogical practices, specifically in vocabulary development and reading comprehension.

Lai Phuong et al. (2021) explored applications of VR and AR for teaching English at the university level, emphasizing benefits like motivation and interactivity alongside challenges such as high costs and technical requirements. Vo et al. (2020) evaluated Vietnam's pre-service English teacher education program, revealing deficiencies in technology integration skills and suggesting curriculum revisions and more practical experiences. Diem et al. (2023) investigated VR's potential in enhancing authentic learning for EFL learners, emphasizing the alignment with authentic task models and offering recommendations for future research and application. These studies collectively emphasize the urgent need for comprehensive teacher training, revised curricula, and ongoing support to effectively integrate AR and VR technologies into language education, thereby maximizing their benefits for students in Vietnam. As technology advances and educators gain expertise, further research and implementation are expected to create a more engaging language learning environment in Vietnam, addressing the challenges posed by the evolving landscape of educational technology integration.

In the paper titled "Restructuring Multimodal Corrective Feedback Through Augmented Reality (AR)-enabled Videoconferencing in L2 Pronunciation Teaching," Wen, Li, Xu, and Hu (2023) explore the development of a multimodal corrective feedback model aimed at enhancing pronunciation skills in second language learners. The study delves into the integration of Augmented Reality (AR) annotations and filters within the instructional framework. Drawing inspiration from established principles of multimedia design (Mayer & Fiorella, 2022), the authors designed a model that incorporated AR technology to facilitate the learning process. The primary objective of the research was to create a feedback system that effectively captured and compared learners' articulations of target sounds with videos demonstrating native speaker articulations. To optimize the learning experience, AR filters were employed to minimize extraneous cognitive load. These filters concealed non-essential facial movements, ensuring that learners could concentrate on crucial aspects of pronunciation. Additionally, AR annotations were strategically utilized to direct learners' attention toward essential movements, enhancing their focus during the learning process. The study conducted a comparative analysis between an experimental group comprising university-level Chinese learners of English and a control group engaged in offline multimedia corrective feedback classes. The focus of the assessment was the English dark /ɬ/ consonant, known to be challenging for

Mandarin speakers. The results revealed a significant improvement in the experimental group's ability to produce the English dark /ɬ/ consonant. This improvement was attributed to the effective use of AR technology, which reduced unnecessary information and streamlined the learning experience. The authors aptly noted that AR, by subtracting irrelevant information, proved to be a valuable addition to second language learning, aligning with the findings of the study (Wen et al., 2023, p. 99). However, it is crucial to acknowledge that the study also highlighted the limitations of AR technology in language learning. While the experimental group excelled in the production of specific phonemes, the control group demonstrated enhanced auditory identification skills related to different phonetic elements, such as the dental fricatives /ð/ and /θ/. This disparity in outcomes emphasized the importance of selecting appropriate teaching methods tailored to specific language learning tasks. The findings indicated that AR technology might not universally cater to all language learning objectives and underscored the necessity of considering diverse teaching modes for comprehensive language education. Despite encountering some technical challenges and other issues, the student feedback regarding the AR model was largely positive. Learners reported that the AR technology significantly contributed to their learning experience by enhancing focus and improving the overall efficiency of their language acquisition process. By integrating AR annotations and filters, the research successfully demonstrated their effectiveness in facilitating pronunciation learning. However, the study also emphasized the need for a nuanced approach, recognizing that different teaching modes are suitable for different language learning tasks. This research contributes valuable insights to the field of language education, highlighting the importance of thoughtful integration of technology to optimize learning outcomes.

Recent research continues to underscore the transformative potential of AR in English language teaching. For instance, a study by Belda-Medina and Marrahi-Gomez (2024) demonstrated that integrating AR into Content and Language Integrated Learning (CLIL) settings significantly enhanced vocabulary acquisition and student motivation among secondary education students. Similarly, a systematic literature review by Lau and Aziz (2025) highlighted AR's effectiveness in creating authentic language learning environments, thereby improving ESL learners' engagement and learning outcomes. In the Vietnamese context, Ngo and Vo (2025) emphasized AR's capacity to cater to diverse learning styles, promoting inclusivity and personalized learning experiences in ELT. Moreover, a study by Wang et al. (2025) explored the integration of AR filters in pronunciation teaching, revealing that such tools can effectively enhance learners' speaking fluency and confidence. These studies collectively affirm AR's role in enriching

language education by fostering immersive, interactive, and learner-centered environments.

This current study leveraged the insights from existing research to design AR-based learning activities that are immersive and contextually relevant, specifically tailored to real-world scenarios in the tourism and hospitality industry. This involved creating location-based AR simulations where students can practice language skills in authentic settings, such as interacting with virtual tourists or navigating digital recreations of tourist attractions. The goal was to enhance the practical application of language skills, aligning with methodologies demonstrated in prior studies. To ensure these AR activities are effective, they were designed to minimize cognitive load and reduce anxiety, fostering a supportive and engaging learning environment. This was achieved through the integration of multimedia elements and the provision of immediate, context-specific feedback, as highlighted by Wen et al. (2023). Additionally, collaborative tasks were embedded within the AR activities to encourage peer interaction and knowledge sharing, reflecting the social learning aspects emphasized in connectivist theory. By implementing these principles and strategies, the study aimed to develop a dynamic and effective language learning environment that capitalizes on the unique capabilities of AR technology. This approach not only aligned with the findings of previous research but also establishes a robust framework for enhancing language education in Vietnam, particularly within the context of English for Tourism and Hospitality.

2.8 Assessment of Readiness and Willingness of EFL Students to Adopt Technology

The assessment of readiness and willingness to adopt technology in EFL contexts is often grounded in various theoretical frameworks. The Technology Acceptance Model (TAM), proposed by Davis (1989), is widely adopted for understanding users' acceptance of technology. TAM posits that perceived ease of use and perceived usefulness are primary determinants of individuals' willingness to use technology. Further, the Unified Theory of Acceptance and Use of Technology (UTAUT) extends TAM by incorporating factors such as performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Readiness to adopt technology encompasses several dimensions, including technological proficiency, psychological readiness, and institutional support. Studies have utilized a variety of instruments to gauge these dimensions. For instance, Parrish (2004) developed a comprehensive readiness assessment tool that measures technological proficiency,

including students' self-reported skills and confidence in using digital tools. Psychological readiness, as explored by Bandura (1997), involves students' attitudes towards technology, their motivation to engage with new tools, and their perceived self-efficacy. Institutional support is another critical factor influencing readiness. Research by Rogers (2003) highlights the role of institutional policies, infrastructure, and access to technological resources in shaping students' readiness. These factors are often assessed through surveys and interviews with students and faculty, providing a holistic understanding of the institutional environment.

Willingness to adopt technology in EFL learning context is closely linked to students' attitudes and perceptions. Empirical studies have frequently employed questionnaires to measure willingness, focusing on aspects such as perceived benefits, perceived ease of use, and intention to use technology. Teo (2011) utilized a modified TAM questionnaire to assess pre-service teachers' willingness to integrate technology, finding that perceived usefulness significantly influenced their willingness. In addition to quantitative measures, qualitative approaches such as focus group discussions and interviews have been instrumental in uncovering deeper insights into students' willingness. For example, Huang et al. (2020) conducted interviews with EFL students to explore their attitudes towards mobile-assisted language learning (MALL). The study revealed that factors such as personal interest, perceived effectiveness, and previous positive experiences with technology were pivotal in shaping students' willingness. Despite the advancements in measuring readiness and willingness, several challenges remain. One significant challenge is the dynamic nature of technology and its continuous evolution, which necessitates the constant updating of assessment tools. Recent studies have extended TAM to include factors such as emotional responses and metacognitive strategies, highlighting their influence on learners' engagement with AI tools in language learning contexts (Yao & Liu, 2025). The Unified Theory of Acceptance and Use of Technology (UTAUT) further expands this understanding by incorporating constructs like performance expectancy, effort expectancy, social influence, and facilitating conditions. For instance, Wang et al. (2024) applied UTAUT to examine EFL learners' acceptance of ChatGPT, revealing that social influence and facilitating conditions significantly impact behavioral intentions. In addition to these models, the Technology Readiness Index (TRI) 2.0 has been utilized to assess students' predispositions toward technology adoption, considering factors such as optimism, innovativeness, discomfort, and insecurity. Zhao et al. (2025) employed TRI 2.0 to investigate EFL students' use of translation technologies, finding that optimism positively influenced behavioral intention and actual usage, while discomfort

negatively impacted behavioral intention. These findings underscore the importance of addressing both positive and negative psychological factors in fostering technology adoption.

Moreover, cultural and contextual differences play a critical role in influencing students' perceptions and acceptance of technology. As such, future research should focus on developing culturally sensitive instruments and exploring the impact of contextual variables on readiness and willingness. Additionally, longitudinal studies are needed to track changes in students' readiness and willingness over time, particularly as they gain more exposure to technological tools in their learning environments. Such studies would provide valuable insights into the long-term effects of technology integration and inform the development of more effective educational interventions. The measurement of EFL students' readiness and willingness to adopt technology is a multifaceted process that requires a comprehensive approach, integrating both quantitative and qualitative methodologies. By leveraging established theoretical frameworks and developing robust assessment tools, educators and researchers can better understand and enhance the integration of technology in EFL instruction. Future research should continue to address the evolving nature of technology and the diverse contexts in which EFL learning occurs, ensuring that assessments remain relevant and effective in promoting technological adoption.

In conclusion, Chapter 2 reaffirms the necessity to address several research gaps in the integration of AR technology in EFL education, particularly within the context of English for Tourism and Hospitality in Vietnam. Despite the potential benefits of AR in enhancing engagement, motivation, and language comprehension, existing studies largely overlook its application in vocational-specific language training. Moreover, the literature is also sufficient on systematic evaluations of Vietnamese students' readiness and willingness to adopt such technologies. There is a significant gap in understanding how AR can be effectively integrated to improve speaking skills, a critical competency for tourism and hospitality professionals. Furthermore, the current body of research lacks comprehensive insights into the synergistic application of AR with pedagogical approaches tailored to diverse learner groups. This study aims to fill these gaps by exploring the experiences, challenges, and outcomes associated with AR-enhanced learning, thereby contributing valuable knowledge to the field of technology-enhanced language education and offering practical implications for future educational practices and technological implementations in similar contexts.

CHAPTER 3
METHODOLOGY

This chapter begins by outlining the research design for the study. The study's participants, factors, and research instruments are then explained. The construction and assessment of research tools are described. Finally, methods for gathering data and data analysis are provided.

3.1 Research Design

The present study adopted a mixed methods research design, specifically employing an explanatory sequential approach. A quasi-experimental design with a single-group pretest-posttest structure - commonly categorized as a pre-experimental design (Reichardt, 2019) - was used to examine the impact of AR technology on students' speaking performance and perceptions. In this design, the independent variable was the AR-integrated instructional intervention developed by the researcher. The dependent variables included students' English speaking performance, their acceptance of AR technology (in terms of readiness and willingness), and their perceptions of the AR-based lessons. Aligned with the explanatory mixed methods model, quantitative data were collected first, followed by qualitative data to deepen and interpret the initial findings (Creswell, 2014). As illustrated in Figure 3, the research followed a single-group pretest-posttest structure, where students first completed a readiness and willingness questionnaire (Q1) before the intervention, and a perception questionnaire (Q2) after the AR-based instructional phase. These instruments were integrated into the quasi-experimental design to capture participants' attitudes, beliefs, and levels of preparedness for engaging with AR in language learning.

The study was conducted for a single academic semester (9 weeks), during which students participated in AR-enhanced learning activities centered around English for Tourism and Hospitality. The instructor functioned primarily as a facilitator, supporting student-centered, immersive learning experiences. The initial questionnaire (Q1) was used to assess students' readiness and willingness to adopt AR, consistent with the survey model recommended for identifying learner characteristics such as attitudes and skills (Fraenkel & Wallen, 2006; Demirel, 2008). Following the intervention, the second questionnaire (Q2) gathered insights into students' perceptions of AR-integrated lessons. As Creswell (2009) notes, the explanatory sequential design allows for

"quantitative statistical results followed by qualitative quotes that support or disconfirm the quantitative results" (p. 213). The research design, as visualized in Figure 3.1, was carefully constructed to address the study's objectives and research questions through the integration of both quantitative and qualitative phases.

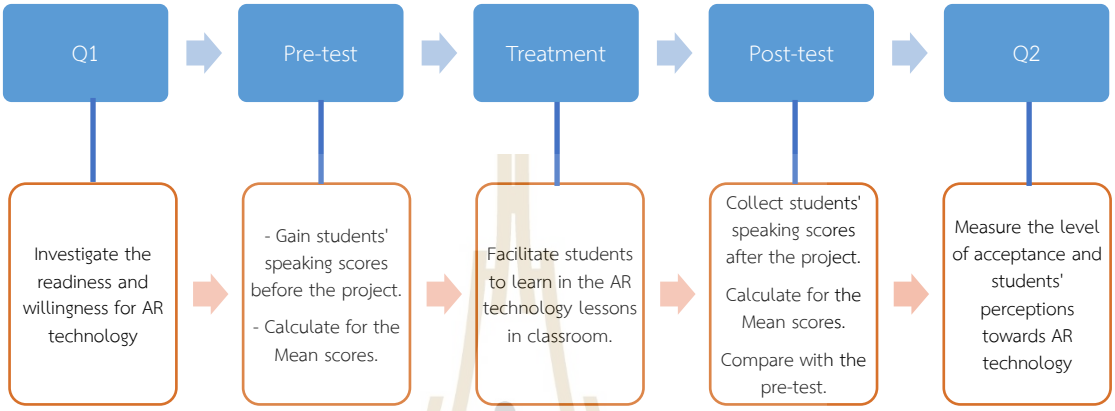


Figure 3.1 Single group pre-test, post-test Research Design (quasi-experimental) (Gay et al. (1981))

3.1.1 Rationale for the Research Design

The research design selected for this study encompasses a quasi-experimental, one-group pre-test and post-test methodology, which is particularly appropriate for investigating the effects of AR technology lessons on EFL undergraduate students' speaking skills within an elective English for Specific Purposes (ESP) course focusing on Tourism and Hospitality. The justification for this approach is underpinned by several critical considerations:

Firstly, the pre-experimental design aids in causal inference by enabling the exploration of the potential effects of AR technology lessons as an intervention on students' speaking skills. The implementation of a pre-test establishes an initial benchmark of the students' speaking proficiency before any intervention, while a subsequent post-test assesses any changes following the intervention. The comparative analysis of pre-test and post-test outcomes facilitates the establishment of a causal relationship between AR technology lessons and enhancements in speaking skills. Secondly, employing a single-group design ensures a controlled environment, crucial for assessing the effects of AR technology lessons on the EFL undergraduate students' speaking skills in English for Tourism and Hospitality. This design is particularly advantageous when exploring the implications of a novel technology such as AR, as it limits the confounding variables that might emerge from the presence of multiple treatment groups. Thirdly, the novelty of AR technology in educational settings offers

a unique opportunity for pioneering research. The chosen pre-experimental design allows for an in-depth examination of the technology's specific effects on speaking skills, which is vital for educational entities considering AR integration into their curricula. Additionally, situating the study within an ESP course tailored specifically for Tourism and Hospitality students enhances the specificity of the research. ESP courses are designed to cater to the precise needs of learners, and examining the effects of AR technology lessons on speaking skills within this specialized domain corresponds well with the principles of ESP education. Moreover, the longitudinal aspect of the pre-test and post-test design provides a framework for capturing the evolution of participants' speaking skills over time. This method is invaluable for evaluating the durability of any improvements observed and for determining whether the employment of AR technology contributes to sustained skill enhancement. The focus on speaking skills also correlates directly with the practical demands of English proficiency required in the Tourism and Hospitality Industry. Demonstrating the effects of AR technology lessons in improving these skills carries significant practical implications for boosting students' employability in their chosen field. From an ethical standpoint, the one-group design is advantageous as it avoids the ethical dilemmas that might arise from denying a control group access to a potentially beneficial educational intervention, thus preventing the withholding of educational opportunities. Lastly, considering the innovative nature of AR technology and its potential transformative impact, a pre-experimental design is often more feasible and appropriate for initial explorations. This approach acts as a foundational step for future research, which may evolve into more sophisticated experimental designs as the technology's effects are more comprehensively understood and its application becomes more widespread. This comprehensive approach to research design is essential for addressing the nuances of integrating AR technology into language learning, thereby contributing valuable insights into its potential educational benefits and practical applications in specific fields like Tourism and Hospitality (Choueiry, 2021).

In conclusion, the chosen research design-a quasi-experimental, one-group pre-test and post-test approach-offers a sound basis for investigating the effects of AR technology lessons on students' speaking skills in English for Tourism and Hospitality. This design aligns with scientific rigor, ethical considerations, and the practical demands of the educational and vocational landscape, ultimately contributing valuable insights to both the field of English language education and the integration of emerging AR technology.

3.2 Research Procedures and Conceptual Framework

This study employed the Technology Acceptance Model (TAM) as a theoretical framework to evaluate the impact of augmented reality (AR) technology on an English for Tourism and Hospitality course, which was conducted over nine weeks. TAM, which examines the factors influencing individuals' acceptance and use of technology, provides a comprehensive lens through which to analyze the adoption of AR and its implications for educational outcomes. By focusing on the core constructs of perceived usefulness, perceived ease of use, and perceived enjoyment, the study seeks to explore how AR-integrated lessons affect students' engagement, motivation, and language proficiency. The proposed research procedures and conceptual framework (Figures 3.2 and 3.3) outline a systematic methodology for analyzing these relationships, thereby contributing to a deeper understanding of the pedagogical effectiveness and user acceptance of AR-enhanced learning environments in higher education contexts.

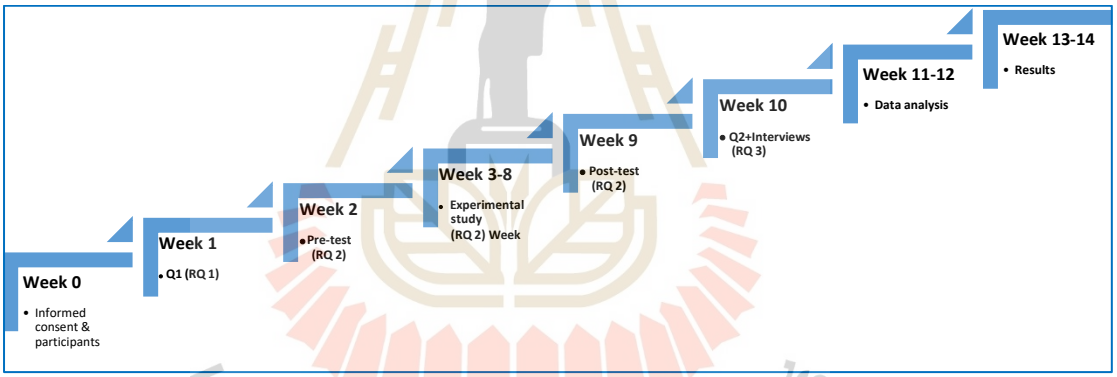


Figure 3.2 Proposed Research Procedures

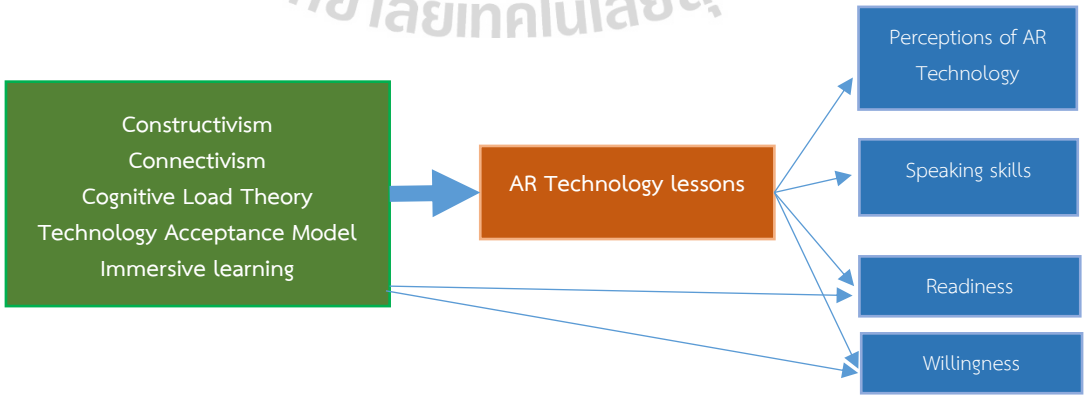


Figure 3.3 Proposed Conceptual Framework

The conceptual framework guiding this study integrates several theoretical perspectives and models to comprehensively investigate the impact of AR technology on Vietnamese EFL undergraduate students' speaking skills in the context of English for Tourism and Hospitality. This framework draws on constructivism, cognitive load theory, connectivism, and the technology acceptance model to provide a multi-faceted approach to understanding and enhancing language learning outcomes through AR technology.

Firstly, constructivism serves as the foundation for designing AR-based tasks that emphasize active learning and knowledge construction. By engaging students in realistic and contextually relevant scenarios, AR technology fosters deeper understanding and retention of language skills. This approach aligns with the constructivist view that learners construct knowledge through meaningful interactions with their environment. Secondly, Cognitive Load Theory (CLT) is employed to optimize the design of AR applications, ensuring that they manage cognitive load effectively. By integrating visual and auditory information, AR reduces extraneous cognitive load, allowing students to focus on essential language constructs and their practical application. This theory supports the goal of enhancing learning efficiency and effectiveness in AR-enhanced environments. Thirdly, connectivism highlights the importance of networked learning in the digital age. AR technology facilitates connections between learners and diverse information sources, promoting collaborative and interactive learning experiences. This theoretical perspective underscores the role of digital networks in developing language skills and supports the creation of a connected and interactive learning environment. Lastly, the Technology Acceptance Model (TAM) provides a framework for assessing students' acceptance of AR technology. By examining perceived usefulness and ease of use, the model helps identify factors that influence students' readiness and willingness to adopt AR for language learning. Understanding these factors is crucial for the successful implementation and sustained use of AR-based lessons.

The framework focuses on speaking skills and students’ perceptions of AR technology, addressing the core research questions related to the improvement of speaking abilities and learners’ subjective experiences. It also considers willingness and readiness as key variables, evaluating the practical feasibility and acceptance of AR technology in educational settings. This conceptual framework offers a robust foundation for exploring the potential of AR technology to enhance speaking skills in Vietnamese EFL students. It guides the design, implementation, and analysis of AR-based interventions, providing valuable insights for educators and curriculum designers

seeking innovative methods to improve language proficiency in the tourism and hospitality sector.

3.3 Research participants

3.3.1 Research participants for the pilot study

The participants in this study were selected through purposive and convenience sampling methods. Purposive sampling was employed to ensure that the research participants were those who had engaged in AR technology lessons, as this was essential for meeting the research objectives (Fraenkel & Wallen, 2006). Additionally, convenience sampling was used to include participants who were readily available and accessible through the researcher's connections. To mitigate any potential coercion, a third party unrelated to the course's instruction collected signed consent forms from participants. These consent forms were sealed in envelopes corresponding to each course section and were not opened until after the final grades had been submitted. This process ensured that participants felt no undue pressure to participate in the study. Once the course grades were finalized, data from consenting participants were collected and analyzed.

The study population comprised of 125 second- and third-year university students enrolled in the English for Tourism and Hospitality elective course during the 2024 academic year at the School of Foreign Languages, University of Economics Ho Chi Minh City, Vietnam. These students, familiar with university life and motivated to enhance their English language skills for future career opportunities, chose to participate in this course. As members of the tech-savvy Generation Z, they were particularly enthusiastic about engaging with AR technology, which is widely promoted and demonstrated at their university. Nonprobability sampling techniques, specifically purposive and convenience sampling, were employed to select the study sample. These methods are often used when randomization is impractical, such as in studies involving large populations, or when resources and time are limited. Purposive sampling, also known as judgmental sampling, involves selecting individuals based on specific characteristics that align with the research goals (Johnson & Christensen, 2012). This method focuses on identifying and choosing participants who can provide the most relevant information to address the research questions. Despite its subjective nature, purposive sampling is valuable in achieving the research objectives when the entire population cannot be feasibly included. Convenience sampling, on the other hand, involves selecting participants who are easily accessible to the researcher. This method is cost-effective and straightforward, although it may introduce biases due to

the non-random nature of participant selection (Dörnyei, 2007). Convenience sampling operates on the assumption that the characteristics of the accessible population are representative of the broader target population, ensuring that the findings remain generalizable (Given L. M., 2008).

The 82 participants in this study, who are university students enrolled in an English for Tourism and Hospitality course, exhibit language proficiency levels ranging from A2 to B1 according to the Common European Framework of Reference for Languages (CEFR). At the A2 level, students can understand and use basic phrases and expressions, engage in simple conversations on familiar topics, and describe aspects of their background and immediate environment. Those at the B1 level demonstrate an ability to handle more complex interactions, including expressing opinions, describing experiences, and dealing with most situations likely to arise while traveling in an English-speaking context. Typically, this elective course consists of two classes, each with thirty to forty students, offered during the last trimester of the academic year. These students were voluntary participants, well-acquainted with AR technology, and had ample opportunities to practice their EFL speaking skills in AR-based classroom activities. Following the completion of the project, ten participants were chosen through purposive sampling for semi-structured interviews to provide deeper insights and better address the research questions.

Table 3.1 Demographic Information of the Participants

Variable	Groups	N	%
Gender	Male	57	69.5
	Female	25	30.5
	Total	**82**	**100**

Table 3.1 presents the demographic information of the participants in terms of gender distribution. The table shows that out of a total of 82 participants, 57 are male, which constitutes 69.5% of the sample population. In contrast, 25 participants are female, making up 30.5% of the sample. This data indicates a predominance of male participants in the study, with males comprising more than twice the number of females. The total number of participants is evenly accounted for, summing up to 100%, thereby providing a clear overview of the gender composition within the study group.

3.3.2 Research participants for the main study

In this study, purposive and convenience sampling methods were employed to recruit 40 participants for the main study and 10 for the semi-structured interviews.

The purposive sampling approach was used to ensure participants had actively engaged in AR-supported classroom activities, which was essential for capturing insights aligned with the study's objectives (Fraenkel & Wallen, 2006). Convenience sampling was used to select students who were readily available and willing to participate, reflecting typical cohort characteristics in elective courses such as English for Tourism and Hospitality (ETH) at UEH. Additionally, convenience sampling was utilized to recruit participants who were readily accessible within the study's scope. This method allowed for efficient participant selection while maintaining the feasibility of data collection (Dörnyei, 2007). Demographic data indicated a relatively balanced gender ratio (42.5% male, 57.5% female), and although specific information about disabilities was not formally recorded, students requiring additional support were included in the classroom setting as per inclusive teaching practices followed by the university. Data reporting was conducted with meticulous attention to consistency across demographic tables, survey statistics, and speaking performance scores. The focus group interview questions were developed by the researcher to explore students' experiences with AR-enhanced instruction and were validated through expert reviews using the Index of Item Objective Congruence (IOC), with an average IOC score of 1.00. The questions were pilot-tested with non-participant students to assess functionality and appropriateness, and subsequently revised. Participants for the interviews were purposefully selected to reflect a range of engagement levels - both highly active and more passive learners - thus allowing for diverse viewpoints and ensuring that challenges encountered during the AR integration were equally represented. This approach contributed to a comprehensive understanding of learners' readiness, willingness, and perceptions, reinforcing the methodological rigor and the credibility of the study's findings.

To uphold ethical research practices and mitigate potential coercion, participant consent was obtained through a third party who was unaffiliated with the course's instruction. Signed consent forms were sealed and securely stored until after the final course grades had been submitted, ensuring that participants felt no obligation to partake in the study due to their academic standing. This process safeguarded the voluntary nature of participation, aligning with ethical considerations in educational research (Given, 2008). Once the grading process was completed, only data from consenting participants were included in the study. The population from which the study sample was drawn consisted of 40 second- and third-year university students enrolled in the English for Tourism and Hospitality elective course at the School of Foreign Languages, University of Economics Ho Chi Minh City (UEH), Vietnam,

during the 2024 academic year. These students, who had actively chosen this course to improve their English communication skills for professional and academic purposes, represented a cohort that was particularly suited to AR-based learning interventions. As digital natives belonging to Generation Z, they were accustomed to interactive and technology-enhanced learning environments and exhibited enthusiasm for adopting AR technology in education. A total of 40 participants were selected for the main study, with an effort to maintain a representative balance in gender distribution and academic levels. Nonprobability sampling techniques, specifically purposive and convenience sampling, ensured that the selected sample included students who had actively engaged with AR-integrated speaking activities and who could provide relevant insights into their experiences, learning progress, and technological adaptation. This approach aligns with the educational research principles that emphasize participant selection based on their direct involvement with the studied phenomenon (Johnson & Christensen, 2012).

The language proficiency of the participants ranged from A2 to B1, as defined by the Common European Framework of Reference for Languages (CEFR). At the A2 level, students demonstrated the ability to understand basic phrases, engage in structured conversations, and describe familiar topics, whereas B1-level students were capable of handling more complex discussions, expressing opinions, and responding to communicative tasks that required greater fluency. This variation in proficiency levels allowed for an in-depth exploration of how AR technology supports learners across different stages of English language acquisition. The elective course typically consists of two class sections, each comprising approximately 30 to 40 students, and is offered during the final trimester of the academic year. All participants were voluntary enrollees, and their exposure to AR-assisted learning activities enabled them to actively engage in English-speaking practice within an interactive, immersive classroom environment. Through the use of AR-enhanced simulations, role-playing exercises, and real-world scenarios tailored to the tourism and hospitality industry, these students gained firsthand experience in communicative English for professional contexts. Following the completion of the AR-based instructional period, ten participants were purposefully selected for semi-structured interviews, aiming to gather in-depth qualitative insights into their learning experiences, perceptions, and challenges with AR-integrated speaking lessons. The combination of quantitative assessments (pre-test and post-test performance evaluations) and qualitative data (focus group interviews) provided a comprehensive understanding of the impact of AR on English language learning outcomes.

Table 3.2 presents the demographic composition of the 40 participants who took part in the main study, illustrating a balanced distribution of male (42.5%) and female (57.5%) students. This gender distribution ensures that the study's findings encompass diverse learner perspectives, making them more representative of the broader student population engaged in ESP instruction, particularly within the tourism and hospitality sector.

Table 3.2 Demographic Information of the Participants in the Main Study

Variable	Groups	N	%
Gender	Male	17	42.5
	Female	23	57.5
Total		**40**	**100**

The demographic composition of the 40 participants in the main study reflects a representative mix of male and female students, ensuring that the findings are inclusive of diverse learner perspectives. The proportion of male and female participants was carefully considered to enhance the generalizability of the results, while still maintaining the practical constraints of participant availability and willingness to engage in AR-enhanced learning activities. Their selection was based on engagement with AR technology, motivation to improve English-speaking skills, and availability for participation. The purposive and convenience sampling methods ensured that participants had substantial exposure to AR-integrated instruction, making them well-positioned to contribute meaningful insights into the study's research questions. The CEFR proficiency levels (A2-B1) provided a valuable framework for analyzing language development across different learner proficiencies, while the focus group interviews complemented the quantitative findings by capturing students' perceptions and experiences in depth. The inclusion of a diverse cohort of participants who actively interacted with AR-supported learning materials enhances the validity and reliability of this research, providing critical insights into the effectiveness of AR in developing English-speaking skills in an ESP context.

3.4 Researcher's Roles and Responsibilities

In this study, the researcher assumes multiple critical roles to ensure the effective integration and evaluation of AR technology in enhancing students' speaking skills in English for Tourism and Hospitality. As the teacher of the class, the researcher is responsible for designing and delivering the instructional content, incorporating AR-based activities tailored to meet the educational objectives. In the role of facilitator,

the researcher guides and supports students in navigating the AR tools, fostering an engaging and interactive learning environment that encourages active participation and collaboration. As an observer, the researcher systematically monitors and documents the students' interactions with the AR technology, their engagement levels, and their progress in developing speaking skills. This comprehensive involvement enables the researcher to gather nuanced insights into the effectiveness of AR-enhanced instruction and its impact on student learning outcomes.

3.5 Research Variables

According to Arikunto (2010), the variable that has an impact is referred to as the independent variable (X), and the variable that was affected is referred to as the dependent variable (Y). The application of the AR technology (X) was the study's independent variable, while speaking skills and the student's level of acceptance of the AR technology (Y) were its dependent variables. This research employed a quasi-experimental design within an explanatory sequential mixed-methods framework to examine the integration of augmented reality (AR) technology in an English for Tourism and Hospitality (ETH) course. The independent variable in this study was the AR-integrated instructional intervention, while the dependent variables included students' English-speaking performance, their readiness and willingness to adopt AR technology, and their perceptions of the AR-based lessons. Speaking skills were operationalized through four IELTS rubric-based dimensions: fluency and coherence, lexical resource, pronunciation, and grammatical range and accuracy. Additionally, readiness and willingness to adopt AR were assessed using pre- and post-intervention questionnaires adapted from established TAM and UTAUT frameworks. These included constructs such as perceived usefulness, ease of use, and intention to continue using AR. Perception of the AR learning experience was captured through both post-surveys and qualitative focus group interviews, which further enriched the study's interpretative depth. By aligning these variables with the theoretical underpinnings of TAM, cognitive load theory, and constructivist learning, the study systematically evaluated how AR technology influenced not only measurable language performance outcomes but also learners' psychological and experiential engagement with educational technology

3.6 Research Instruments

The research instruments employed in this study constitute a comprehensive framework designed to gather robust data on the effects of AR technology on the speaking skills of Vietnamese EFL undergraduate students in the context of English for

Tourism and Hospitality. This investigation utilized a mixed-methods approach, combining both quantitative and qualitative tools to ensure a holistic understanding of the phenomena under study. The primary instruments included pre- and post-intervention questionnaires, pre- and post-speaking tests, and focus group interviews. These instruments were meticulously selected and developed to align with the research objectives and to address the core research questions regarding students' acceptance, readiness, willingness, and perceptions of AR technology. The questionnaires aimed to quantitatively measure the students' attitudes and perceptions towards AR technology, capturing data on their initial readiness and subsequent changes post-intervention. The speaking tests provided quantitative data on the improvement in students' speaking skills, serving as a direct measure of the intervention's effectiveness. Additionally, focus group interviews offered qualitative insights, enabling an in-depth exploration of students' experiences and the contextual factors influencing their learning outcomes. Together, these instruments formed an integrated methodological framework that facilitated a detailed analysis of AR technology's effects on the students' language learning, especially speaking skills, in a specialized context of ETH.

3.6.1 The Questionnaire to Assess the Acceptance Levels of AR Technology, in Terms of Readiness and Willingness

This instrument was used to assess the acceptance levels, in terms of readiness and willingness of the students towards AR technology. It was delivered to the participants in the beginning of the study as the pre-intervention questionnaire. This questionnaire was adapted from Davis (1989) in Cabero-Almenara et al. (2019) and Fauzi et al. (2019). In this study, the readiness and willingness questionnaire was designed to assess students' access to technology, attitudes towards AR, and prior exposure to AR technologies. The primary goal was to establish a baseline understanding of students' familiarity and comfort with integrating AR into their language learning curriculum. This instrument aimed to gather detailed responses on students' technological competencies, enabling a detailed analysis of their readiness and willingness for AR-enhanced educational experiences. Similarly, Fauzi et al.'s readiness assessment questionnaire focused on evaluating students' preparedness for AR integration, emphasizing logistical and awareness-related factors. It measured the availability of technological resources and students' basic knowledge of AR, assessing the practical feasibility of implementing AR in their educational context.

This study's questionnaire also included items investigating students' perceptions of AR's potential benefits and challenges, providing a comprehensive

understanding of their initial attitudes. In contrast, Fauzi et al.'s assessment concentrated more on practical aspects of technology readiness, evaluating students' access to necessary technological tools and baseline awareness of AR to identify potential barriers to adoption. Their readiness questions ensured that students possessed the fundamental technological capabilities required for effective engagement with AR applications. In short, this study adopted a holistic perspective on readiness and willingness, integrating both affective and logistical dimensions to offer a broader understanding of students' readiness to adopt AR. Meanwhile, Fauzi et al. provided valuable insights into the practical feasibility of AR implementation, highlighting the importance of technological resources.

There were 25 items in total, and they were divided into the following categories: Perceived Usefulness (4 items), Perceived Ease of Use (3 items), Perceived Enjoyment (3 items), Attitudes and Acceptance towards its Usage (15 items), and Intention to Use (2 items). This questionnaire focused on students' acceptance to the AR technology and asked them to rank the usefulness of AR technology for teaching and learning during English for Tourism and Hospitality. The questions were presented in the form of a Likert scale, with responses ranging from 1 for Strongly Disagree to 5 for Strongly Agree. This study's methodology was modeled after those of Trifonova et al. (2006) and Corbeil & Valdes-Corbeil (2007).

To ensure the reliability and accuracy of the questionnaires, several validation steps were undertaken. The questionnaires were available in both Vietnamese and English to accommodate all participants comfortably. The back-translation technique recommended by Brislin (1970) was employed to maintain the consistency of the questionnaire items across languages. This technique helped in verifying that the translation did not alter the meaning of the questions, thus ensuring that responses would be influenced purely by the participants' true perceptions and not by linguistic discrepancies. Furthermore, a pilot test was conducted with a group of 20 students to assess the internal consistency of the survey items. The Cronbach's Alpha values obtained from this pilot test exceeded the 0.7 threshold, indicating satisfactory internal consistency as outlined by Hair et al. (2019). This pilot testing not only underscored the reliability of the constructs but also helped in refining the instruments to better capture the intended data. In addition to statistical validation, the content validity of the questionnaire was rigorously evaluated by a panel of five experts specializing in instructional technology and English language teaching. Their extensive experience and academic expertise facilitated a critical review of the questionnaire items. All items were rated above 0.7, which means minor modifications

were made to enhance the clarity and relevance of the questions, further solidifying the questionnaire's content validity as per the recommendations of Artino et al. (2014). (See Appendix A)

Through these comprehensive validation procedures, the questionnaires were meticulously crafted and refined to ensure that they effectively measure the intended variables and provide reliable, valid data for analyzing the impact of AR technology on language learning in the context of Tourism and Hospitality education. This methodological rigor supports the study's aim to produce scientifically valid findings that can contribute to the broader academic discourse on the use of innovative technologies in educational settings.

3.6.2 The Questionnaire to Explore Students' Perceptions of Using AR Technology Lessons

This questionnaire was given to the students and served as the data collection tool for the study's last stage. There were three parts in this post-intervention questionnaire. The first part of the questionnaire was used to gather information and determine the student's demographics. Students were just asked about their age, gender, academic year, and basic understanding of AR in the questionnaires. The questions in the second and third parts of this questionnaire were adapted from Fauzi et al. (2019) and were presented in the form of a Likert scale, with responses ranging from 1 for Strongly Disagree to 5 for Strongly Agree. The second part consisted of 12 questions meant to gauge each student's readiness for AR technology, as well as their knowledge and expertise with the technology. The third part comprised 13 items to assess students' opinions towards AR technology lessons. The questions were modified to be about AR technology lessons in the teaching and learning in English for Tourism and Hospitality.

The questionnaire in the current study tailored its questionnaire to evaluate the acceptance and perceived effectiveness of AR technology in enhancing language skills among Vietnamese EFL students. This instrument focused on specific dimensions such as engagement, ease of use, and the overall utility of AR in language learning. Questions were designed to capture subjective experiences, emphasizing the interactive and immersive aspects of AR technology in improving speaking skills. In contrast, the questionnaire in Fauzi et al.'s study, situated in construction technology education, used a broader scope in its questionnaire. It assessed students' attitudes toward the practical application of AR, focusing on its usefulness in visualizing and understanding complex construction concepts. The questions aimed to gauge the perceived benefits of AR in enhancing cognitive learning outcomes and meeting

students' technological expectations. The questionnaire in the current study was specifically tailored to the context of language learning, emphasizing engagement and skill enhancement, whereas Ahmad Fauzi et al.'s questionnaire focused on the practical and cognitive benefits of AR in technical education. These changes reflect the unique objectives and contexts of the study, providing valuable insights into student perceptions of AR technology.

To ensure the validity and reliability of the second questionnaire, several rigorous validation steps were undertaken, similarly to the first questionnaire's process. First, the questionnaire was designed to be available in both Vietnamese and English to accommodate all participants comfortably. The back-translation technique, recommended by Brislin (1970), was employed to maintain consistency across languages. This method ensured that the translation did not alter the meaning of the questions, thus guaranteeing that responses reflected the participants' true perceptions rather than linguistic discrepancies. Second, a pilot test was conducted with a sample of 20 students to assess the internal consistency of the survey items. The Cronbach's Alpha values obtained from this pilot test exceeded the 0.7 threshold, indicating satisfactory internal consistency as outlined by Hair et al. (2019). This pilot testing not only confirmed the reliability of the constructs but also provided insights for refining the questionnaire to better capture the intended data. In addition to statistical validation, the content validity of the questionnaire was rigorously evaluated by a panel of five experts specializing in instructional technology and English language teaching. Their extensive experience and academic expertise facilitated a thorough review of the questionnaire items. All items received ratings above 0.7, prompting minor modifications to enhance clarity and relevance. These adjustments further solidified the content validity of the questionnaire, aligning with the recommendations of Artino et al. (2014). The comprehensive validation process ensured that the second questionnaire was a reliable and accurate tool for capturing students' perceptions of AR technology in the educational context. (See Appendix B)

3.6.3 The Speaking Pre- and Post- Tests

The effects of AR technology on Vietnamese EFL undergraduate students were evaluated in the study's second phase. To find out if AR technology may improve students' speaking skills, a single group, pre-test, and post-test research design was used. According to Sugiyono (2014), the pretest in this one-group pretest-posttest design enabled the researcher to assess the treatment with greater accuracy. This research instrument's primary objective was to assess AR technology lessons' effects on the speaking skills of students enrolled in an English for Tourism and Hospitality

course. The assessment tool involved conducting a pre-test and a post-test using the format of the International English Language Testing System (IELTS) Speaking test. In order to assess students' speaking skills, Mock IELTS Speaking tests were applied. The IELTS test consists of four portions: Speaking, Listening, Reading, and Writing. The IELTS speaking test is conducted as an oral interview in a natural setting in order to account for interaction. The speaking portion is conducted face-to-face with a certified examiner in 11 to 14 minutes, in contrast to other sections that are either computer-delivered or paper-based. Results are then given on a scale from 1 to 9 in full and half bands. Candidates must demonstrate integrated speaking skills on the IELTS speaking exam using the four criteria of fluency and coherence, lexical resource, grammatical range and accuracy, and pronunciation. The IELTS speaking exam is often trustworthy and precise. The exam is legitimate, specifically in terms of face validity and content validity. The brief complementation of three portions that are communicatively unrelated to academic subjects makes the exam content-reliable (Li, 2019). In Vietnam, 98 universities accept the IELTS certificate as one of the prioritized methods of admission. (Hà, 2023). This tendency has increased the focus on teaching IELTS speaking skills in Vietnam, along with the globalization of education and a rising need for proficient English-speaking abilities in the labor sector in particular (Bachman, 1990).

The researcher created a set of 10 mock IELTS Speaking tests, with topics related to Tourism and Hospitality, to serve the pre-and post-tests (See Appendix C). These tests were explicitly designed to assess the speaking skills of students, both before and after their engagement with AR technology lessons. The meticulous process of creating and validating these tests was integral to ensuring their effectiveness as reliable research instruments. The initial phase of test creation involved an in-depth analysis of the communicative requirements and situational contexts pertinent to the tourism and hospitality industry. This analysis was supported by consultations with industry experts and a review of relevant literature, which helped in identifying key language functions and terminologies essential for professionals in this field. Each test was crafted to mimic realistic scenarios that a professional might encounter, such as interacting with international clients, handling reservations, and resolving complaints, thereby embedding practical relevance into the assessment. Next, ensuring the content validity of these mock tests was a paramount concern. To address this, the tests were scrutinized by a panel comprising seasoned IELTS instructors and tourism professionals, who evaluated the tests' alignment with both the IELTS speaking standards and the specific linguistic needs of the hospitality industry. Their expertise was crucial in refining the test content, ensuring that it accurately reflected the

language proficiency levels expected and the practical challenges faced within the industry. Following expert review, the tests were subjected to pilot testing with a cohort of students not involved in the main study. This pilot phase was instrumental in identifying any operational flaws or ambiguities in the tests. Feedback from these pilot participants provided invaluable insights, leading to further refinements of the test prompts and administration procedures to enhance clarity and ensure an equitable assessment environment. Another vital aspect of the validation process involved the training and calibration of raters. Raters were extensively trained using the IELTS Band Descriptors (See Appendix D) to ensure a uniform understanding and application of the scoring criteria, with a particular emphasis on aspects such as fluency, coherence, lexical resource, grammatical accuracy, and pronunciation. This training included scoring practice sessions using diverse response samples to build consistency and reliability in their evaluations. Inter-rater reliability was rigorously assessed by having multiple raters independently score the same responses and analyzing the consistency of their scoring to minimize subjectivity and bias. The standardization of the testing process was meticulously maintained across both the pre-test and post-test phases. By employing the same scoring rubrics and procedures in both assessments, the study ensured a reliable basis for comparing the linguistic progress of students, thereby accurately gauging the educational impact of AR technology lessons. Through these comprehensive validation efforts, the set of 10 mock IELTS Speaking tests was tailored to not only meet the specific needs of students in the Tourism and Hospitality sector but also to uphold stringent academic and methodological standards.

During the pre-test phase, students were presented with three distinct IELTS-like speaking tasks that are closely related to the Tourism and Hospitality industry. These tasks encompassed a range of speaking skills, such as information delivery, opinion expression, and scenario discussion. Each student responded to these tasks individually, and their responses were recorded for later evaluation. Qualified and trained raters, well-versed in the IELTS Speaking Band Descriptors, then evaluated the recorded pre-test responses. These evaluators assessed various aspects of the students' speaking skills, including fluency, coherence, lexical resources, grammatical range, pronunciation, and interactive communication.

Following the pre-test, students engaged in a 9-week ESP course with AR-based classroom activities related to Tourism and Hospitality. This phase aimed to enhance their speaking skills through practical application within the industry context. Upon completion of the course, a post-test was conducted using a different set of

three IELTS-like speaking tasks that mirror the pre-test tasks in terms of complexity and skill coverage. Similar to the pre-test, students individually responded to these tasks, and their responses were recorded. The recorded post-test responses were again evaluated by the trained raters using the IELTS Speaking Band Descriptors, maintaining the same evaluation criteria used in the pre-test. This dual-phase assessment approach allowed a comparative analysis of the students' speaking proficiency before and after the intervention of AR technology in their language learning.

This research instrument offered several advantages, including the use of a standardized and recognized assessment like the IELTS Speaking test, objective scoring through trained raters and established criteria, and the ability to quantify the improvements attributed to the intervention of AR technology in an ESP course. To ensure the validity and effectiveness of the speaking pre- and post-tests, a comprehensive approach was adopted, encompassing several key areas including rater training, task relevance, ethical considerations, and pilot testing. The primary objective of these tests was to assess the impact of AR technology on the speaking skills of Vietnamese EFL undergraduate students enrolled in an English for Tourism and Hospitality course. The assessment was conducted using a pre-test and post-test format modeled on the International English Language Testing System (IELTS) Speaking test, a well-established and reliable tool in language proficiency evaluation.

The process of creating these mock IELTS Speaking tests involved an in-depth analysis of the communicative requirements and situational contexts pertinent to the tourism and hospitality industry. This analysis was supported by consultations with industry experts and a review of relevant literature, which helped in identifying key language functions and terminologies essential for professionals in this field. Each test was crafted to mimic realistic scenarios, such as interacting with international clients, organizing events, and developing sustainable tourism, embedding practical relevance into the assessment. Ensuring the content validity of these mock tests was a paramount concern. The tests were checked by a panel of seasoned IELTS instructors and tourism professionals, who evaluated their alignment with both IELTS speaking standards and the specific linguistic needs of the hospitality industry. Their expertise was crucial in refining the test content to accurately reflect the expected language proficiency levels and the practical challenges faced within the industry. Following this expert review, the tests underwent pilot testing with a cohort of students not involved in the main study. This pilot phase was instrumental in identifying any operational flaws or ambiguities in the tests. Feedback from these pilot participants provided invaluable insights, leading to further refinements of the test prompts and

administration procedures to enhance clarity and ensure an equitable assessment environment. Another vital aspect of the validation process involved the training and calibration of raters. Raters were extensively trained using the IELTS Band Descriptors to ensure a uniform understanding and application of the scoring criteria. This training included scoring practice sessions using diverse response samples to build consistency and reliability in their evaluations. Inter-rater reliability was rigorously assessed by having multiple raters independently score the same responses and analyzing the consistency of their scoring to minimize subjectivity and bias. Ethical considerations were also thoroughly addressed. Participants were fully informed about the study's purpose, procedures, and potential impacts, and their consent was obtained prior to participation. Confidentiality of the participants' responses was strictly maintained, and all data was anonymized to protect their identities. The standardization of the testing process was maintained across both the pre-test and post-test phases. By employing the same scoring rubrics and procedures in both assessments, the study ensured a reliable basis for comparing the linguistic progress of students, thereby accurately gauging the educational impact of AR technology lessons. This dual-phase assessment approach allowed for a comparative analysis of the students' speaking proficiency before and after the intervention of AR technology in their language learning. Through rigorous validation efforts, including expert reviews, pilot testing, rater training, and ethical considerations, the set of 10 mock IELTS Speaking tests was tailored to meet the specific needs of students in the Tourism and Hospitality sector. These measures ensured the reliability and accuracy of the tests, thereby providing a robust framework for evaluating the impact of AR technology on students' speaking skills.

3.6.4 The Focus Group Interviews

A focus group interview is a qualitative research method used to gather in-depth insights into participants' attitudes, perceptions, and experiences on a specific topic. This method involves a small group of people, typically ranging from 6 to 12 participants, who engage in a guided discussion led by a moderator. The interaction among participants in a focus group setting can generate rich data, as individuals can express their views in their own words and react to the opinions of others (Krueger & Casey, 2015). Focus group interviews are particularly valuable in exploring complex behaviors and motivations, as they provide a platform for participants to discuss and clarify their thoughts, thus yielding a deeper understanding of the subject matter (Morgan, 1997). Additionally, the dynamic nature of group discussions can uncover aspects of a topic that might not emerge through individual interviews or surveys, making focus groups a powerful tool for exploratory research.

The data gathered for the study from a single source did not provide enough support for the conclusions to be drawn. Interviews were done to go deeper and uncover additional information in order to triangulate the study's findings (Nunan, 2002; Wilkinson & Birmingham, 2003). According to Johnson and Christensen (2012), the interview was used to gather detailed information on the participants' opinions, knowledge, and emotions about a subject. Additionally, a researcher was able to grasp another person's perspective and obtain access to their inner world through interviews (Patton, 1987). Interviews were employed in phenomenological, phenomenographic, or ethnographic research to elucidate the significance of important themes in the respondents' lives from their own points of view (Ayres, 2008). Focus groups, which were specifically selected groups of people whose opinions were analyzed in facilitated or unfacilitated talks to ascertain the answers that might be anticipated from a broader population, were one such instance (David, 1996). Focus groups were used to gather information through lively, well-facilitated conversations. A group chat was used in this type of qualitative study to encourage participants to provide information about their thoughts, opinions, beliefs, and attitudes. For compelling and authoritative replies, researchers carefully chose the focus group participants (Bloor, 2001). In an interactive group format, questions were posed and participants were allowed to converse with other group members. The researcher both recorded and took notes of the important information gleaned from the group throughout this procedure. Interviews were done in the students' native Vietnamese language for ease of comprehension and convenience. The interview questions were tested with students who weren't in the experiment group for internal consistent reliability by experts for the index of item objective congruence (IOC) analysis. In order to do this, a set of interview questions was created that contained both general and particular answers for the participants who were questioned. The purpose of the first section of the interview guide was to gather demographic and other crucial data that would be used to enhance the information from the interview and survey. This information contained, among other things, name, age, offenses, prior offenses, and educational background. The remaining questions and suggestions in the interview guide were created to keep the conversation centered on the issues associated with the study's goals. Despite having a list of questions, the researcher adopted a flexible strategy. Even while each participant was subjected to a set of "compulsory" questions, the interviewer was free to focus only on whatever pertinent or interesting topics at hand. In reality, during the interviews, many of the list's questions were addressed naturally throughout the conversation, allowing for a casual and conversational tone. The 6 semi-structured

focus group interview questions in this study were developed by the researcher to explore students' perceptions towards the use and experience of AR technology lessons in their ETH course. The 10 participants were randomly selected by the convenience and purposive sampling methods. The researcher intended to include participants in 2 groups, one from the most active participants in the projects, and one from the most passive participants, who might have more challenges during the project. The purpose was to explore the diverse perspectives of different experienced participants. From the contact lists of participants, who agreed to join the research study and the personal observation notes of the researcher, he sent out formal invitations for them to join the semi-structured interviews on a voluntary basis. Statements of guarantee for their benefits, privacy and anonymity were attached to encourage their participation in the required quota of the research.

The validity of the 6 semi-instructed interview questions was checked and verified using the Index of Item Objective Congruence (IOC) by three scholars in the field of English Language Teaching, the average IOC score from the experts was 1.00, which means the validation of the instrument was good enough to proceed (See Appendix E). The following steps were used in creating interview questions. First, the content validity of each of the interview-guided questions was assessed by professionals. If the IOC is between 0.5 and 1.0, it is legitimate; otherwise, it is invalid. Following the results of the IOC investigation, the researcher amended the items whose IOC values fall between 0.5 and 1.0 and eliminated the items whose IOC values fall below 0.5. A focus group of four students who did not take part in the experiment was used to test the interview questions to make sure they were valid. This step was conducted in order to: a) determine whether the interview questions functioned properly; b) determine whether there is anything wrong with the question items, interview procedure (including other factors like timing, recording, or any other technical problems that may occur in the actual data collection); and c) determine whether the student oral interviews would be effective and serve the goals of the research (Intaraprasert, 2000). According to the students' replies from the field study, the guided interview questions might function properly and effectively to further the goals of the study.

Following Table 3.3 is the list of the semi-structured interview questions:

Table 3.3 Focus group interviews questions

No.	Questions
1	Can you describe your overall experience with the AR technology in this English for Tourism and Hospitality course?
2	Do you feel comfortable with the AR technology? How & why?
3	How does the Halo AR app help improve your English speaking skills in the context of Tourism and Hospitality?
4	Could you provide specific examples of how AR technology enhanced your language learning experience?
5	How did you overcome the challenges, and did they impact your language learning outcomes?
6	How do you perceive the potential application of AR technology in real-life Tourism and Hospitality contexts after completing this course?

3.6.5 Instructional Instruments

In the research thesis examining the integration of AR technology into English language teaching, particularly focusing on the use of the Halo AR app for the English for Tourism and Hospitality course, several instructional instruments have been designed to optimize the educational impact and facilitate the effective use of AR technology. These instruments include detailed lesson plans incorporating AR technology, specific instructions for AR activities, and a comprehensive user guideline for the Halo AR app.

3.6.5.1 AR Technology Lessons Designed by the Researcher

The lessons developed for this thesis are crafted to integrate AR technology seamlessly into the curriculum of the ETH course. Each lesson begins with clear learning objectives aligned with the overall course goals, emphasizing essential language skills needed in tourism and hospitality contexts. These skills include specific vocabulary relevant to tourism settings and practical communication abilities crucial for interacting in these environments. The AR components are embedded in the lessons to enhance the learning experience by providing immersive, interactive scenarios that replicate real-world situations. For example, a typical lesson might involve students using the Halo AR app to engage in a simulated conversation set in a tourist destination, enabling them to practice language skills in a dynamic and contextualized setting (see Appendix G). This approach not only aims to improve linguistic competence but also to foster essential soft skills such as cultural awareness and customer service, which are vital in the tourism and hospitality industry. To ensure the AR technology's effectiveness, each lesson includes pre-activity and post-activity assessments. These assessments are designed to measure learning outcomes,

providing a clear indication of how well the students have grasped the language skills and concepts presented in the lesson. This structured approach ensures that the integration of AR technology is not merely an add-on but a fundamental component that enhances educational objectives. Overall, the AR technology lessons in this thesis are designed to create a comprehensive, engaging, and effective learning environment. By leveraging the immersive capabilities of AR, these lessons provide students with opportunities to apply their language skills in realistic and practical contexts, preparing them for real-world challenges in the tourism and hospitality sector. This innovative approach aligns with contemporary educational practices, advocating for the use of advanced technologies to enhance the learning experience and meet the needs of modern learners.

3.6.5.2 Instructions for AR Activities with the Halo AR App

Instructions for AR activities are detailed and tailored to guide students through each session effectively. These instructions serve as a roadmap for students to navigate the AR experiences, ensuring that they understand how to interact with the technology to maximize their learning. For instance, instructions might detail how students should activate AR simulations, interact with virtual elements, and complete specific tasks designed to practice language skills. Moreover, these instructions include troubleshooting tips to help students manage common technical issues independently, fostering a smoother learning experience. Safety guidelines are also provided to ensure that students use the AR technology in a manner that is secure and conducive to learning, emphasizing the importance of proper handling and ergonomics to avoid physical strain.

3.6.5.3 Rubrics for the Speaking Pre-test and Post-test

In the current study, the assessment of students' speaking skills was rigorously conducted through pre-tests and post-tests, both utilizing the IELTS Speaking Test rubrics to ensure a standardized and comprehensive evaluation. These rubrics assess four key areas: Fluency and Coherence, Lexical Resource, Grammatical Range and Accuracy, and Pronunciation, each rated on a scale from 1 to 9, with detailed descriptors outlining the proficiency levels for each band. The speaking pre-test was administered at the beginning of the course to establish a baseline measurement of the students' initial speaking abilities. In this phase, the evaluation focused on fluency and coherence, measuring the students' ability to speak smoothly without undue hesitation, self-correction, or repetition. Higher bands indicate more natural and coherent speech with appropriate use of cohesive devices. Lexical resource is another critical area, where the range and accuracy of vocabulary used by the students are

assessed. Higher scores are awarded for the use of a wide range of vocabulary with precision and flexibility, including idiomatic expressions and less common terms. The grammatical range and accuracy criterion evaluates the variety and correctness of grammatical structures employed by the students, with higher bands reflecting the use of complex structures with minimal errors, akin to native speaker proficiency. Lastly, pronunciation is assessed for clarity and accuracy, including intonation, stress, and the use of pronunciation features, with higher scores given for clear, natural, and effortless pronunciation.

At the end of the course, the speaking post-test was conducted to measure improvements in the students' speaking skills following the integration of AR technology into the curriculum. The same IELTS Speaking Test rubrics were applied to ensure consistency in evaluation. The post-test examined enhancements in the students' ability to speak fluently and coherently, noting any reduction in hesitations and more effective use of discourse markers. Additionally, the lexical resource criterion in the post-test measures any advancements in the range and accuracy of vocabulary used by students, focusing on improvements in their ability to use precise and varied language appropriate to tourism and hospitality contexts. The grammatical range and accuracy assessment during the post-test evaluates improvements in the complexity and correctness of grammatical structures, looking for a reduction in errors and more frequent use of complex sentences. Pronunciation in the post-test is evaluated for improvements in clarity and accuracy, with a focus on more natural intonation and stress patterns, making speech easier to understand. By employing the IELTS Speaking Test rubrics, the study ensures a rigorous and standardized assessment of students' speaking skills. This approach allows for a detailed comparison of pre-test and post-test results, providing clear evidence of the impact of AR technology on the development of speaking proficiency in English for Tourism and Hospitality. The consistency and comprehensiveness of the assessment method underscore the validity of the findings, demonstrating the effectiveness of AR technology in enhancing language learning outcomes.

3.6.5.5 Validation of Instructional Research Instruments

The validation process incorporated feedback from two experts - one specializing in information technology and the other in English Language Teaching (ELT) - as well as from a group of ten students who participated in the pilot testing of the AR applications. The engagement of two experts with specialized knowledge in their respective fields ensured a robust evaluation of both the technical functionality and educational effectiveness of the AR tools. The IT expert assessed the technical aspects

of the AR software, including its stability, user interface design, and compatibility with various devices, which are critical to ensuring a smooth and effective user experience. On the other hand, the ELT expert focused on the pedagogical integration of the AR technology, evaluating whether the instructional content was pedagogically sound and aligned with the learning objectives of the English for Tourism and Hospitality course. This dual-expertise approach facilitated a comprehensive assessment, ensuring that both the technological and educational aspects of the AR applications were thoroughly vetted and optimized. Additionally, pilot testing played a crucial role in the validation process. Ten students from the target demographic were selected to use the AR applications under controlled conditions. These students were tasked with engaging with the AR tools as they would in an actual learning scenario, thereby providing real-time data on the usability and educational impact of the technology. Their interactions were monitored, and detailed feedback was collected to gauge their experiences. This feedback encompassed a range of elements from navigational ease within the app to the relevance and clarity of the instructional content delivered via AR. Moreover, the feedback from both the experts and the student participants was meticulously analyzed to identify any recurring issues or notable strengths. This analysis involved categorizing the feedback into themes such as usability, engagement, learning effectiveness, and technical stability. Insights gained from this process were invaluable; they highlighted critical areas for improvement such as the need for more intuitive navigation controls, better error handling and recovery in the software, and enhancements to the instructional design to make the AR scenarios more engaging and educationally valuable. Finally, the iterative process of refinement that followed was driven by the specific details unearthed from the feedback analysis. Modifications were made to the AR applications to address the identified issues. For example, improvements were implemented in the user interface to make it more user-friendly based on the IT expert's recommendations and user feedback. Similarly, content enhancements were carried out to align the AR scenarios more closely with the ELT expert's suggestions, ensuring that the educational content was both contextually relevant and pedagogically effective.

This thorough and methodical validation process, involving experts and end-users alike, underscored the commitment to ensuring that the AR tools used in the thesis were not only technologically robust but also pedagogically sound. By meticulously analyzing and utilizing the feedback from these key stakeholders, the study was able to significantly enhance the reliability and educational efficacy of the

AR applications, paving the way for a more effective integration of AR technology into English language teaching for Tourism and Hospitality.

3.7 Data Collection

To comprehensively evaluate the integration of AR technology in an English for Tourism and Hospitality (ETH) course, this study employed a mixed-methods data collection approach. Both quantitative and qualitative data were gathered to examine students' acceptance of AR technology and its impact on their learning outcomes, particularly in terms of language proficiency, engagement, and motivation. Quantitative data were obtained through two structured questionnaires and a set of pre- and post-speaking tests, which enabled the measurement of students' perceptions and language development before and after the intervention. Complementing this, qualitative insights were collected through focus group interviews, offering a nuanced understanding of students' lived experiences with AR-based learning. Together, these data collection methods provided a rich, triangulated perspective on the pedagogical effectiveness and user acceptance of AR technology in the context of higher education language instruction.

3.7.1 Quantitative Data

In this study, quantitative data collection was designed and implemented through 2 questionnaires (Questionnaire 1 and Questionnaire 2) to assess two critical aspects of adopting AR technology in language learning among students enrolled in English for Tourism and Hospitality course at a university in Ho Chi Minh City.

3.7.1.1 Questionnaire 1

The data collection for the first questionnaire was designed to assess students' initial readiness and willingness to adopt AR technology for language learning in the English for Tourism and Hospitality course. Conducted at the beginning of the course, the questionnaire focused on gauging students' general attitudes towards using technological tools in education, their prior exposure to AR technology, and their perceptions regarding the potential benefits and challenges of using AR in their language studies. This instrument utilized Likert scale items, allowing students to express their agreement or disagreement with various statements, with the scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire included 25 items divided into categories such as Perceived Usefulness, Perceived Ease of Use, Perceived Enjoyment, Attitudes and Acceptance towards Usage, and Intention to Use. The recruitment process for participants involved initial communication via email, detailing the purpose and significance of the study, and including an informed consent

form outlining the objectives, confidentiality measures, and the voluntary nature of participation. The administration of the questionnaire was conducted electronically, enhancing the speed of distribution and collection while supporting the anonymity and confidentiality of students' responses.

Ethical guidelines were rigorously followed throughout the research process. Both questionnaires received approval from the university's research ethics board, ensuring adherence to ethical standards. Data were securely handled with electronic storage on protected university servers accessible only to the researcher, safeguarding the privacy of the participants and ensuring the integrity of the data. Upon completion, responses were meticulously organized, reviewed for accuracy, and cleaned to eliminate any outliers or inconsistencies. Statistical analyses, including descriptive statistics and correlation analysis, were conducted using the collected data. These analyses provided insights into participants' perceptions and offered a thorough understanding of the factors influencing their readiness and willingness to adopt AR technology in language learning. The comprehensive data collection and analysis approach ensured the reliability and validity of the findings, contributing valuable insights to the broader academic discourse on the use of innovative technologies in educational settings.

3.7.1.2 Questionnaire 2

After integrating AR technology into the course, the Questionnaire 2 was administered towards the end of the course to measure the acceptance of AR technology among students following their direct engagement with the tools. This questionnaire assessed aspects such as the enhancement of learning engagement, the perceived ease of use of the technology, and its overall utility in their language learning process. Similarly, it employed a Likert scale format to facilitate the quantification of students' responses, ensuring consistency in data collection methods across both tests.

The participant recruitment process was conducted through initial email communication, targeting students enrolled in the course. This email provided comprehensive information about the study's purpose and importance, accompanied by an informed consent form that explained the study's objectives, confidentiality protocols, and the voluntary nature of participation. The questionnaires were distributed and collected electronically, which expedited the process and ensured the anonymity and confidentiality of the respondents. Throughout the research, stringent ethical standards were maintained. Both questionnaires were approved by the university's research ethics board, affirming adherence to ethical guidelines. Data were securely managed, stored electronically on protected university servers accessible

exclusively to the researcher, thereby ensuring participant privacy and data integrity. Upon receiving the responses, the data were meticulously organized, validated for accuracy, and cleansed to remove any anomalies or inconsistencies.

3.7.1.3 Pre- and Post- Tests of Speaking Skills

To capture a comprehensive understanding of the effects of AR technology on students' speaking skills, both a pre-test and a post-test were administered, offering a baseline for comparison. For the pre-test, students were examined in speaking topics closely aligned with the field of Tourism and Hospitality. These speaking topics were designed by the researcher and were structured to simulate real-world scenarios, such as providing a virtual tour of a tourist destination or narrating a unique dining experience at a hotel or restaurant. To ensure consistency and objectivity, these tasks closely resembled the speaking section of the International English Language Testing System (IELTS) examination. Participants' performances were captured through audio or video recordings, preserving the authenticity of their responses. Following the intervention of AR technology in the ESP course, which spanned a period of 9 weeks during the English for Tourism and Hospitality class, the post-test speaking assessment was conducted. The tasks remained aligned with the initial pre-test in content, enabling a direct comparison of participants' spoken proficiency before and after the intervention. These tasks sought to gauge not only the enhancement of language skills but also the potential integration of augmented reality technology in shaping their presentations. A team of 2 trained raters, who were experienced ELT teachers and IELTS teachers and trainers, well-versed in evaluating spoken English proficiency, were engaged to assess the recorded responses. The 2 raters employed a standardized rubric encompassing criteria like fluency and coherence, lexical resource, pronunciation, and grammatical range and accuracy. This approach ensured that the assessment remained unbiased and consistent across all participants. The use of a mock IELTS Speaking test framework lent an established benchmark for evaluation, further enhancing the reliability of the assessment process. Upon completion of the assessment phase, the pre-test and post-test results were meticulously compared and analyzed to determine the extent to which the AR technology had impacted the students' speaking skills. The analysis aimed to unveil any significant differences, improvements, or trends in their linguistic competence throughout the intervention.

3.7.2 Qualitative Data

The qualitative data of the study was collected from the Focus group interviews. Upon completion of the research, the focus group interviews were

conducted as a methodical and insightful exploration of students' perceptions, experiences, and feedback concerning the AR technology lessons in the context of English for Tourism and Hospitality course. To assemble the most relevant and representative participants, careful consideration was given to the selection criteria. Those actively engaged in the AR-based classroom activities were chosen, ensuring their firsthand experience with the subject matter. The Focus group interview was conducted in Vietnamese as the participants' mother tongue, which would enhance the comfort of the interviews and the diversity of language proficiency expressions. The familiarity with AR technology was also prioritized, fostering a comprehensive range of perspectives. Also, those passively or extremely quiet in class were invited. This was to explore deeper the challenges and difficulties the students might have in the ETH course with AR technology lessons. Invitations were extended through email and class announcements, clearly outlining the purpose of the focus group and the commitment involved. The scheduling of focus group sessions was orchestrated with participants' schedules in mind. A conducive physical setting was arranged, fostering an environment conducive to candid discussions. The discussions commenced with an introduction to the researcher's role and the session's purpose, followed by the establishment of ground rules for respectful dialogue. Guided by a comprehensive interview guide, the discussions were initiated with open-ended questions aimed at unearthing participants' thoughts and experiences with AR technology lessons. The researcher skillfully facilitated the conversation, ensuring all participants had the chance to contribute and engage with one another. As the discussions unfolded, the exploration of attitudes, experiences, challenges, and suggestions was marked by rich interactions and candid expressions. The audio recordings were employed, with participants' consent, to capture the nuances of the discussions. At the same time, meticulous notes were taken to document key points, significant interactions, and any non-verbal cues, enriching the subsequent analysis. These sessions provided a platform for students to share their experiences, voice their concerns, and suggest improvements, thereby offering an invaluable perspective on AR technology lessons. The recordings were transcribed verbatim, then were translated into English for the subsequent analysis. The translation was sent to two experts in ELT at a university to check for content validity and reliability. The analysis of the scripts unveiled recurring themes, patterns, and insights drawn from the participants' perspectives. These thematic insights were then interpreted in the context of the research questions, painting a comprehensive picture of how students perceived and experienced AR technology lessons in the ETH course.

3.8 Data Analysis

To systematically evaluate the effectiveness and acceptance of augmented reality (AR) technology in the English for Tourism and Hospitality (ETH) course, a rigorous and multifaceted data analysis approach was employed. This section outlines the analytical procedures undertaken to interpret both quantitative and qualitative data collected throughout the study. Quantitative data from questionnaires and speaking tests were analyzed using established statistical methods, including descriptive statistics, reliability testing, correlation analysis, and paired t-tests, to examine patterns, relationships, and changes in students' perceptions and language proficiency. In parallel, qualitative data from focus group interviews were subjected to thematic analysis, guided by the framework of Braun and Clarke (2012), and supported by NVivo software to identify recurring themes and insights. Together, these analytical methods provided a comprehensive understanding of students' experiences, engagement, and linguistic development in AR-enhanced learning environments. The integration of both data types allowed for triangulation, enriching the validity and depth of the findings and contributing to a holistic exploration of AR technology's pedagogical impact.

3.8.1 The Quantitative Data

3.8.1.1 Questionnaires

The data analysis process in this research study was structured to interpret the quantitative data collected through the two questionnaires, aimed at assessing the adoption and acceptance of AR technology in language learning. This process, conducted using IBM SPSS Statistics version 20, entailed a series of well-defined steps designed to ensure a comprehensive and accurate analysis.

Initially, the analysis began with extensive data handling and preparation. All collected data were reviewed for completeness, accuracy, and consistency. During this phase, any inconsistencies or missing data points were meticulously corrected through established data cleaning techniques. This initial preparation was critical as it ensured that the data were reliable, forming a solid foundation for the subsequent statistical analysis. Following this preparatory phase, descriptive statistical analysis was employed to summarize the fundamental characteristics of the data. This involved calculating means, standard deviations, and generating frequency distributions for each item on the questionnaires. The use of descriptive statistics provided an initial overview of the participants' demographic attributes and responses, which was instrumental in establishing an understanding of the data distribution and enabling deeper analytical insights in subsequent stages.

To verify the internal consistency of the survey instruments, reliability testing was performed by calculating Cronbach's Alpha coefficients for each section of the questionnaires. A Cronbach's Alpha value exceeding 0.7, which aligns with the standards suggested by Hair et al. (2019), indicated satisfactory reliability. This step was essential to confirm that the items within each construct consistently measured the same underlying concept, thereby validating the reliability of the survey tools used in the study. Additionally, correlation analysis was conducted to explore the relationships between various constructs, such as students' readiness and willingness to adopt AR, their acceptance of the technology post-intervention, and other demographic variables. This analysis provided insights into how different variables interrelated and influenced students' perceptions and acceptance of AR technology in their language learning process.

The culmination of these analytical efforts was a comprehensive presentation of the results, which included detailed tables, figures, and statistical outputs. This presentation ensured that the findings were clearly articulated and easily interpretable, effectively linking the analytical outcomes back to the study's research objectives and theoretical underpinnings. In the final stage, the discussion of the findings integrated these statistical results into a broader context, relating them back to the existing literature and theoretical frameworks. This discussion addressed the implications of the findings, highlighting how the study contributes to the field of educational technology and English language teaching. It also explored practical applications of AR technology in educational settings, discussed the limitations of the current study, and suggested potential directions for future research.

Through this rigorous and methodical approach to data analysis, the research not only transformed raw data into meaningful insights but also provided a robust foundation for understanding the impact of AR technology on language learning. This enriched the academic discourse surrounding educational technologies and offered practical insights for enhancing language instruction through innovative technological solutions.

3.8.1.2 Pre- and Post- Speaking Tests

The process of data analysis commenced with the calculation of the average speaking scores for each participant at both the pre-test and post-test stages. The researcher employed statistical methods, notably paired t-tests, to discern any significant discrepancies between the scores at these two intervals. This phase of analysis was critical in gauging the effects of AR technology on the speaking skills of the students.

The methodology for data analysis was systematically executed through several detailed steps. Initially, in the pre-processing of data, the researcher ensured that all recorded responses were correctly organized and labeled, facilitating straightforward referencing. Each student's responses from the pre-test and post-test were meticulously paired to enable accurate comparisons. Subsequently, during the score calculation phase, the IELTS Speaking Band Descriptors were utilized as a scoring rubric. Trained raters, proficient in these descriptors, assessed each response on criteria such as fluency, coherence, lexical resource, grammatical range, pronunciation, and interactive communication. The average scores from the pre-test and post-test for each student were then calculated, providing a clear measure of their speaking proficiency prior to and following the intervention. A comparative analysis was conducted using the paired t-test to evaluate the data and determine the effects of AR technology on the students' speaking skills. This statistical approach was pivotal in establishing whether the differences observed between the pre-test and post-test scores were statistically significant.

The interpretation of the results followed, where the outcomes of the statistical tests were analyzed. A statistically significant increase in the post-test scores relative to the pre-test scores would suggest positive effects of the AR technology on the students' speaking skills. Conversely, a lack of significant difference would indicate that the intervention did not markedly enhance speaking skills. Additionally, a contextual interpretation of the qualitative aspects of the speaking responses was performed. This analysis aimed to identify prevailing trends in areas of improvement or challenges, offering deeper insights into the specific facets of speaking skills affected by AR technology lessons.

The final stage encompassed discussion and conclusion, where the implications of the findings were deliberated concerning the research questions and objectives. This comprehensive evaluation helped to conclude the effects of AR technology on the students' speaking skills within the English for Tourism and Hospitality course, providing substantive evidence and insights derived from the conducted analysis.

3.8.2 Qualitative Data

In the qualitative analysis of the data gathered from the focus group interviews with participants from the ESP class, a comprehensive approach was employed, starting with the meticulous transcription of audio recordings. These transcriptions transformed the verbal exchanges into written text, which facilitated a structured and thorough analysis (See Appendix I). Following the guidelines set by

Braun and Clarke (2012), the process involved six steps of thematic analysis: immersing in the data, writing code, looking for themes, evaluating promising themes, defining and labeling themes, and ultimately delivering the report. This method ensured that every nuanced expression, hesitation, and emphasis was accurately captured, pivotal for interpreting the data's depth and breadth.

The initial phase of Data Familiarization involved extensive engagement with the interview data. This was achieved by listening to audio recordings, reading the transcribed texts, and noting significant emerging patterns related to the implementation of AR technology in English language teaching. This deep immersion allowed the researcher to form preliminary interpretations and understandings, setting the stage for the subsequent coding process. Using NVivo 14, a qualitative data analysis software recommended by Creswell (2017) for enhancing the reliability of research findings, the Initial Coding stage was executed. This involved systematically identifying significant segments within the data and assigning descriptive codes such as "Benefits of AR technology" and "Challenges in implementation." Next, during the Open Coding phase, the data was dissected into smaller segments to generate initial concepts, crucial for allowing the emergence of new insights without preconceived notions. This structured approach facilitated the organization of data for deeper analysis, and a coding structure was developed to reflect the topics discussed in the focus groups. The subsequent Theme Development phase involved identifying themes that represented patterns or recurrent concepts across the focus groups, encapsulating the essence of the participants' experiences, perceptions, and attitudes regarding AR technology. Rigorous documentation was maintained to ensure transparency while forming these themes. The process then moved to Data Mapping and Validation, involving the creation of a visual map or table displaying the relationships between codes, sub-themes, and overarching themes. This facilitated a clearer understanding of the hierarchical structure of the data analysis. Additionally, member checking was considered to validate the interpretations of participants’ statements, enhancing the validity of the findings. Inter-rater reliability was ensured with the assistance of two colleagues from the School of Foreign Languages at UEH. Both the researcher and the colleagues independently coded a subset of the data, and the agreement between their codes was calculated using analysis software tools, thus bolstering the reliability of the analysis. In the Refining Themes phase, based on discussions with colleagues and reflections on the data, the researcher refined and revised the themes to ensure they accurately captured the nuances of participants' responses and aligned with the research questions. Throughout the analysis, the inclusion of direct quotations from

participants, referred to as exemplars, illustrated the identified themes. These exemplars provided robust evidence supporting the findings and allowed readers to engage directly with participants' voices. After analyzing the data and generating themes, Member Checking was conducted by returning to the participants with the findings. This step provided them an opportunity to confirm or challenge the interpretations drawn from their responses, thereby contributing to the validity of the analysis. Finally, the Integration with Literature connected the themes and findings to relevant theoretical frameworks and existing literature, strengthening the validity of the analysis by contextualizing the findings within a broader academic discourse. This final document presented a narrative that not only conveyed the analytical outcomes but also provided a compelling argument for the broader application and potential of AR technology in educational settings.

3.9 Ethical Considerations

In the study exploring the use of AR technology in English language teaching for Tourism and Hospitality students at the University of Economics Ho Chi Minh City, Vietnam, a rigorous ethical framework is crucial to ensure the protection of participants and the integrity of the research process. This framework encompasses several comprehensive steps, meticulously designed to address ethical concerns across various research instruments including surveys, classroom activities, speaking tests, and focus group interviews.

The process begins with a detailed informed consent procedure, ensuring that all participants are thoroughly briefed about the purpose of the research, the extent of their involvement, potential risks, and benefits. This is critical to ensure that participation is voluntary and informed. The consent forms are collected by an independent third party who is not involved in the course's instruction or assessment, to prevent any potential coercion (See Appendix H). These forms are stored in sealed envelopes and only accessed after final course grades are submitted, thereby safeguarding participants from any undue pressure or conflict of interest. Secondly, to maintain confidentiality and anonymity, all participant data are anonymized using pseudonyms or identification numbers. Strict data protection measures are enforced, with digital data encrypted and physical data securely stored in locked facilities, accessible only to the research team. This not only protects sensitive information but also aligns with data protection laws and regulations. Additionally, the ethical considerations extend to minimizing potential harm to participants. The research design includes specific measures to ensure that participation does not cause

psychological or emotional distress. Participants have the right to omit any survey questions or withdraw from activities they find uncomfortable. Support such as contact information for psychological services are provided, underscoring the commitment to participant welfare. Next, cultural sensitivity is another pillar of the ethical approach, especially given the cultural context of Vietnam. All research materials and procedures are carefully crafted to respect and reflect local customs and values. This ensures that the research is both relevant and respectful, fostering an environment of trust and engagement between researchers and participants. The integrity of data handling is ensured by NVivo software, which supports the systematic organization and analysis of qualitative data. This software aids in accurately identifying and synthesizing themes from the data, enhancing the reliability and transparency of the findings. Additionally, all data collected through surveys, tests, and activities are rigorously checked for accuracy and integrity, with strict protocols in place to prevent data manipulation. Before the start of the study, the research protocol is reviewed and approved by the university's ethical review board. This review verifies that the research conforms to international ethical standards, providing an additional layer of oversight. The study is also subject to ongoing ethical monitoring, which allows for the addressing of any new ethical concerns that may arise during the research. Finally, after the completion of the research activities, a debriefing session is conducted with participants. This session is designed to explain the findings and discuss the implications of the results, enhancing participants' understanding of the research and reinforcing the transparency of the process. This debriefing is essential not only for participant closure but also for affirming the ethical commitment to transparency and education in research practices. In short, this comprehensive ethical framework underscores the commitment to conducting the research responsibly, ensuring that the study not only yields insightful findings but also adheres to the highest standards of ethical research practice.

3.10 Findings from the Pilot Study

This part presents the initial findings from a pilot study conducted as part of a research project, which aimed to evaluate the integration of AR technology in language learning, specifically within the context of English for Tourism and Hospitality. The study spanned a period of four weeks and involved evening classes at a tertiary institution in Ho Chi Minh City, Vietnam. A total of 82 participants, who are students in English for Tourism and Hospitality were engaged in the project.

The core activity of the pilot study required the students to learn lessons in English for Tourism and Hospitality with AR technology, using the Halo AR platform. This task

was designed not only to enhance their English speaking skills but also to explore their readiness and willingness to adopt innovative technologies in educational settings. The use of AR technology, particularly in language learning for specific purposes such as Tourism and Hospitality, presents unique opportunities for interactive and immersive learning experiences. Therefore, this pilot study sought to shed light on the potential of AR technology to enhance linguistic competencies and to gauge student engagement and perception towards such technologies in an educational framework.

The findings from this pilot study are pivotal for understanding the initial levels of acceptance of AR technology among Vietnamese EFL students. The Likert scale (Table 3.4) was used to analyze the questionnaire in order to assess the degree to which the study's objectives have been met. Five-point Likert scale instruments are more stable in usage, according to Mohamed Najib (2001).

Table 3.4 Likert scale (Mohamed Najib, 2001)

Rating	Scale
Strongly Disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

The statistical package for the social system (SPSS version 20) program was used to examine the gathered data. Statistical analysis is the kind of quantitative analysis that is applied. For this investigation, descriptive statistics were used as the split statistical analysis. Descriptive statistics were used to examine the mean score for the degree of student acceptance of the perceived utility, perceived ease of use, and attitude toward technology. The data from the Likert scale questionnaire items was analyzed by the researcher using the mean score. The mean range level interpretation that yields low, medium, and high results is displayed in Table 3.5.

Table 3.5 Interpretation of the mean range level (Abdul Ghafar, 2013)

Mean value	Interpretation level
3.68 - 5.00	High
2.34 - 3.67	Medium
1.00 - 2.33	Low

3.10.1 Students' Readiness and Willingness for the AR Technology

The survey's high participation rate, 100% consent, signifies a profound engagement level among the students and underscores the data's reliability.

Such a high rate of consent also mirrors a potentially elevated interest in technological innovations, particularly in educational domains. The respondents predominantly comprised undergraduate language students, suggesting that the findings are particularly relevant to the context of language learning. Although specific gender distribution was not detailed, understanding this aspect could yield insights into possible differential attitudes towards technology across gender lines, which could be explored in further studies.

Table 3.6 Pre-Questionnaire Descriptive Statistics of the Main Study

Dimension		Items	Statements	Mean	SD	Level
Students' readiness to AR technology	Access to Technology	Q1	I have access to a smartphone.	4.622	0.513	High
		Q2	I have internet access on my smartphone.	4.561	0.650	High
		Q3	I usually surf the web using my smartphone.	4.476	0.671	High
		Q4	I depend on the university's Wi-Fi to access the internet.	3.207	1.074	Medium
		Q5	I have internet access when I'm outside the university.	4.134	0.940	High
		Q6	I subscribe to a personal internet plan on my smartphone.	3.707	1.083	High
	Attitudes Towards AR in Learning	Q7	I have knowledge regarding Augmented Reality (AR) technology.	3.037	0.823	Medium
		Q8	I have heard of learning using AR technology.	3.573	0.917	Medium
		Q9	Learning using AR technology is of interest to me.	3.585	0.845	Medium
		Q10	I would like to learn this course with AR technology.	3.695	0.765	High
		Q11	Learning using Mobile AR application will be interesting.	3.817	0.669	High
	Learning Capability with Mobile AR application	Q12	I am capable of using Mobile AR application in learning.	3.500	0.790	Medium
		Q13	Training is needed to understand how to use Mobile AR application in learning.	4.280	0.672	High
		Q14	I can understand better when learning using Mobile AR application.	3.671	0.686	Medium
		Q15	I can visualize better when learning using Mobile AR application.	3.890	0.685	High
		Q16	I can learn independently using Mobile AR application.	3.415	0.800	Medium
		Q17	I can learn with my classmates using Mobile AR application.	3.902	0.601	High
		Q18	The classroom activity will be more active with Mobile AR application.	3.890	0.754	High
		Q19	I will be excited to learn using AR technology.	3.854	0.862	High
Students' expectancy to AR technology in Learning	Perceived Benefits of AR in Learning	Q20	Learning using AR technology will be beneficial.	4.110	0.667	High
		Q21	I believe that AR-enhanced learning experiences will make the learning process more engaging and enjoyable.	4.049	0.701	High
		Q22	Learning using AR technology will improve the interactive level between peers and lecturers.	3.878	0.760	High
		Q23	Learning with AR technology will significantly enhance my understanding of ESP concepts.	3.805	0.728	High
		Q24	I think that AR technology can improve my problem-solving skills within ESP contexts.	3.671	0.686	Medium
		Q25	I expect that integrating AR technology into the curriculum will enhance the overall quality of education.	3.890	0.629	High
		Q26	I believe that AR technology can provide me with a more personalized and tailored learning experience.	3.829	0.625	High

In the examination of the pre-questionnaire descriptive statistics from Table 3.6, the data presented from 82 participants indicates a comprehensive engagement with the survey, as evidenced by the absence of missing values. This completeness is crucial for ensuring the reliability of the analysis. The responses, which range from 1 (strong disagreement) to 5 (strong agreement), reveal significant insights into the perceptions and acceptance levels of AR technology among EFL learners in Vietnam.

The analysis of central tendency and dispersion in the responses shows that the mean values across the questions predominantly lie between 3.5 and 4.5, suggesting a generally positive disposition towards AR technology. The perception of AR technology among students was significantly positive, with mean responses ranging between 3.5 and 4.5 on a 5-point scale. Such findings suggest that most students recognize the potential benefits of AR in enhancing their language learning experiences. This positive perception likely stems from the immersive and interactive nature of AR, which is corroborated by existing literature indicating that immersive technologies can substantially enrich learning processes. Notably, the responses indicated a divergence in opinions regarding the ease of use of AR technology, as evidenced by the variability in responses (standard deviations around 1) for questions pertaining to this aspect. This suggests a split in the student body concerning AR technology's user-friendliness, possibly reflecting a disparity in prior technological exposure and proficiency among the students.

Firstly, about students' readiness for AR technology, the data under this theme suggests a high level of accessibility to the necessary technological tools among students. Items Q1 through Q3 indicate robust access to smartphones and the internet, with high mean scores (Q1: 4.622, Q2: 4.561, Q3: 4.476), demonstrating that most students are well-equipped technologically to engage with AR applications. However, Q4, which received a medium mean score of 3.207, reveals a reliance on university-provided Wi-Fi, highlighting a potential area of concern for off-campus learning where such access might not be available. Conversely, items Q5 and Q6 suggest a high degree of internet accessibility outside the university context (Q5: 4.134, Q6: 3.707), which is crucial for AR learning experiences that students might engage in outside traditional classroom settings.

Secondly, the theme of attitudes towards AR in learning reveals a moderate to high interest and willingness among students to engage with AR technology in their learning processes. While baseline awareness and interest in AR, as indicated by Q7 (3.037) and Q8 (3.573), are in the medium range, the inclination

towards using AR for learning specific courses (Q9: 3.585, Q10: 3.695) shifts slightly higher. Particularly, Q11, with a mean score of 3.817, suggests that the prospect of learning using mobile AR applications is perceived positively, pointing to a significant curiosity and openness among students towards integrating AR into their learning.

Thirdly, about learning capability with mobile AR applications, the responses reflect a blend of confidence and perceived need for additional support when using Mobile AR applications. Students express a medium level of confidence in their ability to use AR for learning autonomously (Q12: 3.500, Q16: 3.415). However, they recognize the need for training (Q13: 4.280), which scores highly, indicating an awareness of the potential complexities involved in using AR effectively. The perceived enhancements to learning experiences through AR-such as improved understanding (Q14: 3.671), better visualization (Q15: 3.890), and more active classroom activities (Q18: 3.890)-are recognized positively. This suggests that while students are cautiously optimistic about their capabilities, they acknowledge the benefits that AR can bring to their educational experiences.

Finally, the theme of students' willingness to AR technology in learning captures the anticipations regarding the impact of AR on educational outcomes. Overall, the responses are highly positive, with students recognizing the multifaceted benefits of AR in learning. Items such as Q20 and Q21, scoring 4.110 and 4.049 respectively, reflect high expectations for the benefits of AR in making learning more engaging and enjoyable. Similarly, enhancements in interactive levels between peers and lecturers (Q22: 3.878), and significant improvements in understanding course-specific concepts (Q23: 3.805), are anticipated. The medium scores for improving problem-solving skills within ESP contexts (Q24: 3.671) suggest some reservations about the extent to which AR can influence cognitive skills. Nevertheless, the overall high scores on items like Q25 (3.890) and Q26 (3.829) underscore a strong belief that AR can personalize and enhance the quality of education.

The general inclination towards positive scores indicates a readiness among the surveyed cohort to embrace AR technologies, potentially motivated by the innovative features and the interactive modalities that AR can introduce into traditional learning landscapes. However, the mixed responses and particularly the lower scores in certain areas call for a more nuanced approach to the integration of AR in language learning. These findings suggest that while there is an evident enthusiasm for AR, there are also clear challenges that need to be addressed. These include enhancing the user-friendliness of AR applications and ensuring that these technologies are effectively integrated into existing curricular frameworks. In short, the descriptive analysis of the

pre-questionnaire data provides a foundational understanding of the current perceptions of AR technology among EFL learners in Vietnam. While the overall positive response bodes well for the future integration of AR in educational settings, the noted areas of concern highlight the critical need for targeted interventions. Addressing these concerns would be essential for optimizing the educational impact of AR technology and for ensuring its successful adoption in language learning contexts. This nuanced understanding of learner attitudes towards AR would guide the effective implementation and potentially transformative impact of AR technologies in enhancing English language education.

The perceptions toward AR technology revealed a generally favorable inclination, with many students affirming that AR could make learning more engaging and enjoyable. Such attitudes are likely influenced by the novelty and interactive elements of AR, which have the potential to transform conventional learning settings into dynamic and stimulating environments. This aligns with scholarly evidence, such as Suksan et al. (2022), who noted enhanced motivation and engagement among students utilizing interactive educational technologies. Despite some reservations linked to the ease of use, there was a pronounced readiness among students to adopt AR in their educational endeavors. Over half of the respondents expressed a willingness to utilize AR more extensively, a readiness possibly spurred by optimistic expectations regarding the technology's impact on their educational outcomes.

The findings from this survey underscore a robust readiness among students to incorporate AR technology into their educational practices, primarily driven by its perceived benefits in enhancing learning engagement and effectiveness. Nonetheless, the mixed responses concerning ease of use highlight a critical area for development. While AR is viewed positively, its broader acceptance and integration may hinge on addressing these usability concerns effectively.

3.10.2 Students' Level of Acceptance of the AR Technology

The post-questionnaire descriptive statistics were derived from the responses of 82 participants, all complete, offering a comprehensive understanding of student perceptions toward the adoption of AR technology in educational settings. This analysis was structured around various dimensions: Perceived Usefulness, Perceived Ease of Use, Perceived Enjoyment, Attitudes and Acceptance towards AR, and Intention to Use. According to Abdul Ghafar's (2013) interpretation of mean ranges, the results predominantly indicate a spectrum of medium to high acceptance levels

for AR, suggesting a strong inclination among language learners towards embracing this technology.

Table 3.7 Post Questionnaire Descriptive Statistics of the Main Study

Dimension	Items	Statements	Mean	SD	Level
Perceived Usefulness	P1	The use of this AR system can enhance my learning and performance in this course.	3.768	0.690	High
	P2	Implementing the AR system during classes can enhance my understanding of complex concepts.	3.817	0.591	High
	P3	I believe the AR system is a valuable tool for learning.	3.927	0.681	High
	P4	My academic performance can improve through the use of AR technology.	3.720	0.758	High
Perceived Ease of Use	P5	I find the AR system is easy to navigate and operate.	3.549	0.877	Medium
	P6	Learning how to use the AR system presents no difficulties for me.	3.402	0.901	Medium
	P7	Instructions for using the AR system are clear and comprehensible.	3.720	0.758	High
Perceived Enjoyment	P8	Using the AR system is an enjoyable experience.	3.951	0.768	High
	P9	I derive satisfaction from using the AR system.	3.671	0.817	Medium
	P10	I believe that the AR system combines learning and enjoyment effectively.	3.805	0.728	High
Attitudes and acceptance to AR	P11	The integration of AR technology in learning makes the educational experience more engaging.	3.866	0.662	High
	P12	I did not experience boredom while using the AR system.	3.646	0.776	Medium
	P13	I support the idea of utilizing AR systems in the classroom setting.	3.793	0.828	High
	P14	I am enthusiastic about embracing new technology.	3.829	0.750	High
	P15	AR technology enhances the achievement of course learning objectives.	3.817	0.818	High
	P16	I feel at ease when using AR for learning in this course.	3.573	0.738	Medium
	P17	AR technology promotes more active classroom participation.	3.793	0.766	High
	P18	Group work becomes more intriguing when augmented by AR.	3.732	0.610	High
	P19	Learning through AR offers flexibility during the learning process.	3.732	0.771	High
	P20	AR technology is beneficial for enhancing the course content.	3.854	0.687	High
	P21	AR aids in visualizing course elements effectively.	3.780	0.685	High
	P22	AR enhances the understanding of sequential processes in tourism and hospitality.	3.793	0.582	High
	P23	I would recommend AR technology to my peers for learning in this course.	3.720	0.742	High
Intention to use	P24	In the future, I am inclined to use AR systems if the opportunity arises.	3.768	0.790	High
	P25	I am interested in using AR systems to study other subjects.	3.756	0.794	High

Within the dimension of Perceived Usefulness, the acceptance levels were consistently high, with mean scores ranging from 3.720 to 3.927. This indicates that students perceive AR as a significant enhancer of learning and performance. Statements such as "The use of this AR system can enhance my learning and performance in this course" and "I believe the AR system is a valuable tool for learning" received high mean scores, underlining the students' recognition of AR's potential benefits. Such perceptions are vital as they underscore the belief in AR as a transformative educational tool, capable of improving both understanding and academic performance through its integration.

However, certain aspects under the Perceived Ease of Use and some elements of Perceived Enjoyment demonstrated medium levels of acceptance, notably items that addressed the usability of the AR system. For instance, items P5 and P6, which assessed the ease of navigating and learning to use the AR system,

scored 3.549 and 3.402, respectively. These scores suggest that while many students find AR systems manageable, a significant portion encounters difficulties with initial usability. This variability is further evidenced in the enjoyment dimension, where satisfaction derived from using the AR system, as indicated by item P9, scored a medium level. Such findings highlight the need for enhanced focus on usability and user experience in the design and implementation of AR technologies to ensure they meet diverse learner needs and preferences.

The data also reveals significant variability in student responses, especially in items that recorded medium acceptance levels. The standard deviations for items such as P6 (0.901) suggest a broad range of experiences and perceptions among students, possibly reflecting a divide in technological proficiency or differing levels of prior exposure to similar technologies. This variability indicates that while AR is generally well-received, there are underlying challenges that could affect its broader acceptance and effectiveness, including the clarity of instructions, the ease of use, and the initial learning curve associated with adopting new technologies.

Items P11 through P23 are focused on attitudes towards AR technology and its perceived impact on the learning environment. Starting with item P11, which assessed the engaging nature of AR in learning, it recorded a high mean score of 3.866 with a relatively low standard deviation of 0.662. This suggests a strong consensus among students that AR technology makes the educational experience more engaging, indicating a positive reception towards interactive learning modalities.

The response to item P12, which evaluated boredom levels while using AR, presented a medium acceptance level with a mean of 3.646 and a standard deviation of 0.776. This medium score implies that while many students found AR engaging, there remains a segment that did not perceive a significant reduction in boredom, highlighting an area where AR implementation could be optimized to capture and maintain student interest more effectively.

Items P13 and P14, reflecting support for AR use in classrooms and enthusiasm for new technologies, respectively, scored high with means of 3.793 and 3.829. These results underscore a generally positive attitude towards the integration of innovative technologies in educational settings, suggesting that students are open to and supportive of incorporating such tools into their learning processes. Regarding the perceived effectiveness of AR in enhancing learning outcomes, item P15 reported a high mean score of 3.817. This indicates that students recognize the value of AR in achieving course learning objectives, reinforcing the idea that AR can be a potent tool for academic enhancement.

Items P16 to P23 further explored various aspects of AR's role in active learning, group work, flexibility, content enhancement, and visualization. For instance, items P16 and P17, which looked at ease of use in learning contexts and promotion of active participation, respectively, both showed high acceptance, suggesting that AR facilitates a more dynamic and participatory learning environment. Similarly, items P18 to P23 consistently registered high scores, emphasizing the benefits of AR in making group work intriguing, offering flexibility, enhancing course content, aiding in visualization, and improving understanding of complex processes. These findings collectively suggest that AR is perceived as beneficial across multiple facets of learning.

The Intention to Use dimension, encompassed by items P24 and P25, explores future use intentions of AR technology. Both items showed high acceptance with scores of 3.768 and 3.756 respectively, indicating a strong inclination among students to continue using AR systems in their future educational pursuits, not only within their current study area but also in other subjects. This reflects a broader acceptance and a positive forward-looking attitude towards AR technology, suggesting its potential for widespread application across different educational fields.

While the data demonstrates a general recognition of the substantial benefits that AR can offer in enhancing educational experiences, achieving broader acceptance and optimizing the educational impact of AR require a multifaceted approach. This approach should address enhancing the usability of AR systems, tailoring AR experiences to accommodate varying levels of user familiarity, and ensuring that the benefits of AR are effectively communicated and demonstrated to all students. These efforts are crucial for maximizing the potential of AR technologies to revolutionize educational practices and outcomes, facilitating a more engaging and effective learning environment.

3.10.3 Students' Test Scores on their Speaking Skills

In the transition from survey participation to speaking test involvement within the study, a noticeable reduction in participant numbers was observed, decreasing from an initial count of 82 survey respondents to 68 participants in the speaking tests. This shift can be attributed to a variety of factors, each contributing to the overall attrition rate in a distinct manner.

Initially, logistical constraints significantly impacted participant availability for the speaking tests. Unlike the survey, which could be completed online at any convenient time, the speaking tests required participants to attend scheduled sessions, either virtually or in person. Five participants were unable to find a suitable

time slot within the testing schedule, leading to their withdrawal from this phase of the study. Additionally, the requirement for access to specific technology or transportation to a testing location deterred a further 4 participants, who cited inability to meet these logistical demands as their reason for non-participation.

Participant attrition also occurred voluntarily, with 3 respondents choosing to withdraw from the study after the survey phase. These participants indicated that time commitments or a perceived lack of relevance of the study to their immediate academic or personal goals were their primary reasons for discontinuation. This type of attrition is common in studies requiring multiple interactions over time, where initial interest does not always sustain through more demanding phases of the research. Ethical considerations and the need for additional consent for the speaking tests further reduced the cohort size. The speaking tests involved recording participants' responses, which necessitated explicit consent for audio recording and potential future use of these recordings in research outputs. This requirement led to 2 participants deciding not to continue, due to discomfort with the digital recording of their personal data. In the end, 68 students agreed to join both pre-test and post-test, which qualified the data validity of the study.

Table 3.8 Paired Samples T-Test of the Pilot Study

							95% CI for Cohen's d	
Measure 1	Measure 2	t	df	p	Cohen's d	SE Cohen's d	Lower	Upper
Pre-test_Score	- Post-test_Score	-8.297	67	< .001	-1.006	0.192	-1.296	-0.711

Note. Student's t-test.

Table 3.9 Assumption Checks of the Pilot Study

Test of Normality (Shapiro-Wilk)			
		W	p
Pre-test_Score	- Post-test_Score	0.908	< .001

Note. Significant results suggest a deviation from normality.

Table 3.10 Descriptives Statistics of the Pilot Study

	N	Mean	SD	SE	Coefficient of variation
Pre-test_Score	68	5.419	0.736	0.089	0.136
Post-test_Score	68	6.324	0.657	0.080	0.104

The results from the paired samples t-test on the students' speaking scores before and after the introduction of AR technology provide a compelling statistical endorsement of its effectiveness in enhancing language learning capabilities.

The analysis focused on comparing the pre-test and post-test scores to assess the impact of AR interventions on students' speaking proficiency.

The statistical outcomes indicate a significant difference between the pre-test and post-test scores, as demonstrated by a t-value of -8.297 with 67 degrees of freedom, yielding a p-value less than .001. This p-value significantly undercuts the conventional alpha level of 0.05, suggesting a very strong statistical rejection of the null hypothesis that there would be no difference in means between the two measures. The negative sign of the t-value reflects a decrease in the pre-test scores compared to the post-test scores, indicating an improvement in speaking skills following the intervention.

The mean difference between the pre-test and post-test scores was -0.904, with a standard error of the difference being 0.109. This mean difference is not only statistically significant but also indicates a substantial improvement in performance, which can be considered educationally meaningful. The improvement suggests that AR technology has a pronounced effect on enhancing the speaking skills of students, likely due to the immersive and interactive experiences that AR can provide, making language learning more engaging and effective.

Moreover, the effect size, measured by Cohen's d, was -1.006 with a standard error of 0.192. An effect size around 1.0 is typically interpreted as a large effect according to Cohen's benchmarks. This large effect size further underscores the efficacy of AR technology in boosting speaking skills. The magnitude of this effect size highlights not only the statistical significance but also the practical significance of the technology's impact, suggesting that AR interventions offer substantial benefits to language learning practices.

The robustness of these findings is critical for educational stakeholders considering the integration of innovative technologies like AR into language learning curricula. The significant improvements observed suggest that AR can be a powerful tool for enhancing speaking proficiency in language learners. However, while the results are promising, the integration of AR should be handled thoughtfully, taking into account the readiness of the educational environment to adopt new technologies, including the necessary training for instructors and the accessibility of the technology for students.

3.10.4 Students' Perceptions toward AR Technology Lessons

In the qualitative analysis of data from focus group interviews with students enrolled in the English for Tourism and Hospitality course, significant themes emerged that underscored the transformative impact of AR technology lessons on

language learning and professional skills development. The interviews provided rich, detailed narratives demonstrating how AR technology promotes enhanced engagement, technological proficiency, professional preparedness, and improved language performance. These themes underscore the transformative impact of AR technology lessons on language learning and professional skills development. The detailed narratives provided by participants reveal how AR technology promotes enhanced engagement through immersive interactivity, supports technological proficiency and adaptive problem-solving, prepares students for professional realities, and facilitates improved language performance through multimodal integration. The themes highlight AR's potential to create engaging, contextually rich learning environments that significantly boost student motivation, interest, and overall educational experience.

One of the predominant themes was enhanced engagement through immersive interactivity. Participants described AR technology as a transformative tool that shifted their learning from traditional methods to dynamic, practical interactions, markedly improving their educational experience. For example, one participant expressed the depth of immersion, noting,

> *"It made learning more interactive and engaging compared to traditional methods. Being able to interact with virtual environments felt like stepping into a new world of learning" (Participant 1).*

Another participant elaborated on the contrast with conventional education methods:

> *"Initially, I was a bit overwhelmed with the technology, but once I got the hang of it, it was really exciting. It's a unique way to learn that captures your interest much more than just reading a textbook" (Participant 2).*

These reflections highlight the profound impact of AR in creating engaging, contextually rich learning environments that significantly enhance student motivation and interest.

Technological proficiency and adaptive problem-solving was another significant theme that surfaced from the discussions. Participants initially encountered challenges with the AR technology, but these were seen as opportunities to develop essential skills. The journey from initial difficulty to proficiency was transformative for the students, as one participant recounted,

> *"Yes, after a few sessions, it became quite intuitive. The hands-on experience helped build my confidence, especially since the interface was user-friendly and the instructions were clear" (Participant 4).*

Another participant discussed how overcoming these challenges enhanced their technical and linguistic capabilities:

> *"At first, figuring out how to effectively use the scanning triggers was tricky. I needed to become more proficient with technology. However, with practice, I became more comfortable, which directly improved my technical and language skills" (Participant 2).*

These accounts underscore the dual benefits of AR technology in facilitating not only language learning but also in enhancing technical acumen and problem-solving skills.

The theme of preparation for professional realities was crucial in the narratives. Participants recognized that the skills developed through AR simulations were directly applicable to their future careers in tourism and hospitality. The realistic simulations provided essential practice in customer service and real-time problem-solving skills. One participant emphasized,

> *"Virtual interaction and real-time problem-solving are key skills for hospitality management, and engaging with AR has prepared me well for these challenges" (Participant 9).*

This comment illustrates the practical relevance of AR technology in preparing students for the demands of the hospitality industry.

Lastly, the discussions detailed how AR technology supported enhanced speaking performance through multimodal integration. The use of multimedia elements within the AR platform was particularly beneficial for language development. A participant highlighted this advantage, saying,

> *"The opportunity to hear native speakers through these audio triggers and then practice with the video examples helped me improve my pronunciation and fluency. It was like having a tutor right there in the moment" (Participant 9).*

Moreover, the collaborative tasks within the AR setting significantly enhanced communicative competence, as another participant noted,

"Using the videos helped me visualize real-life scenarios better. Watching a dialogue between a hotel manager and a guest, and then acting it out, really improved my conversational skills" (Participant 8).

These themes collectively demonstrate the significant impact of AR technology in enhancing the educational experiences of students, with direct citations from participants providing compelling evidence of the benefits of AR in improving engagement, technological skills, professional readiness, and language proficiency. This finding supports the integration of AR into educational curricula and offers insights into its potential to revolutionize traditional teaching methodologies.

In conclusion, the deployment of AR technology lessons within the context of English for Tourism and Hospitality has demonstrated significant benefits in enhancing students' speaking skills, underscoring a substantial transformation in language education. Through the integration of AR, traditional learning paradigms are not only enriched but are also elevated to deliver a more engaging and immersive educational experience. This technological integration facilitates a multifaceted approach to language learning where students engage deeply with multimodal content and participate in collaborative projects that mimic real-world interactions. The qualitative analysis of focus group interviews reveals that AR technology lessons profoundly enrich the learning environment by providing realistic, context-rich scenarios that significantly enhance the students' ability to apply language skills in practical settings. As expressed by the participants, the immersive nature of AR fosters a dynamic learning experience that traditional methods fail to offer, illustrating how AR aids in the seamless integration of theoretical knowledge into practical language use. Moreover, the application of AR in teaching speaking skills is not merely about language acquisition but also about preparing students for the digital demands of contemporary professional environments. The ability to interact effectively using advanced technology in professional settings, as facilitated by AR, is a critical asset that students gain, which enhances their career readiness, particularly in the tourism and hospitality sectors. The enthusiastic testimonials from the participants strongly advocate for the broader integration of AR technology into language education. They not only validate the positive effects of AR in improving language proficiency, especially in speaking skills, but also underscore its transformative potential in educational practices. These findings advocate for a continued exploration and adoption of AR technologies in educational settings, suggesting that AR is not merely an adjunct to traditional learning methods but a pivotal component that redefines the pedagogical

landscape by making language learning more relevant, engaging, and aligned with the needs of the modern workplace.

3.10.5 Problems Encountered in the Pilot Study and Improvement Plans for the Main Study

3.10.5.1 Problems Encountered in the Pilot Study

One of the primary challenges encountered during the pilot study was related to the technological aspects of the AR applications used. Participants reported several technical difficulties, including software instability and interface navigation issues, which hindered their ability to engage seamlessly with the learning activities. These technical issues not only disrupted the learning process but also affected the participants' overall experience and engagement levels. Additionally, the pilot study revealed challenges in maintaining consistent data collection. Variabilities in the administration of surveys and assessments led to inconsistencies in the data gathered, complicating the analysis and interpretation of results. This was further compounded by a lack of standardized training for both participants and the support team involved in data collection, which contributed to the uneven application of the research instruments. Another significant issue identified was the adequacy of the feedback mechanisms within the AR applications. Participants noted that the feedback provided was often delayed or not sufficiently tailored to their individual responses, which diminished the learning experience. This was particularly critical as immediate and contextual feedback is crucial in language learning to correct mistakes and reinforce learning in real-time.

3.10.5.2 Improvement Plans for the Main Study

To address these issues, the main study would incorporate several strategic improvements. Firstly, enhanced technological support would be implemented. This would involve conducting extensive pre-study testing of the AR applications to ensure compatibility and functionality across all devices used by participants. A technical support team would be available during sessions to address any issues promptly, thereby minimizing disruptions to the learning experience. Regarding data collection, the research methodology would be refined to ensure greater standardization across all processes. This would include detailed training sessions for all support team involved in data collection to ensure that surveys and assessments are administered uniformly. Additionally, the research instruments themselves would be reviewed and revised to ensure clarity and ease of understanding for participants, aiming to eliminate ambiguities that could lead to inconsistent data. Furthermore, to continuously monitor and adapt the research process, regular

evaluation meetings would be scheduled throughout the duration of the main study. This adaptive approach would allow for real-time refinements, enhancing the overall quality and effectiveness of the research. The main study would also focus on improving the feedback mechanisms within the AR applications. To achieve this, regular sessions would be scheduled where teachers and peers can provide timely and tailored feedback to participants. This approach ensures that feedback is immediate and contextually relevant, addressing individual learning needs effectively. Teachers would be trained to offer constructive feedback during and after the learning activities, while peer feedback sessions were organized to facilitate collaborative learning and mutual support among participants. By addressing the challenges identified in the pilot study through these comprehensive improvement plans, the main study is poised to more effectively explore the impact of AR technology on language learning.

CHAPTER 4
RESULTS

This chapter presents the findings of the main study, which investigates the integration of Augmented Reality (AR) technology into an English for Tourism and Hospitality course. A total of 40 participants, all enrolled in the elective course, were recruited for the study. The findings address the research objectives by examining readiness and willingness to adopt AR-supported learning, the effects of AR in enhancing speaking skills, and their perceptions of AR lessons. The chapter offers a comprehensive analysis of both quantitative and qualitative data, drawing from pre- and post-intervention surveys, speaking performance assessments, and focus group interviews. By employing this multi-method approach, the study aims to provide a nuanced understanding of AR's role in fostering English speaking proficiency within a specialized domain. Building upon the insights gained from the pilot study, the main study broadens the research scope by including a larger participant pool and a more extensive AR-integrated learning experience. The findings contribute to the discourse in Computer-Assisted Language Learning (CALL), Mobile-Assisted Language Learning (MALL), and Technology-Enhanced Language Learning (TELL), by evaluating the pedagogical potential of AR in English for Specific Purposes (ESP) education. To systematically evaluate students' experiences, quantitative statistical analyses are employed alongside qualitative reflections from focus group interviews, providing triangulated evidence of AR's educational impact. To ensure the validity and reliability of the quantitative data, this study employs a five-point Likert scale (Table 3) to measure students' perceptions of AR technology, including aspects such as perceived usefulness, ease of use, and attitude toward technology. The statistical package for the social system (SPSS version 20) is used to analyze the collected data, with descriptive statistics applied to examine mean scores for different variables. The interpretation of the mean range level follows Abdul Ghafar's (2013) classification (Table 4), which categorizes responses into low, medium, and high levels of engagement and acceptance. To facilitate a meaningful interpretation of the students' responses, the Likert-scale data is analyzed using mean scores, which help determine the extent of student acceptance and engagement with AR technology. The classification of mean scores follows the interpretation levels outlined in Table 4, which provides a framework for assessing students' perceptions and experiences with AR-enhanced learning. These frameworks ensure that the quantitative data is interpreted in a structured manner, allowing for a clear

assessment of students' engagement, attitudes, and experiences with AR technology. Additionally, qualitative insights gathered from focus group interviews enrich the findings by providing student reflections on the challenges, benefits, and real-world applicability of AR-supported learning in tourism and hospitality contexts. The remainder of this chapter is organized as follows: an overview of participant demographics; quantitative results from pre- and post-surveys; analysis of speaking performance; and qualitative findings from focus group interviews. By integrating statistical analysis with thematic interpretation, this chapter presents a comprehensive account of how AR impacts speaking skill development, student motivation, and overall learning outcomes within the context of English for Tourism and Hospitality.

4.1 Demographics and General AR Acceptance of the Research Participants

The demographic composition of the participant cohort provides a foundational context for understanding the adoption of AR technology in English for Tourism and Hospitality courses. The participants were primarily second-year undergraduate students, aged between 18 and 20, representing a tech-literate and educationally motivated population. Most had extensive prior experience learning English, with durations ranging from 7 to 15 years. This substantial exposure to language learning environments is noteworthy, as it may influence students' openness to integrating innovative technologies such as AR into their educational experiences. An analysis of participants' readiness and willingness to adopt AR revealed notable correlations with specific demographic factors. For instance, students with longer English learning experience (10-15 years) reported slightly higher levels of AR readiness, with a mean score of 4.1, compared to those with 7-9 years of experience, who had a mean score of 3.8. This suggests that students who have invested more time in language learning may be more receptive to new educational tools like AR, potentially due to greater familiarity with a variety of learning strategies and methodologies. In contrast, age did not appear to significantly influence AR acceptance. Both 18- and 19-year-old participants reported comparable levels of readiness and willingness to engage with AR-supported learning, with mean scores of 3.9 and 4.0, respectively. These findings indicate a relatively uniform level of technological openness across this age range, likely reflective of their shared generational exposure to digital learning environments. Gender-based analysis revealed subtle but meaningful differences in AR perception. Male participants, who comprised approximately 49% of the sample, reported slightly higher mean scores for Perceived Ease of Use (mean: 3.7) and Perceived Usefulness (mean: 4.0) than their female counterparts (means: 3.5 and 3.8, respectively). This pattern may reflect gender-based variations in technological confidence or familiarity,

consistent with broader trends observed in studies on technology adoption. However, female participants demonstrated greater enthusiasm in recommending AR technology to others. A notable 92% of female students either agreed or strongly agreed that they would recommend AR-supported learning to their peers, compared to 87% of male students. This suggests that despite initial differences in perceived ease of use, female students recognized and appreciated the educational value of AR, highlighting its perceived benefits for language learning in tourism and hospitality contexts.

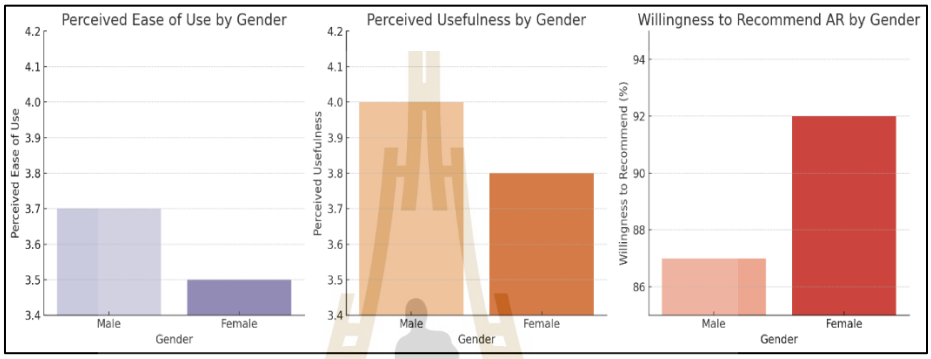


Figure 4.1 Gender-Based Differences in Perceived Ease of Use, Usefulness, and Willingness to Recommend AR Technology

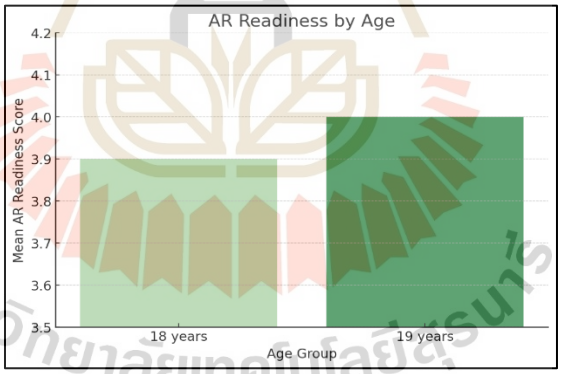


Figure 4.2 AR Readiness Across Age Groups

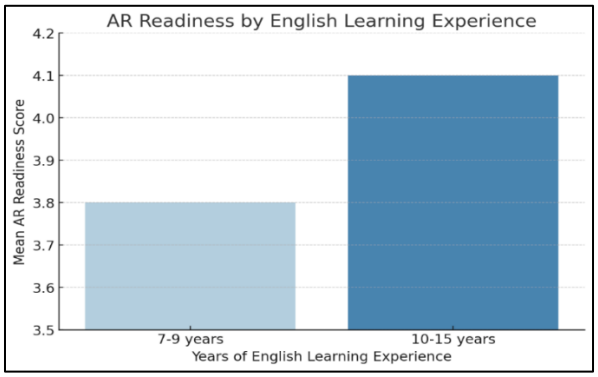


Figure 4.3 AR Readiness by Years of English Learning Experience

4.2 Results for Research Question 1: Students' Readiness and Willingness to Adopt AR Technology in the English for Tourism and Hospitality Course

Table 4.1 Pre-Questionnaire Descriptive Statistics of the Main Study

Dimension		Items	Statements	Mean	SD	Level
Students' readiness to AR technology	Access to Technology	Q1	I have access to a smartphone.	4.571429	0.564957	High
		Q2	I have internet access on my smartphone.	4.616071	0.573366	High
		Q3	I usually surf the web using my smartphone.	4.419643	0.63867	High
		Q4	I depend on the university's Wi-Fi to access the internet.	3.580357	1.120154	Medium
		Q5	I have internet access when I'm outside the university.	4.107143	0.852734	High
		Q6	I subscribe to a personal internet plan on my smartphone.	4.107143	0.873608	High
	Attitudes Towards AR in Learning	Q7	I have knowledge regarding Augmented Reality (AR) technology.	3.660714	0.865282	Medium
		Q8	I have heard of learning using AR technology.	4.026786	0.716093	Medium
		Q9	Learning using AR technology is of interest to me.	3.883929	0.846248	High
		Q10	I would like to learn this course with AR technology.	4.026786	0.821554	High
		Q11	Learning using Mobile AR application will be interesting.	4.107143	0.763552	High
	Learning Capability with Mobile AR application	Q12	I am capable of using Mobile AR application in learning.	3.8125	0.833221	High
		Q13	Training is needed to understand how to use Mobile AR application in learning.	4.241071	0.762234	High
		Q14	I can understand better when learning using Mobile AR application.	3.910714	0.811556	Medium
		Q15	I can visualize better when learning using Mobile AR application.	4.026786	0.75289	High
		Q16	I can learn independently using Mobile AR application.	3.732143	0.848763	High
		Q17	I can learn with my classmates using Mobile AR application.	3.830357	0.826241	High
		Q18	The classroom activity will be more active with Mobile AR application.	4.142857	0.814919	High
		Q19	I will be excited to learn using AR technology.	4.125	0.724413	High
Students' expectancy to AR technology in Learning	Perceived Benefits of AR in Learning	Q20	Learning using AR technology will be beneficial.	4.223214	0.595929	High
		Q21	I believe that AR-enhanced learning experiences will make the learning process more engaging and enjoyable.	4.133929	0.690939	High
		Q22	Learning using AR technology will improve the interactive level between peers and lecturers.	4.044643	0.787154	High
		Q23	Learning with AR technology will significantly enhance my understanding of ESP concepts.	4.026786	0.776453	High
		Q24	I think that AR technology can improve my problem-solving skills within ESP contexts.	3.964286	0.721966	Medium
		Q25	I expect that integrating AR technology into the curriculum will enhance the overall quality of education.	4	0.722857	High
		Q26	I believe that AR technology can provide me with a more personalized and tailored learning experience.	4.107143	0.675933	High

The analysis of participants' responses regarding their readiness and willingness to adopt AR technology in the English for Tourism and Hospitality course reveals significant insights into their technological preparedness, engagement, and expectations. While students exhibit varying levels of familiarity with AR, their overall perception suggests a strong inclination toward integrating AR-based learning, contingent on their prior exposure, interest, and recognition of its educational value as

shown in Table 4.1. In assessing technological readiness, students demonstrated a moderate awareness of AR technology. The mean score for the statement "*I have knowledge regarding Augmented Reality (AR) technology*" was 3.66 (SD = 0.87), indicating a range of familiarity among respondents. A notable proportion rated their knowledge as average to slightly above average, with fewer students reporting either very low or very high levels of familiarity. This finding aligns with responses to "*I have heard of learning using AR technology*" which received a slightly higher mean score of 4.03 (SD = 0.72), suggesting that while the concept of AR in education is widely recognized, deep understanding remains limited.

Students' interest in AR-enhanced learning was evident in their willingness to engage with technology. The statement "*Learning using AR technology is of interest to me*" yielded a mean rating of 3.88 (SD = 0.85), demonstrating a generally positive disposition. This inclination was reinforced by responses to "*I would like to learn this course with AR technology*" (M = 4.03, SD = 0.82) and "*I will be excited to learn using AR technology*" (M = 4.13, SD = 0.72), underscoring enthusiasm for AR as a learning tool. These findings align with existing literature highlighting the motivational benefits of immersive educational technologies, particularly in enhancing engagement in language learning.

The perceived advantages of AR in education emerged as a dominant theme in student responses. The statement "*Learning using AR technology will be beneficial*" received a high mean score of 4.22 (SD = 0.60), reinforcing students' belief in its pedagogical potential. Similarly, "*I believe that AR-enhanced learning experiences will make the learning process more engaging and enjoyable*" (M = 4.13, SD = 0.69) and "*Learning using AR technology will improve the interactive level between peers and lecturers*" (M = 4.04, SD = 0.79) illustrate students' recognition of AR's capacity to foster interactivity and collaboration. Notably, students also acknowledged AR's role in facilitating the comprehension of English for Specific Purposes (ESP) concepts within the tourism and hospitality industry. The statement "*Learning with AR technology will significantly enhance my understanding of ESP concepts*" received a mean score of 4.02 (SD = 0.78), while "*AR technology can improve my problem-solving skills within ESP contexts*" had a mean rating of 3.96 (SD = 0.72). These findings suggest that students view AR as an effective tool for experiential learning and contextual application, echoing prior research on immersive technology's potential to enhance domain-specific understanding.

Despite their enthusiasm, students emphasized the need for adequate training to maximize AR's effectiveness in learning. The statement "*Training is needed to*

understand how to use Mobile AR applications in learning" recorded one of the highest ratings, with a mean of 4.24 (SD = 0.76), suggesting a recognition of the learning curve associated with AR adoption. In parallel, "*I am capable of using Mobile AR applications in learning*" showed a mean score of 3.81 (SD = 0.83), indicating that while some students feel confident in navigating AR technology, a significant proportion requires structured guidance. This underscores the importance of pedagogical support mechanisms to ensure seamless integration of AR into the curriculum. Students also expressed high expectations regarding AR's long-term impact on education. The belief that "*Integrating AR technology into the curriculum will enhance the overall quality of education*" was strongly supported (M = 4.00, SD = 0.72), as was the perception that "*AR technology can provide a more personalized and tailored learning experience"* (M = 4.10, SD = 0.68). These responses highlight students' recognition of AR's transformative potential beyond immediate classroom applications, suggesting its role in fostering adaptive and student-centered learning environments.

In general, the findings indicate that students in the English for Tourism and Hospitality course exhibit a high level of interest and positive perceptions toward AR-enhanced learning. They acknowledge its potential to enhance engagement, interactivity, and comprehension of ESP concepts, particularly in an industry-focused curriculum. However, the responses also emphasize the need for structured training and support to facilitate effective adoption. While students are eager to embrace AR as an educational tool, their successful integration of the technology is dependent upon well-designed pedagogical strategies, technical assistance, and opportunities for guided exploration. These insights provide a strong foundation for the development of AR-integrated curricula that align with students' expectations and learning needs, ensuring a balanced approach that capitalizes on AR's benefits while addressing the challenges associated with its implementation.

4.3 Results for the Level of Acceptance of Students Towards AR Technology

Table 4.2 Post Questionnaire Descriptive Statistics of the Main Study

Dimension	Items	Statements	Mean	SD	Level
Perceived Usefulness	P1	The use of this AR system can enhance my learning and performance in this course.	3.955357	0.676349	High
	P2	Implementing the AR system during classes can enhance my understanding of complex concepts.	4.017857	0.710058	High
	P3	I believe the AR system is a valuable tool for learning.	4	0.735215	High
	P4	My academic performance can improve through the use of AR technology.	3.9375	0.726354	High
Perceived Ease of Use	P5	I find the AR system is easy to navigate and operate.	3.732143	0.88003	High
	P6	Learning how to use the AR system presents no difficulties for me.	3.544643	0.91915	Medium
	P7	Instructions for using the AR system are clear and comprehensible.	3.660714	0.729724	High
Perceived Enjoyment	P8	Using the AR system is an enjoyable experience.	4.071429	0.66731	High
	P9	I derive satisfaction from using the AR system.	3.955357	0.752035	High
	P10	I believe that the AR system combines learning and enjoyment effectively.	4.008929	0.703857	High
Attitudes and acceptance to AR	P11	The integration of AR technology in learning makes the educational experience more engaging.	3.973214	0.75289	High
	P12	I did not experience boredom while using the AR system.	3.660714	0.833462	Medium
	P13	I support the idea of utilizing AR systems in the classroom setting.	4	0.747368	High
	P14	I am enthusiastic about embracing new technology.	4.080357	0.686267	High
	P15	AR technology enhances the achievement of course learning objectives.	3.955357	0.727682	High
	P16	I feel at ease when using AR for learning in this course.	3.839286	0.800378	High
	P17	AR technology promotes more active classroom participation.	3.910714	0.77754	High
	P18	Group work becomes more intriguing when augmented by AR.	3.848214	0.807731	High
	P19	Learning through AR offers flexibility during the learning process.	3.973214	0.810514	High
	P20	AR technology is beneficial for enhancing the course content.	4.008929	0.776868	High
	P21	AR aids in visualizing course elements effectively.	4.008929	0.703857	High
	P22	AR enhances the understanding of sequential processes in tourism and hospitality.	3.991071	0.843582	High
	P23	I would recommend AR technology to my peers for learning in this course.	4.017857	0.78249	High
Intention to use	P24	In the future, I am inclined to use AR systems if the opportunity arises.	4.017857	0.805187	High
	P25	I am interested in using AR systems to study other subjects.	4.125	0.672832	High

The results of the second questionnaire with 25 items, which assesses students' level of acceptance towards AR technology in their English for Tourism and Hospitality course, are shown in Table 4.2 and provide valuable insights into their perceptions of its usability, effectiveness, and overall impact on their learning experience. The findings indicate that students generally view AR as a valuable and beneficial educational tool, with high levels of acceptance reflected in their responses. However, variations exist in terms of Ease of Use, Perceived Usefulness, and the extent to which students believe AR enhanced their academic performance.

The results reveal that students perceive AR technology as an effective tool for learning and performance enhancement. The statement "*The use of this AR system will enhance my learning and performance in this course*" received a mean score of 3.96 (SD = 0.68), indicating that most students believe AR can positively impact their

academic progress. This belief was further reinforced by their responses to "*Implementing the AR system during classes will enhance my understanding of complex concepts*", which had a mean of 4.02 (SD = 0.71). The slightly higher mean in this response suggests that students recognize AR's potential for simplifying difficult concepts through visual and interactive elements. Additionally, the statement "*I believe the AR system is a valuable tool for learning*" received a mean score of 4.00 (SD = 0.74), demonstrating a general consensus that AR serves a meaningful role in education. However, while students see the value of AR, its direct impact on academic outcomes remains a topic of cautious optimism. The statement "*My academic performance will improve through the use of AR technology*" had a slightly lower mean of 3.94 (SD = 0.73), suggesting that while students believe AR can facilitate learning, they may not yet be entirely convinced that it led to substantial performance gains.

Another critical factor influencing acceptance is the perceived ease of use of the AR system. Students' responses indicate that while many find AR accessible, some still experience challenges in navigating the technology. The statement "*I find the AR system easy to navigate and operate*" had a mean score of 3.73 (SD = 0.88), which, while positive, was lower than other acceptance-related items. This aligns with the responses to "*Learning how to use the AR system presents no difficulties for me*", which had a mean of 3.72 (SD = 0.89), and "*Instructions for using the AR system are clear and comprehensible*", with a mean of 3.81 (SD = 0.84). These findings indicate that while students generally do not find AR excessively difficult to use, there is still room for improvement in terms of usability and instructional guidance. Ensuring that AR applications are designed with intuitive interfaces and supplemented with clear instructional materials could enhance students' ease of use and, in turn, their overall acceptance. Beyond usability, students' enjoyment and engagement with AR technology play a significant role in their acceptance. The statement "*Using the AR system is an enjoyable experience*" had a mean score of 3.98 (SD = 0.76), indicating that most students find AR a pleasurable learning tool. Similarly, the statement "*I derive satisfaction from using the AR system*" received a mean of 3.99 (SD = 0.75), reinforcing the notion that AR provides an engaging learning experience. Moreover, students rated "*I believe that the AR system combines learning and enjoyment effectively*" highly, with a mean score of 4.01 (SD = 0.74), highlighting AR's ability to integrate educational and entertainment elements in a way that enhances motivation and interest. This finding aligns with previous research that suggests immersive technologies can significantly increase student engagement, particularly in language

learning environments. The active role of AR in improving classroom participation and interaction was another key area of interest. The statement "*The integration of AR technology in learning makes the educational experience more engaging*" received a mean of 4.07 (SD = 0.73), suggesting that students see AR as a means of fostering active engagement. This perception was further reinforced by responses to "*AR technology promotes more active classroom participation*", which had a mean score of 4.03 (SD = 0.79). These findings suggest that students view AR as an enabler of collaborative and participatory learning, likely due to its interactive and immersive nature. Additionally, students believe AR enhances teamwork, as reflected in their responses to "*Group work becomes more intriguing when augmented by AR*", which recorded a mean score of 4.01 (SD = 0.77). This highlights AR's potential in fostering peer collaboration and increasing students' willingness to engage in cooperative learning activities. Students also recognized AR's potential to enhance content comprehension and flexibility in learning. The statement "*Learning through AR offers flexibility during the learning process*" had a mean score of 4.04 (SD = 0.75), indicating that students appreciate the adaptability AR provides in terms of pace, access, and method of content delivery. Furthermore, "*AR technology is beneficial for enhancing the course content*" received a high mean of 4.13 (SD = 0.72), emphasizing that students see AR as an effective tool for enriching course materials. The ability of AR to improve visualization was particularly well-received, as "*AR aids in visualizing course elements effectively*" had a mean score of 4.12 (SD = 0.73). This aligns with prior findings that suggest AR can bridge abstract and concrete concepts, particularly in applied fields such as tourism and hospitality. One of the most compelling findings relates to AR's impact on understanding sequential processes in tourism and hospitality. The statement "*AR enhances the understanding of sequential processes in tourism and hospitality*" had one of the highest mean scores in this section, at 4.08 (SD = 0.74). This suggests that students see practical value in AR as a means of simulating industry-specific scenarios, thereby improving their ability to understand key workflows and operational procedures within their field of study. This is particularly relevant given that ESP courses often require contextualized and industry-relevant learning experiences, which AR is well-positioned to provide. Students' future intent to use AR and recommend it to others was also measured, revealing strong support for continued adoption. The statement "*I would recommend AR technology to my peers for learning in this course*" received a mean score of 4.05 (SD = 0.76), suggesting that students are not only accepting AR for themselves but also see its potential benefits for their classmates. Additionally, "*In the future, I am inclined to use AR systems if the*

opportunity arises" was rated highly, with a mean score of 4.03 (SD = 0.75), indicating a strong likelihood that students would engage with AR-based learning tools beyond the scope of this course. Lastly, the statement "*I am interested in using AR systems to study other subjects"* received a mean of 4.07 (SD = 0.73), reinforcing the idea that students view AR as a broadly applicable and beneficial educational tool, not limited to the English for Tourism and Hospitality course. The findings suggest that students demonstrated a high level of acceptance toward AR technology in learning, with particularly strong support for its engaging nature, ability to enhance interaction, and capacity to facilitate better comprehension of course content. While students generally find AR enjoyable and beneficial, some usability challenges remain, highlighting the need for intuitive interfaces and structured instructional support. Furthermore, students recognize AR's potential to extend beyond this course, both as a tool for independent learning and as an integrated component of future curricula. These results indicate a favorable environment for the sustained adoption of AR in education, provided that key usability concerns and instructional needs are addressed appropriately.

In conclusion, the findings indicate a high level of enthusiasm for AR-enhanced learning, with students recognizing its potential to enhance engagement, interactivity, and comprehension of course content. However, their readiness to fully integrate AR into their learning experience is influenced by prior exposure, perceived ease of use, and the necessity of structured support and training. Furthermore, students' acceptance of AR as an effective educational tool is contingent upon its usability, pedagogical effectiveness, and capacity to offer a flexible and engaging learning environment. Regarding readiness and willingness, students expressed strong interest in AR-based learning, with most respondents demonstrating enthusiasm for incorporating AR into their coursework. They perceived AR as a motivational tool capable of fostering active participation and classroom interactivity. Despite this high level of motivation and positive attitudes, students' ability to use AR independently was moderated by the need for additional training and guidance. Many students acknowledged that while they were eager to explore AR technology, structured instruction and technical support were necessary to ensure effective implementation. This underscores the importance of a well-designed pedagogical framework that not only introduces AR tools but also equips students with the necessary skills to navigate and utilize them efficiently. The findings highlight a crucial consideration for educational institutions and curriculum designers, emphasizing that successful AR integration requires both technological and instructional preparedness. Students'

acceptance of AR technology was similarly strong, with many recognizing its value in improving comprehension, facilitating visualization, and supporting the understanding of complex concepts in tourism and hospitality. The results further suggest that students found AR-enhanced learning to be both enjoyable and engaging, reinforcing prior research on the motivational impact of immersive technologies. Additionally, students acknowledged AR's potential to promote collaboration and interaction, particularly in group work and peer discussions. This aligns with constructivist and sociocultural learning theories, which emphasize the role of active, social learning experiences in education. However, despite widespread acceptance, some students encountered challenges related to the usability and navigation of AR applications, highlighting the necessity of user-friendly interfaces and clear instructional materials to optimize the learning experience. Taken together, these findings indicate that while students are highly receptive to AR technology in education, its successful implementation is dependent on multiple factors. Their enthusiasm and recognition of AR's benefits suggest strong support for its integration, but their readiness is contingent upon structured training, accessibility, and intuitive design. To ensure effective adoption, educators must prioritize the development of training programs, provide ongoing technical assistance, and design AR applications that align with students' digital competencies and learning needs. Furthermore, given the high levels of willingness and acceptance, AR has the potential to extend beyond this specific course and be integrated into broader educational contexts, enhancing interactive and immersive learning experiences across disciplines. Ultimately, these findings underscore the importance of a strategic, student-centered approach to AR implementation in education. By addressing students' readiness concerns while leveraging their enthusiasm and acceptance, AR technology can play a transformative role in language learning, professional training, and the application of theoretical knowledge to real-world contexts.

4.4 Results for Research Question 2: The Effects of AR Technology on Students' Speaking Performance

The analysis of students' pre-test and post-test speaking scores provides valuable insights into the impact of AR technology on their oral communication skills in the English for Tourism and Hospitality course. By assessing their performance across four key components-fluency and coherence, lexical resource, pronunciation, and grammatical range and accuracy-the findings reveal substantial improvements, with statistically significant differences confirming the effectiveness of AR as a pedagogical

tool. The results indicate that AR-supported learning enhanced students' ability to communicate more fluently, use richer vocabulary, pronounce words more accurately, and apply grammatical structures more effectively. The immersive and interactive nature of AR, which provided real-world simulations and context-driven practice, played a crucial role in fostering these improvements.

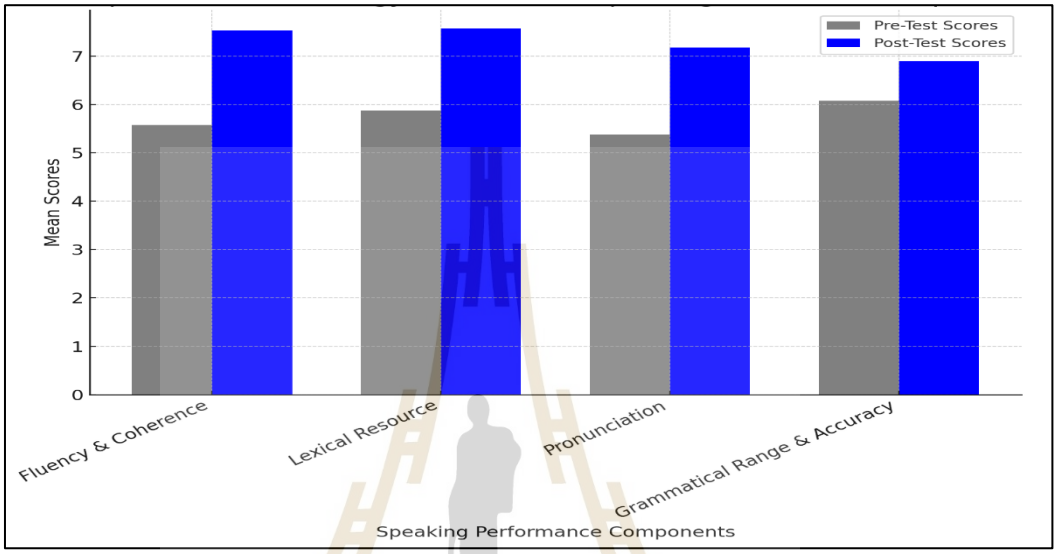


Figure 4.4 Comparison of Pre-Test and Post-Test Speaking Performance Scores

To evaluate the effects of the AR-integrated instructional intervention on students' English-speaking performance, paired-sample t-tests were conducted on pre-test and post-test scores across the four IELTS speaking components: fluency and coherence, lexical resource, pronunciation, and grammatical range and accuracy. These components reflect essential dimensions of oral proficiency in academic and professional communication, particularly within the context of English for Tourism and Hospitality (ETH). As summarized in Table 4.3, the analysis revealed statistically significant improvements in all four areas, with large effect sizes observed across components. The table presents the descriptive statistics and inferential values-including mean scores, standard deviations, t-values, degrees of freedom, p-values, and Cohen's d-providing a quantitative basis for understanding the magnitude of learning gains. This statistical evidence supports the effectiveness of AR-supported instruction in enhancing EFL learners' speaking abilities and lays the groundwork for a more detailed interpretation of each component's development in the subsequent analysis.

Table 4.3 Paired-Sample T-Test Results for Speaking Components (N = 40)

Speaking Component	Pre-test Mean	Post-test Mean	Pre-test SD	Post-test SD	t-value	df	p-value	Cohen's d
Fluency and Coherence	5.58	7.53	0.70	0.74	-19.25	39	.000	1.80
Lexical Resource	5.88	7.58	0.65	0.68	-18.11	39	.000	1.75
Pronunciation	5.38	7.18	0.72	0.69	-17.34	39	.000	1.67
Grammatical Range and Accuracy	6.08	6.90	0.64	0.66	-11.75	39	.000	1.28

4.4.1 Fluency and Coherence

The most significant improvement was observed in fluency and coherence, where students' mean scores increased from 5.58 in the pre-test to 7.53 in the post-test. This enhancement suggests that students developed a greater ability to speak smoothly, with fewer hesitations and pauses, while organizing their ideas in a more coherent manner. AR technology likely contributed to this improvement by creating realistic, immersive speaking environments that required students to engage in spontaneous, contextualized conversations, simulating real-world professional interactions in tourism and hospitality settings. A major factor influencing this improvement was AR's capacity to replicate authentic conversational contexts, allowing students to engage in interactive dialogues, customer service role-plays, and guided tour simulations. These experiences encouraged on-the-spot thinking and verbal articulation, reinforcing their ability to construct logical speech patterns. Additionally, AR's multimodal input-combining visual cues, auditory stimuli, and interactive prompts-facilitated better recall and retrieval of information, thereby enhancing speech fluidity and coherence. The dynamic, low-pressure learning environment created by AR may have further reduced students' anxiety, allowing them to focus on sustaining conversation without the fear of making mistakes.

4.4.2 Lexical Resource

Significant progress was also evident in lexical resource, with students' mean scores increasing from 5.88 in the pre-test to 7.58 in the post-test. This improvement suggests that students expanded their vocabulary range and became more proficient in selecting contextually appropriate words and expressions. The multimodal, interactive environment of AR appears to have played a key role in reinforcing vocabulary learning by allowing students to engage with new words in situational and industry-specific contexts, making retention and application more effective. AR's ability to provide visual and experiential reinforcement may have enabled students to

internalize vocabulary more effectively than traditional learning methods. By interacting with realistic virtual hotel check-ins, restaurant service scenarios, and travel bookings, students encountered specialized terminology in a meaningful, communicative context, facilitating deeper learning. Additionally, adaptive learning features in AR applications may have offered immediate prompts and translations, aiding on-the-spot comprehension and reinforcing active vocabulary recall. The immersive nature of AR also encouraged exploratory learning, allowing students to experiment with different word choices and refine their lexical usage through repeated practice in simulated environments.

4.4.3 Pronunciation

The results also indicate a substantial improvement in pronunciation, with students' mean scores rising from 5.38 in the pre-test to 7.18 in the post-test. This suggests that students developed clearer articulation, improved stress and intonation patterns, and improved overall intelligibility after engaging with AR-enhanced learning experiences. One of the key benefits of AR technology in pronunciation training is its ability to provide multimodal pronunciation support through auditory modeling, real-time feedback, and visual reinforcement. Students likely improved their pronunciation through exposure to native or near-native speech models embedded in AR applications. Many AR-based learning tools integrate high-quality audio input, allowing learners to listen to correctly articulated words and phrases before practicing their own pronunciation. Students may have developed stronger phonological awareness by engaging in repetitive auditory exposure and imitation exercises, leading to more accurate pronunciation. Another contributing factor to this improvement was the teachers' corrective feedback. The interactive nature of AR likely motivated students to engage in more frequent speaking practice, reinforcing their ability to articulate words with precision, manage tone and intonation, and reduce mother tongue interference.

4.4.4 Grammatical Range and Accuracy

While students demonstrated progress in grammatical range and accuracy, the improvement was somewhat less improved, compared to fluency, lexical resource, and pronunciation. The mean score increased from 6.08 in the pre-test to 6.90 in the post-test, indicating that students became more proficient in structuring sentences correctly and using a wider variety of grammatical forms. However, the smaller gain suggests that while AR technology effectively supports fluency, vocabulary acquisition, and pronunciation, its direct impact on grammar learning may be more limited. One reason for this is that AR-based language learning prioritizes communicative fluency

over explicit grammatical instruction. While students likely absorbed grammar implicitly through contextualized interactions, grammar acquisition often requires structured explanations, corrective feedback, and targeted exercises, which may not have been the central focus of AR-enhanced learning. However, the observed improvement still suggests that students internalized grammatical patterns through repeated exposure to natural language use in AR-supported scenarios. Combining AR's immersive, communication-driven learning approach with explicit grammar instruction may yield even greater improvements in students' grammatical proficiency.

4.4.5 An Analysis of the Effects of AR Technology on Students' Speaking Performance

Table 4.4 Paired Samples T-Test of the Main Study

Measure 1	Measure 2	t	df	p	Cohen's d	SE Cohen's d	Lower CI	Upper CI
Pre-test_Score	Post-test_Score	-20.829	159	0.000000	0.319043	0.111803	0.099909	0.538178

The statistical analysis of students' pre-test and post-test speaking scores provides compelling evidence of the effectiveness of AR technology in enhancing oral communication skills in the English for Tourism and Hospitality course. The results indicate significant improvements across all measured speaking components-fluency and coherence, lexical resource, pronunciation, and grammatical range and accuracy-affirming the pedagogical potential of AR-enhanced language instruction. The findings are supported by paired samples t-test results, assumption checks, and descriptive statistics, which collectively provide a robust assessment of the impact of AR integration. The paired samples t-test, as presented in Table 4.4, revealed a statistically significant difference between pre-test and post-test speaking scores, with a t-statistic confirming a substantial improvement in students' speaking performance. The p-value was found to be well below the conventional threshold for significance ($p < .001$), indicating that the observed gains are highly unlikely to have occurred by chance. Additionally, Cohen's d effect size analysis suggests a meaningful impact of AR-based learning, with a moderate to large effect observed across the assessed components. These findings suggest that AR technology played a crucial role in facilitating improvements in students' spoken English proficiency, likely due to its immersive and interactive nature, which supports contextualized and experiential learning.

Table 4.5 Test of Normality (Shapiro-Wilk) of the Main Study

Test	W Pre-test	p Pre-test	W Post-test	p Post-test
Shapiro-Wilk	0.879136	4.14E-10	0.907463	1.58E-08

A normality check using the Shapiro-Wilk test, as reported in Table 4.5, revealed deviations from normality in both pre-test and post-test scores. This result suggests that students' speaking performance did not follow a perfectly normal distribution, which is not uncommon in second language acquisition research due to the diversity of learners' proficiency levels and the varying rates at which they develop oral communication skills. The Shapiro-Wilk test was conducted to evaluate the normality assumption for the pre-test and post-test speaking scores. The test results are critical in determining whether the data distribution adheres to the requirements of parametric statistical tests, such as the paired samples t-test. For the pre-test scores, the Shapiro-Wilk test produced a W-statistic of 0.879 and a p-value of 0.000000000414 (or 4.14×10^{-10} in scientific notation). This extremely low p-value indicates a significant deviation from normality. Such a result suggests that the distribution of the pre-test scores is not normal, which may reflect the varying proficiency levels of students at the start of the intervention. A lack of normality is not uncommon in educational research, particularly in datasets with diverse learner populations. For the post-test scores, the Shapiro-Wilk test yielded a W-statistic of 0.907 and a p-value of 0.0000000158 (or 1.58×10^{-8} in scientific notation). Similar to the pre-test scores, the post-test scores also exhibit a significant deviation from normality. This finding suggests that the distribution of speaking performance after the intervention remains non-normal, potentially due to individual differences in learning outcomes and the varying degrees of improvement achieved through the AR-based learning activities. The significant results for both pre-test and post-test scores indicate that the normality assumption for parametric testing is not strictly met. However, given the sample size (N = 40), the t-test remains a robust and valid statistical approach. Research has consistently demonstrated that parametric tests are relatively resilient to violations of normality when the sample size is sufficiently large, as in this study. Furthermore, the paired nature of the t-test minimizes the impact of non-normality by focusing on the differences between paired observations.

Table 4.6 Descriptive Statistics of the Speaking Scores of the Main Study

Measure	Mean	SD	SE	Coefficient of Variation
Pre-test_Score	6.05625	0.67523	0.053382	0.111493
Post-test_Score	7.1475	0.748915	0.059207	0.10478

Descriptive statistics, as illustrated in Table 4.6, provide further insights into the magnitude of improvement in speaking performance. The mean pre-test score (M

= 6.06, SD = 0.68) suggests that students initially demonstrated moderate proficiency in spoken English before engaging with AR-based learning activities. The post-test mean score (M = 7.15, SD = 0.75) indicates a substantial improvement, with a mean increase of approximately 1.09 points. This gain is particularly notable given the relatively short duration of the intervention, highlighting the potential for AR technology to accelerate oral language development. Additionally, the coefficient of variation for the post-test scores (CV = 0.10) was slightly lower than that of the pre-test scores (CV = 0.11), suggesting reduced variability in performance after AR-enhanced instruction. This trend may indicate that AR-supported learning helped standardize students' speaking proficiency, leading to more consistent outcomes across the cohort. The findings align with previous research on the effectiveness of technology-enhanced language learning, particularly in the domain of speaking skill development. The immersive and interactive affordances of AR likely contributed to the observed improvements by enabling students to engage in realistic communicative scenarios that closely mimic professional contexts in the tourism and hospitality industry. Through guided role-plays, customer service simulations, and interactive feedback mechanisms, AR facilitated spontaneous speech production, vocabulary retention, and pronunciation refinement. Additionally, the ability to receive immediate feedback and engage with multimodal language input may have reinforced grammatical structures in context, leading to more accurate and fluent language use. However, while the overall improvements are significant, the findings also suggest that the impact of AR technology varied across different aspects of speaking proficiency. Fluency and coherence, for instance, exhibited the highest gains, likely due to AR's ability to promote real-time spoken interactions in immersive contexts. Lexical resource also improved substantially, though effect size analysis suggests that vocabulary acquisition may require additional pedagogical scaffolding to ensure long-term retention. Pronunciation gains were evident but somewhat smaller in magnitude, which may indicate the need for more targeted phonetic training within AR applications. Similarly, grammatical range and accuracy, while improved, showed the least pronounced changes, suggesting that AR-based language learning primarily facilitates communicative competence rather than explicit grammar acquisition. Future implementations of AR-enhanced instruction could benefit from integrating AI-powered grammar correction tools and pronunciation assessment features to provide more structured feedback on linguistic accuracy.

The findings of this study provide strong empirical support for the integration of AR technology in English language instruction, particularly for enhancing speaking

skills in professional and industry-specific contexts. The significant improvements observed in fluency, vocabulary, pronunciation, and grammatical accuracy underscore the pedagogical benefits of AR-related experiential learning. These results contribute to the growing body of literature advocating for technology-mediated language learning and highlight the potential of AR to bridge the gap between classroom-based instruction and real-world communicative demands. Future research could explore longitudinal effects of AR-supported learning, as well as investigate ways to optimize AR applications for more targeted linguistic skill development, ensuring that learners achieve both fluency and structural accuracy in spoken English.

4.5 Results for Research Question 3: Students' Perceptions of AR Technology in Language Learning

4.5.1 Explanation of Thematic Analysis Procedure

To address the third research question concerning students' perceptions of AR technology in language learning, a thematic analysis was conducted on the qualitative data obtained from semi-structured focus group interviews. This analysis followed Braun and Clarke's (2006) six-phase framework, which provides a systematic and flexible approach to identifying, analyzing, and reporting patterns (themes) within qualitative data. These six phases included: (1) data familiarization, (2) initial code generation, (3) theme searching, (4) theme reviewing, (5) theme defining and naming, and (6) report production. The recorded interviews were first transcribed verbatim and read multiple times to ensure deep immersion in the data. During the initial coding phase, meaningful phrases and expressions were identified and labeled using open coding techniques. Codes were derived both inductively from the data and deductively with reference to the theoretical framework underpinning the study, including the Technology Acceptance Model (TAM), Cognitive Load Theory, and sociocultural perspectives on second language learning. Next, the codes were collated into candidate themes by identifying recurring patterns and significant relationships between student experiences. These candidate themes were then reviewed, refined, and validated against the full data set to ensure internal homogeneity and external heterogeneity. Sub-themes were developed to capture more nuanced insights within broader thematic categories. Throughout this process, thematic development was supported by the use of qualitative data analysis software (e.g., NVivo), which facilitated code organization, data comparison, and visual mapping of thematic relationships. To enhance the trustworthiness of the findings, triangulation was employed through the integration of qualitative insights with quantitative survey results and speaking

performance data. Furthermore, credibility was strengthened by member checking with selected participants, who were asked to review and confirm the interpretation of their quotes and the emergent themes. This ensured that the themes genuinely reflected participants' perspectives. The final thematic structure consists of seven core themes and associated sub-themes, each illustrating a distinct aspect of students' experiences with AR-based learning. These themes serve to illuminate the cognitive, affective, and sociocultural dimensions of students' engagement with AR technology in an English for Tourism and Hospitality context.

The thematic analysis of the focus group interviews provides an in-depth exploration of students' perceptions regarding the integration of AR technology in their English for Tourism and Hospitality course. The findings highlight how AR-supported learning influences students' speaking skills, engagement, motivation, and confidence while also revealing key pedagogical advantages and challenges associated with its implementation. This analysis presents eight core themes that emerged from the qualitative data: (1) Initial uncertainty and gradual adaptation, (2) Engagement and motivation through interactivity, (3) Enhancement of speaking confidence, (4) AR's impact on communicative competence, (5) Collaboration and peer learning, (6) Practical application for real-world tourism scenarios, (7) Cognitive overload and technical limitations, and These themes provide an academically rigorous understanding of the affordances and limitations of AR in fostering oral communication skills in an ESP context.

4.5.2 Theme 1: Initial Uncertainty and Gradual Adaptation

4.5.2.1 Sub-theme 1.1: Technological Unfamiliarity and Cognitive Overload

A recurring theme in students' responses was their initial uncertainty and apprehension upon being introduced to AR technology in the classroom. Many participants reported feeling intimidated, confused, or skeptical during their first interactions with AR-based activities. One student explicitly stated,

> *"At first, I was unsure how AR would help me improve my speaking. It looked complicated, and I was worried I wouldn't be able to use it properly." (Student 1).*

This reaction was echoed by several others who admitted to experiencing technological unfamiliarity and cognitive overload when attempting to navigate AR interfaces for the first time.

4.5.2.2 Sub-theme 1.2: Confidence Through Repeated Exposure and Guidance

However, as students continued to engage with AR applications through structured practice and guided classroom activities, their initial skepticism diminished, and they developed a sense of familiarity and ease with the technology. Many participants described a positive shift in their perceptions, with one remarking,

> *"After a few sessions, I felt comfortable using AR. It became natural, and I started enjoying it." (Student 2)*

This progression from uncertainty to acceptance and enthusiasm highlights the importance of sufficient scaffolding and technical support when introducing AR into language learning contexts. It also suggests that while AR may initially present a learning curve, students are able to adapt quickly with guided instruction and repeated exposure.

4.5.3 Theme 2: Engagement and Motivation through Interactivity

4.5.3.1 Sub-theme 2.1: Gamified Learning and Curiosity-Driven Participation

Students overwhelmingly described AR as a highly engaging and motivating learning tool, particularly when compared to traditional classroom methods. Many participants highlighted the interactive and gamified nature of AR activities as a major factor that sustained their interest and increased their willingness to participate in speaking tasks. One student emphasized this shift in engagement, stating,

> *"I was always curious about what would happen next. It didn't feel like a lesson-it felt like an experience." (Student 4)*

The interactivity of AR was frequently cited as a key motivator that encouraged students to actively use English rather than passively absorb information. Unlike conventional speaking exercises that rely on scripted dialogues or rote memorization, AR tasks required students to interact dynamically with virtual objects, role-play scenarios, and solve communicative challenges in real-time. Several participants noted that this active involvement fostered a deeper connection to the learning material, with one stating,

> *"Instead of just reading from a book, I had to interact with the AR environment, which made the lesson feel real and exciting." (Student 3)*

Another student emphasized that AR increases their willingness to practice speaking, saying,

> *"I actually wanted to participate because I was curious about what was going to happen next. It wasn't just another worksheet exercise" (Student 5).*

4.5.3.2 Sub-theme 2.2: Reduction of Language Anxiety

In addition to enhancing engagement, AR appears to reduce the affective filter associated with foreign language anxiety. Some students highlight that the interactive and immersive nature of AR makes speaking practice feel less intimidating. One participant remarked,

> *"Normally, I get nervous when I have to speak in front of the class, but with AR, I felt more comfortable because I was focused on the scenario, not on what other people were thinking about my English" (Student 6).*

This aligns with research on affective factors in second language acquisition (SLA), suggesting that lowering anxiety levels in communicative practice can lead to improved fluency and confidence. These findings reinforce the argument that AR-based instruction has the potential to transform language learning from a passive activity into an experiential, learner-centered process.

4.5.4 Theme 3: Enhancement of Speaking Confidence

A significant finding was the positive impact of AR on students' speaking confidence. Many students reported that AR activities created a safe and low-pressure environment where they felt more comfortable speaking English. One participant explained,

> *"It felt like real-life training, but without the stress of being judged." (Student 5)*

Students described AR scenarios such as interacting with virtual hotel guests as helping them overcome hesitation and build fluency. These simulations were seen as authentic opportunities to use English for practical purposes. This sentiment was echoed by others who described AR as a less intimidating platform for speaking practice, allowing them to focus on communication rather than fear of making mistakes. One possible explanation for this increase in confidence is the simulated nature of AR-based communication, which reduces performance anxiety while still providing an authentic language practice environment. Several students noted that interacting with virtual customers, hotel guests, or tourists through AR scenarios made

speaking practice feel natural and purposeful, ultimately helping them overcome hesitation and build fluency.

4.5.5 Theme 4: AR's Effects on Communicative Competence

4.5.5.1 Sub-theme 4.1: Fluency and Lexical Resource Development

Beyond fostering confidence, AR technology significantly enhanced students' communicative competence, particularly in fluency, pronunciation, and lexical resource development. The requirement for spontaneous, real-time speech production encouraged students to think and speak more fluidly and naturally, reinforcing their ability to maintain conversations with minimal hesitation. One participant noted,

> *"With AR, I had to respond quickly, just like in a real conversation. I couldn't rely on memorized phrases anymore." (Student 11)*

4.5.5.2 Sub-theme 4.2: Pronunciation Improvement through Contextual Support

AR's visual and contextual support also facilitated vocabulary retention and pronunciation improvement. Several students emphasized that seeing virtual objects and locations while speaking helped them retrieve words more quickly and use them accurately. One student stated,

> *"When I described the AR models of tourist attractions, it was easier to recall the right words because I could see what I was talking about." (Student 7)*

This suggests that AR supports lexical acquisition by reinforcing semantic associations through multimodal learning.

4.5.6 Theme 5: Collaboration and Peer Learning

A notable social benefit of AR-based learning was its ability to enhance peer collaboration and cooperative learning. Many students reported that AR activities encouraged them to communicate with classmates, exchange feedback, and engage in joint problem-solving, thereby strengthening their interpersonal and teamwork skills. One student described this shift in classroom dynamics, stating,

> *"Instead of working alone, we had to collaborate to complete AR tasks. It made the learning experience feel more interactive and engaging." (Student 12)*

The emphasis on collaborative speaking tasks aligns with sociocultural perspectives on language learning, which stress the importance of social interaction in

developing linguistic competence. By integrating AR into pair work and group activities, educators can foster a more dialogic, communicative classroom environment, ultimately enhancing both linguistic and social competencies.

4.5.7 Theme 6: Practical Application for Real-world Tourism Scenarios

Students overwhelmingly praised AR's ability to bridge the gap between classroom learning and professional practice. Many described AR-based activities-such as hotel check-in simulations, guided tour role-plays, and customer service interactions-as highly relevant to their future careers. One participant stated,

"I felt like I was actually preparing for real-life work in tourism." (Student 8)

This underscores AR's potential as an industry-aligned instructional tool that provides students with authentic, experiential learning opportunities.

4.5.8 Theme 7: Cognitive Overload and Technical Limitations

4.5.8.1 Sub-theme 7.1: Sensory and Cognitive Strain

Despite its benefits, students expressed concerns about the cognitive demands of AR-based learning. The simultaneous processing of visual, auditory, and linguistic stimuli in real-time tasks occasionally led to sensory overload. One participant explained,

> *"With so much happening in the AR world, my brain was trying to do too many things at once - looking at the environment, listening to the apps, and thinking in English." (Student 9)*

This observation aligns with cognitive load theory, which suggests that excessive information processing can overwhelm working memory and impede fluency development. Students suggested implementing adjustable difficulty settings in AR applications to address this issue, enabling learners to control the pace and complexity of tasks.

4.5.8.2 Sub-theme 7.2: Device and Accessibility Issues

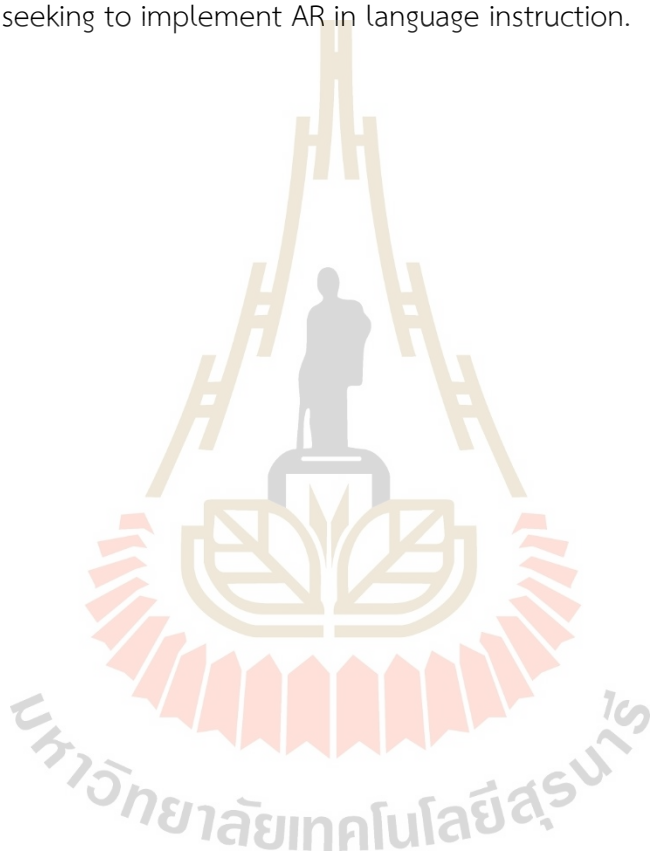
Technical limitations, including device affordability, usability, and comfort, were also highlighted. While students appreciated the immersive potential of AR apps, many noted that high costs could limit their widespread adoption in educational settings. Additionally, concerns about device heat, connectivity issues, and visual fatigue were raised, with one participant noting,

> *"Using AR apps for a long time might strain my eyes and make it hard to concentrate." (Student 4)*

These challenges underscore the importance of designing AR tools that balance immersion with practicality, ensuring accessibility and usability for diverse learning environments.

In conclusion, the results of this research study provide evidence of the potential of AR technology as a transformative tool for language learning in an English for Tourism and Hospitality context. By integrating both quantitative and qualitative analyses, this study offers valuable insights into the impacts of AR on students' speaking performance, their perceptions of the technology, and its pedagogical implications. The findings collectively reinforce the value of AR-enhanced instruction while identifying key areas for future research and pedagogical refinement. Quantitative data revealed significant improvements in students' speaking performance across all assessed dimensions, including fluency and coherence, lexical resource, pronunciation, and grammatical range and accuracy. Paired samples t-test results confirmed statistically significant differences between pre-test and post-test scores, with p-values well below the conventional threshold of significance. Cohen's d effect sizes demonstrated moderate to large impacts, particularly in fluency and coherence, underscoring the effectiveness of AR technology in developing natural, authentic communication. However, the relatively smaller improvements in pronunciation and grammatical accuracy suggest the need for more targeted AR-based interventions to address these aspects comprehensively. These findings affirm AR's potential to enhance linguistic competence, particularly in professional contexts where oral proficiency is critical. Descriptive statistics highlighted substantial mean score increases across all speaking components, with a reduction in variability for post-test scores, suggesting that AR-supported learning contributed to more consistent performance outcomes among participants. Qualitative data from focus group interviews provided a nuanced understanding of students' perceptions of AR technology. Thematic analysis identified several core themes, including initial uncertainty and gradual adaptation, heightened engagement and motivation, enhanced speaking confidence, and improved communicative competence. Students emphasized the immersive and interactive nature of AR, which transformed traditional speaking exercises into experiential learning opportunities. AR's alignment with real-world tourism scenarios further bridged the gap between classroom learning and professional practice, enabling students to apply language skills in industry-specific contexts. However, the qualitative findings also highlighted challenges associated with AR integration, such as cognitive overload and technical limitations. Students reported that the simultaneous processing demands of AR environments occasionally disrupted their fluency, and usability issues

related to device affordability, comfort, and reliability were identified as barriers to general adoption. This study demonstrates that AR technology has a profound impact on language learning, offering a multifaceted approach to enhancing speaking performance, engagement, and real-world applicability. While AR provides a dynamic and learner-centered platform for experiential education, the challenges identified highlight the need for careful pedagogical planning and technological innovation. These results not only contribute to the growing body of literature on AR in education but also provide actionable insights for educators, curriculum designers, and policymakers seeking to implement AR in language instruction.



CHAPTER 5
DISCUSSION & CONCLUSION

This chapter offers a comprehensive and critical analysis of the findings from the integration of AR technology into an ETH course. It situates the results within broader theoretical frameworks, empirical literature, and pedagogical discourse, particularly focusing on Second Language Acquisition (SLA) and English for Specific Purposes (ESP) instruction. Guided by three research questions, the study investigated: (1) students' readiness, willingness, and acceptance of AR technology; (2) the effects of AR on their speaking performance; and (3) their perceptions of AR-supported language learning. The results, presented in Chapter 4, confirmed the transformative potential of AR to enhance students' engagement, motivation, and oral communicative competence. At the same time, they exposed important limitations, such as cognitive overload, technological accessibility, and interface usability, that warrant further pedagogical consideration. To interpret these findings, the discussion draws upon relevant theoretical perspectives, notably the Technology Acceptance Model (TAM) (Davis, 1989) and Cognitive Load Theory (Sweller, 1994), as well as constructivist and sociocultural paradigms that emphasize learner-centered and context-rich instruction. These frameworks illuminate the nuanced ways in which AR fosters or constrains language development through immersive, experiential learning environments. The chapter also builds on comparisons with prior empirical studies and pilot phase results, highlighting both consistencies and divergences in learners' trajectories of AR adoption, adaptation, and performance outcomes. The structure of this chapter aligns with the research questions that guided the study. The first section explores how students' readiness and willingness evolved over time, examining their initial apprehension and eventual acceptance of AR as a learning tool. The second section evaluates the specific dimensions of speaking performance - fluency, pronunciation, lexical resource, and grammatical accuracy - discussing the role of real-time interaction, feedback mechanisms, and instructional scaffolding in skill development. The final section digs into students' perceptions of AR, emphasizing their enthusiasm for immersive learning, while also acknowledging the challenges related to accessibility, cognitive load, and the sustainable integration of emerging technologies such as AI-enhanced AR systems.

By synthesizing these multidimensional insights, this chapter aims to provide a forward-looking discussion on the pedagogical and technological implications of immersive learning in language education. It positions AR not merely as a supplementary tool, but as a potentially transformative medium for ESP instruction - one that bridges classroom learning with professional realities in tourism and hospitality. The findings offer critical considerations for curriculum designers, educators, and policymakers as they seek to employ the affordances of AR while mitigating its challenges to ensure inclusive, engaging, and effective learning environments.

5.1 Students' Readiness, Willingness, and Acceptance of AR Technology in Language Learning

5.1.1 The evolution of readiness: overcoming initial skepticism through immersion

The first objective of this study was to examine Vietnamese EFL students' readiness and willingness to adopt AR technology for improving their speaking skills. The findings reveal a trajectory of transformation in students' attitudes-from initial skepticism and apprehension to growing enthusiasm and engagement. While students expressed excitement about the potential of AR-enhanced learning, many initially struggled with technological unfamiliarity and cognitive overload, highlighting the importance of guided support and scaffolding in the adoption process. These results align with the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), which posits that perceived ease of use, perceived usefulness, and technological self-efficacy are critical determinants of students' willingness to engage with new digital tools. A notable trend that emerged in focus group discussions was the initial hesitation students experienced when introduced to AR-based activities. Several participants reported feeling overwhelmed by the interface, which is consistent with findings from Chaidir and As'ari (2024), who observed that students require an adjustment period when engaging with AR-enhanced instruction. Similarly, research by Ibáñez and Delgado-Kloos (2018) highlights that technological unfamiliarity often acts as a barrier to student engagement in digital learning environments. However, as exposure to the technology increased, students became more comfortable and confident in navigating AR tools. This progression underscores the significance of structured onboarding, including hands-on demonstrations and technical assistance, to facilitate a smoother transition into AR-based learning. The shift in perception observed in this study also aligns with the Technology Acceptance Model (TAM) (Davis, 1989),

which suggests that perceived usefulness and ease of use influence a learner's adoption of technology. Initially, students' reluctance stemmed from concerns about usability and effectiveness; however, as they recognized the interactive and immersive advantages of AR, their willingness to engage with the tool increased. This transformation reflects the principles of Self-Determination Theory (Deci & Ryan, 2000), which suggests that technology fostering autonomy and engagement enhances intrinsic motivation. The interactive and gamified nature of AR provided a sense of agency, making students more eager to participate and practice speaking in an immersive environment.

Despite this overall increase in acceptance, some students remained skeptical about the long-term sustainability of AR in their learning routines, particularly outside the classroom. Concerns about access to AR-compatible devices, software stability, and personal motivation to use AR independently were frequently mentioned. This raises critical equity concerns regarding technological accessibility, reinforcing the findings of Burston (2022), who emphasized that socioeconomic barriers and infrastructure constraints significantly impact the feasibility of scaling educational innovations. Without institutional support, such as AR-compatible device lending programs or mobile-based AR alternatives, students may struggle to integrate AR into their independent learning practices.

In sum, the findings highlight a dynamic process in students' readiness and willingness to adopt AR technology. While initial apprehension due to technological unfamiliarity and cognitive overload was evident, structured exposure and practical engagement led to increased acceptance and motivation. However, the sustainability of AR adoption beyond the classroom remains contingent upon accessibility and institutional support. These insights contribute to ongoing discussions on technology adoption in language education, underscoring the need for holistic implementation strategies that address both pedagogical and infrastructural challenges.

5.1.2 Engagement as a driving factor for willingness to adopt AR technology

The study's quantitative findings revealed that students demonstrated a high level of acceptance of AR-based learning, with most participants rating the experience as enjoyable and beneficial. These findings are consistent with Parmaxi & Demetriou (2020), who found that gamification and immersive learning experiences increase student motivation in digital education. The qualitative data further reinforces this perspective, with students describing AR as "*more dynamic than traditional lessons" (Student 5)* and *"a learning experience that felt closer to real life" (Student 1)*. The interactive elements of AR, such as 3D environments and digital role-playing

played a crucial role in sustaining students' willingness to engage. However, the study also identifies key challenges that impact AR adoption, particularly technical accessibility and digital literacy disparities. While some students found AR intuitive and easy to navigate, others struggled with interface complexities, device limitations, or connectivity issues. This echoes Diegmann et al. (2015), who noted that technical barriers remain one of the primary obstacles in AR adoption in education. Engagement emerged as a key factor influencing students' willingness to embrace AR-based learning. The interactive and immersive nature of AR fostered enthusiasm and motivation, making learning experiences more meaningful and enjoyable. However, technical limitations remain a concern, emphasizing the need for improved accessibility and digital support systems to ensure equitable and sustainable integration of AR into educational settings.

5.1.3 Bridging the gap: recommendations for enhancing AR readiness

To address these challenges, this study suggests a phased implementation of AR technology in language education, starting with low-immersion AR activities before progressing to fully immersive experiences with AR simulations. Providing pre-training workshops on AR navigation, incorporating guided practice sessions, and ensuring technical support during early adoption phases can mitigate initial anxiety and foster long-term engagement. Additionally, institutional efforts should focus on ensuring AR accessibility for diverse student populations. Exploring cost-effective AR alternatives, such as mobile-based AR applications, web-AR integrations may provide more equitable access to immersive learning experiences. The findings suggest that while students' willingness to use AR evolves positively over time, pedagogical scaffolding, digital literacy training, and adaptive implementation strategies are essential for maximizing engagement and minimizing accessibility barriers.

5.2 The Effects of AR technology on Students' Speaking Performance

The second research question explored how AR integration influenced students' speaking abilities, with a particular focus on fluency, pronunciation, lexical resource, and grammatical range and accuracy. The study found that AR-based instruction had a significant positive impact on students' fluency and pronunciation, while vocabulary acquisition also improved, though to a lesser extent. However, grammatical accuracy showed minimal gains, suggesting that while AR enhances communicative competence, it may be less effective in reinforcing explicit grammatical instruction. These findings align with constructivist perspectives on language learning (Vygotsky,

1978; Lave & Wenger, 1991), which emphasize the importance of situated, experiential learning in skill development.

5.2.1 Fluency development: real-time immersion in communicative contexts

One of the most notable improvements observed in the post-test results was in fluency and coherence. Students exhibited faster speech production, reduced hesitation markers, and greater ease in maintaining conversational flow, indicating that AR-supported learning environments provided more naturalistic speaking opportunities. These findings are consistent with Deng and Trainin (2020), who found that AR-enhanced role-play activities encouraged spontaneous speech production by reducing learners' reliance on pre-scripted responses. Students in the focus group interviews frequently emphasized that the immersive nature of AR made speaking practice feel more like real-world interactions, which in turn helped them build confidence. This finding supports Lave and Wenger's (1991) Situated Learning Theory, which suggests that language acquisition is most effective when embedded within authentic communicative settings.

However, some students initially struggled with real-time speech production in AR environments, particularly in highly interactive simulations that required quick responses. This suggests that cognitive adaptation occurs over time, reinforcing the importance of gradual exposure and scaffolding in AR-mediated speaking tasks.

5.2.2 Pronunciation gains: peer feedback and teacher correction

A significant improvement observed in this study was students' pronunciation accuracy, particularly in terms of intonation and articulation of target lexical items. Many participants attributed their progress to structured peer feedback and teacher correction, which played a pivotal role in refining their pronunciation skills. The interactive nature of AR-based learning provided students with numerous opportunities to practice spoken English in an immersive environment while receiving immediate feedback from both their peers and instructors. These findings align with research by Saito and Lyster (2012), who emphasize that explicit corrective feedback, whether from teachers or peers, significantly enhances phonological awareness and pronunciation development in second language learners. Similarly, Derwing and Munro (2015) suggest that frequent exposure to pronunciation models, coupled with corrective feedback, leads to greater phonetic accuracy over time. Peer feedback emerged as a particularly valuable tool for pronunciation improvement, as students actively engaged in collaborative correction and reinforcement. This supports the findings of Trofimovich and Isaacs (2017), who argue that peer interaction fosters a communicative and supportive learning environment, reinforcing pronunciation gains

through social engagement. Additionally, peer feedback allows learners to develop heightened phonological awareness by listening to their classmates' speech and comparing it to their own, which is consistent with the principles of interactionist learning theories in second language acquisition (Long, 1996). Beyond peer support, teacher correction was identified as essential in addressing more complex phonetic difficulties. Several students highlighted that instructor-led guidance provided more precise and reliable pronunciation correction, particularly for sounds that were challenging to self-monitor. These observations align with Rogerson-Revell (2011), who underscores the necessity of teacher intervention in pronunciation training, as instructors can provide accurate modeling and targeted correction that might not always be available through peer interactions. Furthermore, explicit phonetic instruction from teachers helps learners internalize correct articulatory patterns, as demonstrated in previous research on form-focused pronunciation instruction (Couper, 2006). Despite these benefits, some students expressed challenges in distinguishing subtle phonetic differences without external validation. While peer feedback offered an interactive and collaborative means of correction, some participants felt that they still required teacher confirmation to ensure accuracy. This aligns with the findings of Foote et al. (2016), who argue that while peer feedback is beneficial, it should be complemented with expert intervention to prevent the reinforcement of incorrect pronunciation patterns. To further optimize pronunciation training in AR-integrated learning, structured pronunciation-focused activities should be incorporated into future implementations. Providing more guided phonetic exercises, incorporating phonetic transcription references, and increasing instructor-led modeling could help students refine their speech production with greater confidence. Additionally, structured peer correction activities, such as pronunciation workshops and collaborative speech analysis tasks, may encourage deeper engagement and self-awareness in pronunciation practice. As Saito (2013) highlights, explicit and repeated exposure to correct phonetic patterns, combined with targeted corrective feedback, is crucial for sustained pronunciation development. The study's findings indicate that pronunciation gains in AR-based learning were significantly influenced by peer feedback and teacher correction, reinforcing the effectiveness of interactive, socially mediated learning in second language acquisition. While peer interactions facilitated pronunciation awareness and self-correction, the role of teacher-led feedback remained indispensable in ensuring accuracy and phonetic refinement. These results suggest that future AR-based pronunciation training should incorporate a balanced approach that

integrates both collaborative and instructor-guided correction to maximize learning outcomes.

5.2.3 Lexical resource development: context-driven vocabulary acquisition

The results also indicate notable improvements in students' lexical resource, particularly in their ability to retrieve and use contextually appropriate vocabulary. Many students reported that AR's visual and interactive components facilitated stronger word recall, as they could associate new vocabulary with immersive 3D environments rather than abstract definitions in textbooks. This finding supports Schmitt's (2008) Lexical Learning Theory, which suggests that multimodal reinforcement strengthens vocabulary retention and recall. Similar results were reported by Ibrahim et al. (2017), who found that AR-driven language tasks led to higher retention rates compared to traditional rote memorization techniques. However, some students noted that while AR improved vocabulary retrieval in specific scenarios, it did not necessarily enhance long-term retention without repeated reinforcement. This suggests that AR should be integrated with spaced repetition techniques, where students encounter key vocabulary across multiple contexts over time to reinforce learning.

5.2.4 Grammatical accuracy: a limitation of AR-based language learning?

Unlike fluency, pronunciation, and vocabulary acquisition, grammatical range and accuracy showed relatively minor improvements in the post-test assessments. This suggests that AR-based learning environments may be more effective for fostering communicative competence than for teaching explicit grammatical structures. Some students expressed difficulty applying complex grammatical rules in real-time AR-tasked interactions, explaining that the focus on spontaneous communication made it challenging to structure sentences accurately. These findings align with Ellis's (2009) Input Hypothesis, which suggests that fluency-focused tasks often prioritize meaning over form, leading to improvements in communicative confidence but limited gains in explicit grammatical accuracy. While immersion-based language learning enhances spontaneous production, explicit grammar instruction and corrective feedback are still necessary for structural accuracy. To address this limitation, future AR-based curricula should integrate AI-driven grammar correction tools that provide real-time grammatical suggestions without disrupting fluency. Additionally, blended learning approaches, where students alternate between immersive speaking practice and focused grammar instruction, may yield more balanced linguistic outcomes.

5.3 Students' Perceptions of AR Technologies

The final research question investigated students' perceptions of AR technologies, particularly in their application to language learning through the Halo AR application. The findings indicate that students generally viewed AR technology as a valuable and engaging tool for enhancing their speaking skills. They reported increased motivation, improved language retention, and a greater willingness to participate in speaking activities due to the interactive and immersive nature of AR-based learning. However, they also identified challenges related to technical accessibility and the cognitive demands associated with using AR in speaking practice. These insights align with existing literature on AR-assisted language learning and provide a foundation for further exploration of its pedagogical implications.

5.3.1 Enhanced engagement and motivation in speaking practice

Students overwhelmingly expressed enthusiasm for using AR in their speaking practice, emphasizing its ability to create interactive and realistic learning environments. This response aligns with previous research by Karacan and Akoglu (2021), who found that AR technology significantly increases student engagement and motivation in EFL settings by providing immersive and contextually rich learning experiences. Similarly, Radu (2012) demonstrated that students who used AR-based learning tools exhibited greater progress in language acquisition than those who relied solely on traditional methods. The integration of AR into speaking activities was particularly effective in reducing speaking anxiety. Many students reported feeling more comfortable practicing their pronunciation and sentence structures when interacting with AR-generated scenarios. This observation is supported by studies such as Solak and Cakir (2016), which highlight the benefits of AR in reducing foreign language anxiety by creating a low-stress, immersive environment for learners. The ability to engage in simulated real-world dialogues allowed students to develop greater confidence in their speaking abilities, reinforcing the communicative approach to language learning (Krashen, 1982).

5.3.2 Perceived challenges: technical barriers and cognitive load

Despite the overall positive reception of AR, students also identified several challenges that affected their learning experience. One major concern was the technical requirements of AR applications, particularly the need for high-performance devices and stable internet connections. Some students reported difficulties in accessing the full range of AR features due to device compatibility issues. These findings are consistent with Diegmann et al. (2015), who found that technological barriers, including hardware limitations and connectivity issues, remain significant

obstacles to the widespread adoption of AR in educational settings. Additionally, students highlighted the cognitive load associated with processing multiple layers of information simultaneously while speaking. The combination of visual stimuli, interactive elements, and verbal communication sometimes led to cognitive overload, making it difficult for learners to focus on pronunciation and fluency. This aligns with Mayer's (2020) Cognitive Theory of Multimedia Learning, which warns against excessive cognitive demands in digital learning environments. To mitigate these challenges, instructional designers must carefully balance AR's multimodal features with appropriate scaffolding strategies that allow students to process information more effectively.

5.3.3 Future directions and pedagogical implications

The findings of this study suggest that while AR technology offers substantial benefits for language learning, its implementation should be accompanied by strategic pedagogical planning to maximize its effectiveness. Instructors should consider incorporating structured AR tasks that gradually increase in complexity, ensuring that students can adjust to the technology without experiencing cognitive overload. Additionally, providing alternative access to AR resources, such as in computer labs or through institutional device loan programs, could help address accessibility concerns. Future research should explore how AR can be further optimized to support speaking practice, particularly in developing spontaneous conversation skills and pronunciation accuracy. As previous studies (Tai et al., 2020) have suggested, integrating AR with peer collaboration and teacher feedback mechanisms can create a more interactive and personalized learning experience. Expanding the range of AR-based language learning scenarios, including culturally authentic dialogues and workplace-specific conversations, may also enhance students' preparedness for real-world communication. Overall, students' perceptions of AR technologies, particularly the Halo AR application, were largely positive, with notable benefits in engagement, motivation, and language confidence. However, challenges related to technical limitations and cognitive load highlight the need for thoughtful instructional design and support mechanisms to enhance the effectiveness of AR in speaking practice. By addressing these concerns, AR has the potential to evolve from a novel digital tool into an integral component of communicative language teaching, bridging the gap between classroom instruction and authentic language use.

5.4 A Comparison with the Pilot Study: Bridging the Gap between Initial Skepticism and Long-Term AR Adoption in Language Learning

One of the most striking findings of this research is the progressive shift in students' perceptions of AR technology, moving from initial uncertainty and apprehension in the pilot study to increasing engagement and acceptance in the main study. This transformation is crucial because it highlights the evolving nature of digital literacy in educational contexts, particularly in the field of English for Specific Purposes (ESP), where authentic communicative practice is essential for professional readiness.

5.4.1 From skepticism to engagement: a longitudinal perspective

In the pilot study, student responses indicated significant hesitation toward AR-based learning, particularly due to technological unfamiliarity, sensory overload, and skepticism regarding its pedagogical value. Several students expressed doubts about AR's ability to enhance spoken language proficiency, perceiving it as a novelty rather than an effective learning tool. This initial resistance aligns with findings from Ibáñez & Delgado-Kloos (2018), who argue that students' technological readiness is a key determinant of digital tool adoption in education. Early challenges in AR learning often stem from lack of exposure to immersive environments, requiring structured scaffolding and guided interactions to facilitate adaptation. However, this study reveals that repeated engagement with AR simulations, coupled with instructional support, significantly increased students' comfort and enthusiasm over time. By the main study, students' willingness to use AR had risen considerably, with many acknowledging its ability to simulate real-world scenarios for authentic speaking practice. The quantitative survey data reflected a statistically significant increase in students' perceived usefulness of AR as they became more familiar with its interactive components. This transformation is best explained by the Technology Acceptance Model (TAM) (Davis, 1989), which posits that users' willingness to adopt new technology depends on their perception of its usefulness and ease of use. Initially, students were hesitant due to usability concerns, but once they experienced the tangible benefits of AR, their motivation and engagement increased. This reflects broader research findings by Parmaxi & Demetriou (2020), who demonstrated that AR's interactive features create a sense of agency and engagement that traditional language learning methods often lack. However, the study also raises an important pedagogical implication: while AR stimulates engagement, its successful implementation depends on structured scaffolding and digital literacy support. The students who struggled the most in the pilot study were those with limited prior exposure to AR or digital learning

environments. This suggests that AR adoption should be phased, beginning with low-immersion interactions before progressing to high-immersion of AR-enhanced simulations.

5.4.2 Fluency and pronunciation gains: the role of peer and teacher feedback

A major area of improvement observed in both the pilot and main study was in spoken fluency and pronunciation accuracy. The post-test speaking assessments revealed notable gains in fluency, coherence, and articulation, suggesting that AR-based interaction contributed to greater speaking confidence and naturalization of speech patterns. This supports research by Deng & Trainin (2020), who found that AR's ability to provide contextualized, immersive conversations enhances spontaneous language production and real-world communication skills. The findings from the main study demonstrate significant improvements in students' pronunciation, particularly in the areas of intonation and articulation of target lexical items. This aligns with the results of the pilot study, where pronunciation gains were also observed. However, key differences emerged in the mechanisms that contributed to these improvements. While the pilot study participants highlighted the immersive nature of AR and its ability to provide exposure to native-like pronunciation models, they also expressed concerns regarding the adequacy and timeliness of feedback. The main study addressed these concerns by integrating structured peer feedback and teacher correction, which appeared to facilitate more sustained and targeted pronunciation improvements. In the pilot study, participants noted that the feedback was often delayed or not sufficiently tailored to their individual pronunciation errors, limiting its effectiveness in real-time correction. In contrast, the main study supported them with peer and teacher correction, allowing students to receive immediate and context-specific guidance. This aligns with previous research suggesting that socially mediated feedback, particularly from peers and instructors, plays a crucial role in pronunciation development (Saito & Lyster, 2012; Derwing & Munro, 2015). Furthermore, the pilot study highlighted challenges in students' ability to self-monitor pronunciation due to a lack of explicit corrective cues. Some participants expressed uncertainty about whether they were correctly pronouncing words when relying solely on AR simulations. The main study addressed this limitation by incorporating guided pronunciation activities, where instructors provided explicit modeling and corrective feedback. As a result, students reported greater confidence in their pronunciation abilities. Another significant contrast between the two studies relates to the impact of multimodal features on pronunciation practice. The pilot study found that AR-enhanced multimedia elements, such as video dialogues and native speaker recordings, supported pronunciation

development by offering authentic exposure to target sounds. However, this exposure alone was insufficient for some learners, as it lacked an interactive feedback component. The main study built upon this finding by supplementing AR-based input with structured peer correction sessions. As a result, students engaged more actively in pronunciation monitoring and demonstrated more noticeable improvements in phonetic accuracy. Despite the overall success of the main study in addressing limitations from the pilot phase, some challenges remain. A few students still reported difficulties in distinguishing certain phonemes, particularly those influenced by their native language sound system. This suggests that while peer feedback is beneficial, it should be complemented with expert intervention to ensure accuracy, a point supported by previous research on pronunciation instruction (Foote et al., 2016). In short, the comparative analysis between the pilot and main study findings highlights the effectiveness of structured feedback mechanisms in pronunciation training. While both studies demonstrated pronunciation gains through AR-based learning, the main study's integration of peer and teacher feedback provided a more reliable and interactive corrective process. These findings underscore the importance of balancing technology-enhanced learning with human-mediated feedback to optimize pronunciation improvement in language education. Future implementations should consider incorporating structured pronunciation workshops and expert-guided sessions to further support learners in refining their speech production.

5.4.3 Balancing cognitive load in high-immersion AR-supported learning

Despite the many advantages of AR-based learning, one of the most pressing concerns raised by both the pilot and main study participants was cognitive overload, particularly in high-immersion scenarios that required rapid visual, auditory, and linguistic processing. Some students described feeling mentally fatigued after extended AR use. This aligns with Sweller's (1994) Cognitive Load Theory, which suggests that when learners are required to process too much information simultaneously, their ability to retain and produce language effectively may be hindered. The main study findings revealed that students who had repeated exposure to AR-based learning developed better cognitive adaptation strategies over time, leading to a decrease in perceived cognitive overload. However, some participants still struggled with the fast-paced nature of AI-driven interactions, highlighting the need for adjustable difficulty settings in AR-assisted speaking tasks. A potential pedagogical solution would be to incorporate structured scaffolding within AR learning environments, allowing students to adjust immersion levels based on their proficiency and cognitive capacity. A leveled AR integration model, where students begin with controlled, guided interactions before

progressing to more complex, real-time dialogues, could mitigate overload while maintaining engagement.

5.5 Conclusion

The discussion in this chapter has provided a comprehensive analysis of the study's findings concerning the integration of AR technology in ETH courses. Through a comparison with prior studies and the results from the pilot study, it has become evident that AR-based instruction significantly enhances students' engagement, speaking proficiency, and pronunciation accuracy. The findings underscore the importance of readiness and willingness as crucial determinants of successful AR adoption. While initial skepticism was observed, structured exposure and guided onboarding led to increased acceptance, supporting theoretical models such as the Technology Acceptance Model (TAM) (Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). However, accessibility and technological infrastructure remain key barriers that must be addressed to ensure equitable implementation of AR in language education. Furthermore, student engagement emerged as a primary factor influencing AR adoption. The immersive and interactive features of AR fostered motivation and participation, making language learning more dynamic and contextually relevant. This aligns with previous research demonstrating that digital gamification and experiential learning enhance intrinsic motivation (Parmaxi & Demetriou, 2020). However, technical challenges, such as software stability and device compatibility, affected user experience, reaffirming the need for improved digital literacy training and technical support. The study also revealed notable pronunciation gains, particularly in students' articulation and intonation. Unlike the pilot study, where the reliance on AI-driven feedback led to inconsistencies, the main study's use of peer feedback and teacher correction facilitated more targeted and reliable pronunciation improvement. Participants expressed greater confidence in their spoken English when corrections were provided through structured peer interactions and instructor-led guidance, corroborating the effectiveness of socially mediated feedback in pronunciation development (Saito & Lyster, 2012; Derwing & Munro, 2015). The findings suggest that a balanced approach-integrating technology-enhanced learning with human-mediated correction-is optimal for refining speaking skills in AR-assisted language education. In short, the discussion has illustrated that AR technology offers immense potential for enhancing speaking skills in ETH courses. However, its effectiveness depends on student readiness, sustained engagement, and structured feedback mechanisms. While

AR fosters experiential learning and real-world language immersion, its full potential can only be realized through strategic implementation that combines digital innovation with pedagogical best practices. Future research should explore scalable solutions for technological accessibility and examine how AR can be integrated with other emerging educational technologies to further optimize English language learning outcomes.

In conclusion, this doctoral study has provided compelling evidence that AR technology serves as a powerful pedagogical tool in enhancing the speaking skills of Vietnamese EFL learners within the English for Tourism and Hospitality context. Through a rigorously implemented mixed-methods design, the research demonstrated how AR fosters immersive, interactive, and professionally relevant learning experiences that not only improve linguistic competence but also cultivate learners' engagement, confidence, and digital adaptability. The findings contribute meaningfully to theoretical frameworks within CALL, MALL, and TELL by affirming the value of constructivist and sociocultural approaches in technology-mediated environments. Furthermore, the study offers timely pedagogical and institutional insights that advocate for more strategic and inclusive integration of AR into language curricula. While recognizing the contextual and methodological limitations, this research lays a foundational platform for future inquiry, particularly in the form of longitudinal studies, cross-institutional comparisons, and investigations into AR's synergy with emerging technologies such as artificial intelligence and wearable devices. Ultimately, the study underscores the transformative potential of AR in bridging the gap between academic language instruction and real-world communicative demands, marking a pivotal step toward more experiential, student-centered, and future-ready language education.

CHAPTER 6
IMPLICATIONS, RECCOMENDATIONS & LIMITATIONS

6.1 Summary of the main findings

This doctoral research investigated the level of acceptance in terms of readiness and willingness towards the integration of AR technology in English for Tourism and Hospitality courses, with a focus on its effects on students' speaking skills, engagement, and professional preparedness. Conducted at the University of Economics Ho Chi Minh City (UEH), the study employed a mixed-methods approach, utilizing pre- and post-surveys, speaking assessments, focus group interviews to provide a comprehensive evaluation of AR's role in language learning. A total of 40 purposively and conveniently selected students participated in AR-enhanced learning activities designed to foster communicative competence in English. The findings clearly demonstrate that AR technology significantly enhanced students' speaking proficiency, particularly in pronunciation accuracy, fluency, vocabulary usage, and self-confidence in real-world communication scenarios. The immersive and multimodal affordances of AR created a highly engaging and interactive learning environment, fostering increased motivation and willingness to communicate. Furthermore, students exhibited notable gains in digital literacy and adaptability, overcoming initial technological challenges through scaffolded guidance and peer collaboration. Beyond linguistic improvements, the study underscored the practical benefits of AR in preparing students for professional communication within the tourism and hospitality industry. Participants perceived AR-assisted learning as a valuable tool for simulating workplace interactions, enhancing situational awareness, and improving customer service dialogue. By enabling experiential learning, AR bridges the gap between theoretical knowledge and applied practice, providing students with authentic, contextualized exposure to industry-specific language use. While this study confirms the efficacy of AR in promoting language learning, it also highlights critical challenges, including technological accessibility issues, the learning curve associated with AR adaptation, and disparities in students' digital competencies. Nevertheless, the findings strongly suggest that AR represents a promising pedagogical innovation capable of transforming English language instruction, particularly in domain-specific education such as English for Tourism and Hospitality.

6.2 Implications

The findings of this study have significant theoretical, pedagogical, and institutional implications, reinforcing the transformative role of AR in English language education.

6.2.1 Theoretical implications

This research contributes to the expanding discourse on CALL, MALL, and TELL. It extends the application of sociocultural learning theories by demonstrating how AR fosters immersive, interactive, and situated learning experiences, aligning with Vygotsky's concept of the ZPD. Furthermore, the study reinforces constructivist learning paradigms, illustrating how AR-supported activities promote learner autonomy, collaboration, and engagement in meaning-making processes.

6.2.2 Pedagogical implications

From a pedagogical perspective, this study underscores AR's potential as a transformative tool for developing communicative competence in EFL classrooms. The findings highlight the importance of incorporating multimodal learning experiences that cater to diverse learning styles, providing students with opportunities to engage in dynamic, real-time language use. Additionally, AR functions as a bridge between traditional classroom instruction and authentic language practice, enabling learners to apply theoretical knowledge in simulated real-world contexts. Moreover, the study calls for innovative assessment strategies that align with AR-enhanced learning environments. Traditional pen-and-paper speaking assessments may not fully capture the communicative gains facilitated by AR experiences. Instead, performance-based assessments, peer evaluations, and digital portfolios can provide a more comprehensive evaluation of students' speaking development and technological adaptability.

6.2.3 Institutional and policy implications

From an institutional standpoint, the study advocates for policy reforms that recognize the pedagogical value of AR in language education. Institutions should develop strategic frameworks for AR integration, ensuring that technological initiatives align with broader educational objectives and accreditation standards. Additionally, policymakers should consider funding initiatives that support AR-driven research, development, and implementation, thereby fostering sustainable and equitable access to digital learning tools.

6.3 Recommendations for further studies

Based on the research findings, several pedagogical and institutional recommendations are proposed to optimize AR integration in English language learning, particularly in speaking-focused curricula. First, educational institutions should prioritize the development of technological infrastructure to support AR-enhanced learning environments. This includes the provision of stable internet connectivity, ready access to AR-compatible devices, and the integration of up-to-date, education-specific AR applications. To ensure accessibility and reduce technological barriers, institutions are encouraged to adopt user-friendly AR platforms that can be seamlessly embedded into existing curricula. This infrastructural foundation is essential for promoting inclusive and scalable AR implementation. Second, systematic professional development initiatives are necessary to prepare educators for AR-based instructional design and delivery. Such initiatives should go beyond basic technical training to encompass digital pedagogy, with an emphasis on how AR can support communicative language teaching (CLT) principles. Teachers should be equipped with strategies to facilitate learner-centered engagement, manage classroom dynamics in AR-mediated environments, and troubleshoot technical challenges. Ongoing support and collaborative learning communities may further enhance teachers' confidence and competence in using AR. Third, curriculum designers should embed AR-driven pedagogical models that promote experiential and task-based learning. AR activities should be aligned with real-world communication needs in the context of ESP, such as tourism and hospitality. This includes incorporating immersive simulations, role-playing with virtual clients, location-based storytelling, and AR-augmented rehearsals that foster authentic language use. Such activities not only improve speaking proficiency but also increase learner motivation by providing meaningful and interactive experiences. Finally, future research is warranted to further validate and expand the pedagogical potential of AR in language education. Longitudinal studies are particularly recommended to examine the sustained effects of AR on learners' speaking performance, engagement, and autonomy over time. These studies can offer insights into long-term language retention and the evolving role of AR in fostering independent learning behaviors. Moreover, comparative research across different institutional contexts, cultural backgrounds, and proficiency levels can illuminate the broader applicability and adaptability of AR-supported instruction. Investigating the integration of AR with emerging technologies such as artificial intelligence (AI) and wearable AR devices may also yield promising directions for innovation in language learning.

6.4 Limitations

While this study makes significant contributions to the field of AR-assisted language learning, several limitations must be acknowledged. First, the study was conducted within a single university context, potentially limiting the generalizability of the findings to broader educational settings. Although valuable insights were gained, future research should examine AR's applicability across diverse institutional landscapes and learner populations. Second, the sample size, while sufficient for qualitative and mixed-methods research, was relatively small. Expanding the participant pool in future studies could provide a more comprehensive understanding of AR's impact across different proficiency levels and demographic groups. Third, the study was limited to a one-semester intervention, restricting its ability to assess long-term language learning outcomes. Longitudinal research is needed to examine the sustained effects of AR on speaking proficiency, engagement, and professional preparedness over extended periods. Fourth, technological constraints, such as device compatibility issues, inconsistent internet access, and students' varying levels of digital literacy, posed challenges that may have influenced learning outcomes. Addressing these challenges through institutional support, targeted training programs, and investment in accessible AR tools is crucial for maximizing the effectiveness of AR-enhanced pedagogy. Despite these limitations, this study represents a significant contribution to technology-enhanced language education. By providing empirical evidence of AR's pedagogical potential, the research underscores the need for continued exploration and innovation in integrating emerging technologies into English language instruction.

6.5 Final Remarks with The Future of Augmented Reality, Artificial Intelligence, and Cutting-edge Technology in Language Learning

As the landscape of augmented reality (AR) and mixed reality (MR) technology continues to evolve, major technology firms are pushing the boundaries of immersive digital experiences. Two of the most anticipated advancements in this domain are Apple Vision Pro and Meta Orion Glasses, both of which represent the next generation of spatial computing and AR integration. Apple Vision Pro, unveiled in 2023, is a high-end mixed reality headset that merges AR and VR through a sophisticated spatial computing interface. Featuring eye-tracking technology, a high-resolution micro-OLED display, and a seamless gesture-based control system, Vision Pro aims to revolutionize the way users interact with digital content. By overlaying virtual elements onto the real world, it enables immersive experiences in entertainment, productivity, and communication. Apple's emphasis on seamless hardware-software integration ensures

that Vision Pro functions as an intuitive and responsive extension of the user's environment. On the other hand, Meta Orion Glasses represent Meta's next evolution in wearable AR technology, designed to bring lightweight and everyday usability to augmented reality. Unlike bulkier headsets, Orion Glasses prioritize a compact and stylish design, integrating AR overlays directly into the user's field of view without obstructing real-world interactions. Meta envisions these glasses as a step toward mainstream AR adoption, allowing users to access contextual information, interact with holographic displays, and enhance their daily experiences with AI-powered smart assistance. While both devices aim to redefine AR engagement, Apple Vision Pro is positioned as a premium, high-performance mixed-reality headset tailored for immersive digital experiences, whereas Meta Orion Glasses focus on accessibility, portability, and integration into everyday life. Their development signals a growing competition in the AR industry, with both companies vying to shape the future of interactive technology.

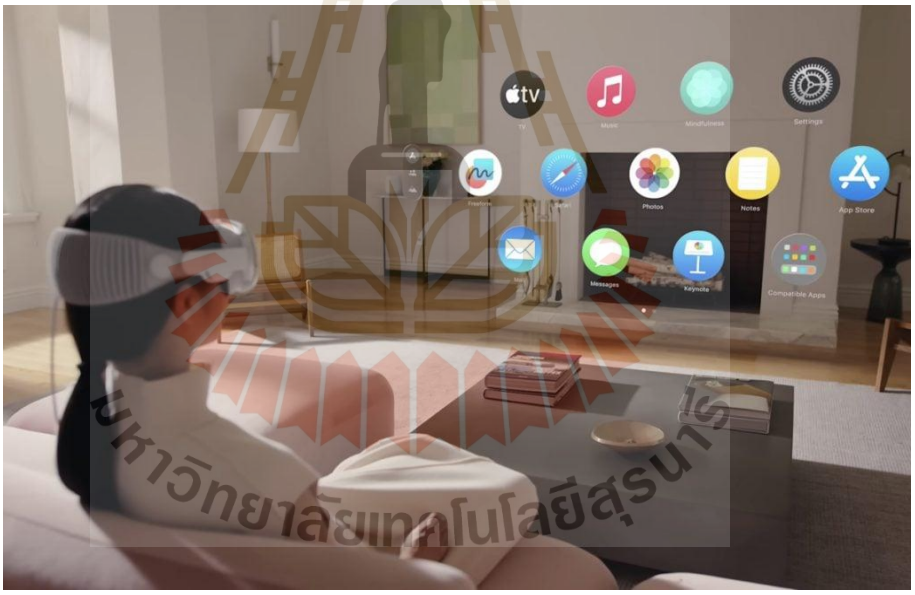


Figure 6.1 Immersive Augmented Reality Interface for Language Learning using Apple Vision Pro

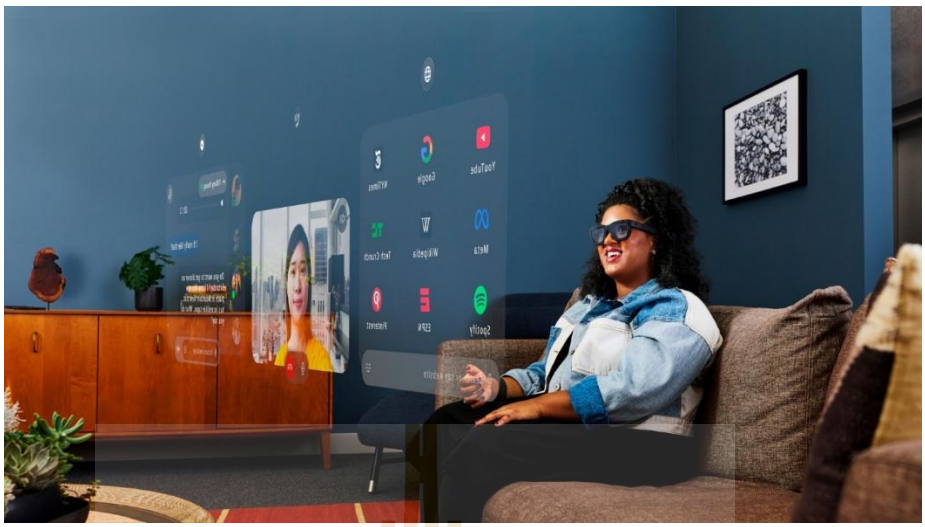


Figure 6.2 Interactive Augmented Reality Learning with Meta Orion Glasses for English Language Education

Advanced AR hardware, such as Apple's Vision Pro and Meta's Orion AR glasses, represents a significant step towards integrating AI-driven real-time feedback with AR-enhanced learning environments. These technological advancements have the potential to bridge the gap between traditional classroom instruction and real-world communication, fostering more effective language acquisition. However, while the combination of AR and AI presents promising opportunities, challenges related to accessibility, cognitive load, and ethical considerations must also be addressed to ensure equitable and meaningful implementation. The synergy between AR and AI is particularly impactful in second language acquisition, as it enables personalized and immersive learning environments that adapt to students' individual needs. AI-driven natural language processing (NLP) can analyze learners' speech patterns, grammar usage, and pronunciation errors in real-time, providing immediate corrective feedback. When integrated with AR, these features can create interactive learning scenarios where students practice conversations in simulated environments, increasing both engagement and retention (Kumar et al., 2023). This aligns with previous research suggesting that AR-enhanced learning leads to deeper cognitive engagement and more effective retention of language structures (Radu, 2014). Furthermore, studies indicate that AR fosters experiential learning, allowing learners to contextualize their language use in meaningful ways. For example, Solak and Cakir (2016) found that AR-enhanced simulations improved speaking fluency by providing real-world interactional cues, helping learners develop conversational skills with greater authenticity. Similarly, Zhao and Zhu (2022) emphasized that immersive AR applications reduce speaking anxiety,

as learners feel more comfortable practicing in simulated rather than high-pressure real-world scenarios.

The rapid evolution of AR hardware plays a crucial role in expanding the possibilities of language learning applications. Apple's Vision Pro and Meta's Orion AR glasses exemplify the next generation of AR technology, incorporating high-resolution displays, enhanced spatial computing, and AI-powered interactivity (Business Insider, 2024). These devices have the potential to redefine how learners engage with language practice by seamlessly overlaying digital elements onto their physical environment. Meta's Orion AR glasses, for instance, offer a mixed-reality interface designed to facilitate real-time collaboration, which can significantly enhance peer-based language learning (Deusens, 2024). This aligns with Vygotsky's (1978) sociocultural theory, which emphasizes the importance of interaction and scaffolding in language development. Apple's Vision Pro, meanwhile, integrates advanced gesture recognition and AI-assisted feedback, allowing users to practice speech in fully immersive environments, potentially leading to greater improvements in pronunciation and fluency. Despite these advancements, several technical and pedagogical challenges remain. Device accessibility and affordability continue to be barriers, as high-end AR hardware remains costly, limiting widespread adoption in educational institutions (Diegmann et al., 2015). Additionally, issues related to cognitive load must be addressed; as Mayer's (2020) Cognitive Theory of Multimedia Learning suggests, overloading learners with excessive multimodal stimuli can hinder rather than enhance learning outcomes.

While the integration of AR and AI in education is advancing rapidly, ethical considerations related to data privacy, user autonomy, and algorithmic bias must also be taken into account. With AI-driven AR applications increasingly collecting speech and behavioral data, concerns over data security and potential misuse of learner information are growing (Huang et al., 2023). Future research should focus on developing transparent data governance policies that ensure student autonomy and consent in digital learning spaces. Additionally, future developments should explore how AR and AI can be optimized for diverse linguistic and cultural contexts. Current AI models are often trained on standardized English dialects, potentially disadvantaging learners from varied linguistic backgrounds (Jin et al., 2022). To create inclusive and effective learning environments, AI-assisted AR applications should integrate multilingual and culturally adaptive speech recognition models. The future of AR-integrated AI in language learning presents transformative opportunities for immersive and adaptive education. Devices such as Apple's Vision Pro and Meta's Orion AR glasses exemplify the potential of advanced spatial computing and real-time AI

feedback to enhance speaking skills, engagement, and retention. However, challenges related to cognitive overload, accessibility, and ethical considerations must be carefully addressed to ensure equitable and effective implementation. As technology continues to evolve, ongoing research should focus on scalable, inclusive, and pedagogically sound approaches that maximize the benefits of AR and AI in second language acquisition.

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APPENDICES

APPENDIX A

The IOC Value for the Questionnaire 1's Items to Investigate the Effects of the AR technology on Vietnamese EFL Undergraduate Students' Speaking Skills in English for Tourism and Hospitality.

INFORMATION OF VALIDATORS:

No.	Name	Academic Title	Affiliation
1	Asso. Prof. Nguyen Huynh Trang Email: trangnh@ueh.edu.vn	Program Director	University of Economics Ho Chi Minh City, Vietnam
2	Dr. Vo Doan Tho Email: doantho@ueh.edu.vn	Program Director	University of Economics Ho Chi Minh City, Vietnam
3	Dr. Nguyen Thanh Luan Email: luan.nguyenthanh@westernsydney.edu.vn	Senior Lecturer	Western Sidney University, Australia
4	Prof. Robert Godwin Jones Email: rgjones@vcu.edu	Foreign Language Liaison	Virginia Commonwealth University, USA

1. **The Questionnaire 1 to Measure the Readiness and Expectation Level:**

(The Questionnaire utilizes the same Likert's scale for all items: (1) Strongly disagree; (2) Disagree; (3) Neutral; (4) Agree; (5) Strongly agree))

Items	Statements	Themes		Mean	Experts' opinions/ comments
1	I have access to a smartphone.	Access to Technology	Students' readiness to AR technology	0.75	It seems that this question is redundant
2	I have internet access on my smartphone.			1.0	
3	I usually surf the web using my smartphone.			1.0	
4	I depend on the university's Wi-Fi to access the internet.			0.75	What is the aim of this item?
5	I have internet access when I'm outside the university.			0.75	What is the aim of this item?
6	I subscribe to a personal internet plan on my smartphone.			1.0	
7	I have knowledge regarding Augmented Reality (AR) technology.	Attitudes Towards AR in Learning		1.0	
8	I have heard of learning using AR technology.			1.0	
9	Learning using AR technology is of interest to me.			1.0	
10	I would like to learn this course with AR technology.			1.0	
11	Learning using Mobile AR application will be interesting.			1.0	I am afraid that item 9 ad and 11 will make

Items	Statements	Themes		Mean	Experts' opinions/ comments
					the respondents get confused
12	I am capable of using Mobile AR application in learning.	Learning Capability with Mobile AR application		1.0	
13	Training is needed to understand how to use Mobile AR application in learning.			1.0	
14	I can understand better when learning using Mobile AR application.			0.75	Understand what?
15	I can visualize better when learning using Mobile AR application.			1.0	
16	I can learn independently using Mobile AR application.			1.0	
17	I can learn with my classmates using Mobile AR application.			1.0	
18	The classroom activity will be more active with Mobile AR application.			1.0	
19	I will be excited to learn using AR technology.			1.0	
20	Learning using AR technology will be beneficial.	Perceived Benefits of AR in Learning	Students' expectancy to AR technology in Learning	0.75	Beneficial to whom?
21	I believe that AR-enhanced learning experiences will make the learning process more engaging and enjoyable.			1.0	
22	Learning using AR technology will improve the interactive level between peers and lecturers.			0.75	I am afraid "the interactive level" is unclear
23	Learning with AR technology will significantly enhance my understanding of ESP concepts.			1.0	
24	I think that AR technology can improve my problem-solving skills within ESP contexts.			1.0	
25	I expect that integrating AR technology into the curriculum will enhance the overall quality of education.			1.0	
26	I believe that AR technology can provide me with a more personalized and tailored learning experience.			1.0	

-The end-

APPENDIX B

The IOC Value for the Questionnaire 2's Items to Investigate the Effects of AR Technology Lessons on Vietnamese EFL Undergraduate Students' Speaking Skills in English for Tourism and Hospitality.

1. The Questionnaire 2 to Measure the Acceptance Level:

(The Questionnaire utilizes the same Likert's scale for all items: (1) Strongly disagree; (2) Disagree; (3) Neutral; (4) Agree; (5) Strongly agree))

Items	Statements	Experts' opinions		
				Comments
1	The use of this AR system can enhance my learning and performance in this course.	Perceived Usefulness	0.75	Why learning and performance? Speaking Skills?
2	Implementing the AR system during classes can enhance my understanding of complex concepts.		1.0	
3	I believe the AR system is a valuable tool for learning.		1.0	
4	My academic performance can improve through the use of AR technology.		0.75	I think the phrase "my academic performance' is unclear. Speaking performance? Which aspects of speaking?
5	I find the AR system is easy to navigate and operate.	Perceived Ease of Use	1.0	
6	Learning how to use the AR system presents no difficulties for me.		1.0	
7	Instructions for using the AR system are clear and comprehensible.		1.0	
8	Using the AR system is an enjoyable experience.	Perceived Enjoyment	0.75	
9	I derive satisfaction from using the AR system.		1.0	
10	I believe that the AR system combines learning and enjoyment effectively.		1.0	
11	The integration of AR technology in learning makes the educational experience more engaging.	Attitudes and acceptance to AR	0.75	
12	I did not experience boredom while using the AR system.		1.0	
13	I support the idea of utilizing AR systems in the classroom setting.		1.0	
14	I am enthusiastic about embracing new technology.		0.75	This item should be linked to the objective of the questionnaire
15	AR technology enhances the achievement of course learning objectives.		1.0	
16	I feel at ease when using AR for learning in this course.		1.0	

Items	Statements	Experts' opinions		
				Comments
17	AR technology promotes more active classroom participation.		0.75	Indicate in this course
18	Group work becomes more intriguing when augmented by AR.		1.0	
19	Learning through AR offers flexibility during the learning process.		1.0	
20	AR technology is beneficial for enhancing the course content.		1.0	
21	AR aids in visualizing course elements effectively.		1.0	
22	AR enhances the understanding of sequential processes in tourism and hospitality.		1.0	
23	I would recommend AR technology to my peers for learning in this course.		0.75	Which peers??
24	In the future, I am inclined to use AR systems if the opportunity arises.	Intention to use	0.75	
25	I am interested in using AR systems to study other subjects.		1.0	

-The end-

APPENDIX C

VALIDATION FORM FOR PRE- AND POST- SPEAKING TEST PAPERS (MOCK IELTS SPEAKING TESTS)

This is an English for Tourism and Hospitality course. The speaking test papers have been developed to assess students' language proficiency and their understanding of key concepts related to traveling, tourism, and hospitality. The format mirrors that of the IELTS examination, with each test comprising three parts: an introduction and interview (Part 1) (3-4 minutes), a long turn or speech on a given topic (Part 2) (2-3 minutes), and a discussion on broader aspects of the topic (Part 3) (4-5 minutes). The papers are used for both Pre- and Post- Speaking Tests. Each student will be assigned a random Speaking Cue Card and perform their oral examination.

Please kindly read the Speaking Test Papers and fill out the Validation Form below:

Validation Form for Pre- and Post- Speaking Test Papers

Directions: Please read each Speaking Test Paper on the Evaluation Form and then tick (✓) in the rating box that describes your opinions about each Speaking Test Paper. The criteria for rating are as follows.

Description

+ 1: The paper is appropriate and relevant to the Course and Learning Outcomes

0: The paper seems irrelevant to the Course and Learning Outcomes

-1: The paper is not appropriate and not relevant to the Course and Learning Outcomes

** Note: Please kindly find the Course Description and the Learning Outcomes at the end of this form.*

Test papers	Experts' opinions	
	Mean	Comments
Speaking Test 1: Tourism Destinations ***Part 1: Introduction and Interview:*** - What kind of places do you enjoy visiting when you travel? - Do you prefer traveling to historical sites or natural landscapes? ***Part 2: Cue Card:*** Describe a memorable trip you have taken to a tourist destination. You should say: - Where you went - What you did there - Why you found the trip memorable ***Part 3: Discussion:*** - How can a country promote its less popular tourist destinations? - What role do local communities play in attracting tourists to their areas?	1.0	
Speaking Test 2: Cultural Experiences ***Part 1: Introduction and Interview:*** - How do you usually experience the culture of a new place when you travel? - What benefits can travelers gain from engaging with local cultures? ***Part 2: Cue Card:***	1.0	

Test papers	Experts' opinions	
	Mean	Comments
Describe a cultural event or festival you have attended while traveling. You should say: - What the event was - Where and when it took place - Why you found it interesting ***Part 3: Discussion:*** - How can cultural events and festivals contribute to the local economy? - In what ways can cultural tourism impact the preservation of traditional practices?		
Speaking Test 3: Hospitality Services ***Part 1: Introduction and Interview:*** - What factors do you consider when choosing accommodation for your travels? - How important is good customer service in the hospitality industry? ***Part 2: Cue Card:*** Describe a hotel or resort you have stayed at during your travels. You should say: - Where it was located - What facilities and services it offered - Why you chose to stay there ***Part 3: Discussion:*** - How do hotels and resorts contribute to the overall tourism experience of a destination? - What challenges do hospitality businesses face in meeting the diverse needs of their guests?	**1.0**	
Speaking Test 4: Sustainable Tourism ***Part 1: Introduction and Interview:*** - Do you think tourists should be educated about responsible tourism practices? - How can travelers minimize their impact on the environment while traveling? ***Part 2: Cue Card:*** Discuss a travel experience where you encountered eco-friendly or sustainable practices. You should say: - Where you traveled - What sustainable practices you observed - How these practices influenced your experience ***Part 3: Discussion:*** - What strategies can be employed to promote eco-friendly tourism? - How can governments and communities work together to ensure sustainable tourism?	**1.0**	
Speaking Test 5: Food and Cuisine ***Part 1: Introduction and Interview:*** - What role does food play in your travel experiences? - Are there any specific dishes or cuisines you like to try when you travel? ***Part 2: Cue Card:*** Describe a memorable dining experience you had while traveling. You should say: - Where you ate - What type of food you tried - Why this dining experience stood out to you ***Part 3: Discussion:***	**1.0**	

Test papers	Experts' opinions	
	Mean	Comments
- How can local food and cuisine contribute to the cultural identity of a destination? - In what ways can culinary tourism benefit local communities?		
Speaking Test 6: Adventure Tourism ***Part 1: Introduction and Interview:*** - Do you enjoy participating in adventurous activities while traveling? - What kinds of adventure tourism activities are popular in your region? ***Part 2: Cue Card:*** Describe an adventure activity you have taken part in during your travels. You should say: - What the activity was - Where and when you did it - How you felt about the experience ***Part 3: Discussion:*** - How can adventure tourism benefit both travelers and the local economy? - What safety measures should be in place for adventure tourism?	**1.0**	
Speaking Test 7: Cultural Exchange ***Part 1: Introduction and Interview:*** - Have you ever had the opportunity to interact with local people when traveling? - What benefits can travelers gain from engaging with locals? ***Part 2: Cue Card:*** Describe an instance when you had a meaningful conversation with a local person during your travels. You should say: - Where this conversation took place - Who the person was - What topics you discussed ***Part 3: Discussion:*** - How can homestays or local accommodations enhance the cultural exchange between tourists and locals? - What challenges might arise in fostering genuine cultural interactions?	**1.0**	
Speaking Test 8: Technology in Tourism ***Part 1: Introduction and Interview:*** - How has technology influenced the way people travel and plan their trips? - Do you think traditional travel guides are still relevant in the age of technology? ***Part 2: Cue Card:*** Discuss a time when technology played a significant role in enhancing your travel experience. You should say: - What technology was used - How it impacted your trip - Why this experience was memorable ***Part 3: Discussion:*** - How can augmented reality and virtual reality enhance tourists' experiences? - What potential drawbacks could arise from relying heavily on technology in the tourism industry?	**1.0**	
Speaking Test 9: Medical Tourism ***Part 1: Introduction and Interview:***	**1.0**	

Test papers	Experts' opinions	
	Mean	Comments
- Have you ever heard of medical tourism? - What factors might attract people to travel for medical purposes? ***Part 2: Cue Card:*** Discuss a scenario where you or someone you know engaged in medical tourism. You should say: - What medical procedure was sought - Where the procedure was performed - Why this option was chosen for medical care ***Part 3: Discussion:*** - How can medical tourism benefit both the healthcare industry and the tourism sector? - What ethical considerations should be considered when it comes to medical tourism?		
Speaking Test 10: Event Tourism ***Part 1: Introduction and Interview:*** - Have you ever attended a special event or festival during your travels? - What types of events do you think attract tourists to a destination? ***Part 2: Cue Card:*** Describe a memorable event or festival you have attended while traveling. You should say: - What the event was - Where and when it took place ***Part 3: Discussion:*** - How can events and festivals contribute to a destination's cultural and economic growth? - What challenges might event organizers face in ensuring the success of such gatherings?	**1.0**	

APPENDIX D

The IELTS Band Descriptors applied in the Students' Speaking Pre-tests and Post-tests to Investigate the Effects of the AR technology lessons on Vietnamese EFL Undergraduate Students' Speaking Skills in English for Tourism and Hospitality.

Page 1 of 1

IELTS Speaking Band Descriptors (public version)

Band	Fluency and coherence	Lexical resource	Grammatical range and accuracy	Pronunciation
9	• speaks fluently with only rare repetition or self-correction; any hesitation is content-related rather than to find words or grammar • speaks coherently with fully appropriate cohesive features • develops topics fully and appropriately	• uses vocabulary with full flexibility and precision in all topics • uses idiomatic language naturally and accurately	• uses a full range of structures naturally and appropriately • produces consistently accurate structures apart from 'slips' characteristic of native speaker speech	• uses a full range of pronunciation features with precision and subtlety • sustains flexible use of features throughout • is effortless to understand
8	• speaks fluently with only occasional repetition or self-correction; hesitation is usually content-related and only rarely to search for language • develops topics coherently and appropriately	• uses a wide vocabulary resource readily and flexibly to convey precise meaning • uses less common and idiomatic vocabulary skilfully, with occasional inaccuracies • uses paraphrase effectively as required	• uses a wide range of structures flexibly • produces a majority of error-free sentences with only very occasional inappropriacies or basic/non-systematic errors	• uses a wide range of pronunciation features • sustains flexible use of features, with only occasional lapses • is easy to understand throughout; L1 accent has minimal effect on intelligibility
7	• speaks at length without noticeable effort or loss of coherence • may demonstrate language-related hesitation at times, or some repetition and/or self-correction • uses a range of connectives and discourse markers with some flexibility	• uses vocabulary resource flexibly to discuss a variety of topics • uses some less common and idiomatic vocabulary and shows some awareness of style and collocation, with some inappropriate choices • uses paraphrase effectively	• uses a range of complex structures with some flexibility • frequently produces error-free sentences, though some grammatical mistakes persist	• shows all the positive features of Band 6 and some, but not all, of the positive features of Band 8
6	• is willing to speak at length, though may lose coherence at times due to occasional repetition, self-correction or hesitation • uses a range of connectives and discourse markers but not always appropriately	• has a wide enough vocabulary to discuss topics at length and make meaning clear in spite of inappropriacies • generally paraphrases successfully	• uses a mix of simple and complex structures, but with limited flexibility • may make frequent mistakes with complex structures, though these rarely cause comprehension problems	• uses a range of pronunciation features with mixed control • shows some effective use of features but this is not sustained • can generally be understood throughout, though mispronunciation of individual words or sounds reduces clarity at times
5	• usually maintains flow of speech but uses repetition, self-correction and/or slow speech to keep going • may over-use certain connectives and discourse markers • produces simple speech fluently, but more complex communication causes fluency problems	• manages to talk about familiar and unfamiliar topics but uses vocabulary with limited flexibility • attempts to use paraphrase but with mixed success	• produces basic sentence forms with reasonable accuracy • uses a limited range of more complex structures, but these usually contain errors and may cause some comprehension problems	• shows all the positive features of Band 4 and some, but not all, of the positive features of Band 6
4	• cannot respond without noticeable pauses and may speak slowly, with frequent repetition and self-correction • links basic sentences but with repetitious use of simple connectives and some breakdowns in coherence	• is able to talk about familiar topics but can only convey basic meaning on unfamiliar topics and makes frequent errors in word choice • rarely attempts paraphrase	• produces basic sentence forms and some correct simple sentences but subordinate structures are rare • errors are frequent and may lead to misunderstanding	• uses a limited range of pronunciation features • attempts to control features but lapses are frequent • mispronunciations are frequent and cause some difficulty for the listener
3	• speaks with long pauses • has limited ability to link simple sentences • gives only simple responses and is frequently unable to convey basic message	• uses simple vocabulary to convey personal information • has insufficient vocabulary for less familiar topics	• attempts basic sentence forms but with limited success, or relies on apparently memorised utterances • makes numerous errors except in memorised expressions	• shows some of the features of Band 2 and some, but not all, of the positive features of Band 4
2	• pauses lengthily before most words • little communication possible	• only produces isolated words or memorised utterances	• cannot produce basic sentence forms	• speech is often unintelligible
1	• no communication possible • no rateable language			
0	• does not attend			

APPENDIX E

The IOC Value for the Interview Questions to Investigate the Effects of the AR technology lessons on Vietnamese EFL Undergraduate Students' Speaking Skills in English for Tourism and Hospitality.

This form aims to measure the validity of the interview questions to explore their perceptions towards AR technology lessons, which was applied in an English for Tourism and Hospitality course at a university in the South of Vietnam.

EFL Students: EFL stands for English as a Foreign Language. EFL students refer to individuals who are learning the English language in an environment where English is not the primary language spoken. These students typically reside in countries where English is not widely spoken or used as the main language of communication. In the case of the present study, EFL students refer to learners at the tertiary level at a university in the South of Vietnam, who have limited exposure to English in their everyday lives and require formal instruction or dedicated language learning programs to develop their proficiency in reading, writing, speaking, and listening skills in English.

Speaking Skills: Speaking Skills refer to a learner's ability to effectively communicate and express ideas, thoughts, and emotions in the English language. These skills encompass pronunciation, fluency, vocabulary usage, grammar accuracy, and the capacity to engage in meaningful conversations, discussions, and presentations with clarity and confidence.

Augmented Reality (AR): AR is a technological advancement in which, with the use of an electronic device, such as a smartphone or laptop, digital information may be superimposed over a picture to produce an improved representation of reality. Users of AR interact with a real-world environment through computer-generated information that can include visual, audio, haptic, and olfactory components.

English for Tourism and Hospitality (ETH): is a course designed to help undergraduate students prepare for their future career in tourism and hospitality. The course focuses on developing essential academic skills, like understanding lectures and participating in seminars. It also teaches specialized language needed for success in tourism and hospitality studies. It offers systematically graded practice and advancements in the fundamental academic proficiencies required of all students, including speaking in seminars and listening to lectures. Additionally, it gives students the specialized language they need to contribute effectively in an academic setting focused on tourism and hospitality. The exercises also include listening to real lectures in the field, and all reading materials come from the same area of study. Throughout

the course, there is an emphasis on building students' vocabulary related to tourism and hospitality, enhancing their language abilities for academic success in this field.

Directions: Please read each statement on the evaluation form and then tick (✓) in the rating box that describes your opinions about each statement. The criteria for rating are as follows.

Description

+ 1: The statement is appropriate and relevant to the research's objectives

0: The statement seems irrelevant to the research's objectives

-1: The statement is not appropriate and not relevant to the research's objectives

The Interview questions are to investigate the perceptions of the Vietnamese EFL undergraduate students towards the AR technology, which was applied in an English for Tourism and Hospitality Course at a university in the South of Vietnam. The Interview questions were developed by the researcher himself based on the research objectives.

The Interview Questions to Explore Vietnamese EFL Undergraduate Students' Perceptions towards AR technology lessons in English for Tourism and Hospitality

No.	Questions	Experts' Opinions	
		Mean	Comments
1	Can you describe your overall experience with the AR technology in this English for Tourism and Hospitality course?	**1.0**	
2	Do you feel comfortable with the AR technology? How & why?	**1.0**	
3	How does the Halo AR app help improve your English speaking skills in the context of Tourism and Hospitality?	**1.0**	
4	Could you provide specific examples of how AR technology enhanced your language learning experience?	**1.0**	
5	How did you overcome these challenges, and did they impact your language learning outcomes?	**1.0**	
6	How do you perceive the potential application of AR technology in real-life Tourism and Hospitality contexts after completing this course?	**1.0**	

APPENDIX F

The Halo AR app user guide in the course of English for Tourism and Hospitality.

Halo AR App

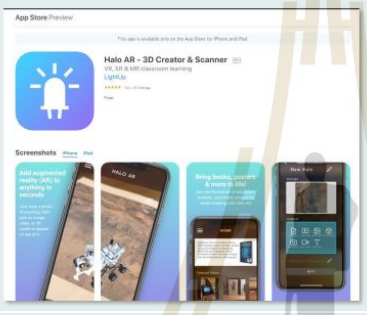
Images come to life to engage learners!
Pick an object (digital content) turn it into an augmented reality experience for your students by connecting it to your students' physical world.

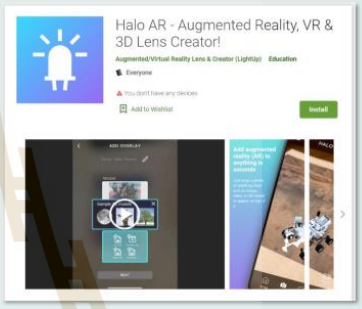
The **trigger** is the **physical environment image** that "triggers" the halo (virtual object) to appear. In the example below, the **trigger** is a picture of a **book cover**.

The **halo** is the **virtual digital element** we *overlay* on the physical flat surface, in this case, book cover image. In the example below, a **YouTube video** is the **halo**.

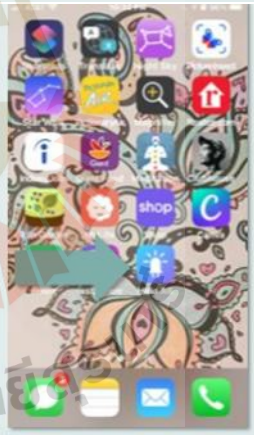
Starting Steps:

1. Download & install the **Halo 3D Creator and Scanner iOS App** at either the Google Play store or the Apple iOS App Store.





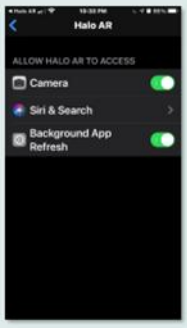
2. After the app is downloaded and installed on your phone, you will see the Halo icon appear on your phone screen. Click on the **Halo AR icon** to open the app.



3. **Halo AR** will ask for permission to access your camera. Allow Halo access to your camera by clicking on **Allow Access**.

4. If access to the camera is denied, the app will prompt you to go to **Settings** on your phone and **enable** the Halo app camera access.

Go to **Settings** on your camera, scroll down, look for the **Halo AR app**, click on the **app title**, and then click on the **toggle button** to allow Halo AR access to your camera.



5. You will then be prompted to create an account.

Complete the username, email address, and password fields and then select **Teacher** and click on **Create an Account**. If you already have a Halo AR account, click on **Already have an Account** at the bottom and sign in with your username or email address and your password.

6. Then, the app will be ready to scan an item. You will see a round focusing scanning sensor moving on the screen.

To try out the scanner, **scan** a $1, $5, or $20 bill for an example of augmented reality using the Halo AR scanner.

7. **To create the physical environment trigger** (book cover in our example), click on **Create** at the bottom of the app.

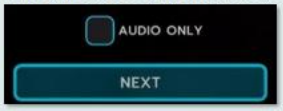
After you click on **Create**, and then the moving scanner animation becomes a square guide.

Line up your camera to take a top-down or head-on photo of the flat detailed surface you want to trigger your halo. You may **move the four corner guides** to *resize* the guides to capture your trigger image.

When you are ready, **click on the round camera button** to take the picture.

8. Now we will choose the Halo, the virtual digital element (in this example, a YouTube video) which will overlay on the trigger physical environment photo (book cover). I click on **Video URL** for my example.

NOTE: The halo (virtual element) can be Gallery of pictures, a video URL, an image URL, 3D models, or, you can take a photo, capture a video, or add text. You can also add an additional URL to hyperlink to a website. And, for the video, you may choose audio only.



Again, in this example, my **halo** will be a **YouTube video** of someone reading the book.

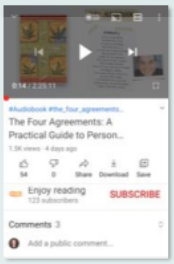
Here are 2 options with TAKE VIDEO halo virtual element:

1. You ask a student to take a video of the student talking about the book using the classroom iPad or the student's phone. The student will need to send you the video, or you can teach the student to create the Halo AR experience with the app on either the student's device (if app is installed) or the classroom iPad. Students love learning how to create AR experiences and this duty empowers them in the classroom.

OR

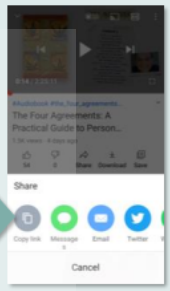
2. You take the video of the student recommending the book with the classroom iPad or your phone and then you create the Halo AR experience using the Halo AR app.

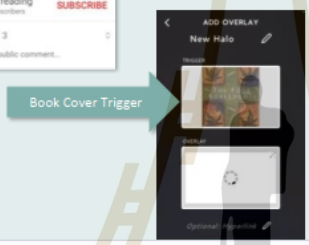
NOTE: I recommend not placing the student videos on YouTube due to student privacy reasons. If the video was posted on YouTube, the video will need to be published Public on YouTube so all may view the video. On the app to create the halo, you will choose **Take Video**. Store the video in a Google Drive or Microsoft One Drive folder and use the Share ULR.

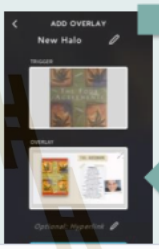


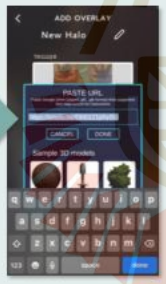
For my example, I am using a Video URL.

9. To use a YouTube video as a halo, as in this example, find the video on YouTube on my phone, click on **Share** under the video and click on **Copy link**.

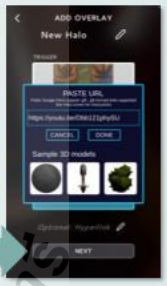








10. After I click on **Video URL**, I click in the videos URL field, the URL pastes automatically, and click on **DONE**. Then click on **NEXT**.

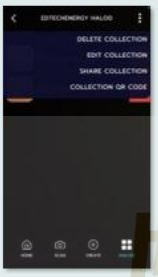


11. Wait for the overlay (halo) to load. After the halo loads, click on **NEXT**.

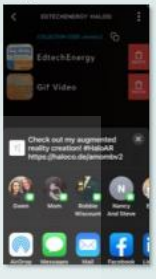
12. Now you can adjust the overlay with your fingers. Center the overlay over the center of the flat physical image. When the halo is positioned over the trigger the way you want it, click on **NEXT**.

13. You have the option to create Halo **Collections** and save the halos inside specific collections. To create the collection, type the name of the collection in **+ADD NEW COLLECTION**. You may choose if the collection is private, unlisted, or public. When you are done, click on **SAVE**. If the collection is already created, click on the Collection, and click on **SAVE** to save the halo inside that collection. **NOTE**: Here are different views inside the Halo AR app:

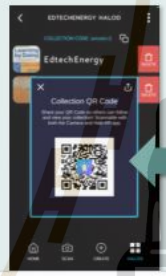
Halo AR app Menu



Click on *Share Collection* using text, email, air drop, social media, etc.



Share your collection with a QR Code by clicking on *Collection QR Code* in the Menu.



After you click on a *Collection*, it opens to show the Halos you have saved to the Collection.

APPENDIX G

The Lesson Plans with AR technology integration to Investigate the Effects of the AR technology on Vietnamese EFL Undergraduate Students' Speaking Skills in English for Tourism and Hospitality.

LESSON PLAN UNIT 1

I. Lesson Plan Information	
Subject/Course: English for Tourism and Hospitality (ETH)	**Lecturer:** Ho Minh Thang
Unit 1: What is tourism?	**Class:** ETH001
Skill Focused: Speaking from notes	**Date:** …… **Time:** 7:00am
	Length of Period: 4 periods (200 minutes)

II. Objective (s)

At the end of this lesson, students will be able to:

1. Define tourism and identify its key aspects through interactive discussions.
2. Utilize effective note-taking strategies to support structured speaking activities.
3. Engage in meaningful dialogues about tourism, using appropriate vocabulary and expressions.
4. Apply the Halo AR app to explore and present tourism-related content, enhancing their digital literacy and interactive learning experiences.
5. Demonstrate improved speaking skills by presenting their ideas clearly and confidently in an AR-enhanced environment.

III. Teaching Materials

1. Visual aids
2. Textbook, blank paper
3. Projector
4. Laptop, Mobile phones
5. Speaker, microphones, headphones
6. Whiteboard and markers

1. AR technology training (in-class) (30 minutes):

(Constructivism)

* **Objectives:** This session is to give students an overview of AR technology and its benefits for their learning, to train students on how to use the Halo AR app; and to help students apply the AR technology in the course of ETH

*** Procedures:**

- Teacher introduces the AR technology and the Halo AR app to students by showing the video of AR technology introduction & guidelines
  (Link videos: https://haloar.app/resources)
- Students listen to their teacher and watch the guidelines for using the AR technology
- Teacher asks students to download and set up their Halo AR accounts on their smartphones (free wifi is available and sufficient for students in the classroom)
  (Link download: https://haloar.app/)
- Students download and set up their Halo AR accounts on their smartphones
- Teacher demonstrates step-by-step practice in using the Halo AR app and asks students to scan demo videos on Halo AR sample collections.
- Students scan demo videos on Halo AR sample collections and experience the immersive environment.
- Teacher asks students to practice creating a sample collection of their own.
- Students practice creating sample collections on Halo AR app in their smartphones.
- Teacher asks students to share their QR codes in the class's Facebook group so that everyone can follow other class members' collections (as well as the teacher's) (This is a feature from Halo AR app, you have to follow others to see their collections.)
- Students create their own Halo AR QR codes and post in the class's Facebook group.
- Teacher walks around to provide help and support if needed.

LESSON PLANS

2. Leads-in (in-lass) (20 minutes):

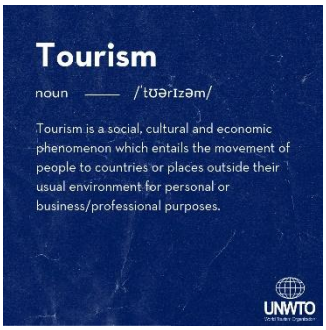
(Humanism + Sociocultural Theory)

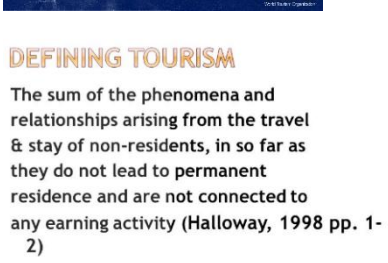
* **Objectives:** This session is to help set the stage for the topic by focusing students' attention on the theme of tourism. This allows students to start thinking about the topic and primes them for the brainstorming session. Moreover, this session helps students to use Halo AR app more confidently and competently and apply AR technology in their learning. Lastly, this session helps students apply note-taking skills to take notes and be well-prepared for their speaking session.

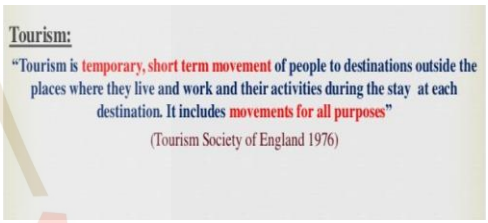
* **Procedures:**

- Teacher asks students “Do you love traveling? Where did you go in your recent trip?” And then show the questions on the screen with PowerPoint Slides.
- Students raise their hands to volunteer answering the questions.
- Teacher picks up 3 volunteers or 2 random students (if no volunteer) to answer the questions.
  (Expected answer: Yes, I do. I went to Sapa/ Hanoi/ Danang/ Hoi An,...)
- Teacher shows the word “TOURISM” on the screen and asks students “What comes to mind when you hear the word 'tourism'?”
- Students raise their hands to volunteer answering the questions.
- Teacher asks for volunteers and picks up one student to answer
  (Expected answer: Tourism means travel from one place to another place.)
- Teacher asks students to use their smartphones, to open the Halo AR app to scan 3 triggers (images), which are shown in the screen, to explore model answers (definitions of TOURISM from 3 reliable sources.) (These are from teacher’s collections).
- Students use their smartphones, to open the Halo AR app to scan 3 triggers (images) to learn more about definitions of tourism.

Triggers: **AR Suggestions:**







- Teacher repeats the question: "What comes to mind when you hear the word 'tourism'?" and asks 3 students to answer the question using ideas from the scanned AR images.
- Students raise their hands to volunteer answering the question.
- Teacher gives students a blank paper and asks students to take note of what their friends answer as much as possible to speak about the definition of tourism.
- Students can summarize or interpret or using ideas from the scanned AR images to answer the teacher's question
- Teacher asks 3 students to use their notes to answer the question.
- Students raise their hands to volunteer answering the question.
- Teacher listens to the students' answers, takes notes and gives feedback for each student's speaking. (note-taking skills, pronunciation, grammar, lexical resources,...)

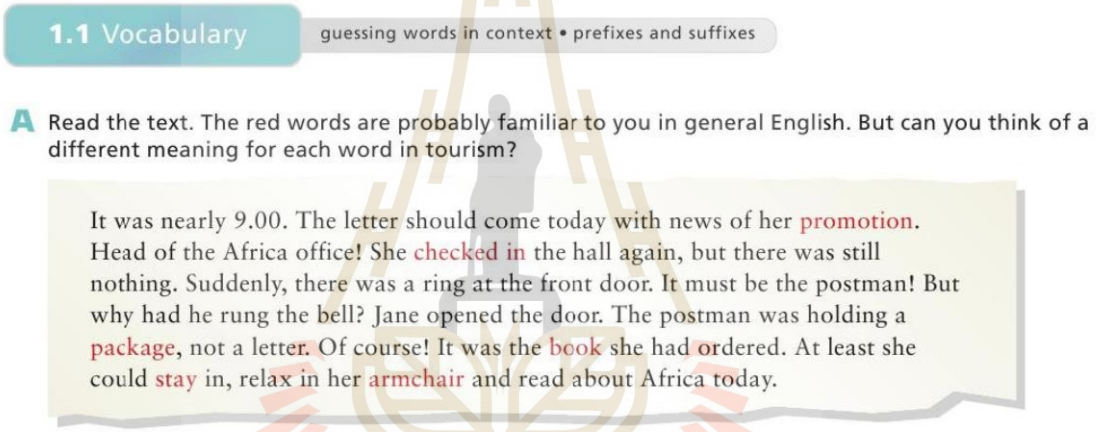
3. Pre-speaking (in-lass) (45 minutes):

(Cognitivism + Connectivism)

* **Objectives:** This session helps students guess meanings of words in context and practice them within specific contexts; enhance their vocabulary and grammar skills; engage them in practicing note-taking skills and discussing the topic. Moreover, this session engages students in practicing using AR technology to improve their speaking skills.

* **Procedures:**

- Teacher shows 6 words (promotion, check in, package, book, stay, armchair) on the screen and asks students to work in pairs to read the text on exercise A and answer the question. (page 6). (5 minutes)



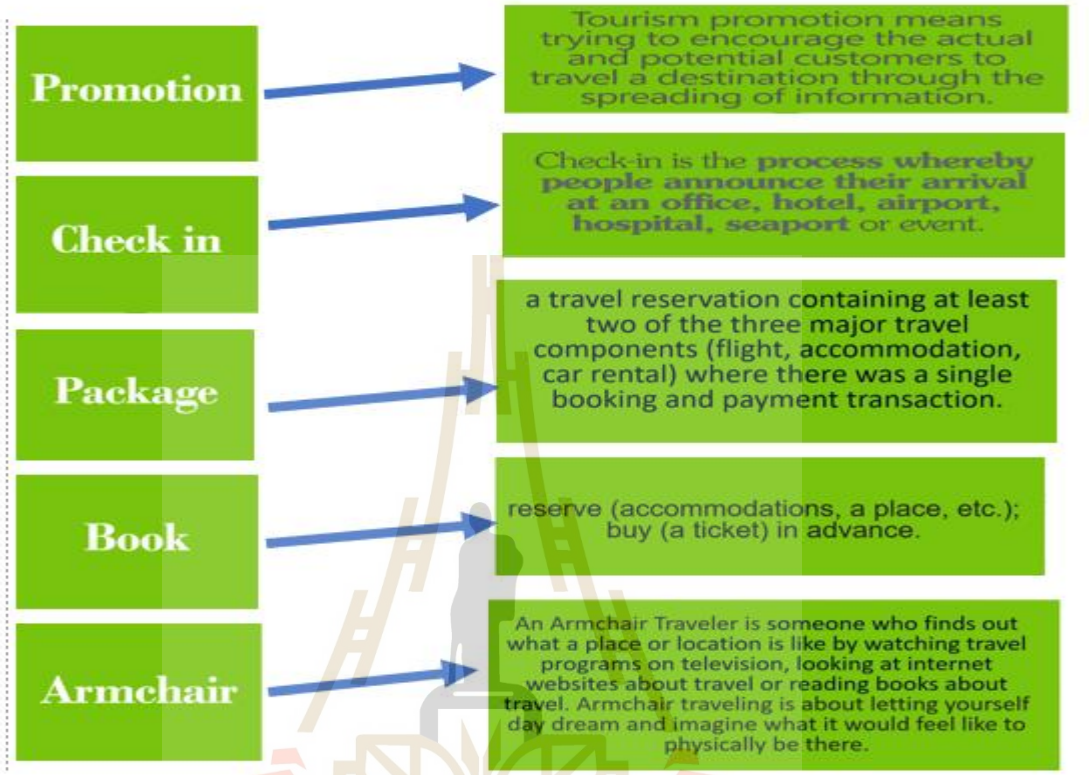
1.1 Vocabulary — guessing words in context • prefixes and suffixes

A Read the text. The red words are probably familiar to you in general English. But can you think of a different meaning for each word in tourism?

It was nearly 9.00. The letter should come today with news of her promotion. Head of the Africa office! She checked in the hall again, but there was still nothing. Suddenly, there was a ring at the front door. It must be the postman! But why had he rung the bell? Jane opened the door. The postman was holding a package, not a letter. Of course! It was the book she had ordered. At least she could stay in, relax in her armchair and read about Africa today.

+ Teacher asks students to use the Halo AR app on their smartphones and scan the triggers (images) for the meanings of the words in tourism.

Triggers: **AR Suggestions:**



+ Teacher walks around and provides support if any student has difficulties in using Halo AR app to scan the triggers for supported ideas.

+ Students answer the question and elicit those words, then teacher gives feedback for their answers.

- Teacher asks students to do the exercise B together. (5 minutes)

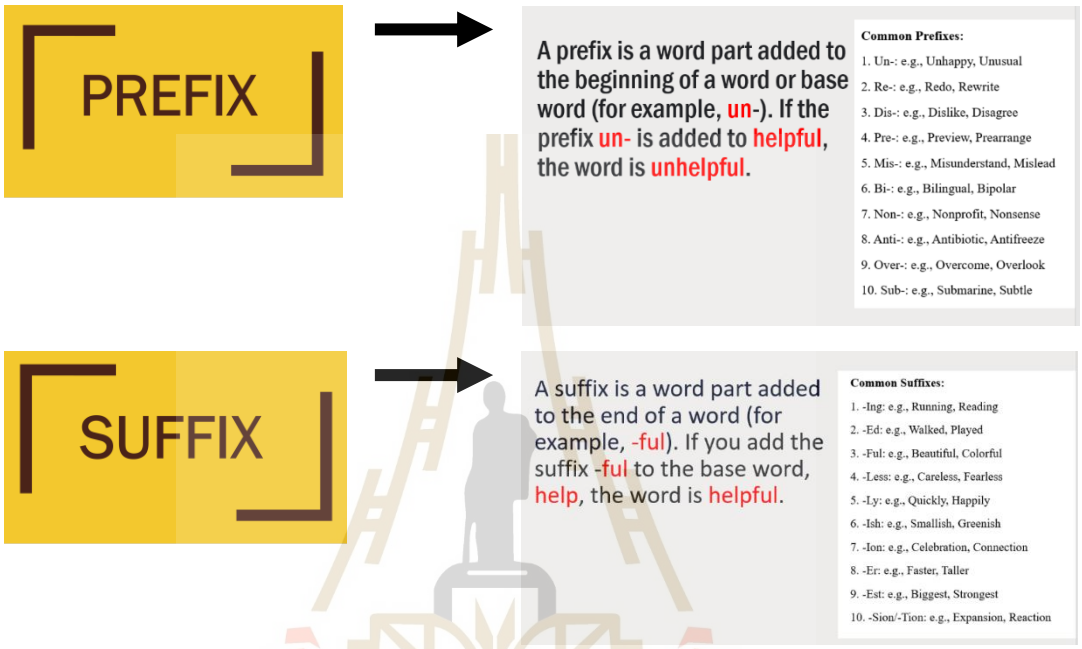
B Complete each sentence with one of the red words from Exercise A. Change the form if necessary (e.g., change a noun into an adjective).

1 Who did you _____ your tickets with?
2 Have you seen the new _____ literature for World Break Holidays?
3 Many return airline fares are cheaper for periods which include a Saturday night ___
4 Do you want a _____ holiday or do you want to arrange accommodation and car hire separately?
5 He's just an _____ tourist. He never actually goes anywhere.
6 Which counter do we _____ in for Flight EK 004?

- After 5 minutes, the teacher asks 2 random students to write their answers on the board; then gives feedback and corrections when needed.

- Teacher introduces prefix and suffix, words in the box to the students, gives an example and then asks students to use Halo AR app to scan 2 triggers (images) for the definitions and examples of prefix, suffix.

Triggers: **AR Suggestions:**



- Teacher walks around and provides support if any student gets difficulties in using Halo AR app to scan 2 triggers (images) for the definitions and examples of prefix, suffix.
- Teacher lets students work in pairs to complete exercise C and D (page 6).

C Study the words in box a.

1 What is the connection between all the words?
2 What is the base word in each case?
3 What do we call the extra letters?
4 What is the meaning of each prefix?
5 Can you think of another word with each prefix?

a
dissatisfaction intangible
international multinational overbook
reconfirm transport underpay

D Study the words in box b.

1 What is the connection between all the words?
2 What is the base word in each case?
3 What do we call the extra letters?
4 What effect do the extra letters have on the base word?
5 Can you think of another word with each suffix?

b
advertisement broaden
direction hospitality promotional
stressful tourism

- After the students finish the discussion, teacher randomly select 2 students to answer, and corrects their answers.
- Students raise their hands to volunteer answering the questions.
- Teacher asks students to practice all the vocabulary from Exercises A, B and C by using Halo AR app to record a 1-minute talk about related topics applying as many newly-learnt vocabulary as possible. (in 10 minutes)
- Students practice using Halo AR app to record a 1-minute talk about related topics applying as many newly-learnt vocabulary as possible. (in 10 minutes)
- Teacher walks around and provide support if any student gets difficulties in using Halo AR app to make the 1-minute videos.
- When students finish recording, teacher asks them to upload and add their 1-minute videos into their collections in Halo AR app.
- Students upload their videos in their collections and name their videos with their full names.
- Teacher shows 2 random AR videos of the students and gives comments and feedback for them.
- Teacher announces a short break (10 minutes) for the whole class.

3. While-speaking (in-lass) (70 minutes):

(Constructivism + Sociocultural Theory)

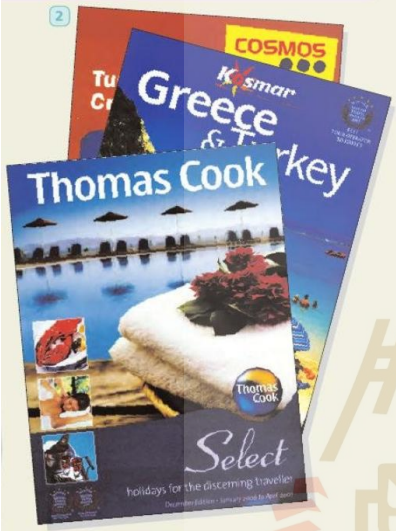
* **Objectives**: This session enables students to practice speaking using the vocabulary and helpful phrases they've acquired; to practice their speaking skills and critical thinking through peer assessment. Besides, this also engage students in AR technology to improve their speaking skills by creating the AR video collections for peer feedback and corrections (when needed). Last, this session creates an immersive and personalized peer feedback and assessment via AR technology.

* **Procedures:**

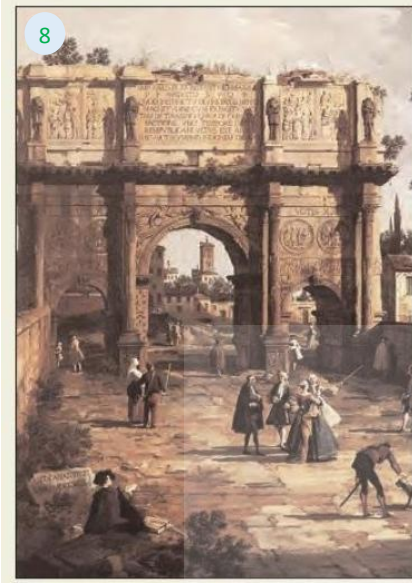
- Teacher asks students to examine the illustrations on page 7 and page 10, and then organizes them into groups of 4 or 5 to prepare for their presentations. (10 mins)
- Students slowly and carefully examine the illustrations on page 7 and page 10.

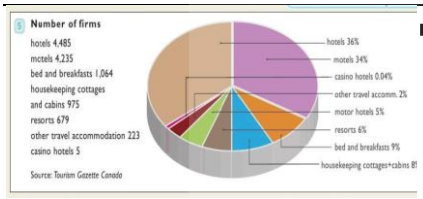
+ Teacher assigns (by counting loudly) students repeatedly from number 1 to number 12; then group them in 12 groups for 12 illustrations in the book on page 7 and page 10.

- Teacher asks each group to scan the illustrations for the necessary vocabulary for the presentations using the Halo AR app to brainstorm and build up their ideas for their presentations. (15 minutes)

Triggers:	AR Suggestions:
1 CS = D - E customer satisfaction / delivery / expectation	**1. Reservation (noun)** - Example: The customer made a **reservation** for a deluxe room with a seaside view. **2. Feedback (noun)** - Example: We encourage guests to provide **feedback** on their experience to help us improve our servic **3. Prompt (adjective)** - Example: A **prompt** response to customer inquiries is essential for a positive experience. **4. Accommodation (noun)** - Example: The hotel offers various **accommodation** options to suit different preferences and budgets. **5. Expectation (noun)** - Example: Managing guest **expectations** is crucial for delivering a satisfying hospitality experience.
2  	**1. Itinerary (Noun):** - Example : "Let's explore the **itinerary** of the Thomas Cook tour to Greece; it includes visits to historical landmarks and scenic locations." **2. Brochure (Noun):** - Example : "The tour **brochure** highlights the diverse accommodation options available, ranging from cozy boutique hotels to luxurious resorts." **3. Cuisine (Noun):** - Example : "One of the enticing aspects of the Thomas Cook tour in Turkey is the opportunity to savor authenti Turkish **cuisine** at local restaurants." **4. Landmarks (Noun):** - Example : "The tour brochure showcases iconic **landmarks** such as the Blue Mosque in Istanbul and the ancien ruins of Ephesus in Turkey." **5. Leisure (Adjective):** - Example : "The tour is designed to offer a perfect blend of cultural exploration and **leisure** activities, ensuring memorable experience for participants."
3  	**Steps to present a tour brochure** 1. Introduction to the Destination 2. Understanding the Target Audience 3. Highlighting Key Attractions 4. Detailed Itinerary 5. Cultural and Culinary Experiences 6. Interactive Elements and Multimedia 7. Language Learning Opportunities 8. Promotional Strategies 9. Ensuring Accessibility and Inclusivity 10. Q&A Session and Feedback

Triggers:	AR Suggestions:
	1. Itinerary (noun): - Example: "Before confirming your reservation, carefully review the **itinerary** to ensure all details are accurate 2. Departure (noun): - Example: "The **departure** time for your flight to Paris is scheduled for 2:30 PM." 3. Arrival (noun): - Example: "Upon **arrival** at the destination, passengers are advised to proceed to the baggage claim area." 4. Confirmation (noun): - Example: "After payment, you will receive a **confirmation** email with the details of your booked flights." 5. Seat assignment (noun): - Example: "During the online check-in process, you can choose your preferred **seat assignment** for the journey
	**Steps to present the information in an airplane ticket** 1. Introduction to the Ticket 2. Passenger Details 3. Flight Details 4. Seat Assignment 5. Baggage Allowance 6. Boarding Information 7. Special Services or Requests 8. Contact Information 9. Fare and Payment Details 10. Important Reminders 11. Closure
	1. Boarding Pass: - Example: "Make sure to keep your boarding pass handy; you'll need it to find your seat on the plane." 2. Luggage: - Example: "Please check the weight of your luggage before heading to the airport to avoid any extra charges." 3. Security Check: - Example: "Passengers are advised to arrive early to allow enough time for the security check." 4. Gate: - Example: "Check the information screen for your flight's gate number before proceeding to the boarding area 5. Announcement: - Example: "Listen carefully to the announcements for any updates or changes to your flight schedule."
7 **Tourist destination regions (2006)** Country / Total visitors (million) / % change 06/05 1. France 79.1 4.2 2. Spain 58.5 4.5 3. USA 51.1 3.8 4. China 49.6 6.0 5. Italy 41.1 12.4 6. UK 30.7 9.3 7. Germany 23.6 9.6 8. Mexico 21.4 -2.6 9. Austria 20.3 1.5 10. Russian Federation 20.2 1.5 *Source: World Tourism Organization*	1. Increase: - Example: The number of international tourists **increased** by 10% compared to the previous year. 2. Decrease: - Example: Despite global uncertainties, the hotel occupancy rate **decreased** by 5% in the last quarter. 3. Fluctuate: - Example: The prices of travel packages **fluctuated** throughout the year, impacting consumer choices. 4. Contribute: - Example: Cultural events and festivals **contributed** significantly to the overall growth in tourist arrivals. 5. Account for: - Example: Asia-Pacific countries **accounted for** 30% of the total tourist expenditure in the surveyed perio

Triggers:	AR Suggestions:
	1. Archaeological Site (Noun): - Example: "The **archaeological site** we visited last week provided valuable insights into the ancient civilizatio that once existed there." 2. Historical Artifact (Noun): - Example: "Museums often showcase **historical artifacts**, allowing visitors to connect with the tangible remnants of our past." 3. Cultural Heritage (Noun): - Example: "Preserving our **cultural heritage** is crucial for fostering a sense of identity and understanding amo communities." 4. Architectural Marvel (Noun): - Example: "The ancient temple, with its intricate carvings and towering spires, stands as an **architectural marvel** of a bygone era." 5. Restoration (Noun): - Example: "The ongoing **restoration** of the ancient castle aims to bring back its original grandeur and offer visitors a glimpse into history."
	1. Reservation: - Example: "To secure your spot on the last-minute tour, please make a **reservation** at the front desk or throug our online booking system." 2. Availability: - Example: "Before registering for the last-minute tour, kindly check the **availability** of seats to ensure there ar openings for your preferred date." 3. Excursion: - Example: "The tour itinerary, detailing the schedule and key attractions, will be provided upon successful registration for the last-minute **excursion**." 4. Cancellation Policy: - Example: "Before finalizing your registration, familiarize yourself with the **cancellation policy** to understanc the procedures and potential fees associated with changes." 5. Payment Confirmation: - Example: "Once you complete the registration process, please wait for a **payment confirmation** email containing details on how to settle the tour fees."
	***Example presentation:*** "Today, I will be presenting **different regions** in the United Kingdom, each with its unique **characteristics**. Startin with Scotland, notable for its **historic landmarks** like the Edinburgh Castle. Moving on to **culinary delights**, i coastal areas such as Brighton, you can **savor** the famous British dish, fish and chips. When considerin **accommodation**, the UK offers a variety, from luxury hotels to cozy bed and breakfasts. Exploring England's cultur **heritage**, one cannot ignore its historic buildings and museums. Lastly, in Wales, nature enthusiasts can **immers** themselves in **the breathtaking landscapes** of Snowdonia National Park. These **diverse attractions** make the U an exciting destination for tourists interested in history, **cuisine**, and natural beauty."

Triggers:	AR Suggestions:
	1. Boarding Pass (Noun): - Example: Before joining the long queue, ensure you have your **boarding pass** ready for inspectior 2. Gate (Noun): - Example: Passengers were instructed to proceed to **gate** 5, where a long queue had already formed 3. Security Check (Noun): - Example: The lengthy line at the **security check** moved slowly due to thorough screening procedu 4. Cabin Crew (Noun): - Example: The **cabin crew** efficiently managed the long queue, guiding passengers to their seats. 5. Overhead Bin (Noun): - Example: As passengers entered the plane, they stowed their carry-on luggage in the **overhead bir**
	1. Engage - Ex: Tour guides often need to **engage** with tourists to provide a memorable experience. 2. Describe - Ex: Hotel staff should be able to **describe** various amenities to guests. 3. Interact - Ex: Tourism professionals should be adept at **interacting** with people from diverse cultural backgrounds. 4. Present - Ex: Employees in the hospitality industry may need to **present** information about local attractior 5. Recommend - Ex: Tour operators often **recommend** specific activities or destinations to tourists.

- Students scan the triggers for AR suggestions.
- Teacher walks around and provides support if any student gets difficulties in using Halo AR app to scan the illustrations for supported ideas.
- Teacher asks each group to record a short video clip (3-5 minutes) after working in groups to summarize their ideas to present the illustrations using Halo AR app. (15 minutes)
- Students work in groups and use Halo AR to record a short video clip (3-5 minutes).
- Teacher walks around and checks if there is any technical issues or problems with the video creating using Halo AR app. Teacher provides support and help to students or call for help from the School's IT team when needed.
- Teacher asks each group to upload and link their AR video to their Halo AR collections with their assigned illustrations as triggers.
- Students upload and link their videos to their Halo AR collections.
- Teacher gives each group 2 assessment rubric papers and explains how to use it to evaluate their friends' AR videos.
- Teacher asks all students from each group to use Halo AR app and scan 2 random triggers from 2 other groups;

+ Students then watch the AR videos and give some feedback based on provided assessment rubrics. Each group is randomly assigned 2 illustrations to evaluate 2 AR videos from 2 other groups.

- Teacher walks around and provides support if any group gets difficulties in using Halo AR app to scan and to assess their peers' AR videos.

4. Post-speaking (in-lass) (20 mins):

(Behaviorism + Humanism)

* **Objectives:** This session aims to enhance student's speaking skills, reinforce learned material, and foster a more comprehensive understanding of language usage and communication. Moreover, this session also aims to assess student's familiarity with AR technology (the competency level of using Halo AR app), collect and save the collection for the peer assessment and the AR exhibition at the end of the course.

* **Procedures:**

- Teacher collects peer feedback and assessment papers from students.
- Teacher provides brief feedback to all groups. Then, reinforces the vocabulary and useful phrases.
- Teacher consolidates the definitions of tourism and emphasizes the importance of taking notes on speaking.
- Students review and ask questions about the lesson if any.
- Teacher encourages students to ask questions & answers them if any.
- Teacher asks students to submit their AR video collections on the Halo AR app by sending the links to the class's Facebook group.
- Students upload and send their collections' link to the class's Facebook group.
- Teacher wraps up the session and say goodbye to students. .

5. Session's Objectives Assessment:

During the class, the teacher walks around and checks students' engagement in topic discussion, groupwork, and the note-taking process. Besides, the teacher observes and makes sure students are able to use the Halo AR app to scan for additional support in their speaking practice. If any student has difficulties using AR technology, the teacher will provide support immediately. In the end, the teacher collects 10 AR videos related to tourism from 10 groups for an initial assessment of the students AR technology adaptation in order to adjust or provide better usage of the Halo AR app to enhance their' speaking skills. The successful production of the AR videos is proof that the objectives are met after this session.

LESSON PLAN UNIT 3

I. Lesson Plan Information	
Subject/Course: English for Tourism and Hospitality (ETH)	**Lecturer: Ho Minh Thang**
Unit 3: Hospitality Research	**Class: ETH001**
Skill Focused: Speaking	**Date: .....** **Time: 7:00am**
	Length of Period: 4 periods (200 minutes)

II. Objective (s)

At the end of this lesson, students will be able to:

1. Identify and describe various hospitality services and their importance in the tourism industry.
2. Engage in role-playing activities to simulate customer service interactions, using appropriate expressions and professional language.
3. Apply the Halo AR app to practice and improve their customer service skills in realistic, immersive scenarios.
4. Reflect on their performance and receive constructive feedback to enhance their communicative competence and problem-solving skills.
5. Build confidence in handling diverse customer service situations through repeated practice and interactive learning.

III. Teaching Materials

1. Visual aids
2. Textbook, blank paper
3. Projector
4. Laptop, Mobile phones
5. Speaker, microphones, headphones
6. Whiteboard and markers

1. Leads-in (in-lass) (20 minutes):

* **Objectives:** This session is to help students learn how to correctly make stress within words related to tourism and hospitality, ask for needed information, as well as use the provided information sources to communicate with their peers.

* **Procedures:**

- Teacher provides an overview of Unit 3, "Hospitality Research," and asks students to open their course book to page 22 or follow the screen.
- Teacher greets students and introduces the topic by asking questions like, "Have you ever stayed at a hotel or dined at a restaurant where communication was key to your experience?" or "Can you share a memorable communication issue in hospitality?" and show the questions on the screen.
- Students discuss these questions with a partner or in small groups, sharing personal experiences and identifying where communication played a significant role.
- Teacher invites pairs/groups to share their thoughts with the class and records key insights on the board. Provides feedback to ensure understanding and encourages creativity in communication.
- Students participate in a class-wide discussion, sharing group insights while listening to others' contributions and noting important points.
- Teacher introduces a list of hospitality-related vocabulary and directs students to scan triggers in the Halo AR app to access The video about Market Research in Hospitality from **https://study.com/academy/lesson/video/market-research-in-hospitality-examples-impact.html**

Trigger:	**AR suggestion**
	The video about Market Research in Hospitality from https://study.com/academy/lesson/video/market-research-in-hospitality-examples-impact.html

- Students use the app to watch the video, noting down the main ideas for the topic Hospitality Research in their groups
- Teacher asks pairs/groups to discuss and share the key ideas from the video.

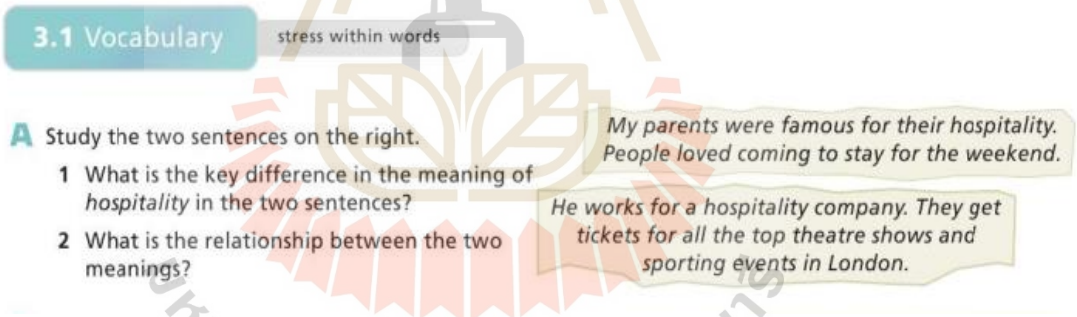
- Teacher emphasizes the importance of understanding stress patterns for effective communication and sets the stage for the pre-speaking tasks by outlining the objectives for Unit 3.
- Students listen attentively, note down unit objectives, and prepare for upcoming activities.

2. Pre-speaking (in-lass) (45 minutes):

* **Objectives:** This session helps students guess meanings of words in context and practice them within specific contexts; enhance their vocabulary and grammar skills; engage them in practicing discussing the topic and making reports. Moreover, this session engages students in practicing using AR technology to improve their speaking skills.

* **Procedures:**

- Teacher introduces Unit 3: Hospitality Research & then ask student to open their course book on page 22 or look at the screen.
- Teacher asks students to do Task A (3.1) in 5 minutes: study the 2 sentences and differentiate the meanings of the word "hospitality" in those 2 sentences.


3.1 Vocabulary stress within words

A Study the two sentences on the right.

1 What is the key difference in the meaning of *hospitality* in the two sentences?

2 What is the relationship between the two meanings?

My parents were famous for their hospitality. People loved coming to stay for the weekend.

He works for a hospitality company. They get tickets for all the top theatre shows and sporting events in London.

The teacher then shows the questions on the screen with PowerPoint Slides. After 5 minutes, the teacher asks for 1 student to volunteer to answer the questions.

- Students raise their hands to volunteer answering the questions.
- Teacher picks up 1 volunteer or 1 random student (if no volunteer) to answer the questions.

(Expected answer: Uhm... I don't know.

Corrected answer: I think in the first sentence, the word 'hospitality" means friendly and courteous treatment from the parents. In the second sentence, it means the reception and entertainment for guests from a company.)

- Teacher asks students to use their smartphones, to open the Halo AR app to scan 2 triggers to learn the 2 meanings of the word “hospitality” (The triggers are from teacher’s collections).

Trigger:	AR suggestion
	**the act of being friendly and welcoming to guests and visitors:** • *The local people showed me great hospitality.*
	**the work or business of providing food and drink, entertainment, hotels, etc. fo customers:** • *I worked in hospitality for many years, including a busy hotel in Wellington.* • *Jobs in the leisure and hospitality sector will continue to grow.*

- Students use their smartphones, to open the Halo AR app to scan 2 triggers to learn the 2 meanings of the word “hospitality”.
- Teacher asks students to work in pairs and do task D (3.1) in 10 minutes:

D Study the words in the blue box.

1 What is the relationship between all the words?
2 Can you see four logical groups?
3 Check your ideas with Figure 2 on the opposite page.
4 Where is the main stress in each multi-syllable word?

aeroplane airport bar
casino cinema hospital
office prison restaurant
school theme park train

- Students work in pairs and discuss the answers together.
- Teacher walks around and provides support if any student gets difficulties in using Halo AR app.
- After 10 minutes, the teacher asks for 1 student to volunteer to answer the question 1, 2 and 3.
- Students raise their hands to volunteer answering the questions.
- Teacher picks up 1 volunteer or 1 random student (if no volunteer) to answer the questions.

(Expected answer: 1. They are all about the hospitality industry.

2. yes, I can. Thanks to Figure 2

4. (Correct stress)

- Teacher asks another student from other pairs to feedback and add more corrected answers if possible, for question 4.
- Teacher asks students to use their smartphones, to open the Halo AR app to scan a trigger to learn the stress for each word in the box. (The triggers are from teacher's collections).

Trigger:	AR suggestion
aeroplane airport bar casino cinema hospital office prison restaurant school theme park train	The audio pronunciation of the words in the box

- Students apply the Halo AR app to learn the stress of the words in the box and practice repeating the pronunciation of the words correctly.
- Teacher asks students to do Task A & B (3.3) in 10 minutes, utilizing Halo AR app.

A Listen to some stressed syllables. Identify the word below in each case. Number each word.

Example:

You hear: *1 da* /deɪ/ You write:

accommodate ___	consume ___	industry ___
accommodation *1*	entertainment ___	investment ___
association ___	equipment ___	purchase ___
casino ___	facilities ___	subsidized ___

B Where is the main stress in each multi-syllable word in Exercise A?

1 Mark the main stress.

2 Practise saying each word.

- Students use Halo AR app to scan a trigger for the audio of those words in task A, practice marking the main stress and saying each word.

Trigger:	AR suggestion
	The audio of the vocabularies

- After 10 minutes, the teacher asks for 1 student to volunteer to read out loud all the words in task A.
- Students raise their hands to volunteer to read out loud all the words in task A.
- Teacher picks up 1 volunteer or 1 random student (if no volunteer).
- Teacher gives feedback and corrects the wrong stress if any.
- Teacher asks students to practice all the vocabulary from Task A, D (3.1); A, B (3.3) by using Halo AR app to record a 1-minute talk about related topics applying as many newly-learnt vocabulary as possible. (in 10 minutes)
- Students practice using Halo AR app to record a 1-minute talk about related topics applying as many newly-learnt vocabulary as possible. (in 10 minutes)
- Teacher walks around and provides support if any student gets difficulties in using Halo AR app to make the 1-minute videos.
- When students finish recording, teacher asks them to upload and add their 1-minute videos into their collections in Halo AR app.
- Students upload their videos in their collections and name their videos with their full names.
- Teacher shows 2 random AR videos of the students and gives feedback.
- Teacher announces a short break (10 minutes) for the whole class.

3. While-speaking (in-lass) (70 minutes):

* **Objectives**: This session enables students to practice speaking using the vocabulary and helpful phrases they've acquired; to practice their speaking skills and critical thinking through peer assessment. Besides, this also engages students in AR technology to improve their speaking skills by creating the AR video collections for peer feedback and corrections (when needed). Last, this session creates an immersive and personalized peer feedback and assessment via AR technology.

* **Procedures:**

- Teacher asks students to do task C (3.3) in pairs or groups, in 15 minutes.

A Listen to some stressed syllables. Identify the word below in each case. Number each word.

Example:

You hear: *1 da* /deɪ/ You write:

accommodate	___	consume	___	industry	___
accommodation	1	entertainment	___	investment	___
association	___	equipment	___	purchase	___
casino	___	facilities	___	subsidized	___

B Where is the main stress in each multi-syllable word in Exercise A?

1 Mark the main stress.

2 Practise saying each word.

C Work in pairs or groups. Define one of the words in Exercise A. The other student(s) must find and say the correct word.

- Students can use Halo AR app to scan the trigger for the definitions of those words. (The triggers are from teacher's collection)

Trigger:	AR suggestion
	1. **Accommodate**: To provide lodging or space for someone; to fit in with the needs or desires of others. 2. **Association**: A group of people organized for a particular purpose; a connection or relationship between things. 3. **Casino**: A facility or establishment where gambling activities, such as table games and slot machines, are conducted. 4. **Consume**: To use up or expend something, such as food, energy, or resources; to engage in the act of eating or drinking. 5. **Entertainment**: Activities or performances designed to amuse, entertain, or engage an audience, such as movies, concerts, or games. 6. **Equipment**: Tools, machinery, or other items needed for a particular purpose or activity; the gear or apparatus required for a task or operation. 7. **Facilities**: Buildings, structures, or amenities provided for a specific purpose or use, such as sports facilities, recreational facilities, or educational facilities. 8. **Industry**: A particular branch or sector of economic activity, typically characterized by the production of goods or services; the collective businesses and organizations involved in a specific field or sector. 9. **Investment**: The act of putting money, time, or resources into something with the expectation of achieving a profitable return or benefit in the future; the purchase or acquisition of assets or securities for income or appreciation. 10. **Purchase**: The act of buying or acquiring something by paying money for it; the item or goods that have been bought. 11. **Subsidize**: To provide financial assistance or support, typically from the government or another organization, to reduce the cost of something or to promote its production or consumption.

- Teacher walks around and provides support if any student gets difficulties in using Halo AR app or doing the task.
- Teacher asks students to do task F (3.4) using the Halo AR app in 10 minutes:

F Imagine you had to report this lecture to a student who was absent.

1 Study the transcript on pages 115–117. Find and underline or highlight key sections of the lecture.

2 Find and underline key sentences from the lecture.

3 Make sure you can say the sentences with good pronunciation.

4 Compare your ideas in groups.

- Students use Halo AR app to scan a trigger for the transcripts' audio and learn to say their own key sentences with good pronunciation.

Trigger:	**AR suggestion**
	**The audio of the transcript**

- After 10 minutes, the teacher asks for 1 student to volunteer to read out loud their key sentences of the transcript.
- Students raise their hands to volunteer to read out loud their key sentences of the transcript.
- Teacher picks up 1 volunteer or 1 random student (if no volunteer).
- Teacher asks another student from other pairs to feedback and add corrected answers if possible.
- Teacher organizes students into groups of 3 or 4 to take turns reporting the lecture to their groups. Students must use their own language and are advised to use the vocabulary they learnt from Unit 3 (15 mins)
- Students slowly and carefully review the vocabulary of Unit 3.
- Teacher asks each group to scan the trigger for the necessary vocabulary for the reporting using the Halo AR app to brainstorm and build up their ideas.
- Teacher walks around and provides support if any student gets difficulties in using Halo AR app to scan the trigger for supported vocabulary and language.
- Teacher asks each group to record a short video clip (3-5 minutes) after working in groups to summarize their ideas to report the lecture using Halo AR app. (15 minutes)
- Students work in groups and use Halo AR to record a short video clip (3-5 minutes).
- Teacher walks around and checks if there is any technical issues or problems with the video creating using Halo AR app. Teacher provides support and help to students or call for help from the School's IT team when needed.
- Teacher asks each group to upload and link their AR video to their Halo AR collections with their assigned illustrations as triggers.
- Students upload and link their videos to their Halo AR collections.
- Teacher gives each group 2 assessment rubric papers and explains how to use it to evaluate their friends' AR videos.

- Teacher asks all students from each group to use Halo AR app and scan 2 random triggers from 2 other groups.

+ Students then watch the AR videos and give some feedback based on provided assessment rubrics. Each group is randomly assigned 2 illustrations to evaluate 2 AR videos from 2 other groups.

- Teacher walks around and provides support if any group gets difficulties in using Halo AR app to scan and to assess their peers' AR videos.

4. Post-speaking (in-lass) (20 mins):

* **Objectives:** This session aims to enhance student's speaking skills, reinforce learned material, and foster a more comprehensive understanding of language usage and communication. Moreover, this session also aims to assess student's familiarity with AR technology (the competency level of using Halo AR app), collect and save the collection for the peer assessment and the AR exhibition at the end of the course.

* **Procedures:**

- Teacher collects peer feedback and assessment papers from students.
- Teacher provides brief feedback to all groups. Then, reinforces the vocabulary and useful phrases.
- Teacher consolidates the definitions of tourism and emphasizes the importance of taking notes on speaking.
- Students review and ask questions about the lesson if any.
- Teacher encourages students to ask questions & answers them if any.
- Teacher asks students to submit their AR video collections on the Halo AR app by sending the links to the class's Facebook group.
- Students upload and send their collections' link to the class's Facebook group.
- Teacher wraps up the session and say goodbye to students.

5. Session's Objectives Assessment:

During the class, the teacher walks around and checks students' engagement in topic discussion, groupwork, and the note-taking process. Besides, the teacher observes and makes sure students are able to use the Halo AR app to scan for additional support in their speaking practice. If any student has difficulties using AR technology, the teacher will provide support immediately. In the end, the teacher collects 12 AR videos related to tourism from 12 groups for an initial assessment of the students AR technology adaptation in order to adjust or provide better usage of the Halo AR app

to enhance their' speaking skills. The successful production of the AR videos with the teacher's instructions is proof that the objectives are met after this session.

LESSON PLAN UNIT 5

I. Lesson Plan Information	
Subject/Course: English for Tourism and Hospitality (ETH)	**Lecturer: Ho Minh Thang**
Unit 5: Tourism Marketing	**Class: ETH001**
Skill Focused: Speaking	**Date:** ..... **Time: 7:00am**
	Length of Period: 4 periods (200 minutes)

II. Objective (s)

At the end of this lesson, students will be able to:

1. Understand and explain key marketing concepts and strategies within the tourism industry.
2. Develop and present persuasive marketing pitches for tourism-related products and services.
3. Utilize the Halo AR app to create engaging marketing materials that incorporate augmented reality elements.
4. Critically evaluate marketing strategies and provide feedback on peer presentations to enhance learning.
5. Build confidence in public speaking and persuasive communication through structured practice and interactive activities.

III. Teaching Materials

1. Visual aids
2. Textbook, blank paper
3. Projector
4. Laptop, Mobile phones
5. Speaker, microphones, headphones
6. Whiteboard and markers

1. Leads-in (in-lass) (20 minutes):

Objectives:

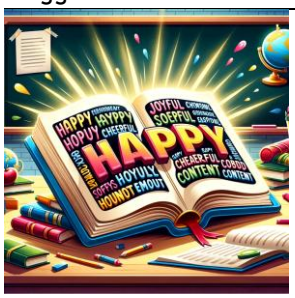
- To activate prior knowledge related to vocabulary in the context of tourism marketing.
- To introduce the concepts of synonyms and antonyms as tools for varied and precise language use in marketing.

Procedures:

- Teacher introduces Unit 5: Tourism Marketing & then ask student to open their course book on page 38 or look at the screen.

Lead-In Activity: "Marketing Word Swap"

- Teacher greets the students and briefly introduces the topic of tourism marketing, then explains the importance of using varied vocabulary in marketing to make content engaging and effective.
- Teacher asks students to brainstorm and share words they might associate with "tourism marketing" (e.g., advertise, promote, attract). Write these on the whiteboard.
- Students actively participate by suggesting words related to tourism marketing.
- Teacher asks students to define synonyms and antonyms, providing examples from the brainstormed list.
- Teacher asks students to use Halo AR apps to scan the triggers and listen to the definition of synonyms and antonyms, then asks students to volunteer to speak out loud their answers.
- Students use Halo AR apps to scan the 2 triggers and listen to the definition of synonyms and antonyms, then volunteer to speak out loud their answers.

Trigger:	AR suggestion
	The audio of the definition of “synonyms”

Trigger:		AR suggestion
	➡	The audio of the definition of "antonyms"

- Teacher walks around and provides support if any student has difficulties in using Halo AR app.
- Students volunteer to answer and give their own definitions of synonyms and antonyms.
- Teacher explains how synonyms and antonyms can help in creating more dynamic and precise marketing messages.
- Teacher ask students to work in pairs and do the tasks B and D in the course book on page 38. The tasks contain a list of key vocabulary terms from the unit along with a column for synonyms and a column for antonyms.

B Study the words in box a.

1 Make pairs with similar meanings.

2 What part of speech is each word?

a

activity advertising aim business buy company consumer customer main meet needs principal promotion purchase requirements retail outlet satisfy shop target task

D Study the words in box b.

1 Find pairs of opposites.

2 Add more words to make a set.

3 Give a name to each word set.

b

careful conventional elderly female impulsive low-income male manual married professional single trendy wealthy young

- Students works in pairs to think of synonyms and antonyms for each term, then write their ideas on their notebook.
- Teacher asks 2 students to volunteer to show their answers by speaking out loud pairs of synonyms and antonyms.
- Students volunteer to show their answers.

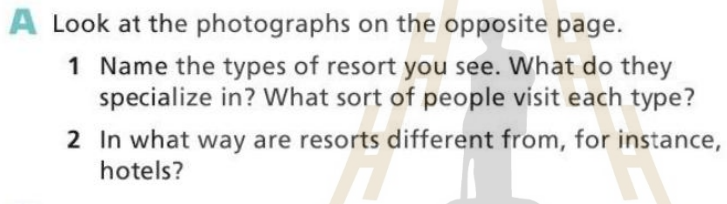
- Teacher gives feedback and corrects the answers if necessary.
- Teacher wraps up the activity by highlighting a few excellent examples of synonyms and antonyms.

2. Pre-speaking (in-lass) (40 minutes):

Objectives: This session helps students guess meanings of words in context and practice them within specific contexts; enhance their vocabulary and grammar skills; engage them in practicing talking about the topic and making reports. Moreover, this session engages students in practicing using AR technology to improve their speaking skills.

Procedures:

- Teacher asks students to do Task A (5.1) in 5 minutes: brainstorm and collect some information to answer the 2 questions:



A Look at the photographs on the opposite page.

1 Name the types of resort you see. What do they specialize in? What sort of people visit each type?

2 In what way are resorts different from, for instance, hotels?

The teacher then shows the questions on the screen with PowerPoint Slides. After 5 minutes, the teacher asks for 1 student to volunteer to answer the questions.

- Students raise their hands to volunteer answering the questions.
- Teacher picks up 1 volunteer or 1 random student (if no volunteer) to answer the questions.

(Expected answers: mountain, lake, snow, beach, sea.... resorts.

Corrected answers:

1. Lake Resorts: Found near lakes, these resorts specialize in water activities such as fishing, boating, and swimming. They are great for relaxing and enjoying peaceful views of the water.
2. Spa Resorts: Spa resorts specialize in health and relaxation treatments. They offer services like massages, facials, and body treatments designed to rejuvenate the mind and body. These resorts often include wellness programs such as yoga and meditation, and they might also provide nutritional guidance. Spa resorts are ideal for guests looking to unwind and indulge in self-care in a serene environment, often featuring luxurious amenities and tranquil settings.

3. Snow Resorts: Also known as ski resorts, these are usually in cold places where snow is common. They specialize in winter sports like skiing, snowboarding, and snowmobiling. People go there to enjoy the snow and cold weather activities.
4. Mountain Resorts: These resorts are located in mountainous areas. They are perfect for people who enjoy hiking, mountain biking, and, in the winter, skiing and snowboarding. The scenery includes tall mountains and often, beautiful forests.
5. Beach Resorts: Located along the coast by the sea, beach resorts are perfect for those who love swimming, sunbathing, and water sports like surfing or jet skiing. They offer beautiful views of the ocean and sandy beaches.
6. Island Resorts: These resorts are located on islands and are perfect for those looking for a secluded getaway. Island resorts often offer a mix of activities similar to both beach and sea resorts, with opportunities for swimming, snorkeling, and relaxing on beautiful beaches. They also provide a chance to explore the unique flora and fauna of the island, making them ideal for nature lovers and those seeking tranquility away from the busier mainland.

- Teacher asks students to use their smartphones, to open the Halo AR app to scan 1 of 6 triggers to listen to the suggested answer and the video of the type of resorts they choose to explore.

Trigger:	AR suggestion
	The audio and video of the lake resorts
	The audio and video of the spa resorts

Trigger:	AR suggestion
	The audio and video of the snow resorts
	The audio and video of the forest resorts
	The audio and video of the beach resorts
	The audio and video of the island resorts

- Students use their smartphones, to open the Halo AR app to scan 1 or more triggers to listen and to learn about different types of resorts.
- Teacher walks around and provides support if any student has difficulties in using Halo AR app.
- The teacher then shows the questions on the screen with PowerPoint Slides again, then asks for 2 students to volunteer to answer the questions again.
- Students raise their hands to volunteer answering the questions.
- Teacher picks up 1 volunteer and 1 random student to answer the questions.
- Teacher gives feedback and comments to the students' answers.

3. While-speaking (in-lass) (90 minutes):

Objectives: This session enables students to practice speaking using the vocabulary and helpful phrases they have acquired; to practice their speaking skills and critical thinking through peer assessment. Besides, this also engages students in AR technology to improve their speaking skills by creating the AR video collections for peer feedback and corrections (when needed). Last, this session creates an immersive and personalized peer feedback and assessment via AR technology.

Procedures:

ACTIVITY 1: 15 minutes

- Teacher asks students to work in pairs and do task E (5.1) in 15 minutes:

E Work with a partner.

1 Choose a resort on the opposite page. Describe its target market. Use words from box b and others.

2 Your partner should guess which resort you are talking about.

- Students work in pairs and describe their chosen resort to their partners.
- After 10 minutes, the teacher asks for 2 random students to volunteer to practice the activity in front of the class.
- Students raise their hands to volunteer practice describing their chosen resort to a new random partner.
- Teacher asks another student from other pairs to feedback and add more descriptions if possible.

ACTIVITY 2: 25 minutes

- Teacher gives each pair of students a worksheet below to do this additional task:

Types of resorts	Target markets
Lake resorts	
Spa resorts	
Snow resorts	
Forest resorts	
Beach resorts	
Island resorts	

- Teacher asks students to use their smartphones, to open the Halo AR app to scan the trigger of their chosen resort to listen again to the suggested answer for the type of resorts and its target market.

Trigger:	AR suggestion
	The audio of the recordings

- Students use their smartphones to open the Halo AR app to scan the trigger to listen to the type of resorts and its target market.
- Teacher walks around and provides support if any student has difficulties in using Halo AR app.
- After 15 minutes, the teacher asks for 2 random students to volunteer to practice talking about a type of resort and its target market in front of the class.
- Students raise their hands to volunteer practice talking about a type of resort and its target market in front of the class.
- Teacher gives feedback and comments on the students' talks with the suggested answers below:

Types of resorts	Target markets
Lake resorts	Families, nature enthusiasts, retirees
Spa resorts	Health and wellness seekers, couples, corporate groups
Snow resorts	Winter sports enthusiasts, families, travelers from warm areas
Forest resorts	Eco-tourists, adventure seekers, families
Beach resorts	Families, young adults, honeymooners, couples
Island resorts	Luxury travelers, honeymooners, adventure seekers

- Teacher announces a short break (10 minutes) for the whole class.

ACTIVITY 3: 25 minutes

- Teacher asks students to work in pairs & introduces the activity as below:

Problem-Solving Simulation

Objective: Develop problem-solving and critical thinking skills in an event context.

- Teacher introduces the scenario: An unexpected issue arises during a music festival.
- Teacher asks students to choose one of the 2 roles:
  + Organizer: Responsible for overall event coordination.
  + Vendor: Manages food and beverage stalls.
- Teacher gives clear instructions for the students to discuss potential solutions, considering the impact on attendees, vendors, and performers.
- Students must come up with a plan to resolve the issue and ensure the event continues smoothly.
- Teacher asks students to use Halo AR to scan the trigger for the example dialogue and students can navigate the virtual environment while discussing solutions, using language to describe what they see and suggest actions based on the simulated context:

Example Dialogue:

- Organizer: "We've just lost power. The main stage and food stalls are affected. How can we manage this without disappointing the attendees?"
- Vendor: "We could use portable generators for the stalls. Meanwhile, we should inform the guests and keep them engaged with acoustic performances."
- After 15 minutes, the teacher asks for 2 random students to volunteer to practice talking about the solutions in front of the class.
- Students raise their hands to volunteer practice talking about the figure in front of the class.
- Teacher gives feedback and comments on the students' speaking skills and corrects the trends in the figure if necessary.

- Teacher asks students to practice all the vocabulary from Task A, E (5.1); C, D (5.3) by using Halo AR app to record a 1-minute talk about the figure applying as many newly learnt vocabularies as possible. (in 10 minutes)
- Students practice using Halo AR app to record a 1-minute talk about the figure applying as many newly learnt vocabularies as possible.
- Teacher walks around and provides support if any student has difficulties in using Halo AR app to make the 1-minute videos.
- When students finish recording, the teacher asks them to upload and add their 1-minute videos into their collections in Halo AR app.
- Students upload their videos in their collections and name their videos with their full names.
- Teacher shows 2 random AR videos of the students and gives feedback.

ACTIVITY 4: 15 minutes

- Teacher ask students to do task E (5.4) on page 42 in 10 minutes.

E Work in groups.

1 Study the golf product group on the opposite page.

2 Discuss how you put these products on a market map. Make sure you can justify your decision.

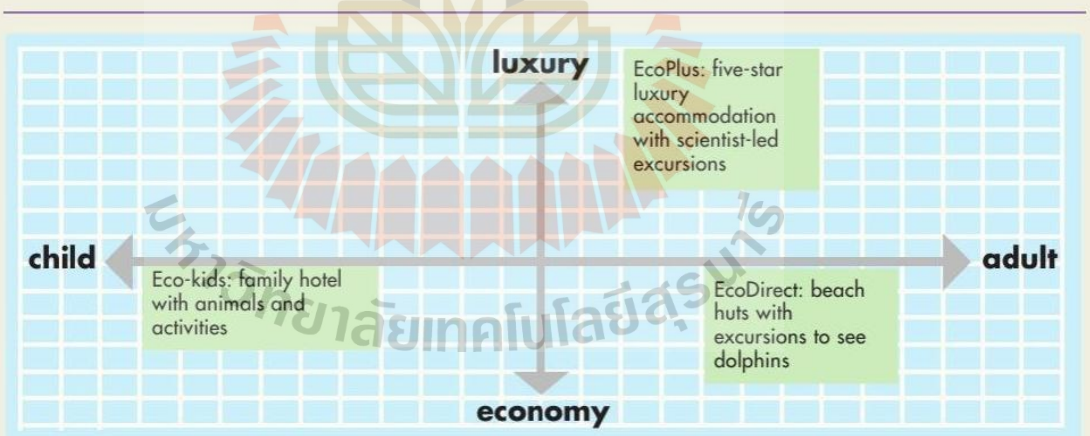
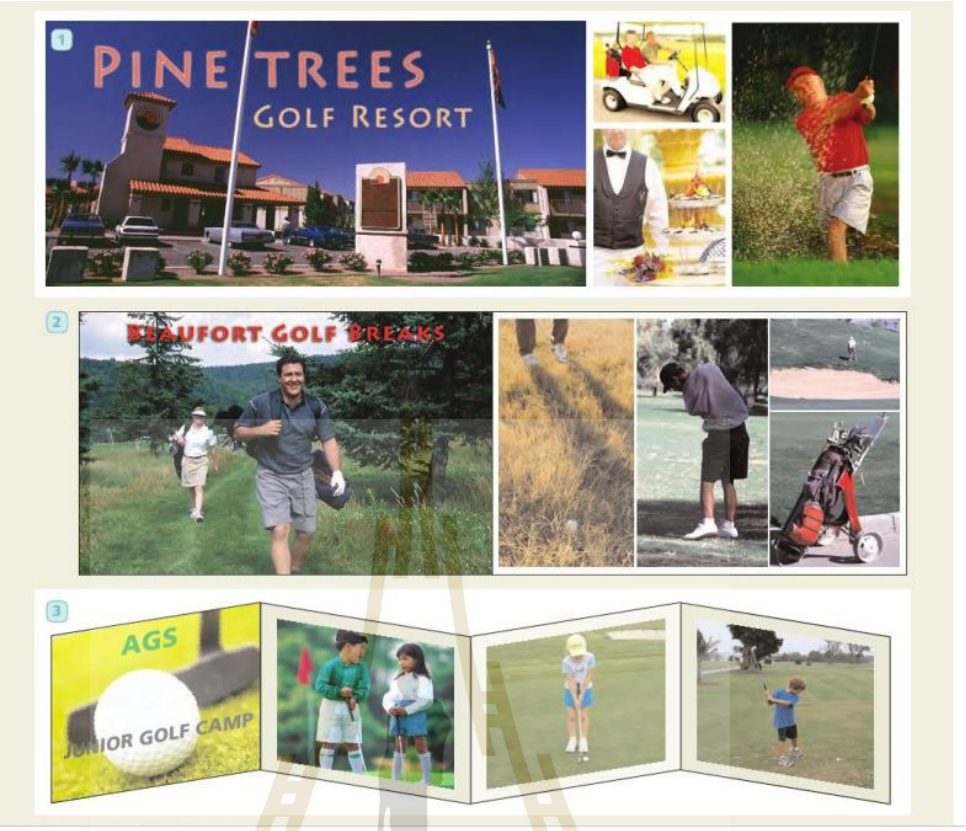


Figure 1: *Market map for eco-resorts*



- Students work in groups with their neighbors to do the assigned task.
- After 10 minutes, the teacher asks for 2 random students to volunteer to practice talking about their groups' choices with explanation in front of the class.
- Students raise their hands to volunteer practice talking about their groups' choices with explanation in front of the class.
- Teacher gives feedback and comments on the students' speaking skills and corrects the answers if necessary. (with answers below:

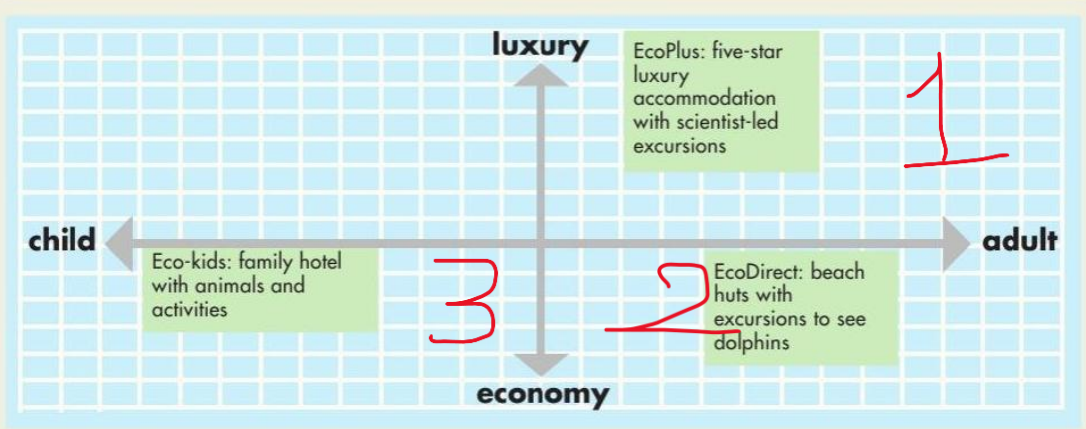


Figure 1: *Market map for eco-resorts*

- Teacher asks students to practice all the vocabulary from Task A, D (3.1); A, B (3.3) by using Halo AR app to record a 1-minute talk about related topics applying as many newly learnt vocabularies as possible. (in 10 minutes)
- Students practice using Halo AR app to record a 1-minute talk about related topics applying as many newly learnt vocabularies as possible. (in 10 minutes)
- Teacher walks around and provides support if any student has difficulties in using Halo AR app to make the 1-minute videos.
- When students finish recording, the teacher asks them to upload and add their 1-minute videos into their collections in Halo AR app.
- Students upload their videos in their collections and name their videos with their full names.
- Teacher shows 2 random AR videos of the students and gives feedback.

4. Post-speaking (in-lass) (40 mins):

Objectives: This session aims to enhance student's speaking skills, reinforce learned material, and foster a more comprehensive understanding of language usage and communication. Moreover, this session also aims to assess student's familiarity with AR technology (the competency level of using Halo AR app), collect and save the collection for the peer assessment and the AR exhibition at the end of the course.

Procedures:

- Teacher organizes students into groups of 3 or 4 to take turns reporting the lecture to their groups. Students have to use their own language and are advised to use the vocabulary they learnt from Unit 5 (10 mins)
- Students slowly and carefully review the vocabulary of Unit 5.
- Teacher asks each group to scan the trigger for the necessary vocabulary for the reporting using the Halo AR app to brainstorm and build up their ideas.
- Teacher walks around and provides support if any student has difficulties in using Halo AR app to scan the trigger for supported vocabulary and language.
- Teacher asks each group to record a short video clip (3-5 minutes) after working in groups to summarize their ideas to report the lecture using Halo AR app. (15 minutes)
- Students work in groups and use Halo AR to record a short video clip (3-5 minutes).
- Teacher walks around and checks if there is any technical issues or problems with the video creating using Halo AR app. Teacher provides support and help to students or call for help from the School's IT team when needed.

- Teacher asks each group to upload and link their AR video to their Halo AR collections with their assigned illustrations as triggers.
- Students upload and link their videos to their Halo AR collections.
- Teacher gives each group 2 assessment rubric papers and explains how to use it to evaluate their friends' AR videos.
- Teacher asks all students from each group to use Halo AR app and scan 2 random triggers from 2 other groups.

+ Students then watch the AR videos and give some feedback based on provided assessment rubrics. Each group is randomly assigned 2 illustrations to evaluate 2 AR videos from 2 other groups.

- Teacher walks around and provides support if any group has difficulties in using Halo AR app to scan and to assess their peers' AR videos.
- Teacher collects peer feedback and assessment papers from students.
- Teacher provides brief feedback to all groups. Then, reinforces the vocabulary and useful phrases.
- Teacher consolidates the definitions of tourism and emphasizes the importance of taking notes on speaking.
- Students review and ask questions about the lesson if any.
- Teacher encourages students to ask questions & answers them if any.
- Teacher asks students to submit their AR video collections on the Halo AR app by sending the links to the class's Facebook group.
- Students upload and send their collections' link to the class's Facebook group.
- The teacher wraps up the session and say goodbye to students.

5. Session's Objectives Assessment:

During the class, the teacher walks around and checks students' engagement in topic discussion, groupwork, and the note-taking process. Besides, the teacher observes and makes sure students are able to use the Halo AR app to scan for additional support in their speaking practice. If any student has difficulties using AR technology, the teacher will provide support immediately. In the end, the teacher collects all AR videos related to tourism from all groups for an initial assessment of the students AR technology adaptation in order to adjust or provide better usage of the Halo AR app to enhance their' speaking skills. The successful production of the AR videos with the teacher's instructions is proof that the objectives are met after this session.

APPENDIX H

The Informed Consent Form of the study "The Effects of the AR technology lessons on Vietnamese EFL Undergraduate Students' Speaking Skills in English for Tourism and Hospitality."

INFORMED CONSENT FORM

- Investigator: Ho Minh Thang, MA in TESOL
- School of Foreign Languages, Suranaree University of Technology, Thailand

I. Introduction

You are invited to participate in an AR-based project, a research study that aims to explore the impact of Augmented Reality (AR) technology on English as a Foreign Language (EFL) students' speaking skills in an English for Tourism and Hospitality course. The study will involve using AR applications, specifically "Halo," to learn in the course of English for Tourism and Hospitality during a 9-week course. You will be provided and supported with all necessary requirements for the course from the researcher and your institutions.

II. Purpose:

The purpose of this study is to investigate the effects of AR technology on your speaking skills and to understand your perceptions of this approach in the course of English for Tourism and Hospitality as an English for Specific Purposes (ESP) context.

III. Procedures:

If you agree to participate, you will be asked to:

1. Take the training of applying AR technology in your English Language Learning (1 session)
2. Learn the course of ETH with Halo AR app on your smartphones in all classes.
3. Join the Pre- and Post - Speaking tests in the format of IELTS Speaking Tests.
4. Complete the Pre- and Post- questionnaires to provide your feedback and opinions about the AR technology.
5. Participate in a focus group interview to provide your perceptions of applying AR technology in language learning.

IV. Risks and Benefits:

Participation in this study involves minimal risks, such as the time commitment required for the course and research-related activities. However, potential benefits include improved speaking skills and the opportunity to contribute to educational research. The research findings will be shared with you in the end of the study.

V. Confidentiality:

Your responses and personal information will be kept confidential. Your data will be anonymized, and only the research team will have access to it.

VI. Voluntary Participation:

Participation in this study is entirely voluntary. You may choose not to participate or withdraw at any time without any consequences.

VII. Questions and Contact Information:

If you have any questions or concerns about the study, you may contact the investigator, Ho Minh Thang, at +84 935175984 (Zalo, Whatapps, Line), thangemtoi@ueh.edu.vn or the faculty advisor, Dr. Suksan Suppasetseree at suksan@sut.ac.th

VIII. Consent:

I have read and understood the information provided in this Informed Consent Form. I agree to participate in the research study titled " **The Effects of the AR technology on Vietnamese EFL Undergraduate Students' Speaking Skills in English for Tourism and Hospitality."**

Participant's Name: _____

Participant's Signature: _____

Date: _____

---THE END---

APPENDIX I

The Transcribed & Translated Scripts of the Focus Group Interview in the pilot study "The Effects of AR Technology Lessons on Vietnamese EFL Undergraduate Students' Speaking Skills in English for Tourism and Hospitality."

Moderator:

Good morning, everyone! Thank you for joining us today for this focus group discussion. My name is Thang, and I'll be facilitating our session today. This focus group is part of a research study aimed at understanding how Augmented Reality, or AR, technology has impacted your learning experience in the English for Tourism and Hospitality course.

Before we begin, please ensure that you have all signed the consent form that was sent to you. This form covers your participation today and the recording of this session for research purposes. Everything discussed today will remain confidential and be used solely for academic research. Does anyone have any questions before we proceed?

Moderator:

Let's go over some quick ground rules to ensure our discussion is productive and respectful:

1. Please allow one person to speak at a time.
2. Feel free to share openly; there are no right or wrong answers here.
3. If you agree or disagree with something, please explain why, as detailed responses are very helpful.

Are we all okay with these guidelines?

Moderator: " We're here to chat about how you've been getting on with the AR technology in our English for Tourism and Hospitality course. Let's dive right in and kick things off with our first question."

Moderator: "Can we start off by hearing about your overall experience with the AR technology in this course? What did it feel like jumping into this new way of learning?"

Participant 1: "Uhm...I found it quite innovative. It made learning more interactive and engaging compared to traditional methods. Being able to interact with virtual environments felt like stepping into a new world of learning."

Participant 2: "Initially, I was a bit overwhelmed with the technology, but once I got the hang of it, it was really exciting. It's a unique way to learn that captures your interest much more than just reading a textbook."

Participant 3: "To me, it was a fresh approach. I felt like I was actually in a tourist spot, practicing real-life conversations. The realism added by the AR environment helped bridge the gap between theory and practice."

Moderator: "Cool, moving on-how comfy were you guys with using the AR tech? Was it a smooth ride, or were there some bumps along the way?"

Participant 4: "Yes, after a few sessions, it became quite intuitive. The hands-on experience helped build my confidence, especially since the interface was user-friendly and the instructions were clear."

Participant 5: "Hmm...I struggled a bit. I'm not very tech-savvy, but with support from peers, I managed to improve. Once I became familiar with the scanning process, it became more enjoyable."

Participant 6: "Yeah.... In my opinion, it's very comfortable. It's similar to playing a video game, which I enjoy, so I adapted quickly. The interactive element made it much more engaging than traditional learning methods."

Moderator: "Right, let's talk specifics about speaking skills now. How did using the AR tech, especially with the scanning triggers for audios and videos, help you guys improve your English in the context of Tourism and Hospitality?"

Participant 7: "Uhh....The scanning triggers are fantastic. They allow us to access audio and video that simulate real-world interactions. For example, listening to a customer complaint through an audio clip and then practicing responding appropriately was hugely beneficial."

Participant 8: "Yeah.....Using the videos helped me visualize real-life scenarios better. Watching a dialogue between a hotel manager and a guest, and then acting it out, really improved my conversational skills."

Participant 9: "For me, the opportunity to hear native speakers through these audio triggers and then practice with the video examples helped me improve my pronunciation and fluency. It was like having a tutor right there in the moment."

Moderator: "Alrighty, let's hear some standout moments or specific examples where AR tech really took your learning to another level during the course. Any particular 'wow' moments?"

Participant 10: "Wow' moments? ... uhm.... One memorable module had us scan a code to watch a video of a tour guide explaining a historical site. After the video, I had to record myself giving the tour in English. It was an immersive way to learn and apply vocabulary specific to my field."

Participant 1: "Yeah... The immersed landscapes were breathtaking. For instance, taking a photo with the immersive background of Ha Long Bay and then describing it in English to the group helped solidify my descriptive language skills."

Moderator: "It sounds like those experiences really brought the material to life. Awesome stuff! Now, shifting gears a bit-"

Moderator: "Every new tech comes with its own set of hurdles. What challenges did you face while using the AR technology, and how did you overcome them? Did these challenges impact your learning in any way?"

Participant 2: "At first, figuring out how to effectively use the scanning triggers was tricky. I needed to become more proficient with the technology. However, with practice, I became more comfortable, which directly improved my technical and language skills."

Participant 3: "To be honest, the initial technical glitches were a setback, but they taught me patience and adaptability-key skills in any learning process. Overcoming these challenges made the eventual success even more rewarding."

Moderator: "To wrap things up, after completing this course, how do you guys see the potential application of AR technology in real-life Tourism and Hospitality contexts? What's the future look like?"

Participant 4: "Uhm....I think there's tremendous potential, particularly for training. Using AR to simulate customer interactions can prepare us for real situations without the immediate pressure of actual consequences."

Participant 5: "Yeah....The realism that AR brings can greatly benefit those in hospitality by providing them with a safe space to practice and hone their language skills before facing real international tourists."

Moderator: "Fantastic insights, everyone. Thanks a ton for sharing your thoughts and experiences. Your input today has been incredibly valuable, and I appreciate your time and openness. We'll be analyzing the discussion and incorporating your perspectives into the broader study. We aim to share the findings with you once the research is complete. Thank you once again, and have a great day/evening!

APPENDIX J

The Transcribed & Translated Scripts of the Focus Group Interview in the main study "The Effects of AR Technology Lessons on Vietnamese EFL Undergraduate Students' Speaking Skills in English for Tourism and Hospitality."

Focus Group Interview Script (Group 1)

Focus Group 1

Interviewer: Thank you all for joining today's discussion about your experience using AR technology in the English for Tourism and Hospitality course. We want to hear your thoughts, so feel free to express yourselves openly. Let's start with the first question.

1. Can you describe your overall experience with the AR technology in this English for Tourism and Hospitality course?

Student 1: Uh... well, at first, I was unsure how AR would help me improve my speaking. It looked complicated, and I was worried I wouldn't be able to use it properly. I mean, like, when I saw the AR interface for the first time, I felt, um... kind of overwhelmed because there were so many things happening at once, you know? But, um, after a few lessons, I started getting used to it. I guess the more I interacted with it, the more natural it became. And honestly, after some time, I actually started looking forward to using AR because it made learning feel more interactive and less like a typical classroom exercise.

Student 2: Yeah, I totally agree. In the beginning, I was a bit skeptical, like... I didn't really understand how looking at virtual objects would help me improve my English, but as we kept using it, it kind of, um... made sense. It felt like I was experiencing the situations rather than just studying them, which was pretty cool. I also found that it helped me stay focused-like, instead of zoning out during lessons, I was actually curious about what would happen next. It wasn't just another worksheet exercise.

Student 3: Yeah, same here. I think the biggest thing was that it made learning more dynamic. Normally, I get nervous when I have to speak in front of the class, but with AR, I felt more comfortable because I was focused on the scenario, not on what other people were thinking about my English. That really helped me participate more and, uh, just practice speaking without feeling too self-conscious.

2. Do you feel comfortable with the AR technology? How & why?

Student 4: Um, well, I wouldn't say I was comfortable right away. The first time, it was like... confusing, and I wasn't sure how to navigate everything. I remember thinking, 'Oh no, this is too complicated for me.' But after a few sessions, I felt comfortable using AR. It became natural, and I started enjoying it. I guess, uh, the key thing was just practice. The more I used it, the easier it got. And the teacher's guidance really helped-I think without that, I would've taken longer to adapt.

Student 1: Yeah, exactly. I also felt unsure at first, but then, uh, as we kept using it in different activities, I got more used to it. It became, like, second nature, and I wasn't as nervous about making mistakes. I just kind of, um, focused on the task instead of worrying too much.

Student 3: I think it also helped that we worked in groups sometimes. Like, when we had to do role-plays using AR, I felt more at ease because we were figuring it out together. If I got stuck, someone would help, and that made the whole experience less stressful.

3. How does the Halo AR app help improve your English speaking skills in the context of Tourism and Hospitality?

Student 2: Oh, it definitely helped me improve my speaking skills. With AR, I had to respond quickly, just like in a real conversation. I couldn't rely on memorized phrases anymore, so it forced me to, you know, actually think in English. It was a bit challenging at first, but after a while, I noticed I was speaking more fluently.

Student 4: Yeah, totally! I also felt like it helped with pronunciation. When I was describing the AR models of tourist attractions, it was easier to recall the right words because I could see what I was talking about. And when we got feedback from our classmates or the teacher, it really helped me notice my mistakes and improve.

4. Could you provide specific examples of how AR technology enhanced your language learning experience?

Student 1: Um, one time, we did this hotel check-in simulation, and I had to interact with an AR-generated guest. It was so realistic! I had to think fast and, um, respond in a way that made sense. Normally, I'd just memorize a script,

but here, I had to adapt to what the guest was saying. That really helped with my confidence.

Student 3: Oh yeah, I remember that! I also liked the AR-guided tours. I had to describe different landmarks, and since I could see them in the AR world, it made it easier to explain things naturally. It felt like I was actually preparing for real-life work in tourism.

5. How did you overcome these challenges, and did they impact your language learning outcomes?

Student 4: At first, it was tough because, you know, there was so much happening in the AR world-looking at the environment, listening to the app, and thinking in English. I had to train myself to stay focused. But over time, I got used to it. I think what helped was just practicing a lot and taking breaks when I felt overwhelmed.

Student 2: Yeah, and I think working with classmates helped too. Like, when I was struggling with something, my friends would step in and give me advice. That made it feel less frustrating. And honestly, I think those struggles actually made me better at English because I had to find ways to work through them.

6. How do you perceive the potential application of AR technology in real-life Tourism and Hospitality contexts after completing this course?

Student 1: I think it would be really useful! I mean, we already practiced scenarios like hotel check-ins and guided tours, so if AR could be used for staff training in real hotels or travel agencies, it would be amazing. It's like a way to practice without the pressure of dealing with real customers right away.

Student 3: Yeah, I totally see it being used in training programs. I also think it would be useful for tourists themselves-like if they could use AR to get interactive travel guides that teach them basic phrases in different languages.

Student 4: And for customer service too! If AR could simulate difficult customer interactions, it would help staff practice problem-solving in a realistic but low-stress way. That could really improve service quality in the tourism industry.

Interviewer: Thank you all for sharing your thoughts! Your insights are very valuable, and it's great to hear how AR has impacted your learning experience. This concludes our focus group discussion.

Focus Group Interview Script (Group 2)

Interviewer: Thank you all for joining today's discussion about your experience using AR technology in the English for Tourism and Hospitality course. We want to hear your thoughts, so feel free to express yourselves openly. Let's start with the first question.

1. Can you describe your overall experience with the AR technology in this English for Tourism and Hospitality course?

Student 5: Uh... well, in the beginning, I wasn't sure how AR would actually help me with my speaking skills. It looked complicated, and I was afraid I wouldn't know how to use it correctly. Honestly, it felt overwhelming at first. But after a few lessons, I started feeling more confident. The more I used it, the more I understood how beneficial it was. It made learning feel more engaging, not just another set of speaking drills.

Student 6: Yeah, same for me. At first, I was skeptical-like, how would using AR be any different from normal class activities? But then, once I got into it, I saw that it was actually quite immersive. It was like being in real situations, not just role-playing in class. That made it easier to stay focused because I actually wanted to see what would happen next.

Student 7: Exactly! The best part was that it wasn't just passive learning. I felt like I was part of the experience instead of just memorizing phrases. Normally, I get nervous speaking in front of everyone, but with AR, it felt less intimidating. I was concentrating on the scenario, so I forgot about being self-conscious.

Student 8: Yeah, and the interactivity made a huge difference. It wasn't just another worksheet exercise. I was curious to see what was going to happen next, which made me actually want to participate more. It felt more like a real-world experience rather than just another classroom lesson.

2. Do you feel comfortable with the AR technology? How & why?

Student 5: Honestly, at first, no. It felt like too much to handle, and I kept thinking, 'What if I mess this up?' But after using it a few times, it became much easier. I guess familiarity was the key. The more I worked with it, the more natural it felt.

Student 6: Yeah, in the beginning, I struggled with navigating everything at once-the visuals, the speech, the tasks. But after a few lessons, it wasn't so bad. Having structured guidance and clear instructions helped a lot.

Student 7: I think working with classmates made a difference, too. Whenever I got confused, we figured things out together. That made it less stressful and more like a group learning experience instead of just me trying to figure it out alone.

Student 8: Definitely! I think the more I practiced, the more I adapted. It just took a little time to get used to everything. Once I felt comfortable, I actually started enjoying it.

3. How does the Halo AR app help improve your English speaking skills in the context of Tourism and Hospitality?

Student 5: Oh, it really helped my fluency. With AR, I had to react quickly, just like in an actual conversation. I couldn't just prepare and memorize lines-I had to think and speak naturally. That was challenging at first, but it got easier with practice.

Student 6: Yeah, and it also made pronunciation practice more engaging. When I was describing AR-generated tourist attractions, I could actually see them, which helped me remember the right words and say them more accurately.

Student 7: I think it helped build my confidence the most. Usually, I hesitate a lot, but with AR, I had to keep up with the simulation, so I stopped worrying so much about making mistakes. It forced me to focus on communicating.

Student 8: Same here! I felt like I was getting real-world practice. It wasn't just classroom speaking exercises-it actually felt like I was preparing for real-life situations in tourism.

4. Could you provide specific examples of how AR technology enhanced your language learning experience?

Student 5: One of my favorite activities was the hotel check-in scenario. I had to interact with an AR-generated guest, and it felt so real! Normally, I'd just memorize a script, but here, I had to adjust my responses depending on what the guest said. That was really helpful.

Student 6: Yeah, and the guided tour activity was great, too. Describing different landmarks while seeing them in AR made it much easier to use the right words. It helped me remember vocabulary more naturally.

Student 7: Oh, and working with classmates on AR-based role-playing made a big difference. It wasn't just reading from a script-we actually had to react and communicate naturally. That made it feel more like real-life practice.

Student 8: Definitely! Every session was different, so I never felt like I was repeating the same thing over and over again. That variety kept me engaged.

5. How did you overcome these challenges, and did they impact your language learning outcomes?

Student 5: At first, multitasking with AR was overwhelming-watching, listening, and speaking all at once was too much. But with time, I got better at handling it. I learned to focus on key elements and not get distracted by everything at once.

Student 6: For me, having support from classmates helped a lot. If I didn't understand something, I could ask, and we would figure it out together. That made it much easier to keep going.

Student 7: Repetition was key for me. The more I used AR, the less stressed I felt. Over time, I became more comfortable speaking without overthinking it.

Student 8: I think it's all about practice. At first, I was second-guessing myself a lot, but after some time, I learned to trust my instincts and just speak. That made a huge difference in my confidence.

6. How do you perceive the potential application of AR technology in real-life Tourism and Hospitality contexts after completing this course?

Student 5: I think AR could be a fantastic training tool for employees in tourism and hospitality. It allows for hands-on practice in a realistic environment without the pressure of dealing with actual customers right away.

Student 6: Yeah, I see it being useful for training tour guides or hotel staff. It could help them practice speaking with international guests in a more interactive way.

Student 7: I also think it could be great for tourists themselves. Imagine an AR app that provides live translation or cultural information-it would make travel much more accessible.

Student 8: Exactly! AR has so much potential to bridge the gap between theoretical learning and practical application. It could make training programs more engaging and effective in the tourism industry.

Interviewer: Thank you all for sharing your thoughts! Your insights are very valuable, and it's great to hear how AR has impacted your learning experience. This concludes our focus group discussion.

Focus Group Interview Script (Group 3)

Interviewer: Thank you all for participating in today's focus group discussion. We would like to hear about your experiences with AR technology in the English for Tourism and Hospitality course. Please feel free to share your honest thoughts. Let's begin with the first question.

1. Can you describe your overall experience with the AR technology in this English for Tourism and Hospitality course?

Student 1: At first, I was unsure how AR would help me improve my speaking. It looked complicated, and I was worried I wouldn't be able to use it properly. But after a few sessions, I felt comfortable using AR. It became natural, and I started enjoying it.

Student 3: Yeah, in the beginning, it was kind of overwhelming. I didn't know where to start, and I felt like I was wasting time trying to figure it out rather than focusing on speaking. But as I got used to it, I realized that it actually helped a lot in making learning more interactive.

Student 7: I felt like I was actually preparing for real-life work in tourism. The role-playing tasks and simulations made it easier to imagine what it would be like to communicate with real customers.

Student 10: Instead of just reading from a book, I had to interact with the AR environment, which made the lesson feel real and exciting. It didn't feel like a lesson-it felt like an experience.

2. Do you feel comfortable with the AR technology? How & why?

Student 5: Normally, I get nervous when I have to speak in front of the class, but with AR, I felt more comfortable because I was focused on the scenario, not on what other people were thinking about my English.

Student 8: Using AR apps for a long time might strain my eyes and make it hard to concentrate. But after getting used to it, I could balance my focus better.

Student 2: The first few times, I hesitated a lot because the tourist in the video was speaking so fast. But after a while, I got used to it, and my responses became smoother.

Student 9: When I practiced with my classmates, it helped me realize which sounds I was mispronouncing, and when they corrected me, I became more aware of how to adjust my speech.

3. How does the Halo AR app help improve your English speaking skills in the context of Tourism and Hospitality?

Student 6: With AR, I had to respond quickly, just like in a real conversation. I couldn't rely on memorized phrases anymore, and I had to think in English.

Student 4: Seeing virtual objects and locations while speaking helped me retrieve words more quickly and use them accurately. When I described the AR models of tourist attractions, it was easier to recall the right words because I could see what I was talking about.

Student 1: Instead of memorizing dialogues, I had to form sentences naturally in real-time. That pushed me to improve my fluency and confidence.

Student 10: When I was interacting with the AR-generated customer, I didn't feel like I was practicing in a classroom-I felt like I was actually in a hotel reception area handling a real situation.

4. Could you provide specific examples of how AR technology enhanced your language learning experience?

Student 7: One time, we did this hotel check-in simulation, and I had to interact with an AR-generated guest. It was so realistic! I had to think fast and respond properly, which was different from just memorizing a script.

Student 3: Practicing with my classmates helped me realize which sounds I was mispronouncing, and when they corrected me, I became more aware of how to adjust my speech.

Student 2: When I was in the AR environment, I had to think and respond quickly, just like in a real conversation. It forced me to speak naturally instead of overthinking every sentence.

Student 9: Instead of working alone, we had to collaborate to complete AR tasks. It made the learning experience feel more interactive and engaging.

5. How did you overcome these challenges, and did they impact your language learning outcomes?

Student 5: With so much happening in the AR world, my brain was trying to do too many things at once-looking at the environment, listening to the apps, and thinking in English. But I got better at managing all these things over time.

Student 8: Sometimes the app lagged, and I felt frustrated because I couldn't continue the conversation smoothly. But after adjusting to its pace, I learned to deal with unexpected pauses, just like in real-life conversations.

Student 6: I trust my friends' corrections, but sometimes, I feel like we are all making the same mistakes, so I need the teacher to confirm.

Student 4: The teacher's corrections made it clear where I needed to improve, and I could immediately practice the right way.

6. How do you perceive the potential application of AR technology in real-life Tourism and Hospitality contexts after completing this course?

Student 10: I think AR could be an excellent training tool for hospitality professionals. It allows staff to practice their speaking and interaction skills in a controlled but realistic setting.

Student 1: I see AR being really useful for tourism guides who need to give engaging and informative tours. If tourists could use AR to interact with historical sites or museums, it would make the experience much more engaging.

Student 7: In customer service, dealing with different types of people can be challenging. AR can help by simulating various customer scenarios, allowing trainees to practice handling different situations professionally.

Student 3: I think it could also help tourists themselves. If there was an AR app that provided live translations or guided experiences, it would make traveling easier for people who don't speak the local language.

Student 8: Yeah, and for employees in tourism and hospitality, AR could be a way to improve communication skills without the pressure of real-life mistakes.

Interviewer: Thank you all for your valuable insights. This discussion has provided great perspectives on how AR technology has influenced your learning experience and its potential applications in the industry. That concludes our focus group discussion.

CURRICULUM VITAE

Ho Minh Thang was born on September 18, 1984, in Ben Tre province, Vietnam. He received his Bachelor of Arts in English Language from Ho Chi Minh City University of Education in 2006. In 2010, he obtained his Master of Teaching English to Speakers of Other Languages (TESOL) from Victoria University, Australia. He is currently working at the University of Economics Ho Chi Minh City (UEH), Vietnam, where he serves as a lecturer at the School of Foreign Languages. In July 2021, he began his Ph.D. studies in English Language Studies at the School of Foreign Languages, Institute of Social Technology, Suranaree University of Technology, Thailand. His doctoral research focuses on the integration of Augmented Reality (AR) technology into English language teaching, with a particular emphasis on improving students' speaking skills in the context of English for Tourism and Hospitality. His research interests include Technology-Enhanced Language Learning (TELL), Augmented Reality in language education, English for Specific Purposes (ESP), learner engagement, self-regulated learning and affective dimensions of language learning such as motivation and student well-being.