

THE EFFECTS OF A PERSONAL LEARNING ENVIRONMENT ON
VIETNAMESE EFL UNDERGRADUATE STUDENTS' SPEAKING
SKILLS, SELF-REGULATED LEARNING, AND INTERACTION



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ผลของการจัดสภาพแวดล้อมการเรียนรู้ส่วนบุคคลต่อทักษะการพูด การกำกับ
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Thesis Examining Committee



(Assoc. Prof. Dr. Pragasit Sitthitikul)

Chairperson



(Dr. Suksan Suppasetserree)

Member (Thesis Advisor)



(Asst. Prof. Dr. Kittitouch Soontornwipast)

Member



(Assoc. Prof. Dr. Issra Pramoolsook)

Member



(Asst. Prof. Dr. Jeffrey Dawala Wilang)

Member



(Assoc. Prof. Dr. Yupaporn Ruksakulpiwat)
Vice Rector for Academic Affairs and
Quality Assurance



(Assoc. Prof. Dr. Anchalee Wannaruk)
Dean of Institute of Social Technology

หว่าง เวียด เทียน: ผลของการจัดสภาพแวดล้อมการเรียนรู้ส่วนบุคคลต่อทักษะการพูด การกำกับตัวเองในการเรียนรู้ และปฏิสัมพันธ์ของนักศึกษาในระดับปริญญาตรีชาวเวียดนามที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ (THE EFFECTS OF A PERSONAL LEARNING ENVIRONMENT ON VIETNAMESE EFL UNDERGRADUATE STUDENTS' SPEAKING SKILLS, SELF-REGULATED LEARNING, AND INTERACTION) อาจารย์ที่ปรึกษา: อาจารย์ ดร.สุขสรณ์ ศุภเศรษฐ์เสรี, 276 หน้า.

คำสำคัญ: สภาพแวดล้อมการเรียนรู้ส่วนบุคคล/ ทักษะการพูด/ การกำกับตัวเองในการเรียนรู้/ การมีปฏิสัมพันธ์/ การใช้เทคโนโลยีสนับสนุนการเรียนรู้ภาษา

สภาพแวดล้อมการเรียนรู้ส่วนบุคคล (PLE) เป็นแนวทางการสอนแบบใหม่ที่มุ่งเน้นผู้เรียนเป็นศูนย์กลางโดยใช้เทคโนโลยีเพื่อการเรียนรู้ อย่างไรก็ตามการวิจัยเชิงประจักษ์เกี่ยวกับ PLE ยังอยู่ในช่วงเริ่มต้น โดยเฉพาะในบริบทของการเรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ ดังนั้นการศึกษานี้จึงมีจุดประสงค์ 4 ประการ จุดประสงค์ที่หนึ่งคือทำการตรวจสอบผลของ PLE ที่ผู้วิจัยนำเสนอเกี่ยวกับทักษะการพูดของนักศึกษาปริญญาตรีชาวเวียดนามที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศจุดประสงค์ที่สองคือการสำรวจผลของ PLE ต่อการกำกับตัวเองในการเรียนรู้ของนักศึกษา จุดประสงค์ที่สามคือการตรวจสอบผลของ PLE ต่อการมีปฏิสัมพันธ์ของนักศึกษา จุดประสงค์สุดท้าย การวิจัยนี้มุ่งที่จะสำรวจความคิดเห็นของนักศึกษาเกี่ยวกับการใช้ PLE เพื่อพัฒนาทักษะการพูด การกำกับตัวเองในการเรียนรู้ และการมีปฏิสัมพันธ์

การศึกษาในครั้งนี้ใช้แนวทางการวิจัยแบบผสมผสานด้วยการออกแบบกึ่งทดลอง กลุ่มผู้เข้าร่วมเป็นนักศึกษาชั้นปีที่หนึ่งที่ไม่ใช่เอกภาษาอังกฤษจำนวน 40 คน จากมหาวิทยาลัยแห่งหนึ่งในเวียดนาม ภายในเวลา 8 สัปดาห์ นักศึกษาจะต้องเรียนรู้ทักษะการพูดภาษาอังกฤษด้วยบทเรียน PLE ข้อมูลเชิงปริมาณถูกรวบรวมจากแบบทดสอบการพูดก่อนและหลังเรียน แบบสอบถามการกำกับตัวเองในการเรียนรู้ของนักศึกษา ก่อนและหลังเรียน การนับความถี่ของการมีปฏิสัมพันธ์ และแบบสอบถามความคิดเห็น ในขณะที่ข้อมูลเชิงคุณภาพถูกรวบรวมจากการสัมภาษณ์กึ่งโครงสร้างและบันทึกสะท้อนความคิด สำหรับการวิเคราะห์ข้อมูลเชิงปริมาณใช้สถิติเชิงพรรณนา (ค่าเฉลี่ยส่วนเบี่ยงเบนมาตรฐาน) และสถิติเชิงอนุมาน (การทดสอบ t-test สำหรับเปรียบเทียบค่าเฉลี่ยของสองกลุ่มที่มีความสัมพันธ์กัน การวิเคราะห์ความแปรปรวนทางเดียว (ANOVA) และการวิเคราะห์ความแปรปรวนซ้ำ) ด้วยโปรแกรม SPSS 27 ในขณะเดียวกัน การวิเคราะห์แก่นสาระ (Thematic Analysis) ถูกนำมาใช้ในการวิเคราะห์ข้อมูลเชิงคุณภาพ

ผลการวิจัยแสดงให้เห็นว่า PLE สามารถเพิ่มพูนทักษะการพูดภาษาอังกฤษของนักศึกษาอย่างมีนัยสำคัญทางสถิติ และผลแตกต่างกันไปในแต่ละกลุ่มระดับความสามารถ กล่าวคือกลุ่มที่มีความสามารถปานกลางมีการพัฒนามากที่สุด ตามมาด้วยกลุ่มที่มีความสามารถต่ำ และกลุ่มที่มีความสามารถสูง ในแง่ของการกำกับตัวเองในการเรียนรู้ (SRL) ผลการวิจัยพบว่าการปรับปรุงอย่างมากในทุกด้านของ SRL (ได้แก่ การตั้งเป้าหมาย การจัดโครงสร้างสภาพแวดล้อม กลยุทธ์การทำงาน

และการจัดการเวลา การขอความช่วยเหลือ และการประเมินตนเอง) โดยเฉพาะอย่างยิ่งมีความก้าวหน้ามากที่สุดในด้านกลยุทธ์การทำงานและการจัดการเวลา ในขณะที่การประเมินตนเองมีการปรับปรุงน้อยที่สุด เกี่ยวกับการมีปฏิสัมพันธ์ของนักศึกษา ผลการวิจัยแสดงให้เห็นว่า PLE สามารถเพิ่มความถี่ในการมีปฏิสัมพันธ์ของนักศึกษาอย่างมาก ยิ่งไปกว่านั้นในบรรดาการมีปฏิสัมพันธ์สามประเภท การมีปฏิสัมพันธ์ระหว่างนักศึกษากับเนื้อหาเป็นสิ่งที่พบมากที่สุด ประการสุดท้าย ผลการสัมภาษณ์ถึงโครงสร้างและบันทึกสะท้อนความคิดชี้ให้เห็นว่านักศึกษาส่วนใหญ่มีมุมมองเชิงบวกต่อ PLE นอกจากนี้ทักษะการพูด การกำกับตนเองในการเรียนรู้ และการมีปฏิสัมพันธ์แล้ว นักศึกษายังเห็นว่าการพัฒนาความรู้ทางเทคโนโลยีดิจิทัลหลังจากเรียนด้วยบทเรียน PLE อีกด้วย

โดยรวมแล้วผลการวิจัยนี้ชี้ให้เห็นถึงศักยภาพของการใช้แนวทางตาม PLE ในการส่งเสริมการเรียนรู้ภาษา การกำกับตนเองในการเรียนรู้ (SRL) และการมีปฏิสัมพันธ์ระหว่างผู้เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ (EFL) นอกจากนี้การวิจัยนี้ยังมีส่วนในการเพิ่มเติมความรู้ในวงการวิจัยที่เกี่ยวข้องกับการเรียนรู้ภาษาที่ใช้เทคโนโลยีเป็นสื่อกลาง โดยให้หลักฐานเชิงประจักษ์ถึงประโยชน์และความท้าทายที่เกิดขึ้นจากการใช้ PLE ยิ่งไปกว่านั้น จากผลการวิจัยนี้ ยังได้เสนอแนวคิดเชิงปฏิบัติการด้านการศึกษา นโยบาย และการวิจัยในอนาคต



สาขาวิชาภาษาต่างประเทศ
ปีการศึกษา 2567

ลายมือชื่อนักศึกษา _____
ลายมือชื่ออาจารย์ที่ปรึกษา สุภัทรรพ สุาเดระชูเสวี

HOANG VIET HIEN: THE EFFECTS OF A PERSONAL LEARNING ENVIRONMENT ON VIETNAMESE EFL UNDERGRADUATE STUDENTS' SPEAKING SKILLS, SELF-REGULATED LEARNING, AND INTERACTION. THESIS ADVISOR: SUKSAN SUPPASETSEREE, Ph.D., 276 PP.

Keyword: Personal Learning Environment/ Speaking Skills/ Self-regulated Learning/ Interaction/ Technology-enhanced Language Learning

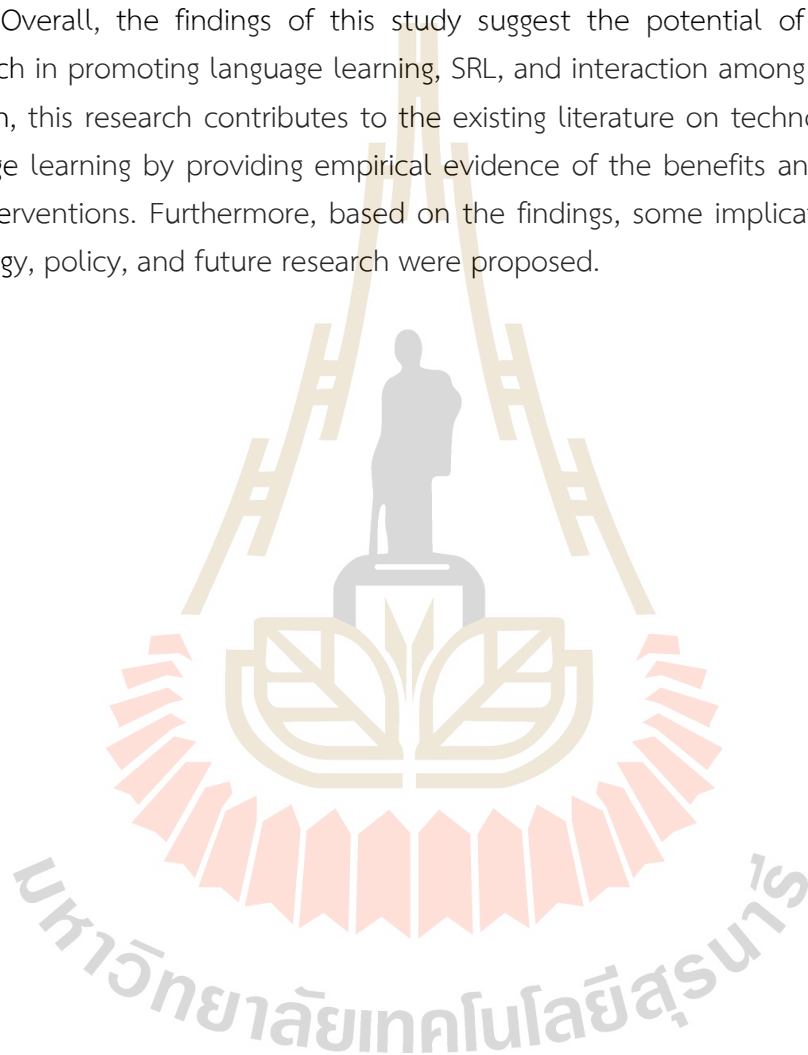
Personal Learning Environment (PLE) is a relatively new learner-centered pedagogical approach using technology for learning. However, empirical research on PLEs remains in its infancy, especially in EFL contexts. This study, therefore, has four purposes. The first purpose was to investigate the effects of a PLE proposed by the researcher on Vietnamese EFL undergraduate students' speaking skills. The second purpose was to explore the impacts of the PLE on students' self-regulated learning (SRL). The third one was to examine the effects of the PLE on students' interaction. Finally, this research aimed to probe into students' perceptions of using the PLE to enhance speaking skills, self-regulated learning, and interaction.

This study adopted a mixed-method approach with a quasi-experimental design. The participants were forty first-year non-English major students at a university in Vietnam. Within eight weeks, they were supposed to learn speaking skills with the PLE lessons. The quantitative data were collected from pre-and post-speaking tests, pre-and post-SRL questionnaires, interaction frequency counts, and perception questionnaire. Meanwhile, the qualitative data were gathered from semi-structured interviews and reflective journals. In order to analyze the quantitative data, both descriptive statistics (mean, standard deviation) and inferential statistics (paired samples t-test, one-way ANOVA, repeated measures ANOVA) were conducted using SPSS 27. In the meantime, thematic analysis was employed to analyze qualitative data.


The results show that the PLE significantly enhanced students' speaking skills, and the effects varied across different groups of speaking performance levels. Specifically, the medium-level group was the most enhanced, followed by the low-level and high-level groups. In terms of students' SRL, the results reveal a considerable improvement in all aspects (i.e. goal setting, environment structuring, task strategies and time management, help-seeking, and self-evaluation). Particularly, the largest progress was observed in task strategies and time management, whereas self-evaluation witnessed the least impressive improvement. Regarding students' interaction, the findings demonstrate that the PLE could considerably increase

students' interaction frequency. Moreover, among the three types of interaction, student-content was seen as the most common. Last but not least, the results from semi-structured interviews and reflective journals indicate that the majority of students had positive perceptions towards the PLE. Apart from speaking skills, SRL, and interaction, students perceived an improvement in digital literacy after learning with the PLE lessons.

Overall, the findings of this study suggest the potential of the PLE-based approach in promoting language learning, SRL, and interaction among EFL learners. In addition, this research contributes to the existing literature on technology-enhanced language learning by providing empirical evidence of the benefits and challenges of PLE interventions. Furthermore, based on the findings, some implications related to pedagogy, policy, and future research were proposed.



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Student's Signature 
Advisor's Signature Sukkan S.

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LIST OF ABBREVIATIONS

PLE	Personal Learning Environment
EFL	English as Foreign Language
SRL	Self-regulated Learning
CEFR	Common European Framework of Reference for Languages
TELL	Technology Enhanced Language Learning
UEF	University of Economics and Finance
IELTS	The International English Language Testing System
SPSS	Statistical Package for the Social Sciences
WTO	World Trade Organization
MOET	Ministry of Education and Training
IOC	Item-Objective Congruence
ELSA	English Language Speech Assistant
EFL	English as a Foreign Language
ZPD	Zone of Proximal Development



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CHAPTER 1

INTRODUCTION

The present study aimed to investigate the effects of a Personal Learning Environment (henceforth PLE) on Vietnamese EFL undergraduate students' speaking skills, self-regulated learning, and interaction. This chapter provides a brief introduction to the study. It starts with the background of the study followed by the statement of the problems, and the rationale of the study. Then research purposes, research questions, and significance of the study are introduced. After that, the definitions of key terms of the study will be explained. Finally, there will be a summary to conclude this chapter.

1.1 Background of the Study

Nowadays, English is considered an indispensable and commonly used medium for international communication. It has become a global language and the lingua franca in a wide range of fields such as business, science, education, art, politics, and technology, to name a few (Crystal, 2003; Hodges & Seawright, 2023). Lingua franca is considered to be a language that is utilized by numerous worldwide people for communication (Rao, 2019). According to Rohmah (2005), a language becomes a global language only when various people recognize its role in communication and desire to master it.

In the Vietnamese context, the importance of English has been increasing since Vietnam became a member of the World Trade Organization (WTO) in 2006. In light of globalization, the government is aware of an urgent need to equip citizens with high proficiency in English to serve the community. To enhance the foreign language ability of students, on 30 September 2008, the Ministry of Education and Training (MOET) issued Decision No. 1400/QĐ-TTg with the National Foreign Languages Project for the period of 2008-2020. This project aimed to make a comprehensive change in teaching and learning foreign languages in Vietnamese universities. Specifically, the primary goal of this project was *“by the year 2020, most Vietnamese youths who graduate from vocational schools, colleges, and universities gain the capacity to use a foreign language independently. This will enable them to be more confident in communication, and further their chance to study and work in an integrated and multi-cultural environment with a variety of languages. This goal also makes language*

advantage for Vietnamese people, serving the cause of industrialization and modernization for the country” (MOET, 2008, p.1). Based on the Common European Framework of Reference (CEFR), curriculums, practices in teaching and learning as well as assessment were modified with the belief that this would improve students’ foreign language proficiency. However, on November 16, 2016, Mr. Phung Xuan Nha - the Minister of Education and Training admitted that this project had failed, and it has been adjusted by extension for the next period 2017-2025 (Nguyen, 2017).

As to English in tertiary education in Vietnam, English has been included in the programs of colleges and universities as a discipline and a compulsory course in the curricula. Non-English major students are required to study English for a few hours every single week, which accounts for 10-12% of their total credit hours (Hoang, 2013). According to the National Foreign Languages Project 2020, non-English major students must achieve a minimum level of 3/6 (according to the 6-level Foreign Language Competency Framework for Vietnam issued by the Ministry of Education and Training in the Circular 01/2014), equivalent to level B1 - intermediate level (according to the CEFR). On this basis, many universities are applying English output standards in different ways, but the goal is still B1 level or higher (Nguyen, 2024). Despite the great efforts of MOET in developing the quality of English language education in Vietnam, Vietnamese undergraduate and graduate students’ English proficiency is still low and cannot meet the requirements of the job market (Vu & Pham, 2023; Doan, 2021; Tien et al., 2020; Hien & Loan, 2018; Le Hung, 2013). Students’ weaknesses are shown in their poor vocabulary and grammar, inaccurate pronunciation, and deficient listening and speaking skills (Vu & Pham, 2023; Le Hung, 2013). According to the EF English Proficiency Index (2021), Vietnam is ranked in the group of countries that have low English proficiency. 98% of Vietnamese students cannot communicate in English at a basic level even though they have been studying English for an average of 7 years (Tran, 2013; Huong, 2022). They seem to shy away when encountering foreign people because they think their English is not good enough to communicate (Sundkvist & Nguyen, 2020). A survey conducted by Nguyen et al. (2021) with 2.500 students from eight famous universities in Vietnam showed that most Vietnamese students got below 5.0 when taking the IELTS test. This means that undergraduate students’ abilities to use English are deficient and poor (Nguyen et al., 2021). There have been studies analyzing the underlying reasons for the failure of this project. Tran (2013) revealed that university students were not satisfied with English programs due to large class sizes, mixed levels, boring teaching materials, form-focus instruction, and limited time for study. They complained that they only learned English in the first two years of

university with only several hours a week and after that, they did not know how to keep learning by themselves. They also emphasized the fact that they had to study tedious textbooks with irrelevant content. In addition to these problems, Nguyen, Fehring, and Warren (2015) mentioned the lack of students' motivation as well as teachers and students' independence in teaching and learning. They had to comply with the fixed syllabus to complete the programs and exams. Moreover, Nguyen (2017) emphasized the shortage of qualified teachers with innovative pedagogical approaches. These factors lead to the low English proficiency of Vietnamese students despite the huge investment in this project.

Speaking is regarded as one of the most crucial skills for communicative purposes in both first and second languages (Nunan, 1991; Rao, 2019; Ganiyevna & Muhsin, 2019; Iman, 2017). According to Nunan (1991), the success of a foreign language learner is determined by one's capacity to have a conversation in that particular language. Richards and Renandya (2002) also note that acquiring competency in speaking is the primary objective of a huge majority of language learners thanks to many practical tasks of speaking such as describing things and people; complaining; and making polite requests, etc. Similarly, according to Akhter et al. (2020), the purpose of learning to speak is to communicate successfully in various contexts. As a result, speaking seems to be the most pivotal skill that should be prioritized in the process of teaching and learning English. However, Vietnamese non-English major students' English speaking skills are relatively weak (Do, 2021; Tran & Tran, 2020; Hoa et al., 2022; Van & Lan, 2022). Despite having studied English for an extended period, many learners still struggle to speak English proficiently. They have plenty of problems and difficulties related to linguistic and psychological aspects in learning to speak English (Trinh & Pham, 2021; Cao et al., 2021; Tram, 2020; Su et al., 2021; Duong, 2014; Do, 2021; Thao & Trung, 2022). When it comes to linguistic facet, the common issues that most students encounter are (1) thinking in their mother tongue before presenting a topic, (2) lack of vocabulary, (3) poor pronunciation, (4) lack of thematic knowledge, (5) lack of grammar knowledge, and (6) having troubles putting their thoughts into complete sentences. Regarding the psychological facet, studies show that students struggle with speaking English because they are frequently: (1) afraid of making mistakes in class; (2) shy and unconfident to speak in front of a crowd; (3) anxious to communicate in English, especially with foreign teachers; (4) demotivated by other students' superior performance in class; and (5) unable to find opportunities to practice speaking outside of the classroom. Do (2021) lists several factors leading to poor speaking performance of Vietnamese students such as lack of exposure to the language, low participation in

large class sizes, lack of motivation, feedback during speaking tasks, and tedious topics. Ly (2021) also identifies external factors impacting Vietnamese students' speaking performance, which consists of insufficiency of practice time in the classroom, the topics' content, IELTS-focused speaking tests, and lack of support from lecturers. Tram (2020) mentions the following instructional factors that affect students' interests and progress in speaking: lecturers (1) do not provide interesting topics for discussion, (2) use traditional teaching methods and do not organize interesting class activities, (3) place less emphasis on idiomatic expressions or collocations to present ideas, (4) do not instruct students when they are unable to find the appropriate words, structures during their speaking, and (5) provide harsh error correction.

To improve English proficiency in general and speaking skills in particular, learners are supposed to know how to self-regulate their learning. The idea of self-regulated learning (SRL) has grown in favor in educational circles as the notions of lifelong learning and individualized learning have grown in popularity (Lewis & Vialleton, 2011). SRL is a proactive, constructive process by which learners set goals for their learning, and monitor, regulate, and control their motivations and behavior based on their goals and contextual features in the environment (Pintrich, 2000; Schunk & Usher, 2011). At school, learners cannot be provided with all the knowledge that they can use for a lifetime. Therefore, they need to be equipped with the necessary skills for lifelong self-learning (Nafukho & Muyia, 2021). This process requires scaffolding and explicit instruction when the self-regulated activities of an individual take place. Zimmerman (2002) suggests that self-regulated learners are more likely to be successful in their studies, as well as more optimistic about their future, emphasizing the importance of SRL for lifelong learning. In the East Asian context, there is still debate about the appropriateness of SRL. According to Gholami (2016), since the origin of SRL is from Western cultures, this kind of self-access and autonomy tends to be more suitable in Western countries' education. Asian language learners are stereotyped as those who are passive and highly dependent on their teachers (Young, 1987; Gu, 2002, cited in Gan, 2004). Benson, Chik, and Lim (2003) state that the learning styles and preferences of Asian students are much derived from the values of "collectivism, conformity, and respect for authority". Littlewood (1999) adds that Asian learners have high levels of reactive autonomy in which they have difficulties in taking charge of their learning, setting learning objectives, choosing methods, and evaluating results. In the Vietnamese context, EFL students are labeled as "passive, obedient, and reproductive" and get used to "rote learning" (Tran, 2013, p75; Dang, 2010, p3). This could be explained by the fact that Confucian values have affected the conventional

belief of relational hierarchy (Nguyen et al., 2014). According to Canh (2000), the Vietnamese formal classroom is seen as a cultural island in which the power distance between teachers and students is very distinctive. In addition, it is the teaching and learning style that makes it difficult to change students' passiveness. Language classrooms in Vietnam have still been teacher-centered, paying much attention to grammar (Thi & Thuy, 2021). In addition, even though SRL is crucial to the improvement of language learning, Vietnamese students are not fully aware of such importance of SRL in English language learning. Tran and Nguyen (2020) surveyed to explore Vietnamese EFL students' perceptions towards SRL. They found that students lacked knowledge of how to use SRL strategies even though they had a positive attitude towards SRL.

Apart from SRL, social interaction which pertains to the communication of two or more people is regarded as a cornerstone of language acquisition (Opdenakker & Van Damme, 2006; Nugroho, 2020). According to Vygotsky's (1978) social constructivism theory, social interaction is a critical component of cognitive development, and language learning is no exception. Interaction, in an educational context, involves the communicative process between teachers and students, and among the students themselves (Ananga, 2020). In EFL education, interaction is essential since it forms the basis of communicative language teaching, which emphasizes the functional use of language in authentic contexts (Nunan, 1989). Through interaction, learners have the opportunity to use English meaningfully, supporting their language skills development and building their confidence to use English outside of the classroom. Despite its recognized importance, achieving fruitful interaction in EFL classrooms, particularly in Vietnam, can be challenging. Vietnamese students do not have many chances to interact with their peers in the English classroom (Nguyen, 2017; Dao & McDonough, 2018). Several issues can impede meaningful interaction. For instance, the large class sizes common in many Vietnamese institutions can limit individual speaking opportunities (Lan, 2023). Traditional didactic teaching methods and restricted class time can also constrain interactions (Oanh, 2021). In addition, learners' reticence, stemming from fear of making mistakes or negative peer judgment, often inhibits active participation (Dat, 2007). Another significant challenge is the lack of exposure to authentic English speaking environments, which restricts opportunities for Vietnamese learners to practice their speaking skills (Duong & Pham, 2022). It is the paucity of practice opportunities outside the classroom that leads to insufficient fluency development, a common issue among Vietnamese EFL learners.

In addition to social interaction, it is indisputable that learning input plays a crucial role in language learning in general and speaking skills in particular (Alahmadi, 2019; Bahrani & Nekoueizadeh, 2014). It serves as an essential gateway that greatly influences the success of learning a language (Blanco, 2002; Nugroho, 2020; Bulain & Linuwih, 2023). Therefore, providing students with adequate and appropriate learning materials and engaging them with the learning content is very important. English language education in Vietnam has still very much relied on available textbooks (Huong, 2010; Nguyen et al., 2015). Also, there is a lack of diverse learning resources in EFL teaching and learning, especially for students' self-study (Nguyen et al, 2023; Thao & Mai, 2022; Hien & Loan, 2018). In addition, these textbooks do not satisfy teachers and students since they can not provide a variety of activities, tasks, and interesting topics that can enhance their communicative competence (Nguyen & Le, 2020; Do, 2021, Tram, 2020; Le, 2022). Hence, it is necessary to enhance students' interaction with the learning content in the English courses. All in all, the abovementioned problems give rise to the need for an alternative teaching and learning approach to enhance Vietnamese EFL undergraduate students' speaking skills, SRL, and interaction.

With the advancement of technology, especially the Internet, online learning has arisen as an alternative teaching and learning method to supplement the conventional approach to education (Dewi et al., 2021). With online learning, learners engage with digital learning materials provided via computer devices (Cahyani et al, 2021). This modern approach to education, often referred to as e-learning, is facilitated by the development of Learning Management Systems (LMS) (Koh & Kan, 2021). LMS supports educational institutions in organizing, accessing, and distributing course content, as well as managing, updating, and reporting students' academic records (Bradley, 2021). However, LMS faces issues such as lack of transparency, resistance to change, insufficient consideration of learners, and poor integration with informal learning contexts. They are primarily driven by the needs of the institution and offer limited customization opportunities for students (Guettat & Farhat, 2013). The generation of students nowadays is called "net generation students" or "digital students" (Trang, 2018). They can more easily access available resources from multiple reliable resources apart from materials given by their home institutions than the previous generations of students (Utami et al, 2020; Lian, 2011). According to Tapscott and Williams (2007), the young generation is not satisfied with being mere passive consumers; rather, they are inclined to actively meet their needs for variety, convenience, personalization, and autonomy by taking on the roles of designers, creators, and distributors of their products. That is to say, LMS can not meet these

characteristics of net geners. In addition, online learning using LMS offers minimal opportunities for interaction and collaboration with peers or instructors, which is crucial for effective learning (García-Peñalvo et al., 2011).

To maximize the benefits of technology in learning and promote personalization and collaboration in education, the concept of a Personal Learning Environment (PLE) is created. PLE is based on the principal philosophy of the learner-centered approach and is primarily aligned with connectivism theory which was offered by George Siemens and Stephen Downes (Bell, 2009). According to this theory, learning takes place when a learner makes a connection among the ideas generated from the personal learning networks consisting of multiple information resources and technology tools (Dunaway, 2011). From a technological viewpoint, PLEs are designed as software platforms to prioritize students by providing substantial flexibility in learning (Ebner & Taraghi, 2010). Pedagogically, a PLE is a teaching approach using technologies for learning. It represents a personalized area where students can develop and share their ideas through learning environments that link resources and contexts (Attwell, 2007). It is a concept that refers to making use of Web 2.0 technology to foster lifelong learning, informal learning, and SRL. In brief, a PLE is an environment furnished with tools, information resources, connections to others, and activities, facilitating ongoing interactions for learning objectives and utilizing available technology (García-Martínez, 2021).

In language learning, according to Kupchyk and Litvinchuk (2021), learners need to develop learning strategies, create connections for the most resources chosen and organized by themselves, and construct PLEs for language acquisition according to their personal needs and preferences. PLEs make students more responsible and actively participate in deciding what, how, and where to search to achieve the learning objectives (Drexler, 2010). Baran (2019) sees PLEs as networked learning enhancing learner autonomy and self-regulation by using technology to make connections with peers, teachers, community, and resources during the learning process. Tochon, Karaman, and Okten (2014) claim that PLEs can foster deep language and culture learning by offering unlimited authentic and updated resources. One of the most important values of PLEs lies in the perspective that language acquisition stems from social collaboration which leads to language awareness (Tochon et al., 2014). PLEs can extend interaction beyond the walls of the traditional classroom, fostering a more communicative, student-centered learning experience (Dabbagh & Kitsantas, 2012). With various digital tools and resources, PLEs can facilitate meaningful interaction and communication, creating opportunities for learners to practice English in an authentic, flexible, and personalizable environment (Dabbagh & Kitsantas, 2012). PLEs also have

a cognitive benefit in enabling learners to reflect on their language learning process by taking advantage of the support and data from other people, having a sense of data ownership, and aggregating various resources (Carter, 2003).

Another advantage of PLEs in language learning is that they facilitate text-based and task-based learning approaches in which students can experientially respond to the language as well as have time and space to understand language features and text structures (Carter, 2003). Teachers play a paramount role in guiding students to integrate Web 2.0 tools and services into their learning environment (Kupchyk & Litvinchuk, 2021). PLEs should be co-organized by both students and teachers so that teachers can help support them in searching for digital resources, provide them with appropriate materials, give them advice to solve problems and observe their progress in the learning process. They add that rewards can be used to create a positive language learning environment and promote students' motivation. According to Castañeda and Soto (2010), teachers are responsible for explicitly explaining to students how they can make use of resources efficiently in both formal and informal learning processes. Students, on the other hand, should be able to take advantage of assistance from their language teachers to create their catalog of tools and services to better their language skills.

In brief, PLEs bring plenty of potential merits to foreign language education in terms of language acquisition, SRL, and interaction. However, there needs to be a guideline for teachers and students to maximize the benefits of PLEs (Kupchyk & Litvinchuk, 2021). In addition, despite the advantages of PLEs in language learning, there have not been many empirical research studies investigating the influence of PLEs on learners' performance, especially in speaking skills. Therefore, the researcher conducted this research study to shed light on its effects on speaking skills, SRL, and the interaction of EFL undergraduate students in the Vietnamese context.

1.2 Statement of the Problems

As mentioned in the former section, previous studies revealed that Vietnamese EFL students have problems with both linguistic and psychological aspects in learning English speaking skills (Trinh and Pham, 2021; Cao et al., 2021; Tram, 2020; Su et al., 2021; Duong, 2014; Do, 2021; Thao & Trung, 2022). Linguistically, some common problems include limited vocabulary, difficulties with pronunciation and intonation, grammatical errors, and lack of fluency. Psychologically, Vietnamese students experience issues such as anxiety and lack of confidence when speaking in English. Fear of making mistakes, being judged, or not being understood hinders their

willingness to engage in oral communication. This can result in a reluctance to speak up in class or participate in oral activities, leading to limited opportunities for practice and improvement. The cultural value of saving face in Vietnamese society also contributes to the psychological barrier, as students may be hesitant to take risks or make themselves vulnerable in a foreign language setting.

In addition, English language instruction in Vietnam has been dominated by a teacher-centered approach, with the teacher being the primary active participant in the students' language education. This approach was said to lead to a lack of initiative on the part of the students, thereby impeding their ability to acquire the language. In addition, the prevalence of conventional teaching methods like the audiolingual and grammar-translation techniques in many Vietnamese settings failed to offer students the chance to improve their communicative skills (Trinh, 2005). Specifically, students focused on English study through rote memorization of vocabulary, reading English passages, and remembering grammar rules. Additionally, Trinh (2005) notes that such methods are directed more towards helping students excel in examinations rather than equipping them with the necessary skills for effective communication. As a result, there has been a push for educators to adopt more learner-centered approaches to teaching (Nguyen & Hall, 2016) where students are encouraged to independently explore and understand concepts, taking ownership of their educational journey. In such a setup, a teacher's direct control over the learning process is reduced both within and outside the classroom environment. Under this paradigm, teachers are envisioned to act as facilitators of knowledge and promoters of creative thought (Tran et al., 2014), moving away from the traditional role of being the sole source of information (Keiler, 2018). Nonetheless, transitioning from teacher-led to student-led language learning is a challenging task, deeply rooted in conventional teaching habits. Furthermore, Vietnamese educational policy has shifted to ensure that students develop skills suitable for the twenty-first century, including the ability to learn autonomously (Nguyen, 2016). However, the assumption that students naturally possess self-regulated learning skills has been proven incorrect, with a noticeable lack in many Vietnamese students, including those in higher education.

Furthermore, various scholars have demonstrated a link between student independence and their interactions with classmates (Stevens, 2007). This suggests that students can benefit from each other's knowledge when they engage in group work, as each individual brings their unique approach and methods to the learning process (Blidi, 2017). Beyond working together, a self-regulated learner is expected to establish their learning objectives, devise a learning plan, select appropriate resources and

techniques, evaluate their progress, and actively seek assistance from peers and/or instructors when necessary (Little, 2001). In particular, Little (1991) argued that students are capable of organizing their learning when given the chance to do so. Interacting with each other in the EFL classroom is challenging in the Vietnamese context. As mentioned in the previous section, there are some reasons leading to the lack of interaction. Firstly, traditional Vietnamese classrooms tend to be teacher-centered. Teachers often dominate the class time, leaving little room for student interaction. This approach emphasizes the teacher's role as the knowledge provider while students passively receive information (Oanh, 2021). Secondly, many classrooms in Vietnam are overcrowded, which makes it challenging for teachers to manage interactive activities. It also limits opportunities for students to participate in discussions or group work (Lan, 2023). Thirdly, Vietnamese culture typically values authority and hierarchy, which can discourage students from speaking up and interacting with the teacher and each other. Students may hesitate to share their thoughts for fear of making mistakes in front of their peers or questioning the teacher's authority (Dat, 2007). In addition to social interaction, students' engagement of students with learning content is a concern in EFL classes in the Vietnamese context. A study by Le (2022) showed that despite the apparent objectives of the textbooks, it was challenging to reach these aims due to insufficient learning opportunities provided, its inconsistent level of difficulty for students, and its failure to align with the students' interests and requirements.

Additionally, since the present study was supposed to be carried out at the University of Economics and Finance in Ho Chi Minh City (UEF), the researcher conducted a survey with teachers and students at UEF to probe into their problems and needs in the current situation of teaching and learning English speaking skills in this context. Two open-ended questionnaires were designed via Google Forms. The former was administered to 76 freshmen to survey their difficulties and needs in learning English speaking skills (Appendix A). The latter was administered to 22 teachers to investigate their challenges and needs in teaching English speaking skills (Appendix B). The items in the questionnaires were adapted from Vy (2020) and were piloted with 5 teachers and 10 students. Qualitative data analysis was carried out to explore the results which are as follows.

When it comes to teacher's perspectives, the results showed that the most tremendous challenge was the limited time in the classroom. In the classroom, the teachers had to cover many things such as grammar, vocabulary, reading, and listening resulting in the lack of time to organize activities for the students to practice communication skills. The second problem was the large class size which disabled

them to observe and support every single student. Students in a class with such a large number of students (typically between 35 and 40) had very limited opportunities to speak since only one student spoke at a time while the others strived to hear him or her. Some students dominated the whole speaking class while others spoke seldom or never at all. The third problem was that students tended to be nervous or stressed when they were asked to speak in class. Most students struggled to come up with ideas for unusual or unappealing speaking topics. When learners were unsure if what they were about to say was right, they chose silence or limited engagement. Learners often preferred to generate ideas in their first language before translating them into the target language by using Google Translate. In other words, it normally took time for the students to prepare the speech in any activities or tasks. Most importantly, all the teacher participants stated that students' self-study in learning English in general and speaking, in particular, was very poor. They lacked the motivation and skills to learn independently outside the classroom. To solve these problems, most of the teachers said that first of all, it was essential to raise students' awareness of the importance of self-learning and train them how to self-regulate their learning. Secondly, due to limited time in the classroom, teachers needed to design further interactive activities to encourage students to practice speaking both inside and outside the classroom and to interact more. Another concern revealed from the teachers was the teaching resources which were limited, and textbooks were the main materials they had been using for teaching. The topics in these textbooks might have been out of date, which influenced students' engagement. They suggested taking advantage of technology and social networks so that students could make a connection with appropriate resources for their learning needs as well as seek assistance from their peers or teachers.

From the students' perspectives, the findings revealed that the most common problem in their speaking skills was the shortage of vocabulary, followed by pronunciation, grammar, and ideas. Concerning learning to speak in the classroom, they expressed the fear of speaking English or interacting with teachers and peers in English because they were afraid of losing face. Some of them disclosed that they did not receive sufficient feedback from the teacher, especially when working in groups. The others complained about the insufficient opportunities to speak in the classroom due to the large number of students and time constraints. Finally, even though teachers encouraged them to practice speaking outside the classroom by using technological tools, they were not motivated and confident to study by themselves. Therefore, they expressed the need to have more chances to practice speaking. They were willing to

practice more outside the classroom by making use of digital tools. However, they still needed guidance and assistance in terms of SRL so that they could learn independently in the future. They also mentioned the lack of learning materials, the inappropriateness, and the tediousness of the textbooks. Some of them stated that the topics in the textbooks were boring and the content was so easy for them. They expected to get access to more exciting and updated materials for learning.

To sum up, there are problems in terms of teaching and learning English speaking skills, SRL, and interaction in the Vietnamese context generally and at UEF specifically. Consequently, there is an urgent need to employ an alternative teaching approach to alleviate the reality of teaching and learning English speaking skills as well as to foster students' SRL and interaction in the Vietnamese context. As a result, a PLE for speaking skills, SRL, and interaction was proposed to assist both teachers and students at UEF in particular; and potentially benefit EFL learners in general.

1.3 Rationale of the Study

The present research study is conducted for the following reasons:

First of all, as discussed in the background of the study and statement of the problems sections, despite great efforts from the MOET in promoting English teaching and learning in the Vietnamese context, the English proficiency of Vietnamese students has still been low compared to other countries in the area. Regarding speaking skills, Vietnamese EFL students still encounter problems related to linguistics and psychology. There are numerous factors stemming from learners, teachers, syllabi, and the environment. To be more specific, the opportunities are not ample for students to practice speaking and interact in the classroom. Additionally, students lack SRL, which is extremely important for students in the 21st century. They are not fully prepared for self-study and still rely excessively on teachers. What is more, learning resources do not sufficiently engage students. Similar problems were also found in the survey carried out by the researcher at UEF where the research would be taking place. This research therefore presented an alternative method for instructing English speaking skills, aiming to assist Vietnamese learners in overcoming problems related to speaking skills, SRL, and interaction.

Secondly, since the concept of PLEs is relatively new and is constantly developing (Serhan & Yahaya, 2022), empirical research on PLEs remains in its infancy and needs to be further studied (Torres-Kompten, 2015; Xu et al., 2024). Previous research on PLEs has primarily focused on broader educational contexts or subjects other than in EFL. In the Vietnamese context, to the best knowledge of the researcher, there is only

one study conducted by Trang (2020) proposing a framework using a rhizomatic PLE to enhance students' academic listening comprehension. However, the experiment has not been done in a real classroom. This study hence explored more about PLEs in EFL by investigating the effects of PLEs on students' speaking skills. In addition, even though the PLE approach respects individual differences and stresses personalization in learning, most previous empirical studies have tended to treat learner populations as completely homogeneous groups (El & Magd, 2015; Parnkul, 2018; Ospina Villabona, 2019; Drajati & Handayani, 2020). In other words, there is a paucity of research that explicitly examines how these benefits of PLEs vary for each student. Therefore, the present research aimed to explore the variations of a proposed PLE on different speaking performance levels (high, medium, low).

Thirdly, despite the recognition of SRL as a crucial skill for language learners, there is a gap in the literature regarding the effective integration and application of SRL strategies specifically in enhancing speaking skills among EFL students (Chen et al., 2022). Furthermore, the literature highlights the need to tailor SRL strategies to the specific needs and preferences of learners, but very few studies have explored how to effectively customize these strategies within the framework of a PLE (Siswanto & Mbato, 2020). Additionally, even though PLEs are claimed to be an encouragement and a solution for SRL in the literature (Haworth, 2016; Conradie, 2014; Yen et al., 2019; Nan Cenka, 2022), the evidence from empirical research, especially in language education, is insufficient (Ferrer & Ramirez, 2012; Dabbagh et al., 2015; Goksel et al., 2018). Hence this study was carried out with the hope of filling these gaps.

Fourthly, interaction is a fundamental aspect of effective learning environments, shaping the exchange of knowledge, peer collaboration, and the development of critical thinking skills (Maor, 2003). Despite the growing adoption of PLEs in educational settings, there are notable research gaps in understanding the specific effects of these environments on interaction. This study sought to address these gaps by investigating how the PLE impacts the nature and dynamics of interaction in the context of learning English speaking skills.

In sum, the present study was worth being conducted for the aforementioned reasons. This study predominantly attempted to investigate the effects of the PLE on EFL students' speaking skills, SRL, and interaction in the Vietnamese context.

1.4 Purposes of the Study

The ultimate goal of this study was to improve Vietnamese EFL undergraduate students' speaking skills, SRL, and interaction. Specifically, the purposes were as follows:

1. To examine the effects of a Personal Learning Environment (PLE) on the speaking skills of Vietnamese EFL undergraduate students and how the effects vary across different speaking performance levels (high, medium, low).
2. To examine the effects of the PLE on the self-regulated learning of Vietnamese EFL undergraduate students.
3. To examine the effects of the PLE on the interaction of Vietnamese EFL undergraduate students.
4. To investigate the perceptions of Vietnamese EFL undergraduate students towards using the PLE to enhance speaking skills, self-regulated learning, and interaction.

1.5 Research Questions

To achieve the purposes proposed above, this study purported to answer the following questions:

1. What are the effects of a PLE on the speaking skills of Vietnamese EFL undergraduate students? How do the effects vary across different speaking performance levels (high, medium, low)?
2. What are the effects of the PLE on the self-regulated learning of Vietnamese EFL undergraduate students?
3. What are the effects of the PLE on the interaction of Vietnamese EFL undergraduate students?
4. What are the perceptions of Vietnamese EFL undergraduate students towards using the PLE to enhance speaking skills, self-regulated learning, and interaction?

To be more specific, questions 1, 2, and 3 aimed to investigate the effects of the PLE on three aspects: speaking skills, SRL, and interaction. After that, the purpose of question 4 was to get further insights into students' perceptions as well as to confirm the quantitative results from the previous questions.

1.6 Significance of the Study

This study is expected to make several significant contributions to the field of technology-enhanced language learning. The significance of this study can be summarized as follows:

First of all, the concept of PLE is relatively new in Vietnamese education in general and in the Vietnamese EFL context in particular. Very few studies, to the researcher's knowledge, have developed a PLE-based teaching approach to enhance students' language learning in the Vietnamese context. This study is pioneering to construct a PLE to promote students' speaking skills, SRL, and interaction. The findings of this study therefore will increase the awareness of Vietnamese EFL teachers in employing the PLE approach to enhance students' speaking skills, SRL, and interaction.

Secondly, this study is supposed to provide a guideline that EFL instructors can adapt to their teaching context. It will be appropriate for not only teaching and learning speaking skills but also the other skills in any courses to foster EFL students' English proficiency, SRL, and interaction.

Thirdly, the findings of this study will encourage the integration of technology in teaching and learning English in the Vietnamese context. It is noteworthy that despite the benefits of technological tools, EFL instructors and learners have not been completely taking advantage of them in their teaching and learning.

Fourthly, EFL undergraduate students are expected to be able to ameliorate their speaking skills, SRL, and interaction by practicing speaking through the PLE. They are able to set their own goals, plan, monitor, and reflect during the learning process. In other words, students are encouraged to learn English not only in the formal environment but also in the informal environment.

Fifthly, it is expected that novice researchers can adopt and adapt the instruments as well as the materials developed in this study for their research projects and teaching.

1.7 Operational Definitions of Key Terms

Speaking Skills: In this research, speaking skills refer to the ability of learners to effectively communicate in spoken English. These skills encompass fluency, coherence, vocabulary usage, grammatical accuracy, and pronunciation clarity. Proficiency in English speaking involves the capacity to engage in fluid conversations, express opinions, provide detailed explanations, and interact with others in English while comprehending and responding appropriately to various accents and speech

patterns. These skills are evaluated based on the IELTS (International English Language Testing System) band descriptors for speaking proficiency (IELTS, n.d.).

Personal Learning Environment: In the context of this research, a PLE is defined as a learner-centered approach that integrates various digital tools, resources, collaborative activities, and support allowing students to control and manage their learning processes. It is an online space using Facebook and Zalo as the main and supplementary platforms, developed by the researcher to facilitate students' personalization and collaboration. Students can set their goals, customize available tools, resources, and activities, and connect with the community to achieve their learning goals.

Self-regulated Learning: While many studies consider SRL as learner autonomy, others differentiate them in which self-regulated learning is a narrower concept than learner autonomy (Murray, 2014). The definition of SRL is operationalized in this study based on Zimmerman (2002), referring to the process by which learners take control of their own learning experiences within the PLE. To be more specific, students can set goals, structure their learning environment, utilize available resources, manage their time, adjust strategies, seek assistance when needed, and reflect upon their learning experiences to achieve desired learning outcomes.

Interaction: In the context of this research, interaction refers to three types of interaction from Moore's (1989) online interactions model, namely student-student, student-teacher, and student-content. In this study, student-student and student-teacher interactions indicate the dynamic and collaborative exchange of ideas, information, and communication between students and their peers and the teacher within the PLE, particularly on Facebook and Zalo. Meanwhile, student-content interaction refers to the engagement between a student and the materials and tools shared in the PLE which they use for learning.

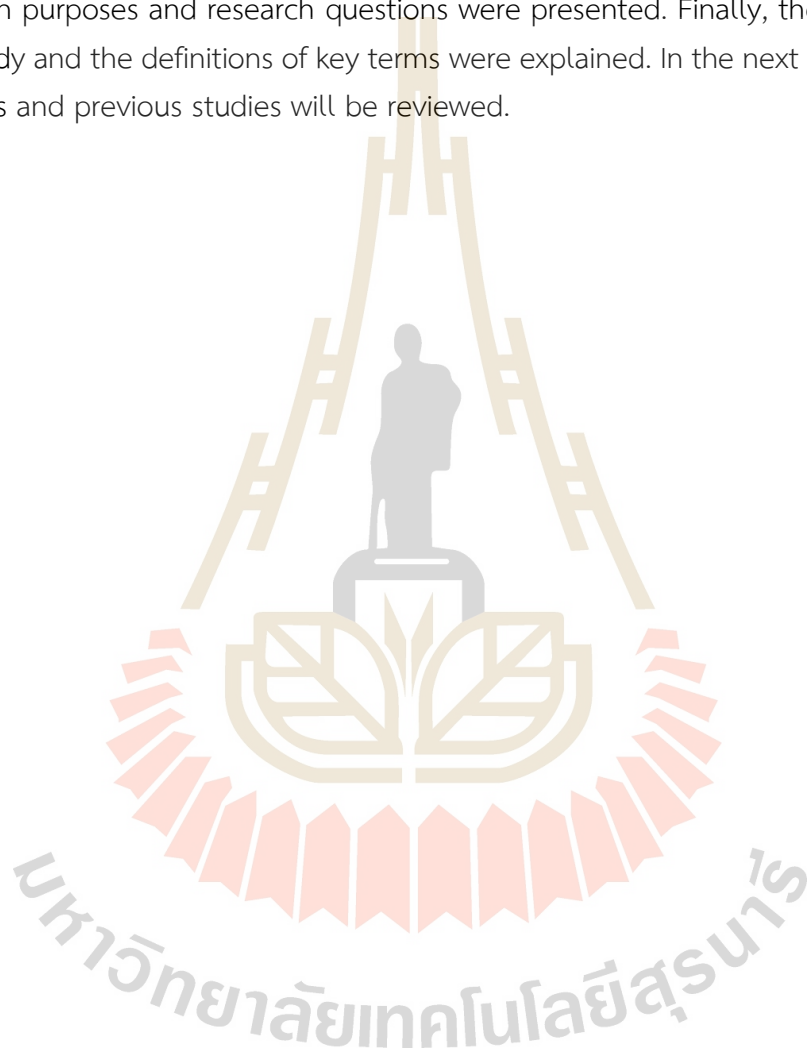
Vietnamese EFL undergraduate students: Vietnamese EFL undergraduate students in this study refer to Vietnamese first-year students who are non-English majors coming from various disciplines such as Economics, Public Relations and Communication, Law, Tourism and Hospitality Management, and so on at the University of Economics and Finance, Ho Chi Minh City, Vietnam. They are supposed to be at pre-intermediate level and have been learning English for at least 7 years.

Perceptions: Perceptions in this research refer to the subjective understanding, perspectives, and experiences of EFL undergraduate students about the implementation of the PLE for the enhancement of their speaking skills, SRL, and

interaction in the Vietnamese educational setting. It encompasses students' opinions, experiences, and perceived challenges or benefits associated with the use of the PLE.

1.8 Summary

To sum up, this chapter has presented an overview of the background of the study, followed by a statement of the problems and rationale of the study. After that, research purposes and research questions were presented. Finally, the significance of the study and the definitions of key terms were explained. In the next chapter, related theories and previous studies will be reviewed.



CHAPTER 2

LITERATURE REVIEW

This chapter will provide a theoretical background for this study by reviewing the relevant literature regarding related learning theories, Personal Learning Environments, English speaking skills, self-regulated learning, and interaction. In addition, previous studies are reviewed. Firstly, the theoretical framework will be explained. Secondly, the concept of Personal Learning Environments is described. Thirdly, the concept of speaking skills will be presented. Fourthly, self-regulated learning is reviewed. Fifthly, interaction is presented. After that, a conceptual framework is explained. Finally, there will be a summary to conclude this chapter.

2.1 Theoretical Framework

This section will review all related learning theories as the foundation to develop the PLE for English speaking skills, SRL, and interaction in this research. According to Kop (2010), Kompen (2016), Rahimi (2015), and Ayala Nevado (2016), the PLE approach is under the principles of several learning theories including Connectivism, Social Constructivism, and Self-regulated Learning. The theoretical framework of the study is illustrated in Figure 2.1.

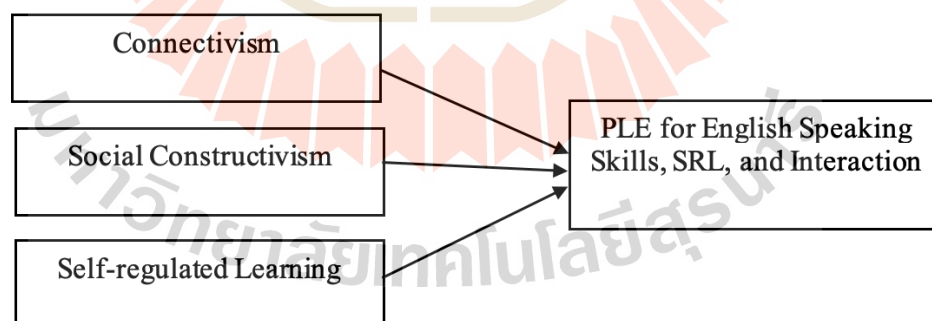


Figure 2.1 Theoretical Framework of the Study

2.1.1 Connectivism

Connectivism is a learning theory generated by George Siemens and Stephen Downes (Bell, 2009). It is a theoretical framework viewing learning as a network phenomenon affected by technology and socialization (Siemens, 2005). This theory

claims that learning occurs when the learner makes a connection among ideas constructed throughout the personal learning networks involving a variety of information resources and technology tools (Dunaway, 2011). Connectivism is considered the learning theory of the digital age preceded by behaviorism, cognitivism, and constructivism (Siemens, 2005). According to him, these three theories obtain several limitations in terms of their intrapersonal learning perspective, their failure to address learning taking place within technology and organizations, and their shortage of focus on value judgments needed in knowledge-rich environments. Connectivism promotes a viewpoint akin to Vygotsky's activity theory, in which knowledge is held inside systems and accessed through the active engagement of learners. Learning, on the other hand, according to connectivism, is the process of making connections and forming networks. In contrast to traditional learning paradigms' "know-how" and "know-what" foci, this allows for the development of the concept of "know-where" (where information can be obtained). Siemens (2005) describes connectivism's principles as follows:

1. Learning and knowledge rest in various opinions.
2. Learning is the connecting process of specialized nodes or sources of information.
3. Learning may reside in non-human appliances.
4. The capacity to know is more important than what is currently known.
5. Nurturing and maintaining connections is essential to facilitate continual learning.
6. The ability to identify connections between fields, ideas, and concepts is a core skill.
7. Accurate, updated knowledge is the target of all connectivist learning activities.
8. Decision-making itself is a learning process.

In connectivism, learning will start from the learner's activation of knowledge through connecting and taking part in a learning community described by Siemens (2005) as a node which is an integral part of a network. Nodes may include websites, libraries, organizations, or other information sources. Two or more than two nodes can be combined to make networks. According to Downes (2007), there are four characteristics that constitute successful networks: diversity of opinions, the autonomy of learners, openness, and connectivity. Knowledge and learning knowledge in connectivism do not exist in a particular place but consist of networks of connections developed from the interactions among people, societies, organizations, and

technologies (Siemens, 2005). Knowledge, which is deemed to be a process, dynamic, and fluid, can be occupied in multiple digital formats.

In terms of neural perspective, Goldie (2016) states that connectivism is a novel theory of mind. The patterns of input phenomenon lead to the patterns of connections that are allocated in neural networks in the brain. These connections are associated and naturally made when two neurons are concurrently active. According to Downes (2007), the difference between connectivism and cognitive theory lies in their views towards knowledge. In cognitive theory, knowledge is viewed as schema or symbolic mental constructions while in connectivism, knowledge is believed to be sub-symbolic and meaning-making derives from the interaction of a series of connections.

Connectivist theory necessitates an abundance in which course material is developed and shared with others, conversation and negotiation take place, and experience is broadened via dialogue as a consequence of sharing and exchange with the set of connections (Bell, 2009). The importance of practicing in real-world settings cannot be overstated for the developmental process where social and communication environments for cooperation and conversation are factors that need to be created. In foreign language learning, supplementary materials that encourage collaboration, dialogue, and negotiation with peers enhance motivation and social communication through the interaction of individuals and networks, as they integrate learning and social communication skills (Tschofen & Mackness, 2012). The literature review highlights the importance of the online course and additional resources for foreign language learning. In addition, literature indicates that online communication and social networking technologies foster cooperation and communication, hence enhancing language learning. Additionally, discussing and sharing ideas and experiences on an online platform boosts the confidence of learners and assists them in constructing connectivist knowledge via social relationships.

Despite criticism towards connectivism, Kop and Hill (2008) state that connectivism offers an emergent pedagogy in which a teacher-centered approach is increasingly shifted to a student-centered approach. Ally (2008) also supports this theory by claiming that the previous theories were created before networked learning was broadly employed and these theories are not relevant to the digital age.

2.1.2 Social Constructivism

Social constructivism, a theory of social learning created by Russian psychologist Lev Vygotsky in 1978, states that people are active creators of their knowledge (Schreiber & Valle, 2013). Vygotsky thought that learning takes place largely

in social and cultural contexts, rather than merely in the individual. According to this perspective, language and culture serve as the frameworks through which people experience, communicate, and understand reality. This implies that ideas are transferred via language and understood through experience and interactions in a cultural context (Akpan et al., 2020). Since it requires a community of individuals to form cognitive structures via language and culture, knowledge is not only socially built but also co-constructed. Dyads and small groups are extensively emphasized in the social constructivism theory (Johnson & Bradbury, 2015). For example, students learn mostly via interactions with their classmates, instructors, and parents while teachers promote and facilitate conversation by harnessing the natural flow of talk in the classroom (Kalina & Powell, 2009). In other words, social constructivism is a subset of cognitive constructivism that stresses collaborative learning, whether under the supervision of a facilitator or in cooperation with other students.

Social constructivism acknowledges the social aspect of learning and the use of conversation, interaction with others, and knowledge application as a vital component of learning and a means to reaching learning goals. The zone of proximal development (ZPD), a key concept in Vygotsky's theory of social constructivism, highlights the role of the teacher in a student's learning (Davis et al., 2017). The ZPD distinguishes between tasks that a student can do alone and those that need the assistance of an instructor. The ZPD contends that students may learn and master knowledge and skills that they would not be able to do on their own with the help of a teacher (Schreiber & Valle, 2013). After mastering a specific skill, students can do it independently. Under this approach, the teacher is an active participant in the students' knowledge acquisition, rather than a passive figure.

There are five major characteristics of social constructivism (Saleem et al., 2021). First of all, knowledge is constructed by learners themselves. Education is a process that involves active participation rather than passive lecturing. Information, ideas, and knowledge gleaned from others are transformed rather than absorbed in their present state. Secondly, knowledge can be gained through experience. Instructors provide learners with theoretical and conceptual knowledge, while individuals gain knowledge through their life experiences. Learners, particularly adult learners, gain academic knowledge by employing earlier experiences to augment their learning experiences, comprehending and interpreting the importance of learned knowledge. Thirdly, learning is considered as a social activity. Social connection, interpersonal interaction, and contact with community members all contribute to the development of learning in individuals. Cultures, languages, and other social norms and beliefs all

contribute to individuals' capacity for learning. Fourthly, all components of a learner are interdependent. While social connection is essential for learning, attitudes, emotions, values, and actions are all significant in social constructivism. Last but not least, learning communities that are both inclusive and egalitarian. The need for knowledge, information, and awareness among individuals as well as the understanding of the social nature of learning indicates the necessity for inclusive and equitable learning communities.

2.1.3 Self-regulated Learning

Various researchers have defined SRL in different ways. According to Zimmerman (1986), SRL describes how engaged students are in their learning on a metacognitive, motivational, and behavioral level. Lindner and Harris (1993) posit that SRL is a coordinated process that involves the incorporation of suitable beliefs and the use of cognitive, metacognitive, motivational, perceptual, and environmental components in completing academic tasks. Butler and Winnie (1995) defined SRL as a purposeful, critical, and flexible process in which the learner consistently chooses how to allocate resources, practice relevant skills, choose effective strategies, and evaluate his or her own effectiveness. SRL is described by Pintrich (1999) as the tactics that students use to govern their cognition as well as the resource management strategies that students employ to control their learning. Ross et al. (2003) state that SRL is an engaged, constructive process by which students set objectives, keep track of their progress and manage their cognition, motivation, and behavior while taking into account the pertinent elements of their learning context and environment. According to Dabbagh and Kitsantas (2012), SRL is considered a skill in which students need to understand how to set objectives, what is required to reach those objectives, and how to actually accomplish these goals. As a result, in order for students to self-regulate their own behaviors, they must also be motivated or driven to achieve objectives.

Despite various definitions, it is generally agreed that SRL refers to the effort made by students to systematically manage and control their own learning processes in order to accomplish certain educational objectives (Pintrich, 2004; Zimmerman & Schunk, 2011). In addition, there is widespread agreement that SRL is a multidimensional construct that includes cognitive, metacognitive, behavioral, and self-motivational components (Zimmerman & Schunk, 2011). According to Pintrich (1999), cognitive strategies are the abilities that learners use to process information and knowledge while performing a task. They facilitate the construction, transformation, and application of second language (L2) knowledge. Metacognitive strategies are the skills students use to govern and regulate their cognition and cognitive resources, which

aid in goal setting, planning, monitoring, and assessing their learning results (Winne, 2011). As a crucial component of self-regulation, social-behavioral strategies incorporate students' control over their learning behavior while being influenced by contextual factors (Zimmerman, 2008). Lastly, motivational strategies are actions or thoughts that students use on purpose to keep or increase their interest in a task.

There have been several models of SRL developed by scholars but one of the most widely used ones is Zimmerman's (Panadero, 2017). The SRL model proposed by Zimmerman (2000) is divided into three phases: forethought, performance, and self-reflection (see Figure 2.2). In the phase of forethought, students examine the task, establish objectives, and plan how to achieve them, while a variety of motivating beliefs energizes the process and impacts the activation of learning strategies. During the performance phase, students execute the task while monitoring their progress and using a variety of self-control tactics to remain cognitively engaged and motivated to complete the assignment. In the last step of self-reflection, students evaluate how they have accomplished the assignment, attributing their success or failure. These attributions produce self-reactions that may have a good or negative effect on how students approach the assignment in subsequent performances. This model was used as one of the guidelines to design the lessons in this study as well as to assess students' SRL since it is widely employed in previous research. In addition, in this study, the definition of SRL would be based on this cycle, which refers to students' abilities to set their own learning goals, plan for a task, monitor their performance, and reflect on the learning outcome.

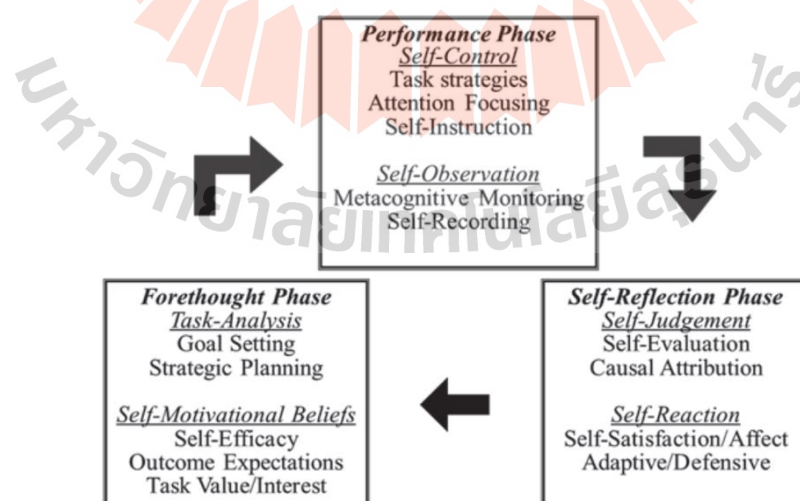


Figure 2.2 Cyclical Phases Model (Zimmerman, 2000)

To conclude, the PLE for speaking skills, SRL, and interaction in this research was developed based on these three learning theories. In other words, learning through the proposed PLE occurred under the principles of these theories. To be more specific, students were supposed to connect with both technology and humans, take part in interactive activities, learn how to set learning goals, and monitor and reflect on their learning process.

2.2 Personal Learning Environments

This section will introduce the definition of the PLEs concept, characteristics, and components of the PLEs. It will also describe the roles of PLEs within language education.

2.2.1 Definitions of PLEs

Personal Learning Environments (PLEs) are a relatively novel concept that first appeared at JISC/CETIS Conference with the theme “The Personal Learning Environment Session” in 2004 (Schaffert & Hilzensauer, 2008). The initial effort in developing a PLE was noticed in 1998 with the Future Learning Environment (Fle3). After that, some projects were carried out in the 2000s such as Colloquia, NIML, ROMA, etc. Some social networking sites like Elgg and 43Things were created to be a model for PLEs. It is difficult to define PLEs accurately and therefore a variety of definitions are provided by various scholars. Since the middle of the 2000s, there have been two different perspectives on PLEs. The first one explains PLEs from a technological view when seeing them as an object, a platform, or infrastructure while the other considers PLEs as a methodology or concept, which is much more about pedagogy.

When it comes to the first viewpoint of PLEs, a PLE is defined by Martindale and Dowdy (2010) as a particular tool or a collection of tools by learners for organizing and controlling their learning. Siemens (2007) defines a PLE as a collection of tools; brought together under the conceptual notion of openness, interoperability, and learner control. Similarly, Chatti et al. (2011) explain that PLEs are a method to generate new learning applications by gathering current data and services from a variety of sources. More specifically, it is “a collection of free, distributed, web-based tools” linked together on a blog, and content is aggregated by utilizing RSS (Really Simple Syndication) feeds and HTML scripts (FitzGerald, 2006). Adell & Catañeda (2010) also defined a PLE as an array of tools, informational resources, networks, and learning activities tailored to an individual’s needs.

The aforementioned definitions stem from the technological points of view of the scholars meanwhile there is another group perceiving PLEs as a pedagogical

approach. Attwell (2007) emphasizes that PLEs should be considered as a new approach using new technologies for learning rather than a software application. According to Van Harmelen (2006), a PLE is a system that enables students to control their learning by assisting them in setting their goals, managing content and process, and communicating with other people during the learning process. Also, Aviram et al. (2008) believe that a PLE is a pedagogical model facilitating students' SRL in which they make their own choice, direct and plan their learning thoughtfully and strategically as well as adjust the learning process on their own needs, interests, and preferences. It is a concept employing Web 2.0 technology to enhance lifelong learning, informal learning, and self-directed learning (Mcloughlin & Lee, 2010). Meanwhile, Baran (2010) considers PLEs as a network learning in which the connections among learners, teachers, community, and resources are promoted by using technology, which improves learner autonomy and self-regulation.

In general, there are two different approaches towards PLEs: 1) a technological platform to collect pedagogical tools; and 2) a catalyst to develop personal learning. Even though PLEs should not be technical but philosophical, ethical, and pedagogic, most of the studies regarding PLE take the technological perspective and only a few researchers have evaluated the development of personalized learning (Fiedler and Valjataga, 2013). This study follows both approaches since according to García-Martínez and González- Sanmamed (2017, 2019), in the digital age, it is acknowledged that learning approaches are strongly impacted by technology, and the integration of technology with pedagogy is critical in all educational processes. As a result, the PLE of the present study was operationalized as a techno-pedagogical approach enhancing students' speaking skills, self-regulated learning, and interaction by enabling them to set their goals, customize available tools, resources, activities, and connect with the community to achieve their learning goals.

2.2.2 Characteristics of PLEs

According to Rahimi (2015), the characteristics of PLEs can be identified according to four dimensions, namely organizational dimension, learner dimension, learning dimension, and environmental dimension (Figure 2.3).

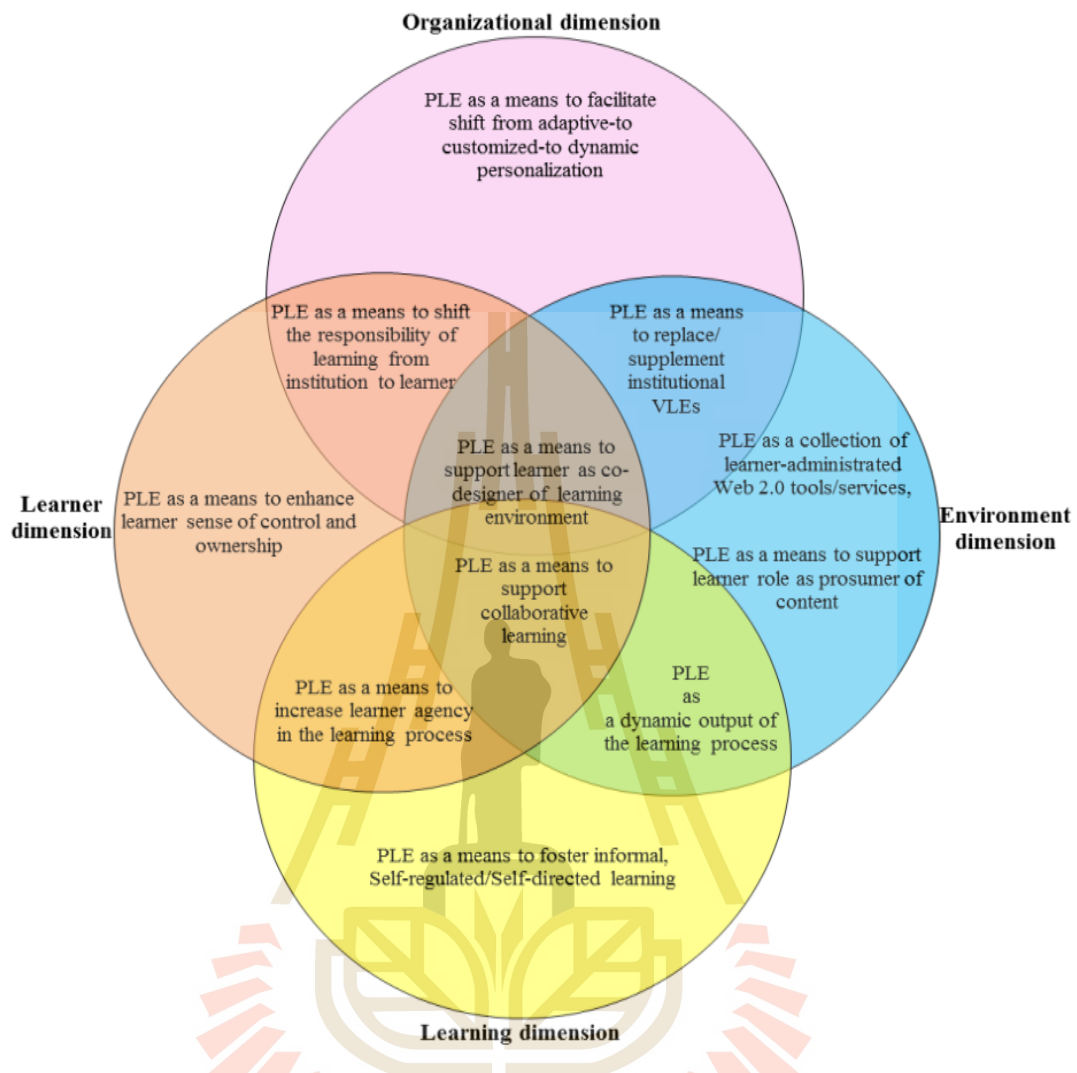


Figure 2.3 The Characteristics of PLEs (Rahimi, 2015)

With regard to the organizational dimension, there are three characteristics of a PLE. First of all, PLEs are seen as a means to transfer adaptive personalization from customized personalization to dynamic personalization (Rahimi, 2015). According to Fraser (2007), adaptive personalization refers to tracking students' preferences through activities and taking control of what is ready for them. Customized personalization aims to make students engage with what the institution provides. Meanwhile, dynamic personalization is a student-led personalization in which students can determine the choice of learning resources supported by the system. According to Leadbeater (2004), personalization should mean empowering users by not only supplying them with services but also encouraging them to design services. This is aligned with the PLE purpose of giving students choices and letting them design their

learning environment by making use of these choices to satisfy their needs. Secondly, PLEs are considered to be the means to shift the learning responsibility from the institution to the students (Rahimi, 2015). Students, not the institution, should be the ones who create, own, and customize their learning environment. Green et al. (2005) state that there should be a change in the direction of the educational system from making students follow a predetermined system to conforming to the students. The last characteristic of PLEs in this dimension is that PLEs are a means to replace or supplement instructional VLEs (Rahimi, 2015). There are two different viewpoints about the relationship between PLEs and VLEs. The first one leans towards the idea that PLEs replace learning management systems (LMS) and provide students with tools and practices to satisfy their needs (Valtonen et al., 2012). In VLEs, the purpose is to convey the knowledge from the instructor to the students, the learning process and assessment are controlled by the instructor (Wang et al., 2011). On the contrary, in PLEs, students take an active role in building and implementing their learning environment according to their needs and preferences (Attwell, 2007). However, some scholars argue that PLEs can not completely replace VLEs. The development of technology, especially Web 2.0 technologies has brought ample opportunities for students to generate their own learning environment (Wang et al., 2011). Also, social interaction and knowledge sharing are enhanced through the integration of these technologies with other workplace e-learning applications. Nevertheless, these learning systems are not able to meet the needs of employees and achieve the goals of the organization systematically. Therefore, PLEs should be a supplement rather than a replacement for VLEs.

In terms of the learner dimension, the first characteristic is that PLEs are a means to promote students' sense of control and ownership (Rahimi, 2015). The focus of PLEs on students' control is in conformity with several learning theories including constructivism, social constructivism, and connectivism. Accordingly, a PLE plays an important role in assisting students to set their goals, self-manage their learning content and process, and interact with other people to reach their learning goals (Attwell, 2007). Meanwhile, according to Buchem, Attwell and Torres (2011), learner's ownership refers to students' responsibility for the aggregation and configuration of tools and services, their ownership of the content and psychology. Learners' control is related to "personalization", "adaptation" and "negotiation" while learners' ownership is about "personal responsibility" and "autonomy". The second characteristic in this dimension is the importance of PLE in fostering learner agency which is the human ability to make a choice and impose it on the world (Buchem et

al, 2011). PLEs enable students to create their online social identity providing them with the prompt regarding what and whom to share and how to combine formal and informal learning in an effective way.

For the learning dimension, there are three characteristics. The first one is the role of PLEs in support of informal learning. PLEs are the combination of formal and informal learning in an organization (Attwell, 2007). By using PLEs, formal learning will be supplemented and supported by informal learning with the utilization of social networking and networking protocols to access a wide range of resources. The second characteristic refers to PLEs as a means to foster self-regulated learning. Drexler (2010) lists two characteristics of PLEs which are learner autonomy and self-regulation or self-direction. Constructing PLEs as a learner-centered activity will enhance learners' metacognition and promote their self-regulated ability leading to meaningful learning experiences (Mott, 2010). Dabbagh and Kitsantas (2012) proposed a framework for utilizing social media to build PLEs supporting self-regulated learning at three levels: personal information management, social interaction and collaboration, and information aggregation and management. Haworth (2016) stated that PLEs can make students become self-directed by "tracking, organizing, and accounting for their learning". The third characteristic is that PLEs are a means to facilitate collaborative learning. According to Boyd (2008), one of the benefits of Web 2.0 technologies and social media which are the major components of PLEs lies in the aspect of sociability. It is PLEs that can boost interaction and collaboration among students. Social software enables them to actively cooperate, support each other, and share their resources as well as their knowledge and so on.

Last but not least, the fourth dimension is the environment with three characteristics of PLEs. First of all, PLEs are seen as a collection of Web 2.0 tools and services administered by students (Rahimi, 2015). This characteristic is derived from the technological perspective in which students are allowed to choose the tools to construct their learning environments to support their learning process. As defined by Attwell (2007), a PLE is a learning space where students collect Web 2.0 tools and communicate with their peers and experts. Downes (2007) mentions three components of a PLE in terms of technology, which include tools to manage a personal profile, edit and publish materials, tools to learn, communicate, scaffold, and connect, and tools to observe students' habits to guide them to relevant resources and activities. Dohn (2009) emphasizes the importance of integrating Web 2.0 into the educational environment by presenting four reasons: (1) students are familiar and skillful with Web 2.0, (2) it can promote self-directed life-long learning, (3) Web 2.0

tools have user-centered features and (4) Web 2.0 tool competencies are required for their future jobs. Next, PLEs are a means for students to co-design/co-develop their learning environment. According to Drexler (2010), constructing a learning environment itself is a crucial learning process which is created by both students and teachers thanks to various technologies and resources. It is hence necessary to provide students with different genres of technology so that they can develop their own learning environment according to their needs. Finally, PLEs are seen as a means to assist students in creating content. Weller (2011) posits that with PLEs, learners can access content from different resources such as articles, videos, podcasts, wikis, blog posts, and so on. In addition, they can have opportunities to discuss content with others.

In conclusion, PLEs are deemed to include the following characteristics. They (1) are learner-controlled, (2) encompass a variety of digital resources, (3) aggregate resources into a single interface, (4) support and enable lifelong learning, (5) develop and expand over time, (6) enable collaborative and reflective practices, (7) foster the development of multiple learning skills and literacies in one place, and (8) bridge formal and informal learning (Guettat & Farhat, 2015). Therefore, a PLE-based approach not only offers personalized spaces owned and controlled by the user but also necessitates a social context by providing a means to connect with other personal spaces for efficient sharing of knowledge and collaborative knowledge generation (Martindale, & Dowdy, 2010). All the characteristics of PLEs were shown in the PLE of this study which aimed to enhance students' speaking skills, SRL, and interaction.

2.2.3 Components of PLEs

According to Castañeda and Adell (2013), there are three components of a PLE. These include reading, doing/reflecting while doing, and sharing (see Figure 2.4).

The first component of the PLE refers to documentary sources, platforms, and mechanisms from which students learn and regularly extract information. The tools in this part might include newsletters, blogs, video channels, RSS lists, and so on. These are places where students can access information, join in conferences, read texts, review headlines, and make use of audiovisual resources. Pedagogically, this component includes attitudes and aptitudes in searching for curiosity, initiative, and independence when students make attempts to search for information in a persistent way to meet their needs. In other words, this component highlights the opportunity for students to develop their own PLEs through the utilization of the huge, readily accessible information on the Internet in multiple formats, personalizing them with different tools according to their unique needs and contexts (Kompen et al., 2019). For this purpose, students need to have comprehension skills, strategies, and

competencies that empower them to effectively search, filter, assess, and interpret information in a secure manner (Coiro & Dobler, 2007).

The second component of a PLE is related to modifying the information and integrating tools and platforms where students undertake things with the obtained information. This also consists of platforms students use to restore knowledge after reflecting on the information. The mechanisms involved in this component are reflecting, reorganizing, prioritizing, editing, and publishing information. As a result, the tools will be online platforms such as a blog, a website to upload videos, a profile wall on social media, or a notebook. The activities could be creating a daily report, elaborating a mind map, or publishing a video. In other words, this component delves into how students, through synthesizing, reflecting on, and structuring the information they gather, are enabled to either create new content or modify existing ones by employing certain tools (Castañeda & Adell, 2013). Effective time management plays a pivotal role in content generation. The knowledge and utilization of available resources as well as setting personal learning goals are also important (Kop, 2011). In addition, fostering critical thinking, the ability to collaborate, and creative skills are key individual factors that must be developed in students to boost their personal growth (Meza et al., 2016), especially to facilitate autonomous learning (Alharbi, 2018; Boza & Conde, 2015).



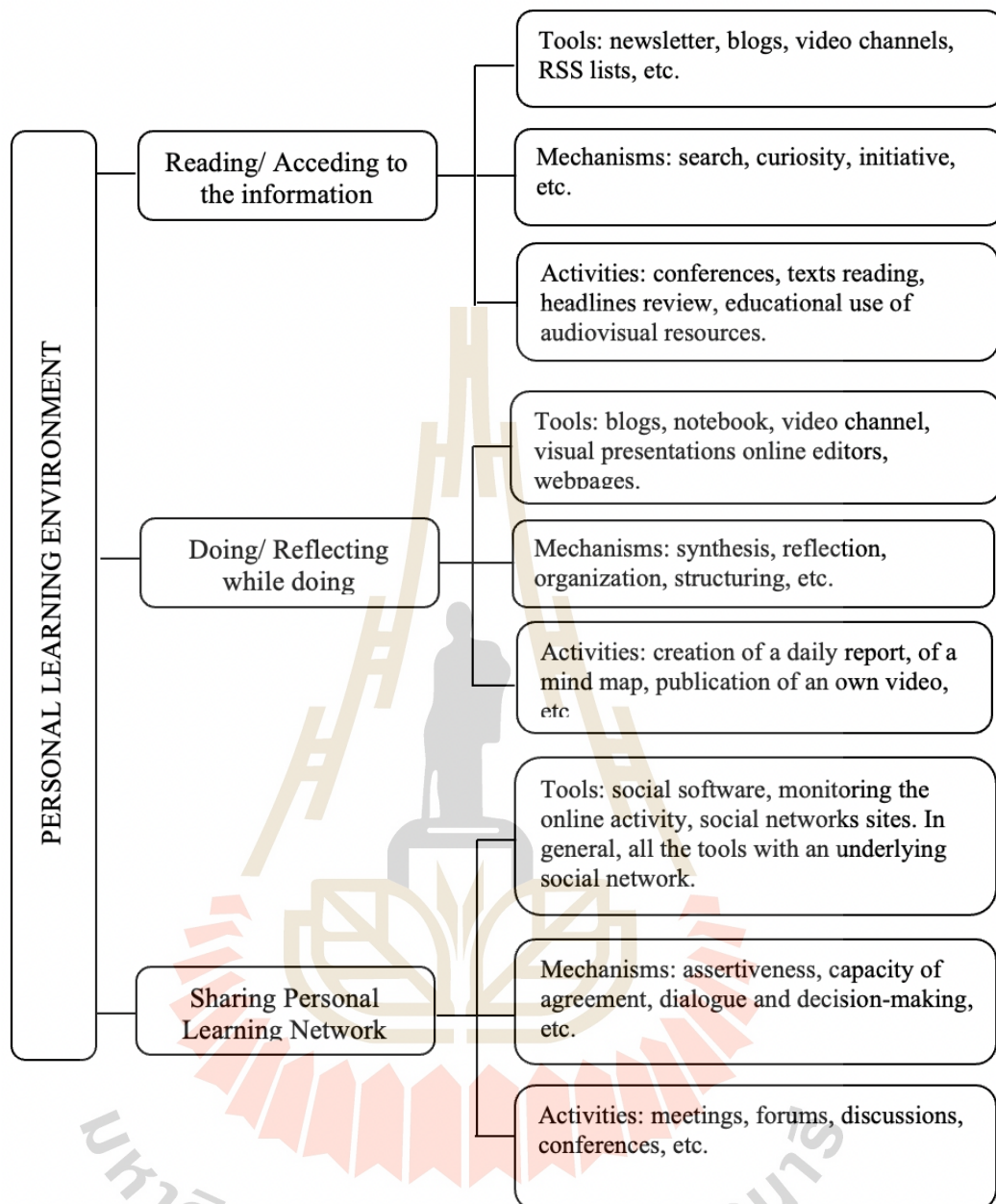


Figure 2.4 Components of a PLE (Castañeda & Adell, 2013)

Last but not least, the third component is sharing which is based on the perspective that the PLE is not necessarily restricted to an individual environment constructed by every single student but might refer to a social learning environment. In other words, students will create a Personal Learning Network (PLN) where sources and relationships are connected. Therefore, Castañeda and Adell (2013, p.9) state that the term PLE is considered to be associated with the PLN, which is “the tools, mental processes and activities which allow people to share, reflect, debate and reconstruct

knowledge and doubts collectively, as well as the attitudes promoting and nourishing that exchange”. They add that the PLN is developed through activities on social tools such as publishing on social media, sharing experiences using monitoring tools, or communicating directly on social media. Meetings, forums, discussions, or conferences are some opportunities for social exchange to boost the PLN. These exchanges also require students to carry out some mental processes like decision-making capacity, assertiveness, and so on. What is more, it is essential that students possess certain competencies regarding personal identity in the networked environment (Castañeda & Camacho, 2012). In other words, in addition to building, extending, and managing the PLN, students need to enhance their awareness of personal and professional identity. This is because, in order to strengthen a network for learning, a reliable identity is a must.

With regard to language learning, Reinders (2014) proposes common tools to create a PLE (Figure 2.5). According to Reinders (2014), all of these tools help students manage their learning process. Firstly, a portfolio or e-portfolio is where students can collect all evidence of their work and formal achievements such as grades, test scores, etc. Students can decide whether or not to publish this information and share it with other people. Secondly, collaboration tools enable students to connect with their teachers, peers, or other experts. These tools assist students in working together on a project like wiki. Some other examples could be social networking sites such as Facebook, and Google+, or social bookmarking tools in which students can share bookmarks of fascinating sites for learning. Students can also communicate in real time via some programs like Skype. Thirdly, in order to manage learning, numerous tools can be used to help students plan and monitor the process. For instance, students can set goals, create to-do lists, and check the progress of a short-term plan through Evernote. They can also utilize mind-mapping tools to brainstorm and categorize aspects for enhancement. Fourthly, students are able to record and reflect on their performance by writing journals through a blog, a text document, or any other related apps. Finally, students need a content repository to store language-learning content. For example, they can store videos by subscribing to YouTube channels, store websites by subscribing to those with RSS feeds, store documents or files on Google Drive, etc.

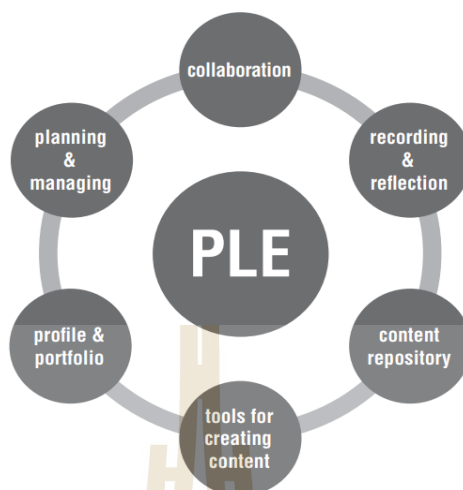


Figure 2.5 Common tools used to create a PLE (Reinders, 2014)

In terms of English speaking skills, Oxford Learner's Dictionary and Google Translate are often used as online dictionaries and translators to facilitate students' language learning (O'Neill, 2019). O'Neill (2019) proposes that online dictionaries can improve vocabulary by offering learners precise and easily accessible word definitions. Similarly, Clifford, Merschel, and Munné (2013) assert that online translators aid in vocabulary expansion, improve grammatical accuracy, and boost confidence. In addition, ELSA, Duolingo, and BBC Learning English are common learning tools that can support students' speaking skills (Khoa et al., 2021). ELSA (English Language Speech Assistant) is a pronunciation app created to assist learners in enhancing their English pronunciation. Utilizing speech recognition technology, it analyzes users' pronunciation and offers personalized feedback and practice exercises. ELSA provides pronunciation lessons, interactive exercises, and progress tracking, making it a valuable tool for learners seeking to improve their spoken English skills (Aswaty & Indari, 2022). Duolingo is a popular language-learning app that offers courses in multiple languages, including English and Vietnamese. It features interactive exercises, vocabulary practice, and speaking practice for learners at different levels. As a result, Duolingo can enhance students' vocabulary acquisition and speaking skills (Ajisoko, 2020). Finally, BBC Learning English provides a variety of materials and resources to aid in English language learning. Learners can access authentic content, pronunciation practice, speaking tips, and interactive activities to support their English speaking development (Khashan & AbuSeileek, 2023).

To sum up, common features of PLEs consist of a diversity of digital resources, personalization, and collaboration. However, even though PLE is a learner-

centered approach in which students take control of their learning, not many students know how to use their PLEs effectively in their learning (Dabbagh & Fake, 2017). As a result, they need guidance and support from other people (Valtonen et al., 2012; Korhonen, 2020). In addition, research literature highlights the importance of scaffolding in triggering the development of learning skills within the PLE (McLoughlin & Lee, 2008; Guettat et al., 2015; Korhonen, 2020). This study, therefore, aimed to fill this gap by developing a comprehensive PLE to enhance Vietnamese EFL undergraduates' speaking skills, self-regulated learning, and interaction.

2.2.4 PLEs in Foreign Language Education

According to Kupchyk and Litvinchuk (2021), in the foreign language teaching and learning context, the focal point is to assist students in developing learning strategies and provide structured connections with relevant resources so that they can select and organize by themselves. In addition, it is pivotal to construct a learning environment that can facilitate foreign language acquisition through the customization of students' individual needs and interests.

CEFR is supposed to be able to facilitate learning profiling since it provides learners with a self-assessment tool in order that they can identify their language levels of four major skills: listening, speaking, reading, and writing (CEFR, 2001). CEFR describes language proficiency based on a scale of six levels and offers specific descriptors of each skill. Tons of available e-learning resources have been built in which learners can realize their language proficiency by taking online tests and accordingly can practice on these tools. Nevertheless, in formal education, students also have to gain language learning outcomes set by the institution. PLEs hence would be a perfect solution for this issue, which combine formal and informal learning (Sclater, 2008).

PLEs provide learners with ample opportunities to create their own learning process, determine their learning strategies, and learn at their own pace (Dabbagh & Kitsantas, 2012). Tochon, Karaman, and Okten (2014) claim that PLEs can foster deep language and culture learning by offering unlimited authentic and updated resources. One of the most important values of PLEs lies in the perspective that language acquisition stems from social collaboration which leads to language awareness (Tochon et al., 2014). PLEs also have a cognitive benefit in enabling learners to reflect on their language learning process by taking advantage of the support and data from other people, having a sense of data ownership, and aggregating various resources (Carter, 2003). Another advantage of PLEs in language learning is that they facilitate text-based and task-based learning approaches in which students can experientially

respond to the language as well as have time and space to understand language features and text structures (Carter, 2003).

In fact, teachers play a paramount role in guiding students to integrate Web 2.0 tools and services into their learning environment (Kupchyk and Litvinchuk, 2021). PLEs should be co-organized by both students and teachers so that teachers can help support them in searching, provide them with appropriate materials, give them advice to solve problems and observe their progress in the learning process. They add that rewards can be used to create a positive language learning environment and promote students' motivation. According to Castañeda and Soto (2010), teachers are responsible for explicitly explaining to students how they can make use of resources efficiently in both formal and informal learning processes. Students, on the other hand, should be able to take advantage of assistance from their language teachers to create their own catalog of tools and services to better their language skills.

In brief, PLEs bring plenty of merits to foreign language education in terms of language learning. However, there needs to be a guideline for teachers to maximize the benefit of PLEs. The development of the PLE for English speaking skills in this research was expected to be able to address these issues.

2.3 Speaking Skills

This section explains the definition, functions, and components of speaking skills. In addition, teaching speaking approaches and speaking activities are reviewed. After that, how technology can be used in teaching speaking skills is also presented. Finally, related studies in terms of PLEs and English language learning are reviewed.

2.3.1 Definition of the Speaking Skills

Speaking, one of the four language skills (listening, reading, writing, and speaking), seems to be the most significant and often utilized skill in any situation. The definition of speaking varies among educators and is divided into two approaches: bottom-up and top-down.

Under the bottom-up perspective, Bygate (1987) states that speaking is considered as the generation of auditory signals. Speaking skills are defined as the ability to produce and combine sounds systematically to create meaningful utterances. In other words, this approach holds that the speaking process begins with the tiniest sounds and progresses to mastering words, phrases, and sentences. This approach, however, ignores the social and interactive aspects of the speaking process (Harroug, 2022).

On the other hand, with the top-down approach, according to Howarth (2001), speaking is a two-way process in which ideas, facts, and emotions are communicated. This point of view asserts that spoken texts are the result of collaborations between two or more speakers at a certain time and context. It is a two-way process between speakers and listeners that requires both productive and receptive understanding abilities (Byrne, 1984). Likewise, according to Nazara (2011), speaking is a distinct spoken discourse that is largely social and is participated in for social reasons and in social circumstances. This indicates that speaking is a process that involves both the speakers who give the speech and the listeners who listen to it. To be more specific, it is seen as how humans communicate, express their thoughts, emotions, hopes, and goals, and sustain social connections. According to Chaney and Burk (1998), speaking is the act of making meaning via the use of verbal and non-verbal symbols in various circumstances. Similarly, Cora and Knight (2000) posit that speaking is the ability to execute and generate oral language used in the appropriate context and diverse situations with other speakers of the same language. Overall, speaking is seen as an open-ended interaction in which people in a given environment provide and receive information.

Harmer (2001) and Gower et al. (1983) find that speaking includes two primary aspects, namely accuracy and fluency. Accuracy entails the appropriate use of vocabulary, grammar, jargon, punctuation, and articulation practiced via controlled and supervised activities. Fluency is defined as the capacity to finish speech with few pauses, which is to say that speaking is the use of the proper words in the appropriate context with few pauses since these characteristics of a learner's speech output might disclose his/her speaking proficiency.

Cora and Knight (2000) add that spoken language comprises special aspects that distinguish it from the other skills; these components are tone of voice, stress, intonation, pace of speech, and the speaker's facial expression, which they may utilize with reiterations and stops. Ur (2012) further demonstrates the need for the speaker to be proficient in grammar, vocabulary, and pronunciation. At the time of speaking, the speaker should be an active listener since what they say is a response to something else.

In light of the aforementioned theoretical definitions, it can be said that speaking is one of the productive skills. Speaking is the ability to use language orally through sound to present information, generate ideas, and express meaning for interacting with another community member. This involves many different skills, such

as pronunciation, vocabulary, listening, and grammar in both verbal and non-verbal forms.

In this study, speaking refers to students' capacity to orally produce the language and share their ideas with other people through interactions. In language learning and teaching, students are supposed to be able to communicate with other people via speaking activities which allow them to obtain the functions of speaking.

2.3.2 Functions of Speaking

Numerous efforts have been made to categorize the functions of speaking in human communication. According to Richards (2008), there are three functions of speaking, namely speaking as interaction, speaking as transaction, and speaking as performance.

2.3.2.1 Speaking as Interaction

This relates to what we often mean when we say "conversation" and denotes interaction that mainly serves a social purpose. When two or more individuals meet in a public setting, they will undoubtedly engage in small chats, exchange pleasantries, share recent experiences, and so on. This is an obvious example of interactional speaking. Participants engage in interactional discourse because they would like to build a friendly rapport and a comfortable environment for interaction. Interaction occurs when two individuals interact in a conversation or actively participate in the process (Richards, 2008). Mastering the skill of speaking as an interaction is challenging and may not be a goal for many students. They have difficulties presenting a positive picture of themselves and may avoid situations that need this kind of speaking.

2.3.2.2 Speaking as Transaction

A transaction is seen as an interaction in which the focus is on the completion of a task rather than the maintenance of social interaction. According to Brown and Yule (1983), there are two types of speaking as the transaction. One category consists of circumstances where the emphasis is on exchanging and receiving information, and where the participants are mainly focused on what is said and received. As long as the information is effectively delivered or comprehended, accuracy is not a concern. The second sort of transaction focuses on getting products or services. Speaking as a transaction involves stating a need or goal, describing something, asking questions, verifying facts, defending a viewpoint, giving recommendations, clarifying comprehension, drawing comparisons, agreeing, and disagreeing.

2.3.2.3 Speaking as Performance

This pertains to public speaking, which is defined as speaking that conveys information to an audience, such as a morning discussion, public announcements, or a speech (Richards, 2008). Performance speaking is often conducted as a monologue rather than dialogue. Several examples of speaking as performance are delivering a class report on a field trip, leading a class debate, delivering a speech of welcome, delivering a sales presentation, and delivering a lecture. The key characteristics of speaking as performance consist of an emphasis on both message and listeners, it reflects structure and sequencing, form and precision are crucial, and language is more similar to written language. Some of the skills required to use speaking as a performance include using the proper format, presenting information in the proper consequences, keeping audiences interested, using the appropriate grammar or pronunciation, and vocabulary, and using the proper opening and closing.

This study aimed to assist students in mastering all these functions in the context of learning English speaking skills through the PLE. In order to successfully accomplish the functions of speaking, students need to be competent in all the components of speaking skills.

2.3.3 Components of Speaking Skills

There are four components of speaking skills, which are grammar, vocabulary, pronunciation, and fluency (Derakhshan et al., 2016; Putri et al., 2020). Mastery of these components enables students to express ideas coherently, convey meaning accurately, engage in dynamic exchanges, and adapt their language use to different contexts and interlocutors.

2.3.3.1 Grammar

According to (Purpura, 2004), grammar is a systematic means of creating all well-formed or grammatical utterances in the language using a set of rules or principles. The purpose of grammar is to enable the connection between form and meaning - between the limits formed over words or phrases and their connotations in the world model of the system.

Grammatical knowledge is crucial for language learning (Refat, 2020). To communicate successfully, speakers must construct the proper sentence depending on the speaking situation. When a spoken or written statement is constructed correctly, one feels encouraged. This will also aid in effective communication, preventing any misunderstandings that may result from grammatical faults or improper punctuation. However, grammar is always a hindrance to genuine

speaking performances. While speaking, the speaker may have anxiety over making grammatical errors since the words in a sentence are not always arranged in the same order, even in simple sentence structures.

2.3.3.2 Vocabulary

Students with a limited vocabulary are unable to communicate effectively or convey their ideas, feelings, and thoughts in both spoken and written form (Alharthi, 2020). Speakers cannot communicate in an intelligible manner unless they have a large vocabulary. Students must understand the meanings, spelling, and pronunciation of vocabulary to talk effectively. Taslim (2019) claims that vocabulary is the most essential thing to acquire for individuals who want to become proficient speakers. Harley and Blanco (2013) assert that words have two aspects: word recognition and word meaning. Finding out if a word is familiar and whether all the information related to it is accessible are both necessary for determining whether something is familiar. Word recognition encompasses all the skills that students utilize to decode words, such as phonemic analysis, analogies, syllable analysis, sight word mastery, and morpheme analysis.

Building a student's vocabulary is crucial for learning any foreign language, not only because it closely correlates with students' intellectual development, but also because it helps students become more proficient in all four language skills. Grammar is essential for communication, but without vocabulary, nothing can be conveyed (Ismatullayeva, 2020). Therefore, vocabulary should be of primary importance to both students and instructors while studying English. English instructors need to focus on this element as their initial language-related consideration.

2.3.3.3 Pronunciation

According to Thornbury (2005), pronunciation refers to a student's capacity to generate comprehensible utterances to complete a task. In its broadest definition, pronunciation is the act of making meaningful and proper sounds. Pronunciation is an important part of every linguistic code since it allows us to comprehend and detect distinctions across languages. Pronunciation is also required to achieve meaning in a given scenario. As a consequence, utterances and proper pronunciation are inextricably linked. Cook (1994) claims that learning to speak a second language entails the acquisition of new pronunciation habits as well as the eradication of bias from the original language. Good pronunciation and intonation may contribute to the clarity of a speaker's message. Also, proper pronunciation facilitates successful communication (Kline, 2001). According to Harmer (2001), learning a language includes not just an awareness of pronunciation but also the capacity to

transfer meanings. Poor pronunciation makes the conversation difficult and undesirable for both the speaker and the listener.

2.3.3.4 Fluency

Fluency, according to Farahani and Kouhpaenejad (2017), is the fluidity or flow with which sounds, syllables, words, and sentences are joined together. Zhang (2009) states that fluency means speaking at a regular pace without pausing over words or sounds and utilizing outstanding English to express the speaker's message in a straightforward, clear, and understandable way. Brown (1996) also posits that indicators of fluency consist of a decent pace of speech and just a small number of pauses and “ums” or “ers”. These indicators imply that the speaker does not have to spend much time searching for the language pieces required to convey the message.

Overall, the speaking process consists of four important components which help speakers communicate clearly and help listeners grasp what they are trying to say. In this research, the PLE was developed to enhance all of these elements of speaking since accuracy (grammar, vocabulary, pronunciation) and fluency are the key to effective speaking skills (Derakhshan et al., 2016; Rahnama et al, 2016; Wang, 2014). In order to enhance students' speaking skills, speaking instruction plays a pivotal role.

2.3.4 Teaching Approaches for Speaking Skills

When looking back at the development of language learning methodology, it is noted that attempts to teach speaking skills have followed prevailing ideas and approaches to language teaching and learning, which have not always prioritized speaking such as grammar-translation, cognitive approaches, and comprehension approaches. Thornbury (2005) emphasizes the behaviorist, cognitivist, and sociocultural theories of language learning concerning theories of second language acquisition and learning that are pertinent to the teaching of speaking.

Behaviorist theory holds that language is taught through developing positive habits via reinforcement (Thornbury, 2005). Speaking skills are developed by using the aspects of learning, labeled presentation, practice, and controlled production. This relates to a behaviorist view of the mind, which according to Thornbury (2005) views the brain as malleable.

Concerning cognitivist theory, the brains of language learners are seen as black boxes with the ability to process information, and it is thought that a complicated skill like speaking develops in phases ranging from controlled to automatic (Thornbury, 2005). Learning begins by increasing awareness of certain steps of a process, then progresses to integrating newly learned information with previously learned knowledge

(proceduralization) via practice, and finally culminates with autonomy, the stage in which new language is immediately usable.

Sociocultural theory, on the other hand, asserts that learning is mediated by social contact with other learners and emphasizes the sociocultural environment in learning. Learners need other regulations, as well as the mediation of someone with more expertise who can give a supporting context (scaffold). They communicate with classmates, instructors, and others, and this contact helps children to co-create new information until they appropriate it - make it their own - and are able to operate independently (self-regulation) (Thornbury, 2005).

Currently, the development of speaking abilities as a productive talent is heavily emphasized, and communicative language competencies are seen as crucial competencies in the development of engaged persons who are actively involved in social life and the development of one's community and society. In addition, English teaching and learning approaches range from direct to indirect ones (Brown, 2007; Richards, 2008).

Direct approach proponents believe that speaking abilities should be explicitly taught via awareness-raising activities (Hedge, 2001; Richards, 1990; Thornbury, 2005). For instance, Richards (1990) emphasizes the need to give students chances to engage in discourse. The direct method, according to him, involves structuring a conversation program around the exact micro-skills, tactics, and processes that are involved in fluent communication.

The indirect approach is an approach in which conversational competence is considered as the outcome of engaging learners in conversational interaction. In other words, learners may improve their spoken language skills by participating in communicative activities. The indirect technique also presumes that learners may gain conversational competence just by doing it (Thornbury & Slade, 2006). According to Ellis (2005), indirect intervention is “likely to result in linguistic information that is deployable (i.e., that learners can actually access when requested to participate in real-life communication)” because it places a strong focus on learning via conversation.

Apart from teaching approaches, speaking activities play an important role in enhancing students' English speaking skills. Teachers must use a variety of activities to maximize opportunities for students to practice speaking.

2.3.5 English Speaking Activities

Incorporating a variety of activities in teaching speaking skills enables learners to regularly practice and develop their oral proficiency. There are numerous classroom activities available that can effectively assist learners in enhancing their speaking skills.

2.3.5.1 Discussion

Discussion and debate serve as frequently employed activities in oral classes for teaching speaking skills as they enable students to express and justify their perspectives, and exchange interests, opinions, and personal experiences (Saadane, 2023). Engaging in discussions prompts students to express agreement or disagreement on a given topic, present supporting evidence, and construct arguments. The selected topic must be captivating, familiar to the students, and connected to their everyday lives. Students should be encouraged to actively participate and contribute with their unique ideas while being mindful that everyone involved in the discussion should be actively engaged (Putri & Hamzah, 2023).

2.3.5.2 Role Play

Role-play is a teaching technique relevant in the 21st century. According to Umam (2011), role-play refers to a simulation or imitation of a character where students take on the role of someone else in real-world scenarios. Suryani (2015) highlights that role-play serves as a technique that encourages students to participate in classroom speaking activities. It involves assigning specific roles to students, requiring them to speak and behave accordingly. There are numerous advantages associated with incorporating role-play activities in the language classroom. Utilizing role-play in an EFL classroom has been identified as an effective method for enhancing learners' discourse. According to Dorathy and Mahalakshmi (2011), role-play is highly significant in English language teaching as it offers students the opportunity to practice communication skills within various social contexts and diverse social roles. This not only encourages creativity but also allows students to temporarily assume the perspectives of others. Through role-play activities, learners engage in practice within the second language, thereby promoting the development of their communicative competence. Additionally, Huang and Shan (2008) suggest that role-play enriches learners' vocabulary knowledge, which plays a crucial role in effective communication in the target language. As communicative competence relies on grammar and vocabulary skills, engaging in role-play activities equips learners with the necessary language knowledge to enhance their overall proficiency.

2.3.5.3 Information gap

Information gap activities have gained popularity and are increasingly recommended as an effective approach to English language teaching. According to Harmer (2003), an information gap refers to the difference in the information possessed by two individuals, and engaging in a conversation helps bridge this gap so that both speakers have the same information. Additionally, Raptou (2002) highlights that in

information gap activities, one individual possesses specific information that needs to be shared with others to solve a problem, gather information, or make decisions. This concept reflects the reality that in authentic communication, people often engage in conversations to obtain information that they do not currently have. Kayi (2006) further supports the utilization of information gap activities in the language classroom. According to Kayi, information gap activities involve students working in pairs, with one student possessing information that the other partner lacks. The purpose of these activities can vary, including problem-solving or information collection. Through such collaborative tasks, students engage in sharing and exchanging information, fostering communication and interactive learning experiences.

2.3.5.4 Storytelling

Storytelling is recognized as an effective method in language classrooms for learning a new language. This activity involves introducing the vocabulary of the new language by constructing them into a story. Dujmovic (2006) emphasizes that storytelling is a powerful activity that demonstrates the impact of words. Through storytelling, words are used to stimulate the listener's imagination, enhance verbal expression, improve comprehension, and create mental imagery. Importantly, storytelling enables learners to connect their imagination with the events in the story and relate them to their own experiences. Wang and Lee (2007) further highlight that storytelling is a valuable activity for learners as it helps them imagine and create plots. It encourages learners to develop details, predict plot progression, and draw conclusions. Al-Mansour and Al-Shorman (2011) also support the notion that stories have a significant impact on improving learners' motivation to speak. Stories enable learners to understand their real-life situations and connect them with the events portrayed in the story. Interestingly, learners possess the ability to combine their real experiences with imagination to create new stories. Furthermore, learners can easily share these stories with people around them, promoting social interaction and communication.

2.3.5.5 Presentation

A presentation is when the presenter shares their expertise on a particular topic with an audience. It occurs within a structured setting and has time limitations. According to Chivers and Shoolbred (2007), delivering presentations is a valuable learning opportunity. Al Issa and AL Qubtan (2010) state that presentations are an activity that can enhance student motivation to take initiative, think beyond what is covered in textbooks, and utilize language engagingly and creatively. Presentations provide students with the opportunity to explore ways to enhance their

imagination, specifically in developing their speaking skills. Presentations involve presenting ideas and information to an audience, making it a distinct activity compared to delivering a report. According to Solmaz (2019), presentations have an advantage over reports in that they allow the speaker's personality to shine through and facilitate a direct connection between presenters and audiences. EFL teachers often utilize presentations as a means to enhance their students' speaking abilities (King, 2002).

2.3.5.6 Vlogging

The process of vlogging involves setting up a tripod, positioning a video camera to face oneself, speaking into the camera, saving the video, converting it to a computer-readable format, and subsequently posting it on an internet platform to host the footage (Watkins, 2012). In this process, the vlogger speaks directly into a web camera for a specific duration, subsequently reviewing and assessing their recorded statements, making edits if necessary, and deciding whether to publish the video online. The vlogger then watches and listens to their recorded performance (Watkins & Wilkins, 2011). Vlogging can be done using a smartphone or a computer connected to a video camera with an internet connection. Baran (2007) suggests that vlogging has the potential to cater to the learning needs of Generation Z students, who are immersed in a highly dynamic and interactive technological environment. Vlogging is recognized as an emerging tool and a popular trend on the internet, offering numerous benefits for educational settings. Moreover, vlogging has the capability to redefine classroom boundaries by extending learning experiences beyond the traditional school environment. According to Watkins (2012) and Anil (2016), vlogs assist language learners in self-monitoring their performance before sharing them with the audience. Learners have the opportunity to listen to their recordings, assess their level of understanding, and make any necessary modifications. If learners feel the need to enhance their presentation, they can try again, receiving feedback and comments to further improve their skills.

With the development of technology, these activities can be enhanced and supported through modern technologies. Such kinds of technologies have revolutionized the way speaking skills are practiced and assessed, providing learners with engaging environments to refine their oral communication abilities.

2.3.6 Technology and Speaking Skills

Technology may encourage learners' playfulness and immerse them in a range of settings. Technology allows learners to participate in self-directed activities, self-paced interactions, privacy, and a safe environment in which mistakes are remedied and detailed feedback is provided (Bahadorfar & Omidvar, 2014). A

machine's feedback has an added benefit since it can monitor faults and direct students to activities that specifically target those flaws. The usefulness of technology is further increased when links are offered to discover explanations, extra assistance, and references. Some modern technologies nowadays might include communication labs, speech recognition software, the Internet, and TELL (Technology Enhanced Language Learning).

In terms of communication labs, there are programs available to improve your speaking abilities. The students will play the appropriate software on computers with their interest and strive to enhance their speaking abilities, which are crucial in today's advanced IT environment. The use of headphones in the lab encourages students to be interested in the material and encourages them to repeat it rather than becoming bored (Bahadorfar, Omidvar, 2014).

By turning spoken words into machine-readable input, speech recognition software also aids in enhancing students' speaking. Also, this program assesses and delivers scores for grammar, **pronunciation**, and understanding, and presents the proper forms. For instance, if a student pronounces a word incorrectly, the learning tool may quickly identify it and assist in correction. For distance learners, who lack an instructor to correct their speech and who may benefit from this device's ability to help them become more fluent speakers, it can be a very helpful tool (Bahadorfar, Omidvar, 2014).

The word "Internet" is well-known and frequently used by people all around the globe. Nowadays, students utilize the Internet in class to practice their English. Online teaching seems to be engaging and encourages students to look for the best resources for them. Students may get information for any lesson over the Internet from a variety of sources. Students can use Skype, MSM Messenger, Google Talk (used for online conferences), and other applications to practice speaking. These methods of learning have been shown to improve oral proficiency in students and compensate for the lack of native speakers in the areas where students live. What is more, online conferences also improve intercultural awareness, motivation, and awareness of other cultures (Bahadorfar & Omidvar, 2014).

TELL refers to the use of computer technology, including hardware, software, and the Internet, to improve language teaching and learning. It provides students with access to all accessible technology for improving English study. Students are permitted to utilize online dictionaries, communicate, and watch current events around the world.

This study made an effort to employ TELL to enhance students' speaking skills by using a PLE. By integrating contemporary digital tools, interactive multimedia resources, and social networking platforms into the language learning process, students were provided with a versatile and dynamic environment that encouraged active participation, self-regulation, and meaningful interaction, fostering more effective speaking skill development.

2.3.7 Previous Studies Related to PLEs and English Language Learning

PLEs have considerably been researched in multiple disciplines but not many studies related to PLEs in the field of ELT have been done. This section sets out to review experimental as well as descriptive research concerning the implementation of PLEs in ELT.

Saks and Leijen (2014) conducted a research study which developed assignments in the PLE to enhance advanced language learning strategies (LLS). The participants were 28 freshmen studying Tourism English. The instruments used to collect data were a pre-test, a post-test, and focus group interviews. The results indicated that this intervention significantly improved students' compensation and social strategies. Also, there was a significant relationship between compensation and content knowledge.

A study by Harwood (2014) purported to examine how a PLE platform SymbalooEDU could support students of English for Academic Purposes (EAP). The participants included 613 undergraduates and postgraduate students who joined EAP programs. Two questionnaires comprising a need analysis and a survey of students' perceptions and experiences were undertaken. The findings indicated that students expressed positive perceptions of the benefits of the software for EAP but there was a restriction in using social learning with the way the teachers established and executed the social media.

Ruengkul and Sukavatee (2015) attempted to examine the PLE tools that Thai EFL undergraduate students used for their English language learning. A questionnaire was employed to collect data from 150 students who were freshmen registering for the English course. The results indicated that Google and YouTube were the most frequently used tools to enhance all English skills while Facebook was mainly utilized for learning reading and writing skills.

El-Magd and Mohammad (2015) conducted a study to investigate the effects of a task-based personal learning environment on the listening comprehension skills of English major students. This study focused on two target listening comprehension skills which were guessing the meaning of unknown words and understanding implicit

and explicit details. There were 30 English major freshmen at Suez Canal University taking part in this research. Regarding the research design, one group of experimental research with pre-test and post-test was employed. They found that a task-based personal learning environment significantly improved students' target listening comprehension skills.

Parnkul (2018) undertook a research thesis to explore the effects of PLEs through implementing the MacroSIM program on autonomous students' English proficiency. The participants were 62 third-year students registering for a Business English course. The researcher employed a pretest and posttest, a learning autonomy questionnaire, an evaluation questionnaire, video clips, and a student diary to collect the data. The findings indicated that students in the experimental group could perform better after experiencing learning English in the virtual world of the MacroSIM program. In addition, there was a significant difference concerning their autonomy after implementing the program.

Wisudawati (2019) also had a study related to PLEs in writing. The purpose of this study was to examine the influence of students' engagement in PLEs on learning Scientific Writing. This research employed a narrative inquiry design. Research instruments included observation, questionnaire, and in-depth interviews, collecting data from one participant who was an English major graduate student. The findings showed that the combination of both digital and non-digital tools was beneficial but the use of digital tools seemed to be more supportive of the learning process.

Another study was conducted by Satriani (2019) to figure out the influence of employing PLEs on English education in UNESA, Indonesia. Three aspects explored in this study were whether students owned any PLEs to improve their English skills, what kinds of PLEs they were, and how PLEs could benefit students. The participants of this research were 34 English Literature and English Education major students. The researcher used open-ended questionnaires and interviews to collect data. The findings were that all students had their PLEs. Although the concept of a "Personal Learning Environment" was not familiar to them, they all had their PLEs to study English. The most commonly used PLE was video-watching. The results also revealed that some of the students did not think that their PLEs had assisted them enough.

A thesis by Ospina Villabona (2019) with the purpose of figuring out the effectiveness of implementing PLEs in ELT to improve students' listening comprehension skills was carried out. The participants were 35 students enrolling in evening classes at Centro Colombo Americano de Bucaramanga. A customizable PLE was developed by using a blog and a padlet and students were required to complete

active listening tasks through PLEs within 17 weeks. A pre-test and a post-test were administered to measure students' performance. The results revealed that students significantly enhanced their listening comprehension skills through the autonomous construction of resource collection.

Drajati and Handayani (2020) carried out a research study to advocate the PLE serving academic writing for publication which is a part of the curriculum of Indonesian higher education. This was a qualitative study using an action research design. The participants were 28 first-year graduate students in Indonesia. They were asked to work independently in a personal learning environment on blogs within 16 weeks. The data collected from the blogs, the questionnaires, and the in-depth interviews were then qualitatively analyzed based on a narrative inquiry design. The findings revealed that implementing PLEs facilitated the development of students' ability in academic writing since they had a lot of time, space, and resources.

Recently Suppasetsee, Kumdee, and Minh (2023) carried out a research study to explore students' engagement and opinions on an online PLE for listening comprehension through extensive listening activities. 30 Thai students took part in a 2-week research project. Questionnaires and semi-structured interviews were used to collect data. The findings indicated that students exhibited significant levels of engagement in all three aspects: behavioral, cognitive, and emotional. The students held favorable views towards the online PLE, perceiving it as enjoyable. The combination of self-regulated and customized learning approaches contributed to enhancing vocabulary and pronunciation skills, despite encountering specific challenges related to time management and Internet connectivity throughout the project.

In the Vietnamese context, only one study by Trang (2020) was found by the researcher. This study aimed to develop an online Personal Learning Environment model (PLERN) to enhance students' academic listening comprehension skills and investigate students' opinions towards online learning through this model. Unfortunately, he just proposed the research design, research settings, participants, and instruments, but has not yet implemented it in the real context.

After a comprehensive review of previous research studies related to PLEs and their impact on language learning, several key findings have emerged. Notable strengths of these studies include their diverse range of participants, ranging from undergraduates to graduate students, and the utilization of a variety of instruments for data collection. They have employed pre-tests and post-tests, questionnaires, interviews, and observations, offering a comprehensive understanding of the effects of

PLEs on language learning. These studies have shown that PLEs can significantly enhance language skills, such as listening comprehension and writing. Additionally, they have highlighted the importance of engagement and autonomy in the learning process. However, weak points were identified such as limited sample sizes and context-specific settings restricting generalizability, and some students felt that their PLEs lacked sufficient support to be more beneficial. In addition, not many of the studies explored the effects of PLEs on other skills such as speaking or reading. These findings emphasize the importance of careful design and execution of PLEs, consideration of the combination of digital and non-digital tools, and the need for further research to validate proposed PLEs and explore PLEs in diverse contexts. While most of these studies have been conducted in international settings, a noticeable research gap exists within the Vietnamese context, with only one study by Trang (2020) proposing a research design for online PLEs but not yet implementing it. Therefore, the present research aims to contribute to the existing body of knowledge by assessing the impact of PLEs on students' speaking skills in the specific context of Vietnam. Furthermore, as can be seen, while the PLE approach highlights individual differences, most prior empirical investigations have approached learner populations as if they were entirely homogeneous (El Magd & Mohammad, 2015; Parnkul, 2018; Ospina Villabona, 2019; Drajadi & Handayani, 2020). That is to say, there is a noticeable lack of studies specifically focusing on how PLE effects differ across individual learners. Consequently, this research aimed to examine how a proposed PLE affected learners at varying levels (high, medium, and low). In addition, to maximize the benefits of the PLE in which learning occurs in the online learning environment, students are required to have self-regulated learning skills.

2.4 Self-regulated Learning in Online Learning Environments

This section aims to provide readers with a brief introduction to SRL in online learning environments by discussing the components of online SRL, factors influencing online SRL, and assessment of online SRL. Additionally, the relationship between PLEs and SRL is also explained. Finally, studies related to PLEs and SRL are reviewed.

2.4.1 Components of SRL in Online Learning Environments

Students' self-regulatory processes in online or blended learning environments may differ from those in traditional classroom settings, as highlighted by Barnard et al. (2009) and Zheng et al. (2016). In their study, Barnard et al. (2009) identified six factors grounded on Zimmerman's (2002) model that contribute to learners' online self-regulation: goal setting, time management, environment

structuring, help-seeking, task strategies, and self-evaluation. The researchers found a close relationship between learners' online self-regulation and their academic success in computer-based learning environments (Winters et al., 2008). Additionally, Tseng et al. (2006) discovered that online self-regulation plays a crucial role in students' web-based information-searching strategies, enabling them to effectively organize and integrate information into meaningful mental models while learning online (Azevedo & Cromley, 2004).

Goal Setting

Goal setting or goal orientation involves establishing a specific objective and taking actionable measures to attain the intended outcomes. According to Pintrich et al. (1991), goal setting involves the level to which students actively engage and participate in preparing for their activities like assignments, studying, or other tasks motivated by their desire to accomplish their learning goals. Goals function as benchmarks for individuals to assess their progress in an achievement situation and aid in determining whether they should maintain their current approach or make adjustments to regulate their activity (Wigfield et al., 2015). In the PLE, students are supposed to be able to set their learning goals based on the objectives of the lessons and make use of available technological and human networks to achieve their goals.

Environment Structuring

Environment structuring entails creating an optimal learning environment that is calm and free from distractions to enhance concentration during the learning process (Pintrich et al., 1991). It refers to the proactive actions of students in selecting or finding an appropriate learning space and utilizing instructional tools such as computers, laptops, and other resources that facilitate the learning process. With online learning, students often dedicate significant time to studying at home, but many still struggle with discomfort and a lack of concentration due to various disturbances like crowds, noise, or poor signal issues. To address these challenges, it becomes crucial to implement self-regulatory environmental structuring, enabling students to effectively manage their learning environment, whether it be at home or in other comfortable locations. This aims to help students maintain focus on their studies and facilitate their learning activities (Lynch et al., 2004).

Task Strategies and Time Management

Self-regulated learners take responsibility for not only determining their learning environment but also establishing task strategies and effectively managing their learning time. The process of task strategy within self-regulation involves analyzing and selecting the most suitable resources or methods for successful learning

(Zimmerman, 2011). Time management, on the other hand, entails planning and scheduling activities to maximize effectiveness, efficiency, and productivity (Zimmerman, 2011). Effective time management in studying goes beyond merely creating a study schedule; it also involves skillfully managing the allocated time for studying or completing tasks, prioritizing crucial aspects that contribute to fluency and success in learning. Students who are proficient in time management exhibit superior academic performance and achieve better results compared to those who struggle to organize their study time (Lynch et al., 2004). Learners with time management skills possess the ability to effectively allocate and prioritize their time, understanding the deadlines associated with each activity and recognizing the time requirements for their tasks (Zimmerman, 2011). They are mindful of how they utilize their time and are aware of the importance of managing it efficiently.

Help-seeking

Another essential component of self-regulation is help-seeking, which involves the capability to seek academic assistance or support from others to enhance academic success (Lynch et al., 2004). Zimmerman (2011) suggests that help-seeking within the self-regulation process entails selecting instructors, teachers, or individuals with extensive knowledge, as well as choosing relevant resources to aid in the learning process. This aspect emphasizes the importance of actively seeking guidance and utilizing available resources to foster effective learning. Multiple studies have demonstrated that help-seeking plays a pivotal role in facilitating a smooth learning process. Lynch et al. (2004) specifically examined help-seeking within the context of online learning. In online learning environments, students have the opportunity to seek help from peers or instructors through various means such as WhatsApp, email, or other digital platforms when encountering difficulties or having questions. Despite the absence of face-to-face interaction, the availability of advanced technology allows for remote communication, eliminating concerns regarding obstacles to learning. This form of interaction also enhances the development of students' self-regulation skills. According to Gonida et al. (2019), students who utilize self-regulated learning strategies are proficient in seeking assistance when they encounter learning difficulties. They actively seek help from peers, teachers, or resources to overcome such challenges. Interestingly, the study found that students with high-performance goals tend to perceive the costs associated with help-seeking more prominently. On the other hand, students with low goal orientations are less likely to recognize the benefits of help-seeking and consequently exhibit reduced motivation to seek instrumental assistance.

Self-evaluation

Self-evaluation is the process of assessing and evaluating one's own performance regarding learning activities (Kirmizi, 2014). It involves measuring the effectiveness and quality of one's work (Zimmerman, 2011). Independent learners engage in self-evaluation by carefully reviewing their completed tasks, identifying any errors, and determining areas that need improvement. This proactive examination of their work allows them to take responsibility for their learning and make necessary corrections to enhance their performance. Engaging in self-evaluation and actively identifying and correcting mistakes can significantly enhance self-regulation skills (Kitsantas et al., 2004). By independently recognizing and evaluating their errors, students develop a deeper understanding of their performance and areas in need of improvement. Providing students with opportunities to see and reflect upon the results of their performance and evaluation has a positive impact, as it motivates them to be more proactive in their efforts to enhance and refine their performance (Horner & Shwery, 2002). This process of self-reflection and self-improvement fosters a sense of ownership and empowers students to take charge of their learning journey.

2.4.2 Factors Influencing Students' SRL in Online Learning Environments

According to Dong et al., 2023, there are seven factors which impact students' SRL in an online learning environment.

2.4.2.1 Cognitive Quality

Cognitive quality pertains to how well-defined the structure of the learning task is and the extent to which the task can intellectually stimulate the learner (Cordova and Lepper, 1996). As the volume of tasks increased, there was a greater utilization of strategies for seeking assistance and managing time (Hensley et al., 2022; Mahmud & German, 2021). In addition, clarity of materials plays a critical role in enhancing self-regulated learning (SRL) and implementing data visualization techniques can enhance the clarity of these materials, thereby potentially aiding students in bettering their SRL practices (Albelbisi and Yusop, 2019; Mahmud and German, 2021; Sun et al., 2023). Whipp and Chiarelli (2004) also state that the availability of learning resources can affect help-seeking strategies.

2.4.2.2 Motivation Quality

Motivational quality refers to the variety of explicit and implicit information that learners receive from the teacher and classmates (Frenzel et al., 2009). Students who have an intrinsic interest in the learning material are more likely to develop effective time management strategies. On the other hand, a lack of intrinsic motivation often leads to less engagement in classroom activities. Additionally, the

motivational qualities that come from external rewards are connected to the development of communication and interaction abilities (Hashemyolia et al., 2015; Hensley et al., 2022; Hwa, 2020). In addition, an interactive learning atmosphere positively correlates with the advancement of self-regulated learning in students within online education contexts (Hensley et al., 2022; Zhou et al., 2021). Last but not least, positive associations exist between communicative abilities in online learning contexts and self-regulated learning aspects, including strategies related to managing time and seeking assistance (Broadbent and Lodge, 2021; Chen & Lin, 2018).

2.4.2.3 Autonomy Support

Autonomy support encompasses tasks and the learning environment, which upholds and encourages independent learner control (Tsai et al., 2008). The environment of encouragement created by peers, teachers, and the learning environment contributes to the support of learner autonomy. In other words, social support from peers and teachers can lead to the improvement of SRL levels (Whipp & Chiarelli, 2004; Xu et al., 2017; Karaoglan Yilmaz et al., 2018; Yu & Zhou, 2022; Albelbisi & Yusop, 2019).

2.4.2.4 Goal Structures

Goal structures are composed of mastery, competitive, or cooperative objectives (Johnson & Johnson, 1974). Studies show that mastery goals significantly correlate SRL (Adesope et al., 2015; Cho & Kim, 2013; Littlejohn et al., 2016). Conversely, learners who scored lower in SRL tended to orient their goals towards performance metrics.

2.4.2.5 Feedback and Considerations of Achievement on SRL

Within the framework of control value theory, feedback and considerations of achievement are related to how teachers respond to students' learning outcomes and the students' own perceptions of their learning success (Pekrun & Perry, 2014). Supportive comments from teachers are linked to notable enhancement in the quality of students' self-regulated learning (Roelle et al., 2011; Sun et al., 2023; Zheng et al., 2023). In addition, research has indicated that there is a significant relationship between learners' perceptions of their own achievements and their SRL (Littlejohn et al., 2016; Zheng et al., 2023). Learners with higher academic achievement displayed more advanced SRL abilities.

2.4.2.6 Perceived Control on SRL

Perceived control involves how students assess their ability to manage their learning activities and outcomes. This sense of control can result from their own actions or outside influences (Pekrun & Perry, 2014). Learning environments

and technology in online education are significant external elements that influence students' control over their learning. Regarding the impact of technology and network aspects, studies found that modules designed with technology in mind played a role in fostering the enhancement of students' strategies for managing time and seeking assistance (Lin & Dai, 2022; Viberg & Andersson, 2019).

2.4.2.7 Perceived Value on SRL

Perceived value encompasses the extent and nature of importance that is attributed, covering both the inherent worth of the activity and its results (intrinsic value) and the practical benefits derived from achieving the intended result (extrinsic value) (Pekrun & Perry, 2014). A review of the research categorizes the components of perceived value in online learning environments into two significant areas: the learners' perceived importance of online learning and their attitudes towards it. Findings from studies indicate that perceived value affects self-regulated learning (SRL) levels, which is evident in the learners' perceived importance of communication with teachers and peers (Cho and Kim, 2013), and the perceived value they assign to the content being learned (Edelbring & Wahlström, 2016; Chen & Lin, 2018).

Furthermore, studies showed that learners with positive attitudes towards online learning are more likely to enhance their SRL skills (Albelbisi and Yusop, 2019; Stegers-Jager et al., 2012). Research also suggests that prior experience with online learning can influence learners' attitudes towards it, noting that those with more experience in online learning settings exhibit higher levels of SRL (Cho and Kim, 2013; Xu et al., 2017; Zheng et al., 2018).

In summary, there are factors influencing students' SRL in an online learning environment. Therefore, when designing the online learning environment, these factors should be considered to maximize learners' SRL.

2.4.3 Self-regulated Learning Assessment

With regard to measuring SRL, there are several methods mentioned by scholars. In general, SRL measures may be classified as offline or online (Schraw, 2010). Self-report surveys and interviews are two examples of offline tools that aim to examine self-regulation before or after the learning process. Such evaluations are susceptible to social desirability bias and students' incapacity to use higher-order cognitive functions when learning as a result of memory issues, distortions, or interpretative reconstruction.

On the other hand, online assessments make an effort to record self-regulation in real time while learning is taking place. Some of the online assessments are inconspicuous and do not hinder students' learning, like the traces that software

collects while they are studying. These traces may be used to draw conclusions about how students check their comprehension and update it as well as how much effort they put into studying. Though it may be challenging for students to utilize and is inappropriate for research involving whole classes, the think-aloud approach can reveal students' cognitive, metacognitive, and motivational processes (Veenman, 2011).

In this study, self-reported questionnaires were used to measure SRL. In terms of online assessments, it is difficult to conduct so reflective journals will be the substitution. In order to support students' self-regulated learning, a Personal Learning Environment (PLE) could be a solution (Tu et al., 2015; Dabbagh & Kitsantas, 2012; Goksel et al, 2018, Haworth, 2016; Nan Cenka, 2022).

2.4.4 Personal Learning Environment and Self-regulated Learning

Dabbagh and Kitsantas (2012) state that the pedagogical capabilities of Web 2.0 might assist and encourage self-regulated learning by facilitating the building of PLEs. Also, they claim that self-regulated learning and PLE development are interdependent and synergistic. In addition, constructing PLEs is regarded as a crucial skill for developing personal knowledge management strategies and forming a self-regulated learning model (Vázquez-Cano et al.,2016). Self-regulation is one of the indicators of student success in both conventional and digital personal learning contexts, according to Delen and Liew (2016). It has been stated numerous times that an effective, personalized, and satisfying PLE is a positive factor that aids individuals in setting their learning objectives, searching for and organizing content, communicating with others, and evaluating their own learning actions (Archee, 2012; Chaves et al., 2016; Dabbagh & Kitsantas, 2012; Ebner & Taraghi, 2010; Johnson & Sherlock, 2014).

According to Bandura (1986) and Schunk (2001) when looking at PLEs from a social-cognitive viewpoint, the development of self-regulated learning abilities and strategies is a product of the bidirectional interplay of a person's psychological, behavioral, and environmental elements. Personal, behavioral, and contextual variables influence the development and process of self-regulated learning skills and strategies, allowing learners to change, modify, organize, and control their learning. As a result, it is necessary for students to employ a personal, customized portal in order to organize various digital tools in a central location. In the building of a Web 2.0 PLE, the incorporation of a personal component enables students to modify and personalize PLEs by controlling digital widgets, mobile applications, and feeds inside personal Web portals. Students must take control of their PLE constructions, organizations, and management in order for PLEs to be developed effectively. Since PLE creation encourages learners to take the initiative and control, PLEs concentrate

learners' attention by letting them create their own learning environments and highlighting the self-regulated nature of the learning (Valtonen et al., 2012).

Building good PLEs requires having strong goal setting, time management, and task strategy abilities (Tu et al., 2012). They came to the conclusion that self-regulated learning's goal setting, time management, and task strategies might predict the degree of initiative in PLE management, while goal setting and task strategies may predict the sense of control in PLE management. Furthermore, in order to build successful PLEs, the management of PLE widgets and tools (i.e., search, evaluate, choose, add, remove, or move) is influenced by the level of initiative in the PLE. The level of initiative is clearly tied to the initial network learning preparations, but the perception of control is obtained from the succeeding learning activities. As a consequence, assuming that self-regulated learning would result in improved self-related learning abilities and successful PLE development is unrealistic.

According to Yen et al. (2016), positive learning outcomes cannot be achieved without effective modeling, comprehending, and training in the integration of PLEs into digital learning. This is also based on the academic achievement of the students, the interactions among the students, and their social communication (Casquero et al., 2016).

2.4.5 Previous Studies Related to PLEs and SRL

In terms of research studies regarding self-regulated learning in PLEs, there have been studies conducted by the researchers. These studies focused on examining the relationship between PLEs and self-regulated learning.

Dabbagh and Kitsantas (2013) conducted a research study to explore how learners utilized social media to develop a PLE that enhanced their educational experience and investigate if these learners had employed self-regulated learning strategies during the creation of this PLE. 87 participants completed a questionnaire and answered open-ended questions. The results showed that the use of social media to construct PLEs was found to particularly support goal setting, self-monitoring, help-seeking, motivation, and task strategies, whereas self-evaluation and time management were perceived as receiving less support.

Dabbagh et al. (2015) carried out a research study to investigate how students developed PLEs using social media and the degree to which they engaged in self-regulated learning (SRL) throughout the process. Five participants, consisting of two males and three females, took part in the research. Adopting a case study approach, these participants were interviewed to uncover which SRL processes they employed when constructing their PLEs and whether social media served as effective learning

and developmental tools. The findings revealed that developing PLEs involved students in SRL, especially regarding goal setting, applying task strategies, self-monitoring, and self-evaluation. However, time management and help-seeking were not perceived to be supported during the time they constructed their PLEs via social media. Additionally, the findings showed that the participants reported being intrinsically motivated to utilize social media for creating their PLEs.

Yen et al. (2016) explored how all aspects of SRL predicted the sense of control, initiative level, and self-reflection in PLE management. The predictor variables consisted of goal setting, environment structuring, task strategies, time management, help-seeking, and self-evaluation. In addition, the variables included the level of initiative, sense of control, and self-reflection. The participants were 104 graduate students who took online courses at a university in the United States. By using online surveys for data collection, the results demonstrated that PLE management could be predicted by all six characteristics of SRL.

A study by Chaves-Barboza et al. (2017) purported to examine the process of self-regulated learning within PLEs among students enrolled in the Graduate Program for Preschool Education at the University of Granada in Spain. The study specifically focused on the self-regulatory actions carried out by students and their achievements in self-regulated learning during the action and reflection phases of this process. A Likert scale questionnaire was administered to a randomly selected cluster sample from the population. The collected data underwent descriptive and inferential statistical analyses, including non-parametric correlation and analysis of variance tests. The findings affirmed the significance of individual learning within the self-regulated process and highlighted the crucial role of digital tools in all three phases of self-regulation. Additionally, the results demonstrated the association between teachers' recommendations and the use of digital tools, as well as the documentation of reflections on the learning process. Moreover, the study established relationships between learning management tools and cognitive and metacognitive processes.

Perera and Gardner (2018) carried out a research study with the purpose of investigating the interrelationship between students' digital literacy and SRL skills through using and creating their PLEs. They employed exploratory, longitudinal mixed methods and collected data from 202 participants via online surveys. The results revealed that PLEs supported SRL skills and digital literacy skills impacted SRL strategies.

Boonrasamee, Buripakdi, and Lian (2019) conducted a study to explore the decision-making mechanisms of English major students within their PLEs. To be more

specific, the research aimed at analyzing the learning process of Thai EFL learners when they used the Internet to seek other resources for learning. Also, it investigated the factors that influenced students' decision-making processes during the process. The researchers administered an online questionnaire to 65 students and carried out semi-structured interviews with 10 of them. The findings revealed that students made use of five strategies related to decision-making mechanisms, namely reading for main ideas, trial-error, problem-solving, purposeful thinking, and evaluation. In addition, qualitative data uncovered that research-based activities, knowledgeable persons, academic mindsets, and freedom to learn were four factors affecting such decision-making mechanisms.

Overall, the reviewed studies on PLEs and SRL provide valuable insights into the relationship between these constructs. While there are some limitations, such as small sample sizes and reliance on self-reported data, these studies contribute valuable knowledge to the field, informing educators and researchers about the factors influencing the successful integration of SRL within PLEs. Though there is a close connection between SRL and PLEs, the empirical studies investigating the effects of PLEs on students' SRL are insufficient. Therefore, this study aimed to figure out whether the PLE developed by the researcher could enhance students' SRL. In addition to SRL, the PLE can potentially enhance the interaction.

2.5 Interaction in Online Learning Environments

This section purports to review the definition of online interaction. After that, the types of interaction and modes of interaction are explained. Finally, previous studies related to interaction in online learning environments will be reviewed.

2.5.1 Definition of Online Interaction

Many of the current definitions of interaction in the context of online learning are taken from communication theories and tend to be quite vague. Wagner (1994, p8) defines interaction as "reciprocal events that require at least two objects and two actions". Interaction happens when there is a natural impact of these objects and events. As a result, interactions do not occur just from one side; there must be mutual influence via the exchange of messages in order to reach communication.

Using a communication-based framework, Moore's (1989) definition of interaction establishes the sender and recipient of three different forms of interactions: learner-content, learner-instructor, and learner-learner. Learner-content interaction is described as the interaction between the learner and the subject matter (e.g., readings, and practice problems). Learner-instructor interaction is the interaction between the

student and experts such as the teacher. Learner-learner interaction is the interaction between a student and his or her classmates (e.g., through spoken or written dialogue). Similarly, according to McLaren (2010), in order to learn, there must be two different kinds of interactions: the first involves students and the course content, and the second involves individuals which means students and the teacher. Northrup (2001) also identifies five interaction purposes: engagement with content, collaboration, conversation, monitoring and regulating learning (intrapersonal interaction), and performance support. Muirhead and Juwah (2004) define interaction as a form of communication or event involving two or more people happening either asynchronously and/or synchronously and conducted through technology with the exchange of responses or feedback.

Other definitions of interaction come from different learning theories. To be more specific, behaviorists would highlight the arrangements of inputs, responses, and rewards that underpin interaction, while social constructivists would attempt to optimize the extent to which learning interactions increase meaning-making (Gergen, 1999). Based on a social constructivist viewpoint, Vrasidas and Mclsaac (1999) propose the definition of meaningful interaction. According to them, meaningful interaction is an intellectually engaging exchange of ideas. Meaningful interaction is not confined to sharing personal opinions but stimulating students' intellectual curiosity and hence affects their learning. Whether or not they are online, when students have engaging opportunities to interact with one another and their instructor, they can analyze, synthesize, and evaluate the course material and use their new knowledge to create shared meaning, solve illogical problems, and gain a better understanding of their own knowledge (Lave & Wenger, 1991).

In this study, learning occurred in the PLE which meant an online learning environment where students connected with digital resources, their counterparts, and instructors. Therefore, the definition of interaction was adopted from Moore (1989) in which the online interaction included student-content, student-student, and student-teacher interaction.

2.5.2 Types of Online Interaction

According to Moore (1989)'s online learning interaction model (Figure 2.6), there are three main types of interaction in an online learning environment, namely student-content, student-teacher, and student-student.

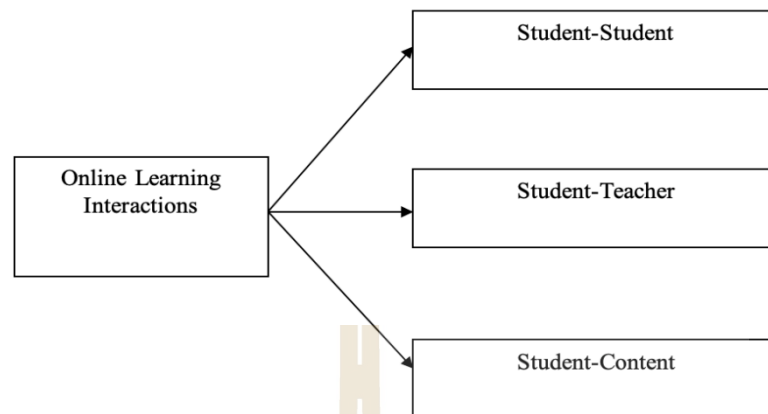


Figure 2.6 Moore's Online Learning Interactions Model (1989)

2.5.2.1 Student-content Interaction

Students interact with online course materials to support their studies. These materials can be presented in various ways and need to be complete, relevant, and accurate (Marzban, 2011). Apart from the study materials, online courses also offer activities and homework to help students reach their learning targets (Dwijuliani et al., 2021).

Assessing the quality of learners' engagement with course content is a challenging yet crucial task (Sari, 2020). Various methodologies have been developed to evaluate student outcomes that go beyond traditional grades or surveys to capture actual knowledge acquisition. Indeed, appraising the quality of an online course is multifaceted, requiring consideration of both the materials provided online and the effectiveness of the interactive tools within learning management systems (Levy & Stockwell, 2013).

A significant topic related to course content is the balance between how much (quantity) and how well (quality) learners engage with the material. Various studies have explored this subject. Some have found that there is a positive link between how often students access content and their grades (Bergdahl et al., 2020). Conversely, others argue that it is the depth of the interaction, rather than the amount, that truly matters (Garrison & Cleveland-Innes, 2005; Lee, 2012). To promote a high level of engagement, some institutions of higher learning have mandated that students regularly interact with the course content.

To sum up, engaging deeply with content is essential to the online educational experience. The material in an online course must be thoughtfully crafted to enable learners to reach high-quality results, achievable by encouraging thorough and significant learner-content engagement during the course (Lee, 2012). In the

context of foreign language education, utilizing cutting-edge technology to offer tailored, in-depth feedback on linguistic exercises can be particularly effective. However, it's important to note that the interaction with the content is interwoven with communication with instructors, classmates, and the user interface.

2.5.2.2 Student-teacher Interaction

In the realm of online education, the interaction between students and instructors is pivotal in guiding student engagement with both the content and their peers (Pan et al., 2024). The way students behave in an online course is significantly influenced by both the presence of the instructor and the quality of their guidance and responses. When it comes to the amount of interaction, students often respond well to instructors who are actively involved. An instructor's visible participation can enhance student satisfaction within the online educational setting (Kang & Im, 2013). However, research also indicates that an excessive number of contributions from instructors might actually be counterproductive (Dennen, Darabi, & Smith, 2007). Notably, a study by Mazzolini and Maddison (2007) found that a high volume of messages from instructors did not lead to an increase in the number of student posts.

Son (2006) noted that students had varying views on the instructor's role in their interactions. Furthermore, Huang and Nakazawa (2010) observed that in a wiki-based setting, students tended to interact more with their peers than with the instructors. Some scholars have also suggested that the level of student engagement may not be directly influenced by the contributions of tutors (Dubey, 2023). While interactions between students and instructors can offer academic advantages, they require careful maintenance and need to be structured to support the aims and learning outcomes of the course (Zhu, 2006).

Students appear to place greater emphasis on the substance of instructors' communications rather than the frequency. Swan's (2002) research on what contributes to successful asynchronous online learning indicated that the significance of interactions with instructors lies more in their quality than in their volume. Instructors' messages should foster a state of cognitive engagement for students. By evenly distributing messages throughout the course and thoughtfully organizing online discussion threads, instructors have the potential to deeply involve students in knowledge-building activities (Zhu, 2006).

To teach effectively online, instructors need to take on a more varied role than they do in traditional in-person classes (Zhang & Lin, 2020). They need to be skilled not only in teaching and assessing but also in using technology (Sailor, 2021). A

big part of an online instructor's job is giving students feedback on their work. This feedback is not just about correcting mistakes; it is also about praising efforts and helping students talk to each other. According to Zhang (2022), instructors should give feedback that includes both suggestions and questions or corrections. They need to be able to look at the content, organization, and style of the writing, all while using technology, like the track changes feature, to help them with these tasks.

2.5.2.3 Student-student Interaction

Student interaction, the third form of online interaction, occurs between students either in pairs or in groups. Peer interaction energizes students, driving them to achieve through cooperative learning (Saglamel & Çetinkaya, 2022). This interactive dynamic is fundamental to establishing a learning community, which plays a vital role in enhancing educational results, promoting higher-level thinking, and increasing engagement (Blake, 2009; Rourke et al., 2007). Research indicates that when learners interact with each other, it boosts their contentment and independence in web-based learning settings (Mamun, 2022). The use of technology and cooperative efforts among learners are key factors in initiating and sustaining this online interaction.

As for the technology that facilitates peer interaction, web-based technologies are becoming increasingly common for educational interactions. Students have the option to communicate with each other asynchronously through tools such as email or discussion forums, or in real-time using conferencing and messaging apps. Using modern networks and video communication helps boost emotional connection, group cohesion, and a sense of immediacy in interactions, which can also help alleviate feelings of isolation (Smyth, 2011). More recently, there's been a trend towards incorporating various social media platforms into higher education settings, with Facebook being a notable example (Wu & Marek, 2013).

Determining the most critical type of interaction among the three previously mentioned has been the focus of some studies, yet there is no clear agreement on which is paramount (Chen et al., 2010). More investigations have attempted to discern the relationship between interactions among students and between students and teachers, examining outcomes such as student satisfaction with online courses (Sher, 2009) and the rate at which courses are completed (Grandzol & Grandzol, 2010). In the study by Grandzol & Grandzol (2010), there was a significant correlation between student-student interactions and the rate of course completion, whereas student-teacher interactions did not show the same effect. Conversely, Sher's (2009) research found a positive connection between both types of interactions and

the students' satisfaction levels. This study focused on all of these three types of interaction and explored how the PLE could enhance them.

2.5.3 Modes of Interaction

In online platforms, students interact with their classmates and teachers in two major modes: synchronously, meaning all parties exchange information at the same moment, and asynchronously, allowing individuals to contribute at different times. Both styles of interaction offer their unique pros and cons.

2.5.3.1 Asynchronous interaction

Asynchronous interaction involves individuals using computer networks to engage in text-based communication, where they can share thoughts, insights, and personal experiences with each other, despite not being online at the same time (Ing et al., 2020). Popular technologies for asynchronous learning include email, group discussion forums, e-boards, shared applications, simulated or virtual lab environments, online libraries, resource access, immediate assessments, and evaluations, as well as streaming video and audio. These tools provide a wide range of benefits for students to communicate with fellow learners, instructors, and the course material.

Research indicates that asynchronous interaction provides an advantageous setting for introverted or hesitant learners (Bassett, 2011). This approach allows students additional time to contemplate and elaborate on their thoughts. Participants in various studies on asynchronous interaction have highlighted other benefits, including flexibility, a positive experience, and effectiveness (Kilag et al., 2023; Dahlstrom-Hakk et al., 2020; Yang & Wu, 2011). Asynchronous learning environments are designed to foster the development of both thinking and practical skills, as well as to enhance the use of more diverse techniques when crafting questions (AbuSeileek & Qatawneh, 2013).

There are challenges with asynchronous interaction as well. One issue is that learners may prioritize recent comments at the top of discussion threads, potentially overlooking more meaningful contributions (Gao et al., 2013). The top-down structure of these threads can also complicate the process for instructors trying to facilitate engaging dialogues. Furthermore, the delay in responses can lead to a feeling of isolation for learners who are waiting for follow-up in the discussion (Andresen, 2009). Additionally, it can be difficult for both instructors and student moderators to integrate the many viewpoints presented in threaded discussions (Gao et al., 2013).

2.5.3.2 Synchronous interaction

Synchronous interaction involves live, immediate communication in an online setting, either between students and teachers or among students, often via text chat (Budiardi & Anggraeni, 2013). As communication technology has evolved, this type of interaction has expanded to incorporate advanced tools like virtual classrooms, video conferences, and interactive whiteboards. Proponents of synchronous interaction argue that it facilitates ongoing, convenient communication, enabling dynamic discussions and a strong sense of community and connection (Alagoz, 2013).

Some research on synchronous interaction has identified various drawbacks to this approach. Concerns include a lack of flexibility and efficiency (Pan & Sullivan, 2005), student anxiety during real-time interactions (Khan, 2022), complications arising from different time zones, individual scheduling conflicts, and the potential for technical glitches (Ernest et al., 2013). Additionally, a major limiting factor is the necessity for students to have access to both high-speed, dependable internet and advanced computer technology (Othman, 2021).

In summary, both synchronous and asynchronous modes of interaction come with their own sets of benefits and drawbacks. Thus, using a mix of both asynchronous and synchronous interactions, with the occasional in-person meeting, can address the varied requirements of learners and encourage more active participation in online learning (Oztok et al., 2012). In this study, students interacted with each other through Facebook as the main learning community and Zalo as the supplementary tool. The interaction could occur in both synchronous and asynchronous modes as well as under text-based or voice chat. Within the scope of this study, text-based interaction of the students through the Facebook group (posts) and Zalo chat (messages) was tracked to figure out the enhancement of students' level of interaction.

2.5.4 Previous Studies Related to Interaction and Online Learning Environments

To the best knowledge of the researcher, no previous studies investigated interaction in a PLE. Instead, most previous studies were conducted to examine interaction in online learning environments in general.

Al-Dheleai and Tasir (2017) examined how students perceived the use of Facebook for online interactions related to their coursework and how it impacted their academic performance. The data for this study were collected through a survey method, and the quantitative data analysis was carried out using SPSS statistics software. The results indicated that students generally held positive views regarding the use of Facebook for online interactions with their peers. Furthermore, the findings

demonstrated a correlation between students' perceptions of online interaction through Facebook and their academic performance.

Hawwini (2019) conducted a study to examine the interaction patterns between teachers and students in a synchronous e-learning system. Specifically, the study focused on the initiation actions carried out by both the teacher and the students. Three class sessions of an English as a Foreign Language (EFL) virtual classroom were recorded and subsequently transcribed. The findings indicated that the teacher initiated more actions, with the most prevalent type being the elicitation of genuine questions aimed at gathering information from the students. Similarly, the students also frequently initiated actions by posing genuine questions to gather information from the teacher.

A study performed by Alahmadi and Muslim Alraddadi (2020) aimed to examine the influence of the virtual classroom on interaction in second/foreign language (L2) learning. The study involved a group of 90 female undergraduate students from Saudi Arabia. A questionnaire consisting of 19 statements was designed for this purpose. The questionnaire aimed to assess the effectiveness of virtual classes in promoting language interaction and L2 learning, as well as to gauge the participants' attitudes towards interaction and learning through virtual platforms. The findings of the study indicated that Saudi students demonstrated a satisfactory level of communication and interaction in virtual classes. Additionally, the participants displayed a favorable attitude towards utilizing online classes for L2 learning.

Amekhlafy and Alqahtani (2022) carried out a study to explore the connection between the utilization of text interaction in English as a Foreign Language (EFL) virtual classes (VC) and its influence on the perception of a virtual community (SOVC). The study aimed to examine the relationship between text interaction usage and the sense of community within the online learning environment for EFL students. The researchers collected data from nine existing courses, including the Reading course, Listening and Speaking course, and Writing course, conducted via virtual classes (VC) using the Schullo model. Additionally, the Sense of Virtual Community (SOVC) questionnaire, adapted from Koh and Kim, was employed. To gain further insights into the text interaction occurring during VC, individual interviews were conducted with nine instructors. The findings revealed that text interaction in EFL virtual classrooms positively impacted students' sense of virtual community. This supported the notion that text interaction carried both academic and social significance.

To investigate the online interaction behaviors of students, a study by Chen and Teh (2022) utilized the analytics provided by the learning management system

(LMS) and analyzed interactions within a social messaging app and virtual live classes. The main focus was on three types of interactions: student-content, student-instructor, and student-student interactions. Additionally, interviews and a survey were conducted to gain a deeper understanding of students' experiences in online learning. Through the analysis and reflection of the derived online interaction behaviors and experiences, it was discovered that students required conducive learning environments that promoted engagement and active participation. Regular check-ins on their progress and social-emotional well-being were also found to be important. Furthermore, students expressed a preference for the flexibility offered by asynchronous learning, allowing them to learn at their own pace and schedule.

Miao et al. (2022) conducted a study to analyze the influence of teacher-student interaction, student-student interaction, and social presence on learning engagement. A survey was completed by 354 undergraduate students who were enrolled full-time in a large public university in China. The findings of the research demonstrated that both teacher-student and student-student interaction had a direct impact on social presence and learning engagement in online environments. Additionally, social presence directly influenced learning engagement. Furthermore, the relationship between teacher-student interaction and learning engagement, as well as student-student interaction and learning engagement, was mediated by social presence.

Quadir et al. (2022) examined how different types of interactions impacted learning outcomes in an interactive learning environment based on blogs. A group of 26 learners joined in the blog-based interactive learning environment and later completed a questionnaire. The findings of the study revealed a significant impact of learner-learner interaction, learner-teacher interaction, and learner-content interaction on subjective learning outcomes. However, learner-teacher interaction did not have a significant influence on objective learning outcomes. On the other hand, both learner-learner interaction and learner-content interaction were found to significantly affect objective learning outcomes.

After reviewing these studies, it can be concluded that interaction plays an important role in online learning engagement as well as learning outcomes. However, most of the studies aimed to explore students' patterns in online learning environments and the effects of interaction on their learning through the use of questionnaires as the main instruments. There is a need to maximize their interaction and a PLE can be a solution since interaction is one of its characteristics (Rahimi, 2015).

This study investigated its effects on students' interaction by using frequency counts as the instrument.

To conclude, only a few studies have shown the effects of PLEs on EFL students' performance, especially in the Vietnamese context. In addition, even though PLEs are recommended to be a solution for self-regulated learning (Tu et al., 2015; Dabbagh & Kitsantas, 2012; Goksel et al, 2018, Haworth, 2016), there has been little previous evidence for the correlation between the two concepts in general and in English language education in particular. Regarding PLEs in language learning in the Vietnamese context, to the best of the researcher's knowledge, there is only one study carried out by Trang (2020) to develop a framework to improve students' academic listening. However, such a framework has not been experimented with in a real setting. Regarding interaction, no research studies have been conducted to explore the influence of PLEs on students' level of interaction. Therefore, to illuminate this uncharted area in the Vietnamese context, this research aimed to investigate the effects of a PLE on Vietnamese undergraduates' speaking skills, self-regulated learning, and interaction.

2.6 Conceptual Framework of the Study

The conceptual framework of this study is illustrated in Figure 2.7. There are three primary learning theories as the foundation for the construction of the PLE including Connectivism, Social Constructivism, and Self-regulated Learning. The PLE for enhancing English speaking skills, SRL, and interaction consisted of four major components: diverse digital resources, personalization, collaboration, and scaffolding. Subsequently, the experiment was carried out to examine the effects of the PLE on students' speaking skills, SRL, and interaction which were also the expected outcomes of this study.

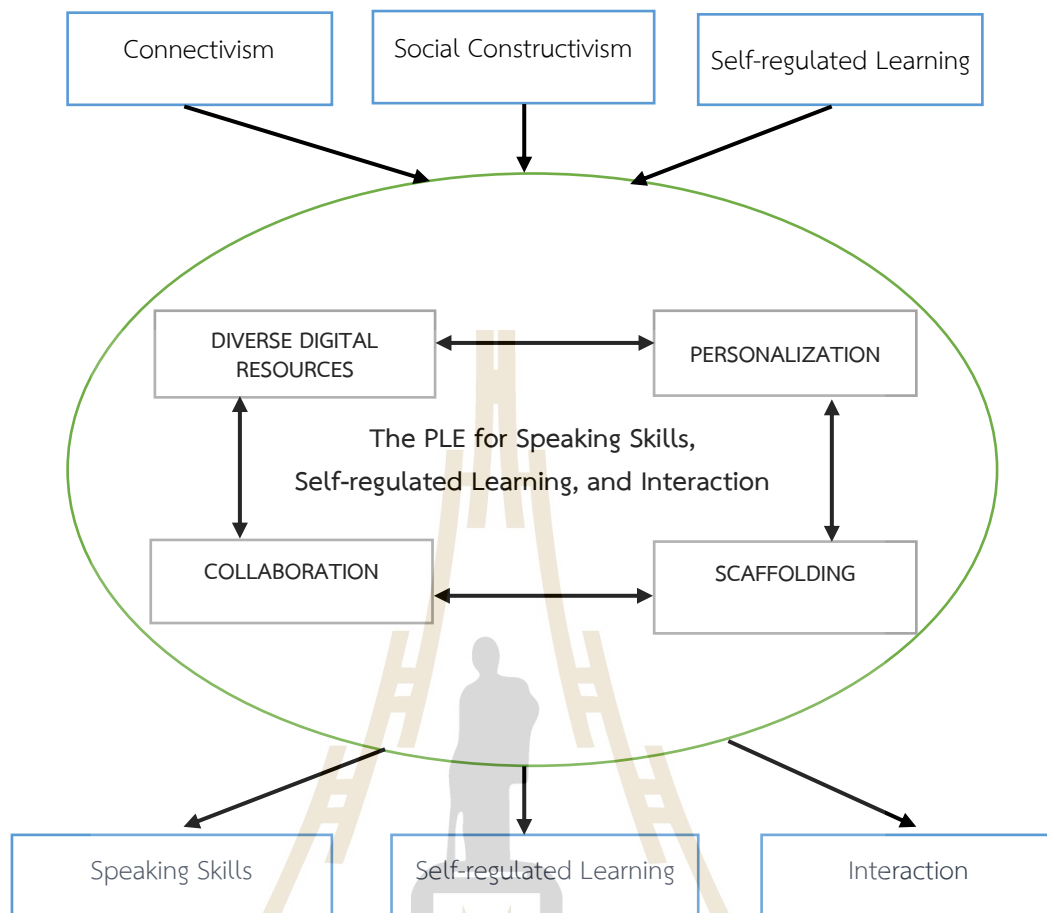


Figure 2.7 Conceptual Framework of the Study

The first component of the PLE was diverse digital resources which aligns with the theory of connectivism (Siemens, 2005). Learning and knowledge extend beyond the individual and are distributed across a network of connections. Connectivist theory emphasizes the importance of abundant learning resources which are seen as nodes within a vast knowledge network. By engaging with a wide range of digital resources, learners can access and connect with various information sources and enrich their learning process (Siemens, 2005). The abundance of multimedia learning materials provides students with rich input for students to learn speaking skills. According to Zuhri (2021), implementing diverse digital learning materials allows learners to access a wide range of updated resources, leading to enhanced English learning achievements. Learning with a variety of multimedia materials also improves students' motivation which is an important factor for learning outcomes (Gilakjani, 2012). Furthermore, the availability of diverse digital resources empowers students to take control of their learning process, a key aspect of SRL (Kintu & Zhu, 2016). These resources allow

learners to set personal goals, choose materials that align with their learning objectives, and engage with content at their own pace. According to Wong et al. (2020), using open educational resources and technologies can promote students' SRL in three aspects: learning motivation, planning and management, and self-monitoring. Finally, employing various digital resources also plays a pivotal role in enhancing interaction among learners, teachers, and content. Using social media platforms facilitates communication and collaboration, allowing students to participate in discussions, share insights, and seek feedback from peers and instructors (Nguyen et al., 2022). These interactions promote a sense of community and encourage active engagement in the learning process. The use of diverse digital resources enables students to interact with content, thereby deepening their understanding and enhancing their overall learning experience (Belawati et al. 2020).

The second component of the PLE for speaking skills, SRL, and interaction was personalization. This component is closely linked with self-regulated learning theory and is also a crucial element of a PLE (Houchens et al., 2014). Personalization empowers students to take control of their own learning processes, which is a core principle of self-regulated learning (Zimmerman, 2002). Personalization in a PLE allows students to engage with materials and activities that are directly relevant to their interests and proficiency levels. By choosing resources that they find engaging, students are more motivated to participate in speaking activities. This increased motivation leads to more practice and, consequently, improved speaking skills (Agustina, 2022). In addition, using metacognitive strategies such as self-assessment and self-reflection can help them recognize their weaknesses and strengths and improve speaking skills (Herrera, 2022). Personalization also supports the enhancement of SRL by allowing students to set personal learning goals, monitor their progress, and reflect on their performance (Ingkavara et al., 2022). Students practice setting goals, planning their learning strategies, and adjusting their approaches based on their self-assessments. What is more, personalization enhances students' engagement in taking part in collaborative activities since these activities are their preferences. When they can choose their favorite activities, they are more likely to participate actively and meaningfully in interactions with their peers and instructors (Vygotsky, 1978).

The third component in the PLE for speaking, SRL, and interaction was collaboration. It is deeply aligned with social constructivism theory, which underscores the importance of social interactions in the learning process. According to Vygotsky's (1978) social constructivism theory, learning is fundamentally a social process, and knowledge is constructed through interaction with others. In addition, collaboration is

closely related to connectivism theory. This theory highlights the importance of building networks and collaboration to foster communication and interaction (Siemens, 2005). Collaborative activities provide authentic contexts for language use, promoting fluency and encouraging the practical application of grammatical and lexical knowledge (Pattanpichet, 2011; Ayyub et al., 2021). In addition, through peer interaction, students receive constructive criticism and suggestions, which help refine their speaking skills (Chekol, 2020; Yeh et al., 2019; Yu & Wu, 2013). In addition, by engaging in peer feedback and collaborative tasks, students develop metacognitive skills necessary for self-regulation (De Backer et al., 2015). They learn to reflect on their performance, identify areas for improvement, and adjust their learning strategies accordingly. This active involvement in the learning process enhances their ability to self-regulate and fosters a sense of responsibility and ownership over their education (Zimmerman, 2008). Furthermore, the collaborative nature of the PLE promisingly enhances interaction, which is a critical component of effective learning environments (García-Peñalvo et al., 2011). Online interactive activities foster student-student and student-teacher interactions, enriching the learning experience (Libre, 2021). These activities also promote student-content interaction by engaging students with the materials in a meaningful way since they need to get access to learning resources to complete the tasks.

The last component was scaffolding which is closely aligned with Vygotsky's (1978) social constructivism theory. According to this theory, learning is a social process, and knowledge is constructed through interactions with others. Scaffolding is a concept derived from this theory, where more knowledgeable people support learners until they can perform tasks independently (Vygotsky, 1978). Scaffolding within the PLE directly contributes to the improvement of speaking skills by offering structured support and feedback. Teacher instructions and feedback provide learners with clear expectations and guidance on how to improve their speaking skills (Sari, 2021). Peer feedback and support enable learners to engage in meaningful interactions, receive constructive criticism, and practice their speaking skills in a supportive environment (Azir, 2019). This iterative process of guided practice and feedback helps learners refine their pronunciation, grammar, fluency, and coherence in speaking. Additionally, scaffolding is essential for developing self-regulated learning skills. Learners have a chance to set specific, measurable goals, monitor their progress, and adjust their learning strategies accordingly (Wong et al., 2019; Luzón, 2006). Teacher and peer support provide the necessary guidance and encouragement to help learners stay on track and overcome obstacles (Yu & Zhou, 2022; Albelbisi & Yusop, 2019; Sun et al.,

2023; Zheng et al., 2023). As learners become more proficient in using these self-regulatory strategies, they develop greater autonomy and confidence in managing their learning process. Scaffolding also plays a crucial role in enhancing interaction within the PLE. Personalized feedback from the teacher creates a structured environment where learners feel supported and encouraged to participate in interactive activities (Grant & Basye, 2014). Peer feedback and support foster a collaborative learning atmosphere where learners can engage in meaningful dialogues, share ideas, and learn from each other (Espitia & Cruz Corzo, 2013).

Each of the components in the PLE contributed to the enhancement of speaking skills, SRL, and interaction. In addition, they were interconnected and support each other in some ways. First of all, diverse digital resources form the foundation of the PLE, providing students with a variety of tools and materials to support their learning. Digital resources are essential for facilitating personalized learning experiences. By offering a wide range of materials, students can select those that best align with their individual learning goals and interests, thereby enhancing their motivation and engagement. This selection process supports the development of self-regulated learning skills as students take ownership of their learning pathways (Zimmerman, 2008). Moreover, digital resources support collaboration by providing platforms and tools for communication and interaction. Online discussion, role-playing, and vlogging activities enable students to collaborate with peers and engage in meaningful exchanges. These interactions are further enriched by the diverse content and tools available, promoting deeper understanding and critical thinking (Vygotsky, 1978). Secondly, personalization in the PLE allows learners to set personal goals, monitor their progress, and evaluate their performance. By giving students the freedom to choose their preferred tools, materials, and activities, personalization fosters a learner-centered approach that accommodates individual needs and learning paces (Lee et al., 2018). Personalization also enhances collaboration by enabling students to engage in activities and discussions that are relevant and meaningful to them (McLoughlin & Lee, 2008). Furthermore, personalization supports scaffolding by allowing teachers to tailor their instruction and feedback to individual students' needs (Abdala, & Hamdan, 2021). By understanding each learner's goals and progress, teachers can provide targeted support and guidance, helping students overcome challenges and achieve their objectives. Thirdly, collaboration is a critical component of the PLE, emphasizing the importance of social interactions in learning (Vygotsky, 1978). Collaboration is linked to diverse digital resources since these tools and materials provide the platforms and content for communication and interactive activities. The availability of various

resources facilitates different forms of collaboration, catering to diverse learning preferences and promoting inclusive participation. Collaboration also supports personalization by allowing students to connect with other people to achieve their personal learning goals (Al Abri et al., 2020). Personalized collaborative activities increase engagement and motivation, as learners are more invested in tasks that are relevant to their aspirations (Kucherenko et al., 2023). Fourthly, scaffolding in the PLE involves providing support to students through teacher and peer assistance. Scaffolding is closely connected to diverse digital resources, as these tools and materials offer various means of support. Online resources such as instructional videos, tutorials, and interactive quizzes provide additional scaffolding, helping students understand and apply new knowledge (Hsieh, 2017). Teachers and peers can also take advantage of digital tools such as social media to offer timely and targeted feedback and support, enhancing the scaffolding process (Kang, 2018). Collaboration and scaffolding are also related by creating opportunities for peer support and feedback. Through collaborative activities, students can help each other solve problems, share strategies, and provide constructive feedback (Nguyen, 2013).

All in all, the PLE for speaking skills, SRL, and interaction was developed based on connectivism, social constructivism, self-regulated learning theories as well as principles of a common PLE. Four major components were generated including diverse digital resources, personalization, collaboration, and scaffolding. These components were interconnected, creating a holistic personal learning environment to support students' speaking skills, SRL, and interaction.

2.7 Summary

In summary, this chapter has reviewed and discussed the related literature. First of all, the theoretical framework has been explained followed by the description of Personal Learning Environments. After that, the other aspects including English speaking skills, SRL, and interaction have been reviewed. In the next chapter, the research methodology will be presented.

CHAPTER 3

METHODOLOGY

This chapter aims to describe the research methodology employed to achieve the objectives of the present study. The methodology for this research encompasses various aspects including the study's research design, research setting, participants, variables, instruments, data analysis, and pilot study.

3.1 Research Design

This study was conducted employing a mixed-method approach. According to Creswell (2014), the collection and analysis of both quantitative and qualitative data will build a stronger study. The combination of quantitative and qualitative approaches can help better understand the research findings (Gay & Airasian, 2000; Tashakkori & Teddlie, 2003). Creswell and Creswell (2005) also state that using both forms of data can enable researchers to simultaneously generalize the results from a sample to a population. In this study, the triangulation constructed by the merging of both methods could serve to clarify the effects of the PLE on students' speaking skills, SRL, and interaction. Specifically, quantitative data from pre- and post-speaking tests, pre- and post-SRL questionnaires, interaction frequency counts, and perception questionnaires were utilized to measure the effects of the PLE while qualitative data from semi-structured interviews and reflective journals helped confirm the results and get further insights into students' perceptions towards the PLE.

Since it is challenging to have completely random samples in the natural setting of a university, the researcher employed a one-group pretest-posttest design to investigate the effects of the PLE on students' speaking skills, SRL, interaction, and explore their perceptions towards learning English speaking through the PLE. There was no control group in this study since the researcher did not completely deny the effects of the traditional method. The primary purpose was to introduce an innovative teaching approach which is potentially able to enhance students' speaking skills, self-regulated learning, and interaction.

In addition, in this study, balancing the roles of being both a teacher and a researcher was a challenging task that required attention. As the teacher, the purpose was to create positive learning experiences through the PLE while also meeting the requirements of the curriculum. At the same time, as a researcher, it was important to

stay objective and fair to keep the study's standards high. As a result, there was a conflict of interest: as a teacher, the researcher expected to design a learning environment to provide the best educational outcomes, yet these adjustments had the potential to influence the study's findings. Alternatively, from the researcher's viewpoint, maintaining objectivity was key, but this commitment to neutrality could sometimes contrast with the immediate educational needs of the students. To manage this balance, it was important to be clear about how the study would be conducted, be thorough in analyzing data, and be aware of any personal biases that could affect the study. This study carefully considered these factors to maintain the quality and reliability of both the teaching and the research.

The research design encompassing 8 steps is illustrated in Figure 3.1. First of all, a preliminary study was carried out to grasp students' needs and preferences in terms of tools, materials, activities, and content included for learning English speaking skills. This information would be the basis for the researcher to develop the PLE and design the PLE lessons.

Second, all instruments were designed based on the results of the preliminary study and literature review. These instruments included the PLE, lesson plans, pre- and post-speaking tests, pre- and post-SRL questionnaires, interaction frequency counts, perception questionnaires, semi-structured interviews, and reflective journals. After being developed, these instruments were sent to three experts for validation. There were three criteria for selecting qualified experts. Firstly, all of them are in the field of English language teaching. Secondly, they all possess a Ph.D degree and have more than ten years of experience in using technology in teaching English. Thirdly, they are familiar with validating instruments through the Index of Item-Objective Congruence (IOC). Following that, the researcher modified the instruments based on the feedback provided by the experts.

In the third step, a pilot study was conducted to ensure the validity and reliability of all instruments before being implemented in the main study. The pilot study took place within 4 weeks with 18 students who owned the same characteristics as participants in the main study. The participants learned English speaking skills with the PLE lessons during the pilot study and gave comments on entire instructional and research instruments.

Next, to avoid ethical issues, students were informed about the experiment before its implementation. A consent form (see Appendix P) was provided to participants, ensuring their voluntary participation and awareness of the experiment's procedures and potential difficulties. After that, all participants participated in the pre-speaking

test with the examiners. The pre-speaking test was based on the IELTS speaking format and lasted around 7-10 minutes for each student. Then they were asked to fill in the pre-SRL questionnaire, which took around 3 minutes. This was an important step to know whether there were any significant differences in terms of speaking skills and SRL.

Once everything was ready, the experiment would be carried out. All participants were supposed to learn English speaking skills with the PLE lessons during the 8 weeks of the intervention. During this time, the researcher conducted frequency counts of students' interaction on the Facebook group using a prepared spreadsheet every two topics. Also, students were required to write reflective journals every two lessons after they had finished one speaking topic.

After the experiment finished in week 8, the participants were asked to take the post-speaking test and fill in the post-SRL questionnaire. Additionally, the perception questionnaire was administered to the students for completion. The semi-structured interviews were undertaken after that based on the information from the post-speaking test, post-SRL questionnaire, and perception questionnaire.

After collecting all essential data, the following step was analyzing them. This step involved the metadata analysis of quantitative data from the pre-and post-speaking test scores, pre- and post-SRL questionnaires, perception questionnaire, and interaction frequency counts, and qualitative data from semi-structured interviews and reflective journals. Finally, the researcher wrote up the other sections including results, discussion, implications, recommendations, and conclusion.

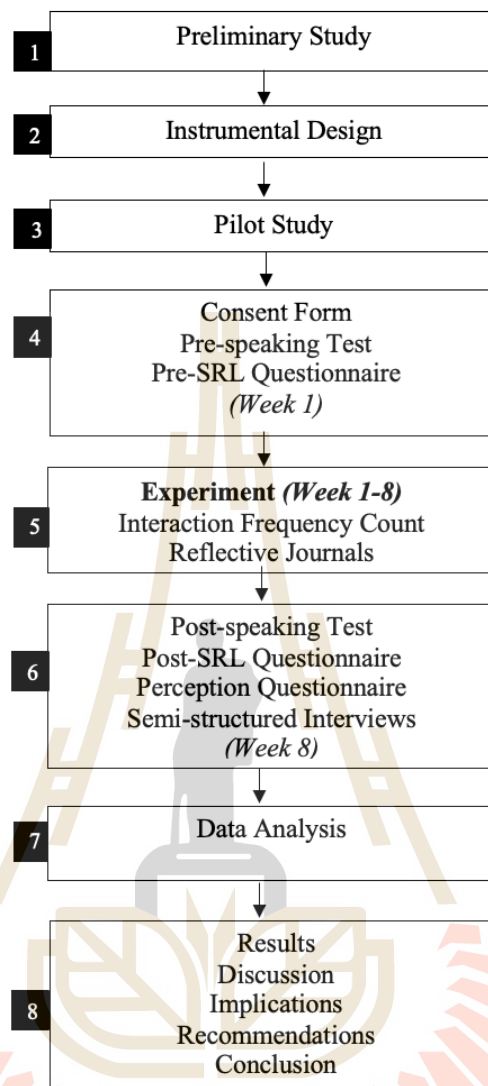


Figure 3.1 Research Procedure

3.2 Research Setting

This study was conducted at the Faculty of English of the University of Economics and Finance (UEF) which is a private university located in Ho Chi Minh City, Vietnam. UEF was established in 2007 and has a total of ten academic faculties. Twenty-nine undergraduate programs and five post-graduate programs have been offered. Initially, UEF primarily focused on training disciplines regarding economics and finance. However, due to the increasing demand of society, other disciplines related to social sciences such as foreign languages, tourism and hospitality, public relations, and communication have also been developed.

UEF Faculty of English was formed in 2015 with the mission of training human resources with foreign language skills to meet the increasing requirements of a

multicultural and multilingual working environment in the current trend of international integration. There are four full-time PhD lecturers and thirty MA lecturers teaching both the undergraduate English major and non-English major programs. In terms of the English major program, students can select one of the four options, namely TESOL Methodology, Business English, Translation & Interpretation, and English for Communication. Concerning the General English program, there are seven General English courses that students are required to complete. The first six courses focus on developing their communicative skills and the last course provides them with the foundation of IELTS. In order to graduate, students are required to achieve an IELTS 5.5 certificate. There is a total of eight weeks of each course and students will study English with the teacher for around 4.5 hours a week. The course book used in the English program of this university is *Four Corners, 2nd edition by Jack C. Richards and David Bohlke*. All units are designed under integrated skills according to different topics, focusing on enhancing students' communicative skills. The average number of students in each class is around 35 to 40. In addition to limited time in the classroom, students can take self-regulated learning in the library or self-study rooms which are equipped with computers, online resources, databases, and high-speed Internet.

3.3 Participants

The population of the study was the first-year undergraduates who took the English 2 course (Semester 2 of the year 2023-2024) at the University of Economics and Finance (UEF). The reason for selecting first-year students as participants in the research was based on the practical understanding that they would require greater instructional assistance during their initial year of study compared to senior students. In terms of the rationale for choosing the English 2 course, students in this course were supposed to be at the pre-intermediate level according to the curriculum developed by the institution. This was appropriate for the focus of the present study. The primary objective of this course is to improve students' ability to communicate effectively at the pre-intermediate level. It aims to equip students with vocabulary related to familiar subjects, grammar patterns, phonetics knowledge, and exercises in listening and reading to establish a strong foundation for speaking skills.

Convenience sampling was employed to select the participants for this study. According to Dörnyei (2007), convenience sampling is a sort of nonprobability or nonrandom sampling in which the selection of participants from the target demographic is predicated on their accessibility, geographical proximity, temporal availability, or expressed willingness to take part in the research. To ensure ethical

issues, 40 voluntary students who registered for the English 2 course were recruited based on their willingness to finish this course by learning with the PLE. They were provided with information via email, and they would confirm their agreement by replying to the email.

All students have been learning English for at least seven years according to the English language system in Vietnam. When it comes to the General English program at UEF, students are required to take a placement test before they start the program and then are assigned to the classes appropriate to their levels. They are non-English major students who come from different departments and also from various regions in Vietnam.

Twelve participants after that were selected for the semi-structured interviews, using purposive sampling. Purposive sampling is a nonrandom technique that does not require any underlying assumptions or a predetermined number of participants. Simply said, the researcher determines what information is required and then seeks out persons who can and will supply it based on their knowledge or experience (Bernard, 2017). Purposive sampling is a frequently employed technique in qualitative research to selectively choose the most informative and resource-rich examples for optimal utilization of available resources (Patton, 2002). As for the purposes of this study, 12 out of 40 students were purposely chosen based on three criteria. Firstly, based on the post-test result, the researcher would like to interview four students who achieved high scores, four with medium scores, and four with low scores. This allowed the researcher to collect diverse opinions from a range of students. Secondly, their responses to the perception questionnaire should have been reliable and informative. Thirdly, they were willing to take part in the interview by ticking “Yes” on the last question in the perception questionnaire, which is “*Are you willing to take part in an interview?*”. Regarding the number of participants, there are two reasons why twelve students were recruited for the semi-structured interviews. Firstly, the sample size to collect qualitative data from interviews depends on the time the researcher can reach the saturation (Marshall et al, 2013) and according to Guest et al. (2006), a saturation point can be reached by conducting just 12 interviews with a homogeneous group. This might be the reason why most previous studies with similar objectives conducted semi-structured interviews with around twelve participants such as Boonrasamee et al. (2019), Saks and Leijen (2014), Ospina Villabona (2019). Secondly, with a sample size of 40 participants for the experiment, 12 semi-structured interviews are appropriate since the researcher would like to delve deeply into participants’ experiences, perceptions, and insights. With a smaller sample size, the researcher can dedicate more

time and attention to each interview, ensuring thorough exploration and detailed understanding.

3.4 Variables

There were two genres of variables which the researcher aimed to explore in this study. The independent variable was the teaching method using the PLE lessons developed based on connectivism, social constructivism, and self-regulated learning theories. The dependent variables were comprised of students' speaking skills (pre-test and post-test scores), students' SRL (pre- and post-SRL questionnaires), interaction (interaction frequency counts), and students' perceptions (perception questionnaire, semi-structured interviews, reflective journals).

3.5 Instruments

To gather both quantitative and qualitative data and to achieve the study's objectives, two primary types of instruments were used. The following subsections discuss the two main categories of instruments.

3.5.1 Instructional Instruments

The instructional instruments in this study consisted of the PLE for English speaking skills, SRL, and interaction developed by the researcher; and lesson plans.

3.5.1.1 Personal Learning Environment (PLE) for English Speaking Skills, SRL, and Interaction

The first instructional instrument was the PLE constructed by the researcher. This PLE was considered a starting point for the students to customize and develop their PLEs. To be more specific, this pre-formed PLE enabled students to select and organize their networks of learning resources, applications, and tools following their interests and objectives; and to communicate with individuals participating in specific learning activities (Adell & Castañeda, 2010; Anderson, 2006; Attwell, 2007; Downes, 2007; Martindale & Dowdy, 2010; van Harmelen, 2008). According to Castaneda and Soto (2010), learners may not be able to construct effective PLEs without a solid understanding of the concept and effective guidance and support.

3.5.1.1.1 The Construction of the PLE for Speaking Skills, SRL, and Interaction

The construction of the PLE for Speaking Skills, SRL, and Interaction (Figure 3.2) is as follows.

First of all, the researcher conducted a preliminary study which was a survey using a “Preference Questionnaire” (Appendix C) with the participation of 437 students to gather information on students’ needs and preferences in learning English speaking skills. In addition, the survey was about to identify students’ preferences in terms of tools, platforms, materials, and speaking activities. The survey was sent to the experts for validation and was piloted before being administered to the participants.

The second step was designing the PLE in which the researcher established clear learning objectives and outcomes for the PLE as well as created a PLE framework that incorporated relevant resources, activities, tools, and features for improving speaking skills, SRL, and interaction based on the survey’s results.

In the third step which was developing the PLE, the researcher selected the main and supplementary platforms for the PLE based on students’ preferences revealed in the survey. The researcher also compiled a variety of materials, tools, and activities to support English speaking skills, SRL, and interaction. In addition, guidelines and instructions for students on how to use and navigate the PLE effectively were created.

After developing the PLE, the validation was carried out using IOC analysis to delete or modify inappropriate components. IOC is a statistical measure used in educational measurement and test development to evaluate the alignment between individual test items and the intended learning objectives or constructs being assessed (Phu-ampai, 2017; Fouzul Kareema & Bt Zubairi, 2021). Each item is scored as follows.

1 = The expert completely agrees that the item is appropriate and valid.

0 = The expert is unsure as to whether or not the item is appropriate and valid.

-1 = The expert completely disagrees that the item is appropriate and valid.

The calculation of IOC is done using the equation presented below.

$$IOC = \frac{\text{Total score}}{\text{Total number of experts}}$$

Specifically, the researcher sought feedback from the experts to ensure the PLE was well-designed and appropriate for the target group of

students. The validation form and the result of the IOC analysis are shown in Appendix D. Based on the analysis results of IOC, the PLE obtained a score of 8.66, corresponding to a percentage of 86.60%. This percentage exceeded the required threshold of 80%, indicating that PLE was highly suitable for adoption in the main study. Based on experts' suggestions, some modifications were made. Firstly, in the description of the PLE, more citations were added in the "Scaffolding" section. Secondly, in the diagram, the word "online" was added before "Learning Materials". Thirdly, types of online learning materials were categorized into "Video-based" and "Text-based". Lastly, the word "Freedom" was used to be parallel with "Choice" in the "Personalization" component.

Next, the PLE was piloted with a group of 18 participants to evaluate its effects and identify any issues or areas for improvement. The researcher after that gathered feedback from the students about their experiences using the PLE and made modifications if any. Finally, the modified PLE was integrated into the lesson plans to be used in the main study.

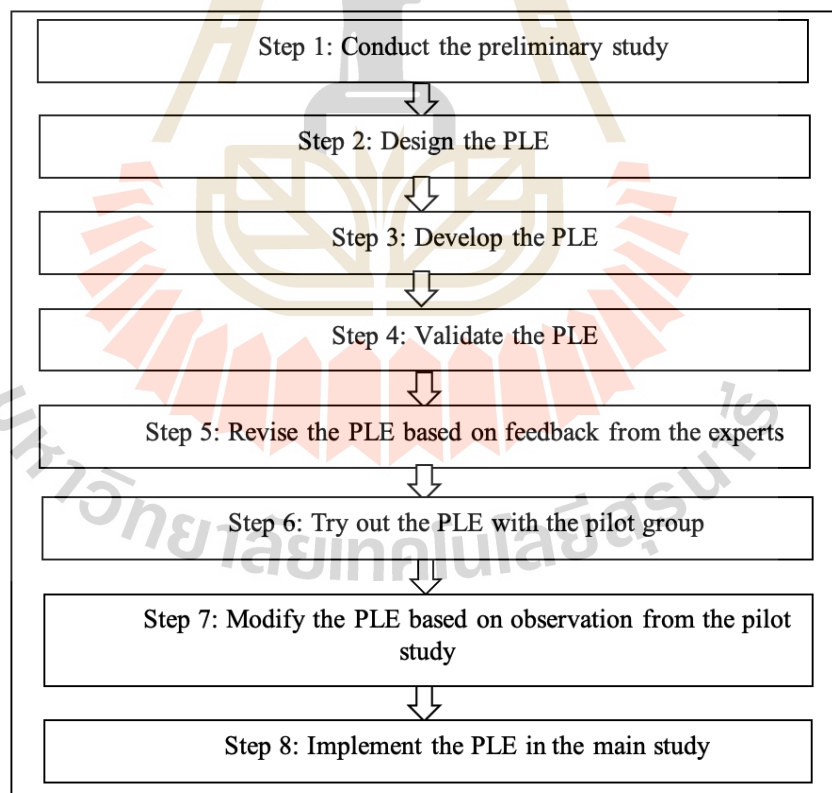


Figure 3.2 Procedure for Constructing the PLE for Speaking Skills, SRL, and Interaction

3.5.1.1.2 The PLE for Speaking Skills, SRL, and Interaction

As mentioned in section 2.7 (conceptual framework), the PLE for enhancing English speaking skills, SRL, and interaction consisted of four major components: diverse digital resources, personalization, collaboration, and scaffolding (Figure 3.3).

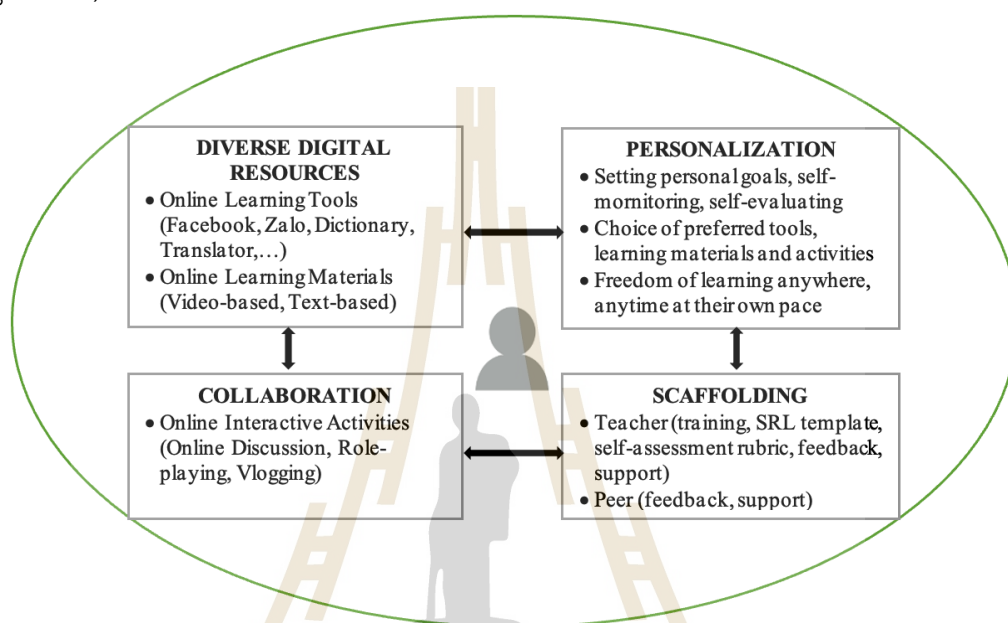


Figure 3.3 A Proposed PLE for English Speaking Skills, SRL, and Interaction

Component 1: Diverse Digital Resources

The first component of the PLE was diverse digital resources which included a variety of necessary online learning tools and materials identified from the results of the survey as well as related literature review.

Online Learning Tools

In this PLE, the online learning tools included Facebook and Zalo used as the main and supplementary learning platforms. Furthermore, other learning tools supporting learning English speaking skills were also involved.

Facebook as the main learning platform for the PLE

According to the survey's results, Facebook was the platform that all students selected as the main learning community. This could be explained by the fact that it is the most commonly used social media platform in Vietnam (Statista, 2023). Facebook is also being widely utilized as a learning management system for English language teaching and learning in the Vietnamese context (Thao, 2021; Mai et al., 2020; Duong & Tran, 2023). Furthermore, according to

Deshmukh (2019), a Facebook group can be used as a PLE since it offers a platform where the students can be both creators and consumers of resources and knowledge. Students can post any queries, share important notifications, and interact with their counterparts when necessary. In this research, a Facebook group was created, which served as the main hub for communication, collaboration, and sharing of resources (Figure 3.4).



Figure 3.4 Screenshot of the Facebook Group

Zalo as the supplementary platform for the PLE

Apart from Facebook as the main platform for collaborative knowledge construction, quick and real-time messaging is crucial to progressing and maintaining collaborative educational activities in the PLEs (Korhonen et al., 2019). Zalo was the favorite selection of the students in the survey for a supplementary tool of communication and therefore it was added to this PLE. This could be explained by the reason that Zalo ranks as the second most favored platform in Vietnam, only

surpassed by Facebook and marginally exceeding Instagram regarding social networks (Tran et al., 2023). It was launched as Vietnam's first local messaging platform in 2012 and has established a strong presence in the market, with an estimated user base of about 64 million (Le et al., 2022). Therefore, a variety of Vietnamese teachers create Zalo groups to facilitate the interaction of the students (Le et al., 2022; Nguyen, 2022; Nguyen et al., 2022). A Zalo chat group was also created to support students' learning (Figure 3.5).



Figure 3.5 Screenshot of the Zalo Chat Group

Other Online Learning Tools

Additionally, other learning tools were incorporated into the PLE (Figure 3.6). These tools supported students in learning English speaking skills and were placed on the Facebook group so that students could use them anytime they needed.

First of all, Oxford Learner's Dictionary and Google Translate were included in the PLE as the online dictionary and translator to facilitate students' language learning (O'Neill, 2019). Online dictionaries such as Oxford Learner's Dictionaries offer comprehensive definitions, example sentences, and audio pronunciations for a wide range of words. O'Neill (2019) suggests that using online dictionaries can enhance vocabulary learning by providing learners with accurate and accessible word meanings. According to Clifford, Merschel, & Munné (2013), the utilization of online translators contributes to expanding vocabulary, enhancing grammatical accuracy, and instilling confidence. Google Translate as an example proves to be an effective, user-friendly, enjoyable, and non-intimidating tool for students to communicate in the target language (Bahri & Mahadi, 2016). Google Translate provides translations and audio pronunciations for words, phrases, and sentences in multiple languages. While it is important to be cautious with its accuracy,

research by Ahmadi and Reza (2018) shows that Google Translate can be a helpful tool for language learners when used strategically and in combination with other resources.

In addition, the three most prevalent learning apps in learning English speaking skills for Vietnamese students which are ELSA, Duolingo, and BBC Learning English were integrated into the PLE (Nguyen & Vo, 2021; Khoa et al., 2021). ELSA (English Language Speech Assistant) is a pronunciation app designed to help learners improve their English pronunciation. It uses speech recognition technology to analyze users' pronunciation and provides personalized feedback and practice exercises. ELSA offers pronunciation lessons, interactive exercises, and progress tracking, making it an effective tool for learners aiming to enhance their spoken English skills (Aswaty & Indari, 2022, Kholis, 2021, Anggraini, 2022). In addition, Duolingo is a well-known language-learning app that offers courses in various languages, including English, Vietnamese, and more. It provides interactive exercises, vocabulary practice, and speaking practice for language learners at different levels and hence can improve students' vocabulary learning as well as speaking skills (Ajisoko, 2020; Jiang et al., 2021). When it comes to BBC Learning English, it offers a wide range of materials and resources to support English language learning. Students have the opportunity to utilize authentic resources, engage in pronunciation exercises, receive advice on speaking, and participate in interactive tasks that aid in their advancement in English speaking skills (Khashan & AbuSeileek, 2023).



Figure 3.6 Screenshot of Learning Tools Shared on the FB Group

Online Learning Materials

The survey's results indicated that students preferred to learn with multimedia resources. To be more detailed, they favored learning with both text-based and video-based materials. In other words, the topics and content of the PLE lessons were not confined to the course book but came from a variety of sources based on students' preferences.

Video-based Materials

Video-based materials contained YouTube lecture videos about grammar, vocabulary, or pronunciation points. They could also demonstrate conversations or talks connected to the topics. According to Perez (2022), videos provide visual and auditory input, making learning more engaging and facilitating comprehension through context and nonverbal cues. Video-based learning offers a dynamic, engaging, and immersive learning experience (Thomas & Schneider, 2020). It provides learners with exposure to authentic spoken English, opportunities to practice listening and speaking skills, cultural insights, and visual support for comprehension and pronunciation improvement (Chaimaa & Wiam, 2023; Castro Castañeda & Diaz Zapata, 2023).

Text-based Materials

Another type of learning material in the PLE was text-based which was one of students' preferences according to the survey. These entailed lecture slides or web-based explanations of the content of the lessons such as grammar and vocabulary points. They could also be authentic online reading articles which are linked to the topics of the lessons. Online articles in the PLE for speaking skills bring a wealth of benefits such as vocabulary expansion, exposure to language patterns and structures, development of comprehension skills, acquisition of content knowledge, exposure to authentic language usage, cultural understanding, and cultivation of critical thinking and discussion skills. These advantages contribute to a comprehensive and well-rounded approach to developing speaking abilities (Mart, 2012). All in all, the teacher posted a variety of materials to the Facebook group and students could learn based on their needs and preferences. In addition to materials provided by the teacher, students were encouraged to use search engines such as Google to search, select, and share the materials with their peers.

Component 2: Personalization

The second component of the PLE for speaking skills, SRL, and interaction was personalization. In this PLE, students set their personal learning goals, made their plans, selected appropriate learning resources and strategies to

achieve these goals, monitored their progress, and self-evaluated their learning process. Students had the freedom to choose tools, learning resources, and activities that cater to their interests and learning styles. For example, some students might have preferred watching videos, while others might have preferred reading articles or PowerPoint slides. In addition, personalization allowed students to learn at their own pace. They could spend more time on difficult points and move more quickly through areas they understood well. This flexibility helps to reduce frustration and increase motivation (Alamri et al., 2020). They could also learn anywhere and anytime outside the classroom, which makes them feel comfortable.

Component 3: Collaboration

The third component in the PLE for speaking, SRL, and interaction was collaboration. In this PLE, online interactive activities were employed to facilitate collaborative learning. The findings of the survey revealed that students' favorite activities included online discussion, role-playing, and vlogging.

Online Discussion

These could be thought-provoking questions, controversial statements, or current news articles posted on the Facebook group. Students were encouraged to express their thoughts and opinions and respond to their peers. Promoting an open discussion on various topics not only enhances communication skills (albeit in written form) but also fosters critical thinking and interaction (Gikandi et al., 2011).

Role Playing

With this activity, students were given different roles and were required to prepare and perform a dialogue, which could then be recorded and shared on the Facebook group. This provided a great opportunity for speaking practice and peer feedback. Role-play has been recognized as an effective strategy for developing speaking skills and enhancing learner interaction (Idham et al., 2022; Van, 2022). By simulating real-life situations, students were offered a safe platform to practice their language skills.

Vlogging

Students were asked to create short vlogs on specific topics relevant to the course content. This allowed students to practice speaking in a creative, authentic context. After students shared their vlogs on the Facebook group, they could provide feedback to each other. This could be structured by providing specific criteria for feedback, such as fluency and coherence, pronunciation, vocabulary, and grammar. This activity fosters speaking skills, creativity, critical listening, interaction, and SRL (Pop et al., 2011).

Component 4: Scaffolding

In this PLE, the scaffolding stemmed from both the teacher and peers.

Teacher Scaffolding

The teacher plays an important role in providing students with scaffolding during students' learning process in the PLE (Korhonen et al., 2019). First of all, a training session was necessary to guide students to make use of the PLE effectively. For example, they need to know how to select and organize learning tools and materials for their learning based on their needs (Luzón, 2006). They are also expected to be able to use the PLE to engage in collaboration and discussion (Dabbagh & Fake 2017). In addition, to facilitate students' SRL when learning with the PLE, a template designed on Google Docs (see Appendix M) was shared with students via Facebook. Google Docs is appropriate for this context since it is a familiar tool for students to create and update content as well as share it with their peers. The template for SRL illustrates the core process of SRL which are setting goals, creating a study plan, monitoring and reflecting (Zimmerman, 2000). It provides students with prompts and samples so that students can practice SRL strategies (Wong et al., 2019). What is more, to support students' self-evaluation, students were trained to self-assess their speaking skills based on the IELTS speaking descriptor. They were also encouraged to employ available tools such as ELSA, Duolingo, or quizzes to self-check their pronunciation, grammar, and vocabulary. By reflecting on their learning process and outcomes, students can identify their own strengths and weaknesses and make necessary adjustments to their learning strategies (Panadero et al., 2019). Another scaffolding came from teacher feedback in which teachers offered personalized feedback to individual students based on their performance in activities, tasks, or assessments, which could be done through comments on students' posts. This can provide insights into students' strengths and areas for improvement, helping them adjust their learning strategies (Winstone & Carless, 2019).

Peer Scaffolding

In addition to scaffolding from the teacher, peers can also significantly contribute to the learning process in an online learning environment by offering feedback and support (Luzón, 2006; Al Mamun et al, 2020). In this PLE, when students collaborated in groups and collectively assessed their learning journey, they could engage in discussions about their ideas and address any challenges encountered. Utilizing communication tools, learners could cooperate to accomplish tasks, offer commentary on their peers' work, provide feedback, and respond to each other's

inquiries. This PLE, especially when integrated with social media platforms like Facebook and Zalo, fostered a collaborative learning environment where students could ask for support and give feedback.

3.5.1.2 Lesson Plans

The second instructional instrument of the study was the lesson plans which played an important role in guiding teachers to teach English speaking skills by using the PLE to enhance students' speaking skills, SRL, and interaction.

3.5.1.2.1 The Procedure for Constructing the Lesson Plans

The procedure for constructing the lesson plans is shown in Figure 3.7. Before developing the lesson plans, the researcher conducted a literature review related to relevant theories and principles.

After that, the researcher studied the nature of the English 2 course regarding course description and course objectives. According to the description, this course was designed to mainly enhance students' communicative skills. They were provided with vocabulary related to familiar topics, grammar patterns, phonetics knowledge, and listening and reading exercises as a foundation for speaking skills. After finishing this course, students were expected to be able to grasp necessary linguistic knowledge as well as make use of it in common speaking activities. The topics and content included in the PLE lessons were based on students' preferences in the survey as well as the outcome of the curriculum. To be more specific, the PLE lessons covered six topics: (1) Shopping, (2) City, (3) People, (4) Restaurant, (5) Entertainment, and (6) Change. There were two lessons for each topic and each lesson lasted 135 minutes.

Once the lesson plans were developed, they were sent to the experts for validation before being revised according to their suggestions. The validation form and the result can be seen in Appendix F. The analysis findings indicated a score of 6.67, which corresponded to a percentage of 83.33%. This percentage surpassed the minimum threshold of 80%, suggesting that the lesson plans were well-suited for implementation in the main study. Some revisions were made based on the experts' suggestions. Firstly, the phrase "in pairs" was added in "pair work" activities. Secondly, "Interaction" and "Listening" were combined into one and the activities were re-designed to avoid repetition. Thirdly, one more column which was "Learning Materials" was added to the lesson plans. After that, the PLE lessons were piloted with a group of 18 participants. After the pilot, the time allotment for each activity was reallocated to increase the time for speaking activities.

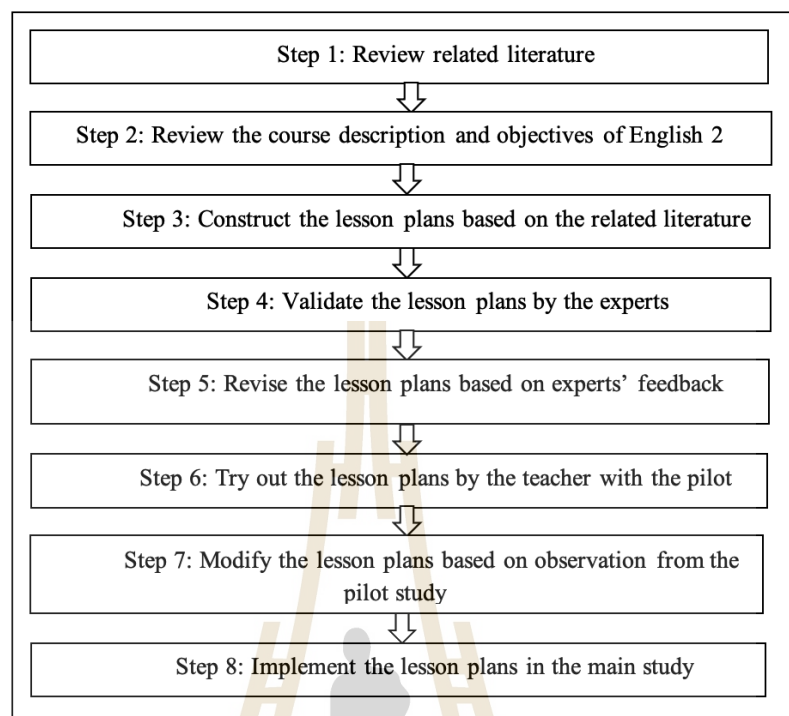


Figure 3.7 The Procedure for Constructing the Lesson Plans

3.5.1.2.2 The PLE Lessons

The PLE lessons which were developed based on connectivism, social constructivism, self-regulated learning theories, and components of the proposed PLE are illustrated in Figure 3.8. Firstly, connectivism posits that learning is not just an individual process but learning and knowledge are distributed across human and technological networks (Siemens, 2005). In the PLE lessons, connectivism was applied by fostering a networked learning environment. The lessons were designed to encourage students to actively seek, create, and share knowledge through online tools and materials. Online discussions, collaborative tasks, and interactions on Facebook as the main platform were integrated to stimulate meaningful connections and knowledge exchange among learners. This aligns with the connectivist idea that learning is not confined to the traditional classroom but extends into the digital realm where learners can tap into diverse sources and perspectives. With the PLE lessons, students had opportunities to get access to numerous learning resources from the Internet rather than be confined to only the course book in the traditional classroom. Secondly, social constructivism emphasizes the importance of social interactions in the learning process in which knowledge is constructed through human activity and individuals create meaning through social interactions (Vygotsky, 1978). In the PLE lessons, this theory was manifested through collaborative activities

and shared learning experiences. Pairwork, online discussions, and peer feedback mechanisms were integrated into the lessons to promote a sense of community and collective knowledge construction. Learners were encouraged to engage with each other, share their insights, and collaboratively build understanding. Thirdly, SRL theory places learners at the center of their educational journey, emphasizing their ability to set goals, monitor progress, and reflect on their learning (Zimmerman, 2000). PLE lessons were designed to empower students to take control of their learning experience. Features such as personalized learning paths, goal-setting, and reflective activities were incorporated to cultivate SRL skills. The PLE provided tools and resources such as an SRL template, and a speaking descriptor for students to plan their learning, assess their performance, and adapt their strategies based on feedback and self-reflection. This aligns with the SRL theory, acknowledging that learners are not passive recipients but active participants in their learning process.

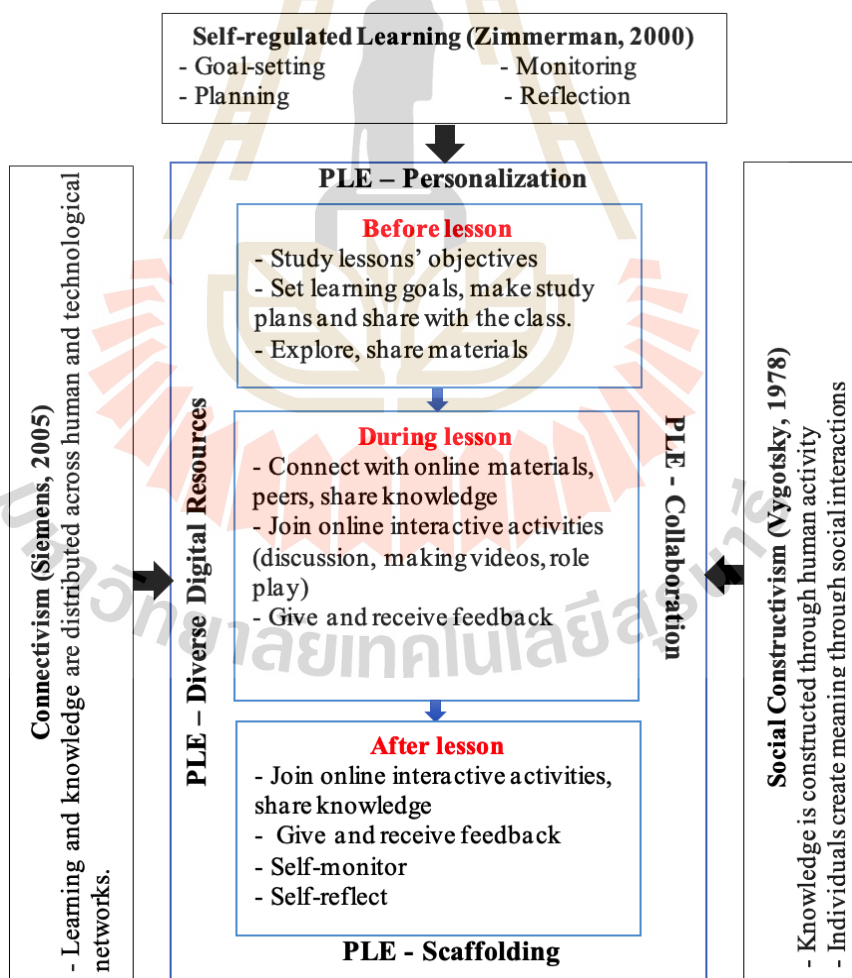


Figure 3.8 The PLE Lessons

To be more detailed, there were three phases in each lesson: before lesson, during lesson, and after lesson (see Appendix E).

Before lesson

In the first phase, students studied the lessons' objectives posted on the Facebook group which was the main learning community of the course (Figure 3.9). Based on the objectives, students set their own learning goals and made study plans by using a template as a guideline. These activities purported to make students familiar with SRL strategies under SRL theory.

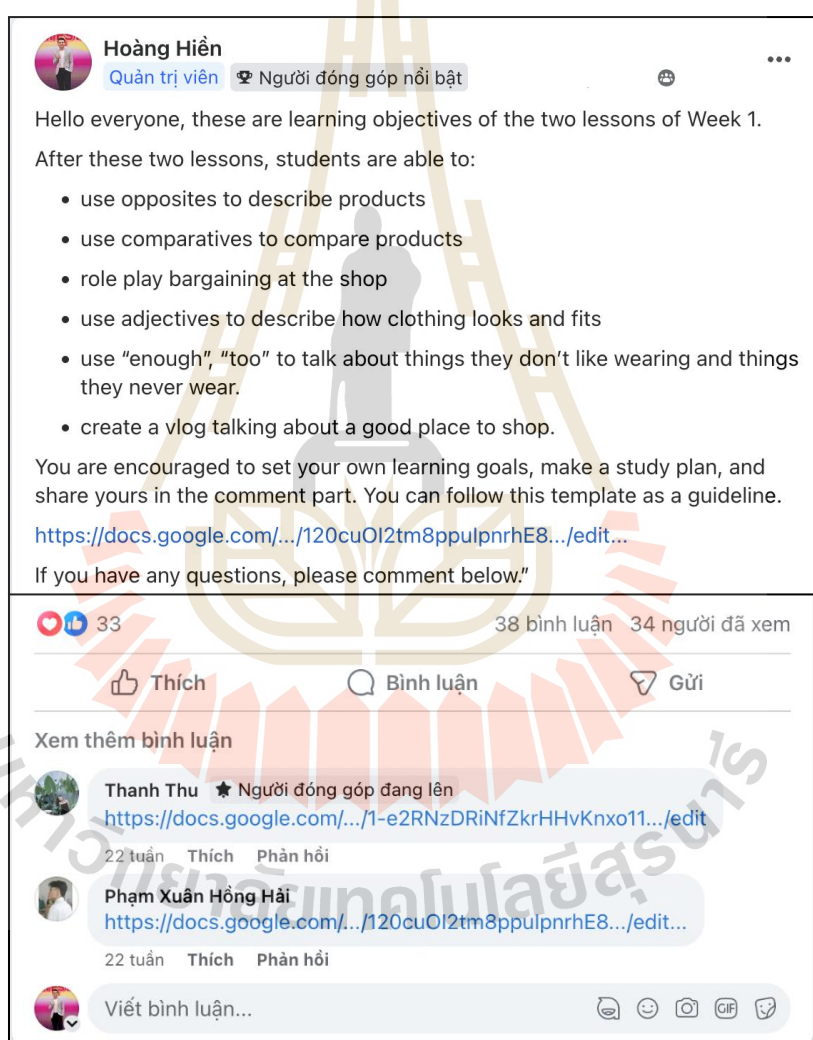


Figure 3.9 Screenshot of a FB Post Informing the Objectives of the Lessons

In addition, students explored the materials related to the lessons which had been posted on the FB group by the teacher (Figure 3.10). Students were also encouraged to search for more relevant materials using search engines and

share them on the post. This activity was in line with connectivism theory in which they connected with technology and humans for learning and constructing knowledge.

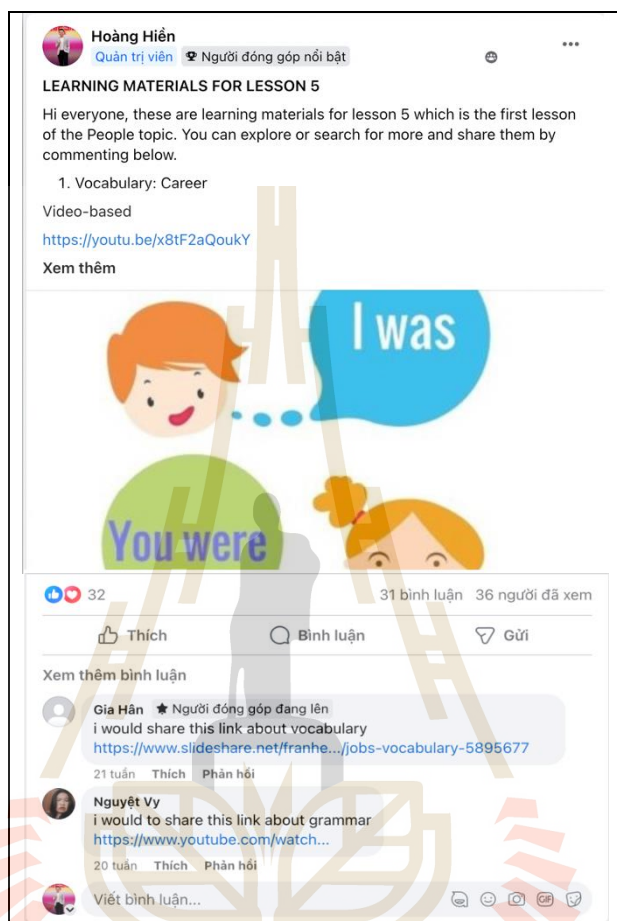


Figure 3.10 Screenshot of a Post Sharing Learning Materials

During lesson

At this stage, under the SRL theory, the role of the teacher was just the facilitator, students had more control in terms of choosing preferred materials and strategies to achieve the learning goals. Students spent most of their time learning online via the Facebook and Zalo groups by interacting with a variety of materials as well as their peers. This was the time for them to share their ideas, practice speaking, and give feedback through interactive activities such as discussion, vlogs, or role-play.

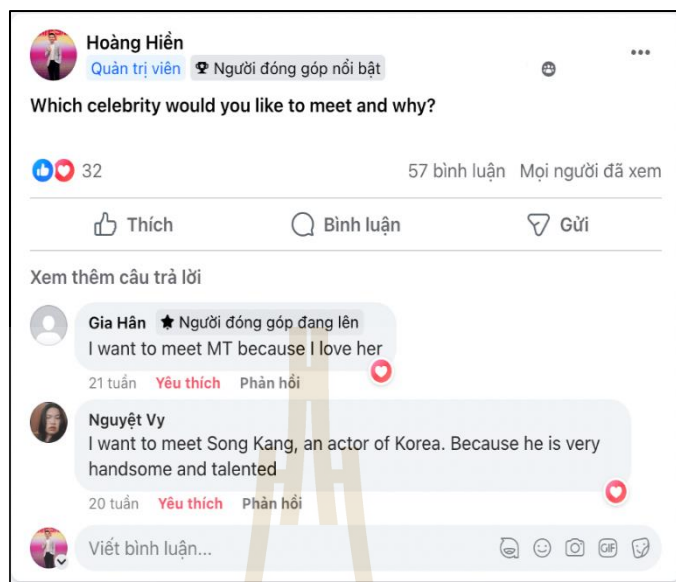


Figure 3.11 Screenshot of an Online Discussion

To be more specific, at the beginning of the lesson, students took part in a quick discussion related to the topic as a warm-up activity (Figure 3.11). After that, students connected with the materials provided by the teacher beforehand on the Facebook group. These materials covered all elements of English speaking skills such as vocabulary, grammar, pronunciation, listening, and reading. They could be lecturing videos, PowerPoint slides, or articles. Students therefore had the right to select the types of materials they preferred and use their strategies to learn from this. After accessing the materials, they shared what they had learned with each other on the post (Figure 3.12). These activities are aligned with connectivism, social constructivism, and SRL theory since students learn and get knowledge by connecting information sources, making decisions based on their needs, and interacting with their peers. For example, students explored the vocabulary materials related to opposite adjectives to describe clothes. Some students preferred watching lecturing videos, the others were into reading PowerPoint slides or articles. Then some of them might have taken notes by listing out vocabulary while the rest use vocabulary apps like Quizlet to record the new words. Following that, they shared what they had known with their peers.

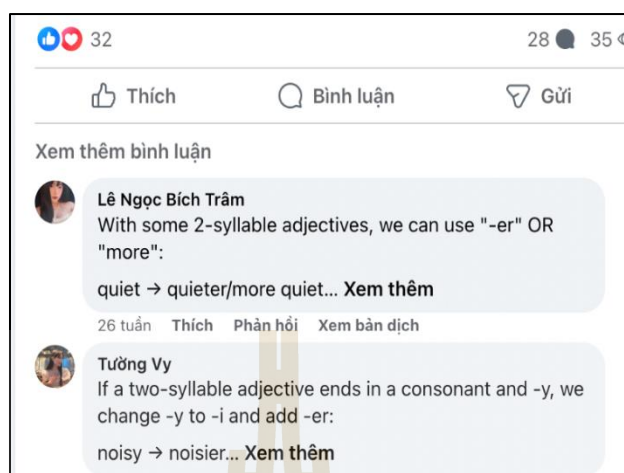


Figure 3.12 Screenshot of Students Sharing Knowledge

In addition, students could make a video recording of their talks or conversations and post them on Facebook and get feedback from their teacher and peers (Figure 3.13). This activity maximizes opportunities for students to practice speaking as well as enhance the interaction which is difficult to happen in the traditional face-to-face classroom. For instance, after learning some opposites to describe products, students made a video describing things they owned and shared it with the class on the Facebook group.



Figure 3.13 Screenshot of a Speaking Activity

After lesson

After the lesson, students continued to learn English speaking skills through online interactive activities in the PLE. They made Vlogs talking about the topics or created online role-plays to practice conversations. To complete these tasks, they were supposed to access the materials and tools provided on the Facebook group or find more relevant ones by themselves. They could also ask their peers via the Facebook group or Zalo chat group if there were any questions or problems (Figure 3.14). In addition, they managed their time to improve the areas they were weak in by using learning apps or websites. This is associated with connectivism theory since they find knowledge by nurturing and maintaining connections with technological and human resources.



Figure 3.14 Screenshots of Students' Communication on Zalo Chat Group

Additionally, students posted their products on the Facebook group to get feedback for their performance from the teacher and peers (Figure 3.15). For example, students made a vlog to talk about a city they would like to visit in the future and shared with the class for feedback.

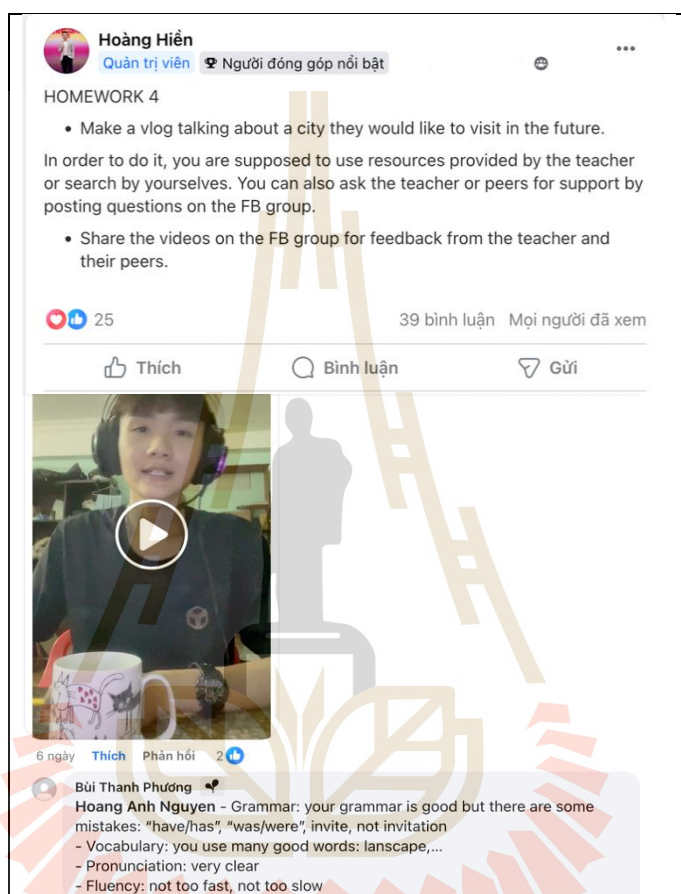


Figure 3.15 Screenshot of the Vlog Activity

Last but not least, apart from feedback and assessment from the teacher and peers, self-evaluation plays a crucial role in the learning process of the students, which is also an important SRL strategy according to SRL theory. Hence another activity at this phase was self-reflection in which students practiced writing reflection using the template and the speaking descriptor provided. They would talk about what they had achieved, the difficulties they had faced, and what they would do to make it better the following week (Figure 3.16). After accomplishing the reflection, they shared it with everyone on the Facebook group so that others could have comments.



Figure 3.16 Screenshot of a Post for Reflection Activity

3.5.2 Research Instruments

Apart from the instructional instruments, some research instruments were utilized to answer the research questions of the study. These instruments were composed of pre- and post-speaking tests; pre- and post-SRL questionnaires; interaction frequency counts; perception questionnaire, semi-structured interviews; and reflective journals. The detailed explanation of these research instruments is as follows.

3.5.2.1 Pre- and Post-speaking Tests

To answer the first research question which is “*What are the effects of a PLE on the speaking skills of Vietnamese EFL undergraduate students? How do the effects vary across different speaking performance levels (high, medium, low)?*”, the speaking section of the International English Language Testing System (IELTS) was adapted as the pre-and post-speaking tests. The purpose of using pre- and post-speaking tests was to find out whether there were any significant differences in students’ speaking skills before and after the treatment.

There are several reasons why the IELTS speaking test was chosen. Firstly, it provides a comprehensive evaluation of a test taker’s speaking ability. It assesses a wide range of speaking skills, including pronunciation, grammatical range and accuracy, lexical resource, and coherence, which could allow researchers to understand various aspects of students' speaking performance (IELTS, n.d.). Secondly,

it is a widely recognized and standardized English proficiency test, which ensures consistency in scoring and interpretation of results. Using such a test could provide reliable and valid measurements of the students' speaking ability (Bakri, 2022). Thirdly, it is designed to evaluate language proficiency from a beginner level to an expert level. This wide range of proficiency levels might allow researchers to identify even small improvements in students' speaking skills (Nakatsuhara et al., 2021). Finally, the IELTS certificate is a compulsory requirement for graduation from not only UEF university but also many universities in Vietnam. Therefore, the speaking tests of most English courses at UEF are designed under the IELTS format so that students are able to get familiar with it.

The pre-speaking test was administered before the implementation of the PLE lessons. It served as a baseline measure of the students' speaking proficiency. Meanwhile, the post-speaking test was carried out after the experiment had been completed. The same IELTS speaking test format was used, enabling a direct comparison between the students' performance before and after the intervention. The post-speaking test aimed to evaluate the effects of the intervention by measuring any significant differences in the students' IELTS speaking test scores.

Both the pre- and post-speaking tests were conducted in a one-on-one interview format with the examiners. There were three parts of the test, namely Introduction and Interview, Individual Long Turn, and Two-way Discussion (Appendix G). In part 1 of the test, the examiners asked the students general questions regarding common topics. In part 2, the students were given a cue card and were asked to talk about a topic. They had 1 minute to prepare and 1-2 minutes to talk. Last but not least, in part 3 of the test, the examiners asked students some questions related to the topic in part 2 for discussion.

The test items were carefully selected so that they were relevant to the topics of the course. However, due to time limitations, the length of the test was shortened leading to a reduction in the number of items in Part 1 and Part 3. The test lasted approximately 7-10 minutes for each student. In addition, to ensure consistency and reliability in scoring, there were two examiners marking students' speaking performances. The first one was the researcher, and the other was an expert who achieved IELTS 8.5 and had experience of ten years in teaching and testing the IELTS exam. Even though the other rater was experienced in marking the IELTS speaking test, a training session was done to ensure that the rater grasped the modifications in the rubric as well as the nature of this study.

The speaking rubric employed for marking was adapted from the IELTS speaking band descriptor (public version) which consisted of 9 bands (Appendix H). The speaking rubric covered 4 components which were fluency and coherence; lexical resources; grammatical range and accuracy; and pronunciation. The adapted rubric closely resembled the original one; the researcher made specific adjustments to the points allocation to facilitate easier grading for the examiners. Specifically, 25 points were allocated to each dimension, resulting in a total of 100 points for the pre-test and post-test assessment.

Both pre-and post-speaking tests as well as the speaking rubric were validated by the experts (Appendix I). According to the analysis findings of IOC, both the pre-and post-speaking tests and rubric achieved a score of 5.33, which corresponded to a percentage of 88.89%. This percentage surpassed the minimum threshold of 80%, indicating that the pre-and post-speaking tests and the speaking rubric were highly appropriate for inclusion in the main study. However, the description for the rubric was added to make it easier for the examiners to mark. In addition, they were evaluated by 18 students in the pilot study. With a Cronbach's alpha coefficient of 0.80, the tests demonstrated a high degree of reliability, indicating their suitability for utilization in the main study.

The oral production of the students was recorded for the rating procedure after that. The ratings for the test recordings were conducted by the raters independently, with the names of the test-takers kept anonymous. After the ratings were finalized, the researcher employed the Intraclass Correlation Coefficient (ICC) to determine the inter-rater reliability between the two raters. The results from SPSS indicated that the ICC for single measures was 0.955 when comparing the pre-test scores evaluated by Rater A and Rater B. Similarly, for the post-test scores rated by both raters, the ICC for single measures was 0.936. In the field of social sciences, an ICC greater than 0.72 is deemed to represent acceptable reliability, whereas an ICC greater than 0.80 is interpreted as good reliability (Vaz et al., 2013). Consequently, the reliability of the scores administered by two raters had been evaluated in single measures. The final scores of students' speaking performance were the average of the two raters' scores.

3.5.2.2 Pre- and Post- SRL Questionnaires

A questionnaire is a commonly used research tool in quantitative marketing research and social science studies (Dzwigol, 2020). It serves as an effective means to gather information on aspects that may not be easily observed, such as opinions, attitudes, beliefs, and motivations (Patten, 2016). The questionnaire

comprises a series of well-structured questions designed to collect data from respondents.

To answer the second research question which is “*What are the effects of the PLE on the self-regulated learning of Vietnamese EFL undergraduate students?*”, pre- and post-SRL questionnaires were used. This aimed to figure out whether students’ SRL levels before and after the experiment were significantly different. The SRL questionnaires in this study were adapted from Online Self-regulated English Learning (OSEL) by Zheng (2016) and Technology-assisted Self-regulated Language Learning by An et al. (2021) (see Appendix J). There were three reasons for the adaptation of these questionnaires. Firstly, they measured SRL in the field of English language learning. Secondly, they were relevant to the context of this study since they were designed specifically for online learning environments. Thirdly, they have been used and adapted in numerous studies and have demonstrated good reliability and validity (Zheng, 2016; Redjeki, 2022; Yossatorn et al., 2023; Zheng, 2023, An, 2021). However, the researcher made some modifications regarding the word use to be more appropriate to the objectives of this study. To be more specific, the phrase “English learning” was replaced by “English 2 course”.

There were two parts to the SRL questionnaire. Part 1 aimed at collecting students’ demographic information while Part 2 focused on students’ SRL in learning English speaking skills. Part 2 encompassed 21 closed-ended items designed under a five-point Likert scale (1 - *Strongly Disagree*, 2 - *Disagree*, 3 - *Neutral*, 4 - *Agree*, 5 - *Strongly Agree*). The items covered five aspects of self-regulated learning, which were goal setting, environment structuring, task strategies and time management, help-seeking, and self-evaluation in the context of learning English speaking skills through the PLE. This questionnaire was given to the experts for validation. The IOC analysis results indicated a score of 17, which corresponded to a percentage of 80.95%. This percentage exceeded the required threshold of 80%, suggesting that the questionnaire was well-suited for incorporation into the main study.

After validation, item 7 was deleted owing to its ambiguous meaning, and item 10 was also removed because it was similar to item 9. As a result, there were 19 items left. After that, it was translated into Vietnamese so that students could easily understand all the items. The researcher after that had an EFL Vietnamese teacher whose expertise was in translation and interpretation to cross-check the accuracy of the Vietnamese version. In addition, before being utilized in the main study, it was tested in the pilot study and Cronbach’s alpha was employed to measure the

reliability. The results showed that the reliability was .80, which means it was appropriate for the major study.

3.5.2.3 Interaction Frequency Counts

For research question 3 “*What are the effects of the PLE on the interaction of Vietnamese EFL undergraduate students?*”, interaction frequency counts were carried out. The purpose was to identify whether there were significant differences in terms of students’ interaction before and after the treatment. This involved a careful examination of students’ activities on the designated Facebook group, an integral part of the PLE, and Zalo chat group throughout the study.

Specific metrics tracked included the number of posts made by each student, the frequency of their comments, and replies, and their overall participation in group discussions (Kajan et al., 2020). Both individual and collective metrics were monitored to provide a comprehensive picture of student interaction levels. Students’ interaction was categorized into student-content, student-student, and student-teacher, based on the online learning interaction model of Moore (1989).

The interaction frequency counts were conducted manually after every two topics, with data organized in a structured spreadsheet for ease of interpretation and further statistical analysis. A spreadsheet (See Appendix O) was designed to record interaction data. It consisted of important information such as dates, participants, types of interaction (student-content, student-student, student-teacher), and activities (post, comment, reply). The spreadsheet was validated by the experts (See Appendix N). The analysis revealed a score of 4.00, corresponding to a 100% percentage. This exceeded the minimum threshold of 80%, suggesting that the spreadsheet was appropriate for integration into the main study. In addition, the results of interaction frequency counts were validated by the experts.

3.5.2.4 Questionnaire for Students’ Perceptions towards the PLE

To answer research question 4 “*What are the perceptions of Vietnamese EFL undergraduate students towards using the PLE to enhance speaking skills, self-regulated learning, and interaction?*”, three research instruments were used. The first one was a perception questionnaire developed by the researcher. This was to investigate students’ perceptions after learning with PLE lessons.

This questionnaire included 2 parts which were Learning Information and Perception (Appendix K). The first part explored students’ information regarding devices and time students used for learning on the PLE while the latter examined students’ perceptions towards learning English speaking skills through the PLE. Part 2

consisted of 15 five-point Likert scale items which were allocated in four categories: Speaking Skills, Self-regulated Learning, Interaction, and PLE lessons.

To ensure the validity and reliability of this questionnaire, it was checked by the experts before being translated into Vietnamese. The analysis findings indicated a score of 14.67, which corresponded to a percentage of 97.78%. This percentage surpassed the minimum threshold of 80%, suggesting that the questionnaire was well-suited for implementation in the main study. There was only a small modification after the validation. To be more specific, number 13 "*I prefer learning English speaking skills with the traditional lessons*" was changed to "*I prefer learning English speaking skills with the PLE lessons*" to avoid participants' confusion, according to the experts. Additionally, it was piloted with Cronbach's alpha coefficient of .87, demonstrating a high level of reliability, thus confirming its appropriateness for the main study.

3.5.2.5 Semi-structured Interviews

The second instrument to answer research question 4 was semi-structured interviews. This was to explore in-depth information about participants' perceptions. According to DiCicco-Bloom and Crabtree (2006), interviews are one of the most common strategies used to collect qualitative data. A semi-structured interview is defined as a research instrument in which the researcher will ask the interviewees the same questions within the researcher's intention. This instrument is employed to gather comprehensive and detailed data regarding students' perceptions. In addition, the researcher can exploit further information through follow-up questions (Dahlberg & McCaig, 2010).

The interviews were conducted after the experiment had ended when the data from the other instruments such as the post-speaking test, post-SRL questionnaire, interaction frequency counts, and perception questionnaire were collected. There were ten interview questions (See Appendix L) which were utilized in this research. These questions were developed based on the perception questionnaire asking students about four categories: Speaking Skills, Self-regulated Learning, Interaction, and PLE Lessons. The primary purpose would be creating triangulation to enrich the data. Twelve respondents were purposely selected to participate in the interviews.

Similar to other instruments, the interview questions were checked by the experts using IOC and tested in the pilot study (Appendix L). Based on the analysis results, a score of 8.67 was obtained, corresponding to a percentage of 86.67%. This percentage exceeded the minimum threshold of 80%, indicating that the interview

questions were highly suitable for incorporation into the main study. Based on the experts' suggestions, the word "*feel*" in question 1 was deleted since they thought only the word "*think*" was enough. Each interview lasted around 15 minutes and was recorded so that the interview procedure was smooth, and it would be easier to review and analyze. Additionally, to collect as much information as possible, Vietnamese was used in the interviews. This enabled students to be able to entirely understand the questions and express themselves more comfortably.

3.5.2.6 Reflective Journals

The next research instrument to answer research question 4 was reflective journals. The aim of using this instrument was to help with tracking students' learning process and exploring further regarding students' perceptions. Reflection is considered an indispensable part of transforming experiences into learning. According to Yancey (1998), reflection can mean "revision, self-assessment, and an analysis of learning". Through reflection prompts, participants were able to critically self-perceive what they had experienced.

In the present study, writing reflection was a compulsory task students needed to complete every two lessons after they had finished one speaking topic. In addition, at the end of the course, they were required to write a final one. As a result, there were a total of 7 reflective journals. Participants had opportunities to share their reflections with the teacher and their peers on the Facebook group. This benefited them in receiving aid from the teacher and counterparts timely during the course.

Since reflection was a part of the SRL process, reflection prompts were given to students on the SRL template as a guideline so that the students could know how to write reflections. These prompts were developed based on Gibb reflective cycle (1988), which facilitated learning through reflection by offering a framework. This framework (Figure 3.17) consists of six stages, namely Description, Feelings, Evaluation, Analysis, Conclusion, and Action Plan (Gibbs, 1988). This model was chosen owing to evidence from past research indicating its effectiveness in revealing the link between individual experiences and professional values, as well as in sustaining ongoing reflective habits (Ashby, 2006; Walmsley & Birkbeck 2006; Quinton & Smallbone, 2010; Adeani et al., 2020; Markkanen et al., 2020). The prompts for reflective journals are illustrated in Table 3.1.

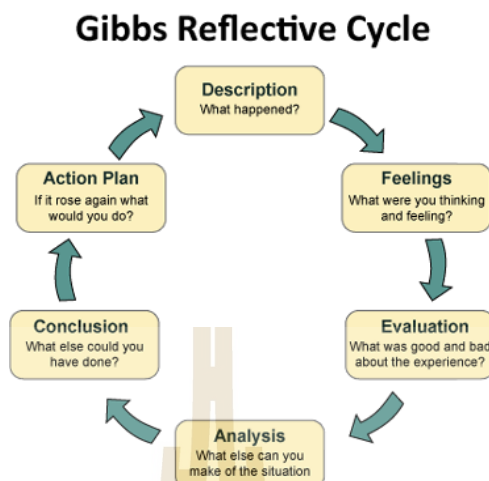


Figure 3.17 Gibbs Reflective Cycle (1988)

Table 3.1 Prompts for Reflective Journals

Description	1. What did you do during the learning process? (What activity did you do? What learning materials/tools did you use? How long did you spend learning on the PLE?)
Feelings	2. How did you feel during the lesson?
Evaluation	3. What was good or bad about the experience?
Analysis	4. What might have been the reasons for the good and bad experiences?
Conclusion	5. What can you learn from this?
Action Plan	6. What will you do differently next time?

The prompts were also validated by the experts (See Appendix N). The results of the analysis revealed a score of 5.33, equivalent to 89%. This percentage exceeded the minimum requirement of 80%, indicating that the prompts designed for reflective journals were suitable for integration into the primary study. However, after the pilot study, three sub-questions were added to the “Description” part so that the researcher could collect further information regarding participants’ learning process on the PLE in the main study.

3.6 Data Analysis

The research instruments for each research question and tools to analyze data are summarized in Table 3.2. There were two categories of data in this study, namely quantitative data and qualitative data. The quantitative data were collected from the pre-and post-speaking tests for research question 1, pre- and post-SRL questionnaires for research question 2, interaction frequency counts for question 3, and perception questionnaire for question 4. Meanwhile, the qualitative data stemmed from reflective journals and semi-structured interviews for question 4.

Table 3.2 Summary of Research Instruments and Analytical Tools

Research Questions	Research Instruments	Analytical Tools
1. What are the effects of a PLE on the speaking skills of Vietnamese EFL undergraduate students? How do the effects vary across different speaking performance levels (high, medium, low)?	- Pre-speaking Test - Post-speaking Test	-Paired-samples t-test -One-way ANOVA -Descriptive statistics
2. What are the effects of the PLE on the self-regulated learning of Vietnamese EFL undergraduate students?	- Pre-SRL Questionnaire - Post-SRL Questionnaire	-Paired-samples t-test -Descriptive statistics
3. What are the effects of the PLE on the interaction of Vietnamese EFL undergraduate students?	- Interaction Frequency Counts	-Repeated measures ANOVA -Descriptive statistics
4. What are the perceptions of Vietnamese EFL undergraduate students towards using the PLE to enhance speaking skills, self-regulated learning, and interaction?	- Perception Questionnaire - Reflective Journals - Semi-structured Interviews	-Descriptive statistics -Thematic analysis

3.6.1 Quantitative Data Analysis

Concerning quantitative data, the researcher used Statistical Package for Social Science (SPSS) version 27.0 as a tool to analyze. According to Verma (2012), SPSS is one of the most powerful statistical software which assists researchers in analyzing complex data.

3.6.1.1 Paired-samples T-test

For the data from pre-and post-speaking tests, pre- and post- SRL questionnaires, paired-samples t-test was used for the analysis to explore the effects of the PLE on students' speaking skills and SRL. According to Abdi (2023), paired-samples t-test, also known as a dependent t-test, is a statistical test used to compare the means of two related groups or conditions that are measured on the same participants.

In this study, using paired-samples t-test could show whether there were any significant differences in students' speaking skills, and SRL at the beginning and the end of the experiment. The researcher therefore could see whether the participants had an improvement after the treatment.

3.6.1.2 One-way ANOVA

For the second point of research question 1, to see how the effects of the PLE varied among three different groups of proficiency, one-way ANOVA was utilized. According to Ntumi (2021), one-way ANOVA is normally used to compare the mean scores of more than two groups. In this study, it was employed to compare the

means in the change scores of the three groups. This helped the researcher see whether there were significant differences among the enhancement of the three groups or not.

3.6.1.3 Repeated Measures ANOVA

To analyze the data from interaction frequency counts, repeated measures ANOVA was employed. According to Verma (2015), repeated measures ANOVA is specifically designed for analyzing data with repeated measures or within-subjects designs, where there are multiple measurements taken within the same individuals over time or under different conditions. It can effectively test for differences in means across multiple timepoints. Repeated measures ANOVA was appropriate in this case since this research aimed to figure out whether there were any significant differences in participants' interaction across multiple timepoints. In this study, the frequency counts were conducted three times (after every two topics).

3.6.1.4 Descriptive Statistics

In terms of the data from the perception questionnaire, descriptive statistics was used to analyze. This was to identify the proportion of the participants who agreed or disagreed with the items in the questionnaire. Descriptive statistics is employed to present a comprehensive overview of the data, encompassing measures such as mean score, standard deviation, and frequency distribution (Cooksey & Cooksey, 2020). The results of the five-point Likert scale questionnaires were interpreted based on Sullivan and Artino (2013) (Table 3.3).

In addition, descriptive statistics was run after conducting paired-samples t-test, one-way ANOVA, and repeated measures ANOVA. The purpose was to get further information in terms of mean and standard deviation of pre-and post-speaking tests, pre-and post-SRL questionnaires, and interaction.

Table 3.3 Interpretation of the five-point Likert scale Questionnaires

Mean	Scale	Interpretation
4.51 to 5.00	Strongly agree	Very high
3.51 to 4.50	Agree	High
2.51 to 3.50	Unsure	Moderate
1.51 to 2.50	Disagree	Low
1.00 to 1.50	Strongly Disagree	Very low

3.6.2 Qualitative Data Analysis

Concerning data collected from the interviews and reflective journals, thematic analysis was used to analyze them. Thematic analysis is a technique used to

detect, examine, and understand themes, or patterns of meaning, that emerge from qualitative data (Clarke & Braun, 2017).

Braun & Clarke (2006) provide a framework to analyze qualitative data using thematic analysis (Table 3.4). The first step is reading and re-reading the transcripts, followed by organizing the data in a systematic way to generate initial codes. Next, the codes are examined and put into themes. In step 4, the preliminary themes identified in step 3 will be reviewed, modified, and developed. The fifth step entails the ultimate refinement of themes, intending to discern the fundamental “essence” of what each theme encompasses. The last step is writing up the report.

Table 3.4 Six-phase framework for doing a thematic analysis (Braun & Clarke, 2006)

Step 1	Become familiar with the data
Step 2	Generate initial codes
Step 3	Search for themes
Step 4	Review themes
Step 5	Define themes
Step 6	Write-up

In this study, the research followed this framework for analyzing qualitative data. First of all, the researcher transcribed them and gave the transcription to the respondents for member checking. Next, the transcription was translated into English. Finally, coding and de-coding were conducted by the researcher and a further invited researcher to ensure the reliability of identifying themes. The results of qualitative data analysis were given to the experts for validation. The findings were deemed to provide insights into the achievement of the participants in terms of speaking skills, SRL, and interaction. More than that, further information related to students’ perceptions towards implementing the treatment might have been found to support quantitative results.

3.7 Pilot Study

A pilot study, alternatively referred to as a feasibility study, is an initial and small-scale investigation conducted to collect preliminary data or information before initiating the main study (Smith, 2015). It plays a crucial role in enhancing the reliability, validity, and practicality of research instruments (Oppenheim, 1999; Seliger & Shohamy, 1989). This section will report the procedure and results of the pilot study.

3.7.1 Setting and Participants

The pilot study was conducted within four weeks from 11th September to 7th October 2023. It took place at the University of Economics and Finance (UEF), Ho Chi Minh City. At first, 20 participants voluntarily participated in the study, however, two of them withdrew due to their hectic schedules. There were 10 male and 8 female students who had already finished the English 1 course but for some reason, they had not yet registered for the English 2 course. In other words, these participants were relevant to the study since they shared the same characteristics as those who would be in the main study. To be more specific, they were at the pre-intermediate level and had been learning English for over 7 years. Connelly (2008) states that existing literature indicates that a pilot study sample size should typically be around 10% of the projected sample size for the larger main study. This means that 18 participants were acceptable for the pilot study since the number of participants in the main study was 40.

3.7.2 Data Collection and Data Analysis

The data collection procedure and data analysis were similar to the ones described in sections 3.1 *Research Design* and 3.6 *Data Analysis*. The only difference lay in the time duration and the number of participants which were supposed to be half of the main study's. To be more specific, this 4-week pilot study covered 3 topics within 8 lessons, which can be shown in Table 3.5.

Table 3.5 Summary of the Pilot Procedure

Week	Lesson	Content
1	1	Introduction Pre-speaking test Pre-SRL questionnaire
	2	Shopping
2	3	Shopping (cont) + Reflective Journal 1
	4	City
3	5	City (cont) + Reflective Journal 2
	6	People
4	7	People (cont) + Reflective Journal 3
	8	Review Post-Speaking test Post-SRL questionnaire Reflective Journal 4 Interviews

3.7.3 Summary of Preliminary Results

3.7.3.1 English Speaking Skills

To answer the first research question which is “*What are the effects of a PLE on the speaking skills of Vietnamese EFL undergraduate students?*”, the results of students’ English speaking skills are illustrated in Table 3.6. As can be seen, the mean score of the pre-test was 59.167 (SD=7.123) while the figure for the post-test was 68.333 (SD=7.071). This indicated that the mean score of the post-speaking test was higher than that of the pre-test (MD=9.166).

In addition, there was a significant difference between the pre-test and post-test [$t(17) = -8.422, p=0.000$]. Overall, students’ English speaking skills witnessed a considerable enhancement after they studied through the PLE lessons.

Table 3.6 Results of Students’ Speaking Skills in Pre-test and Post-test

Speaking Performance	N	M	SD	MD	t	df	p
Pre-test	18	59.167	7.123				
Post-test	18	68.333	7.071	9.166	-8.422	17	.000

* $p < .05$ (2-tailed)

3.7.3.2 Self-regulated Learning

Concerning research question 2 “*What are the effects of the PLE on the self-regulated learning of Vietnamese EFL undergraduate students?*”, as can be seen in Table 3.7, there was a significant difference between students’ SRL after and before taking part in the experiment in all five aspects of the SRL. This is because the p-values of all items as well as aspects were 0.000 which is smaller than .05 (i.e., level of significance).

In terms of mean scores, students achieved remarkably higher mean scores in all five aspects after the pilot (M=4.18, M=4.03, M=4.06, M=4.07, M=4.23, respectively) rather than before the pilot (M=2.86, M=3.02, M=3.01, M=3.15, M=2.83, respectively). In addition, the highest mean scores obtained from the participants after the pilot were goal setting (M=4.18).

All in all, the overall results of the five aspects indicated that there was an improvement in students’ SRL before and after the experiment. This means that the PLE is likely to enhance students’ SRL levels.

Table 3.7 Results of Pre-SRL and Post-SRL

No.	Statement	Pre-SRL	SD	Post-SRL	SD	<i>p</i>
Goal setting						
1	I set short-term (daily or weekly) goals as well as long-term (monthly or for the semester) goals in English 2 course.	2.83	0.618	4.17	0.618	.000
2	I set standards for my assignments in English 2 course.	2.78	0.647	4.06	0.639	.000
3	I set goals to help me manage study time in English 2 course.	3.00	0.767	4.22	0.808	.000
4	I properly make plans to combat my problems in learning in English 2 course.	2.83	0.707	4.28	0.669	.000
	MEAN	2.86	0.481	4.18	0.466	.000
Environment Structuring						
5	I choose a good location when learning to avoid too much distraction.	2.89	0.583	4.22	0.647	.000
6	I know where I can learn most efficiently.	3.11	0.758	3.89	0.583	.000
7	I choose a time with few distractions when studying.	3.06	0.725	4.00	0.767	.000
	MEAN	3.02	0.615	4.03	0.568	.000
Task strategies and time management						
8	I prepare my questions before learning instructional materials online.	2.89	0.676	4.17	0.618	.000
9	I select and use appropriate technological tools to improve the areas I'm weak in.	2.89	0.676	3.94	0.639	.000
10	I search for more related online materials in addition to the suggested ones to master the course content.	3.11	0.832	4.11	0.676	.000
11	I allocate extra study time to learning English speaking skills because I know it is time-consuming.	3.06	0.802	4.17	0.707	.000
12	I try to schedule the same time every day or every week to learn English speaking skills, and I observe the schedule.	3.11	0.676	3.94	0.639	.000
	MEAN	3.01	0.713	4.06	0.617	.000
Help-seeking						
13	I search related materials online when I have difficulties in the learning process.	3.17	0.514	4.28	0.575	.000
14	I ask my teacher for help through technological tools when I have problems.	3.00	0.686	3.94	0.639	.000
15	I share my problems with my classmates online so we can solve our problems together.	3.28	0.752	4.00	0.767	.000
	MEAN	3.15	0.641	4.07	0.681	.000
Self-evaluation						
16	I ask myself a lot of questions about the course materials.	2.83	0.639	4.06	0.539	.000
17	I often self-assess my English speaking progress.	3.00	0.767	4.03	0.583	.000
18	I reflect on my learning English speaking and think the ways I did was good or not.	2.83	0.857	4.13	0.686	.000
19	I adjust my plans to make my learning more effective.	2.67	0.485	4.02	0.548	.000
	MEAN	2.83	0.634	4.06	0.527	.000

3.7.3.3 Interaction

In terms of the third question which is “*What are the effects of the PLE on the interaction of Vietnamese EFL undergraduate students?*”, the result from

Repeated measures ANOVA (Table 3.8) revealed that there was a significant difference among students' interaction from Week 1 to Week 4 ($p=0.000$). This can be interpreted that the PLE lessons enhanced students' interaction remarkably.

Table 3.8 Repeated Measures ANOVA of Students' Interaction

Interaction Frequency	M	SD	df	<i>p</i>
Week 1	36.28	3.478	5	.000
Week 2	43.78	3.782		
Week 3	52.17	5.148		
Week 4	58.33	6.297		

3.7.3.4 Perceptions

The fourth research question “*What are the perceptions of Vietnamese EFL undergraduate students towards using the PLE to enhance speaking skills, self-regulated learning, and interaction?*” was answered through the perception questionnaire, semi-structured interviews, and reflective journals.

Questionnaire

Table 3.9 demonstrates that students had positive perceptions of the PLE lessons with a total mean score of $M=4.35$ and $SD=0.323$. The highest mean score was 4.78 (item 13) and the lowest one was 3.72 (item 11).

In terms of speaking skills, most students agreed that the PLE lessons helped them improve their speaking skills by providing them with practice opportunities. This can be seen in the high mean scores of item 1 ($M=4.61$), item 2 ($M=4.56$), item 3 ($M=4.28$). The lowest mean score in this aspect was related to the usefulness of the feedback ($M=3.83$). For the self-regulated learning construct (items 5-9), all the items got high agreement from the participants with a mean score of more than 4.00. Regarding the third aspect which is interaction, students also showed their positive opinions on the effects of the PLE on their interaction. To be more specific, the mean scores for items 10,11,12 were 4.33, 3.72, and 4.50, respectively. The lowest one in this group belongs to item 12 ($M=3.72$). Last but not least, all students revealed their interest in the PLE lessons (item 13, $M=4.78$). They were also ready to recommend such lessons to others (item 15, $M=4.56$).

Table 3.9 Students' Perceptions of the PLE Lessons

No. Statement	N	M	SD
Speaking skills			
1 The PLE helped me improve my English speaking skills.	18	4.61	0.502
2 I feel more confident in my English speaking skills after participating in the PLE lessons.	18	4.56	0.511
3 The PLE provided opportunities for me to practice my speaking skills anytime and anywhere.	18	4.28	0.575
4 The feedback I received during the PLE was helpful for improving my speaking skills.	18	3.83	0.786
Self-regulated Learning			
5 The PLE has helped me set clear learning goals for myself.	18	4.44	0.705
6 I was able to structure my learning environment more effectively.	18	4.44	0.511
7 I feel more confident in managing my time and study strategies since using the PLE.	18	4.33	0.485
8 I knew how to seek for help when I got difficulties.	18	4.61	0.502
9 The PLE has improved my ability to self-evaluate my learning.	18	4.35	0.607
Interaction			
10 The PLE increased my interaction with the learning materials.	18	4.33	0.485
11 The PLE helped me interact more effectively with my peers.	18	3.72	0.752
12 My communication with teachers has improved because of the PLE.	18	4.50	0.514
PLE Lessons			
13 I prefer learning English speaking skills with the PLE lessons.	18	4.78	0.428
14 I found the PLE lessons engaging and interesting.	18	3.78	0.647
15 I would recommend PLE lessons to other students learning English speaking skills.	18	4.56	0.616
TOTAL	18	4.35	0.323

Semi-structured Interviews

Concerning their perceptions, six students were chosen to participate in semi-structured interviews based on the criteria described in section 3.3. The outcomes of the semi-structured interviews were categorized into three main themes: perceptions, problems, and suggestions for improvement. The majority of the participants showed their positive perceptions of the PLE in fostering their English speaking skills, self-regulated learning, and interactions. All of them posited that they had a variety of opportunities to learn English speaking skills, self-study, and interact with the teacher and peers. Since Facebook was chosen as the main platform for learning, participants universally praised the PLE's user-friendly interface. They found it easy to navigate through the various components of the environment.

"I liked how everything was neatly organized. It was simple to find what I needed, and I could learn anytime, anywhere." (S3)

In addition, participants expressed a high level of satisfaction with the interactive features of the PLE. They particularly enjoyed the interactive activities, which allowed them to engage in meaningful conversations with peers.

“I felt more connected to my classmates, even in the classroom or outside the classroom.” (S1)

“Interactive activities helped boost my confidence in speaking.” (S5)

“I felt I could be more fluent in speaking English through the activities” (S6)

What is more, most participants found the learning resources were relevant and helpful.

“I loved the materials that were shared by the teacher and my friends, they helped me improve the speaking areas that I am weak in such as vocabulary, grammar, or pronunciation.” (S6)

“Videos were fantastic for practicing English.” (S3)

In terms of self-regulated learning, participants valued the self-regulated learning support and activities integrated into the PLE. The templates and feedback were cited as helpful in managing their learning.

“Setting weekly goals kept me on track. I could see my progress, which motivated me to stay engaged.” (S2)

“I didn’t know how to reflect on my learning until I took part in this class, it helped me adjust myself to learn better”. (S4)

In terms of problems, a common concern raised by participants was occasional technical glitches. These issues, such as slow loading times and occasional downtime, were reported to have disrupted their learning experience.

“Sometimes, it took me a lot of time to upload the videos onto the platform, which was frustrating.” (S4)

Another problem was related to learning materials, some participants complained about the lack of bilingual learning resources and interactive quizzes or exercises.

“Because most of the learning materials were in English, sometimes I could not understand 100%.” (S2)

“Sometimes I needed to do more exercises to strengthen my knowledge, but I could not find many of them.”. (S1)

Last but not least, participants found it relatively difficult to give feedback on their peers' performance.

"Though I think peer feedback is helpful, it was challenging for me to give comments on their performance". (S5)

Finally, participants provided valuable suggestions for improving the PLE. Firstly, some suggested a wider variety of learning materials to cater to different learning preferences and needs.

"I loved the videos, but it would be great to have more quizzes or interactive exercises for further practice". (S1)

"I really hope there are more learning materials with Vietnamese subtitles or translation so that I can understand more". (S2)

Secondly, they suggested further training for peer feedback activity.

"I think there should be more training about giving feedback so that we can provide more meaningful comments". (S5)

Reflective Journals

In this pilot, each participant wrote 4 reflections: 3 of which were written after finishing 3 topics and 1 was done at the end of the pilot. The analysis of the participants' written reflections revealed several key findings. Firstly, the participants demonstrated awareness of their progress in speaking skills, self-regulated learning, and interaction after each lesson. The journals highlighted the most common benefits of using the PLE, as indicated in Table 3.10 which includes excerpts from the students' journals. The students acknowledged that the PLE provided them with ample opportunities for learning speaking skills at their own pace using a variety of materials without being confined to only the course book in traditional classes. The students praised the user-friendly nature of the Facebook group, allowing them to easily get access to learning resources and communicate with other people at any time and location. Additionally, students mentioned the merits of self-regulated learning support and activities in the PLE. They had a chance to practice SRL strategies which they had never implemented before. Also, they expressed their interest in interactive activities occurring in the PLE lessons. They felt more comfortable and confident in communicating with the teacher and their peers. The feedback they

received helped them a lot to improve their speaking skills, which never happened in the normal class.

However, there were some negative comments regarding the materials as well as the tasks. A few students posited that sometimes they could not catch up with the class since they found it difficult to choose appropriate materials for themselves and manage their time to go over all the resources as well as to complete assignments. In addition, some of them found it challenging to learn via the PLE lessons at first but then tried to get acquainted with it later.

Table 3.10 Sample Excerpts from Students' Reflective Journals

No.	Reflection
S7	I found the PLE activities engaging. Numerous online learning resources and interactive activities made learning enjoyable.
S1	Reflecting on my learning journey, I see a boost in my confidence. The PLE lessons were motivating.
S12	My speaking fluency has improved considerably. The PLE activities were effective.
S4	Reflecting on my early recordings, I noticed better pronunciation in recent sessions.
S9	Collaborating with peers in group activities was enlightening. We learned from each other.
S2	The PLE lessons encouraged me to set clearer goals. I realized the importance of self-assessment.
S16	Flexibility was great, but I sometimes struggled to manage my time effectively. I took a lot of time to discover all the learning materials.
S8	At first, I found it difficult to learn this way but later I tried, and it is quite ok.

3.7.4 Modifications after the Pilot Study

After conducting the pilot study and collecting valuable feedback from participants, several modifications and improvements were incorporated into the research design for the main study. These modifications aimed to enhance the overall effectiveness of the study and address the insights gained from the pilot study. The summary of the modification is illustrated in Table 3.11.

Firstly, in response to feedback from participants in the pilot study, an important modification was the inclusion of a one-day training session for students. This training session would cover how to effectively utilize the PLE and guidelines for providing feedback. This additional step ensured that all participants were well-prepared and understood the tools and procedures involved. Therefore, the first lesson would only be for the pre-speaking test.

Secondly, when reading students' reflections, the researcher could not grasp the learning procedure of each student. Consequently, the reflective journals were

expanded with more specific sub-questions. This expansion encouraged participants to provide more detailed and insightful reflections on their experiences throughout the study. To be more specific, students were required to report what learning materials they had used and how they overcame their difficulties.

Thirdly, more bilingual learning materials (English-Vietnamese) were included in the PLE. This modification acknowledged the importance of accommodating various language proficiencies and facilitating a smoother learning experience.

Fourthly, to strengthen students' language knowledge in terms of grammar, vocabulary, and pronunciation, more online self-check quizzes and exercises were added to the PLE. Instead of doing some during the lessons, students would be able to practice more if needed at any time.

Fifthly, to streamline the data collection process and save valuable time, participants were given the option to complete the questionnaires online at their convenience with deadlines, rather than during class sessions. This modification provided flexibility for participants and minimized disruptions to the regular course schedule.

Table 3.11 Summary of Modifications after the Pilot Study

No.	Before the pilot	After the pilot
1	Introducing PLE and conducting pre-test in the first lesson	A training session for PLE introduction and feedback before the experiment
2	Only three guiding questions for reflective journals	Further sub-questions to collect insights of learning process
3	Very few bilingual learning materials	Additional bilingual learning materials
4	Not many online quizzes	Further online quizzes
5	Filling questionnaires on the first and the last day of the experiment	Filling questionnaires at their convenience

3.8 Summary

In this chapter, the research design, conceptual framework, research setting, and participants were introduced. Subsequently, the instruments used in the study, along with data analysis methods were discussed. Following that, the results of the pilot study were reported. The next chapter will focus on presenting the results of four research questions.

CHAPTER 4

RESULTS

This chapter aims to present the results of the present study in response to the four main research questions. The first section presents the results of the students' pre- and post-speaking test scores after learning with the PLE lessons. The second section will show the findings of the pre-and post-SRL questionnaires. Next, the results regarding students' levels of interaction will be presented in the third section. The fourth section will be the findings of students' perceptions towards using PLE to enhance English speaking skills, SRL, and interaction. Finally, there will be a summary in the fifth section.

4.1 Answer to Research Question 1

Concerning research question 1 “*What are the effects of a PLE on the speaking skills of Vietnamese EFL undergraduate students? How do the effects vary across different speaking performance levels (high, medium, low)?*”, the answer is that students' speaking skills significantly enhanced after the experiment. The enhancements varied among different speaking performance levels. These findings are from the results of paired samples t-tests and one-way ANOVA with the aid of SPSS 27 to compare the mean of the pre-and post-speaking test scores.

4.1.1 The Significant Enhancement of Students' Speaking Skills

Students' speaking skills witnessed a significant enhancement in all aspects: Fluency and Coherence, Lexical Resource, Grammar Range and Accuracy, and Pronunciation. The results of the paired-samples t-test are as follows.

4.1.1.1 Normality Test

Before conducting parametric tests, normality tests were carried out. The aim was to gain an overview of the pre-test and post-test scores and determine the normal distribution of these scores. The results are shown in Table 4.1 and Table 4.2 as follows.

Table 4.1 Test of Normality for Pre-test Scores

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	.072	40	.200*	.987	40	.913

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 4.2 Test of Normality for Post-test Scores

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Post-test	.087	40	.200*	.980	40	.688

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

As can be seen from Table 4.1 and Table 4.2, Shapiro-Wilk's test for the pre-test scores ($p=0.913$) and post-test scores ($p=0.688$) were both larger than 0.05. This shows that both pre-test and post-test scores are approximately normally distributed. In addition, Figure 4.1 and Figure 4.2 demonstrate normal Q-Q plots of the pre-test and post-test scores.

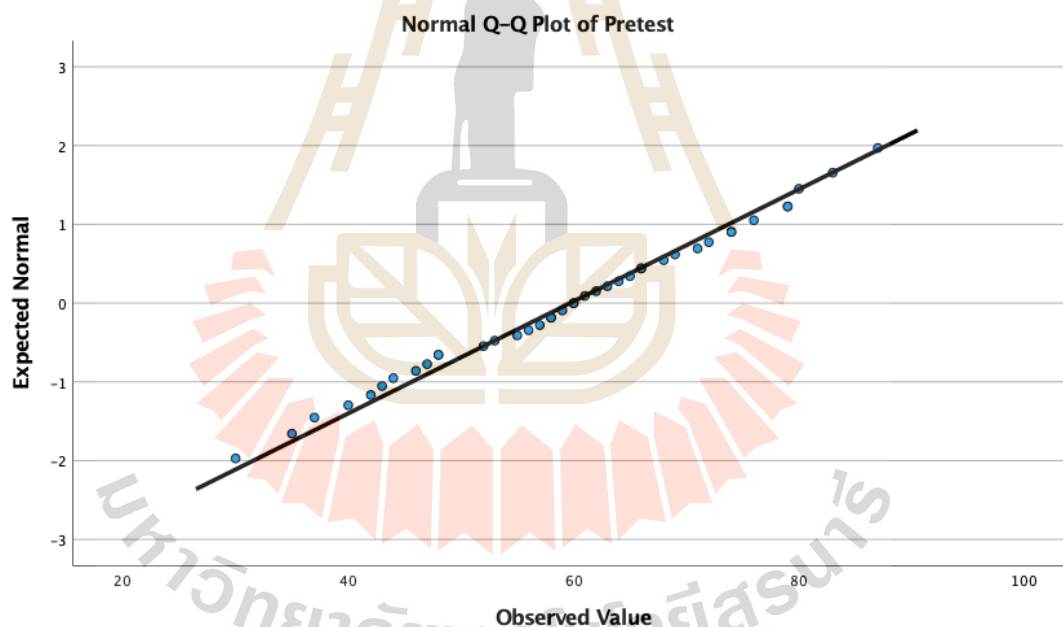


Figure 4.1 Normal Q-Q Plot of Pre-test Scores

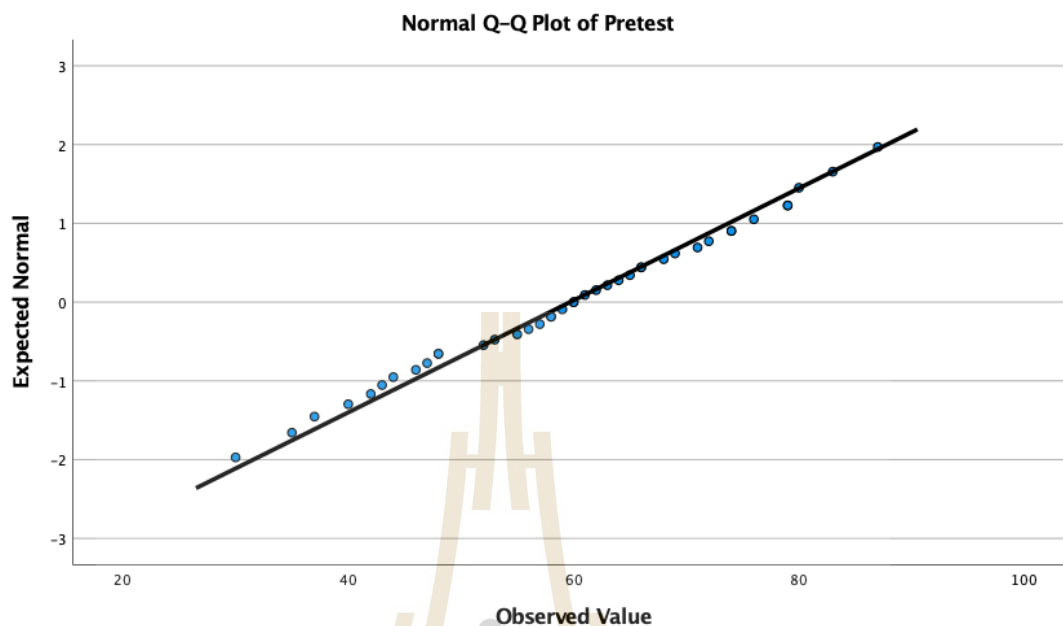


Figure 4.2 Normal Q-Q Plot of Post-test Scores

It is evident from Figure 4.1 and Figure 4.2 that the dots on both plots visibly align well with the straight line. This indicates a normal distribution of the data.

In short, the results of the normality tests suggest that the pre-test and post-test scores are normally distributed. Hence, using paired samples t-test is appropriate to compare the pre-test and post-test scores in this study.

4.1.1.2 Paired Samples T-test

After the normality tests, a two-tailed paired samples t-test was executed to determine if a statistically significant difference existed between the post-test scores and the pre-test scores. Table 4.3 shows the results for the paired samples t-test of the pre-and post-tests.

Table 4.3 Paired Samples T-test of Pre-test and Post-test

Tests	Paired Differences				t	df	Sig.(2-tailed)
	Mean	SD	95% Confidence Interval of the Difference				
			Lower	Upper			
Pre-test- Post-test	-3.625	1.371	-4.063	-3.186	-16.715	39	.000

It is clearly observable from Table 4.3 that there was an increase of 3.62 in the mean scores of students' speaking skills when comparing the results of the pre-test and post-test. Additionally, there was a statistically significant difference between pre-test and post-test scores with $t(39)=-16.715$ and $p=0.000$ (<0.05). This indicates that the PLE noticeably enhanced students' English speaking skills. To be more specific, Table 4.4 illustrates the findings of paired samples t-test for four aspects of speaking skills in the pre-test and post-test.

Table 4.4 Paired Samples T-test of Specific Aspects of Speaking Skills

Aspects	Tests	Paired Differences		t	df	Sig. (2-tailed)
		Mean	SD			
Fluency and Coherence	Pre-test-	-1.15	0.622	-11.689	39	.000
	Post-test					
Lexical Resource	Pre-test-	-1.12	0.757	-9.394	39	.000
	Post-test					
Grammar Range and Accuracy	Pre-test-	-0.77	0.697	-7.027	39	.000
	Post-test					
Pronunciation	Pre-test-	-0.57	0.635	-5.718	39	.000
	Post-test					

It could be seen clearly from Table 4.4 that there were significant differences in all four aspects of speaking skills (Fluency and Coherence, Lexical Resource, Grammar Range and Accuracy, and Pronunciation) with p-values of 0.000 which is less than 0.05. Of these four aspects, Fluency and Coherence witnessed the most considerable increase with a mean difference of 1.15. Following that, Lexical Resource marked the second most notable area of progress of 1.12. Grammar and Pronunciation were subsequent with the mean difference of 0.77 and 0.57, respectively. These results indicate that the PLE enhanced all aspects of English speaking skills. In addition, Fluency and Coherence, and Lexical Resource are the two aspects that students improved the most significantly.

In summary, for the first point of the first research question, students' speaking skills were promoted after learning with the PLE. The development was witnessed in all aspects of speaking skills (i.e. Fluency and Coherence, Lexical Resource, Grammar Range and Accuracy, and Pronunciation). What is more, the two most significantly enhanced aspects of speaking skills belonged to Fluency and Coherence, and Lexical Resources.

4.1.2 Differential Improvements in Speaking Skills Across Speaking

Performance Levels

There were variations in the effects of the PLE among different speaking performance levels. To be more specific, the students in the medium-level group enhanced the most significantly, followed by those in the low-level and high-level groups. This finding is explained by results from one-way ANOVA.

4.1.2.1 Group Classification

To answer the second point of the first research question which is “*How do the effects vary across different performance levels (high, medium, low)?*”, the first thing to do was to classify students into three different groups of three different performance levels, namely high, medium, and low based on pre-test scores. Since the pre-test scores were normally distributed, the classification was carried out using standard deviations from the mean (Field, 2013). Table 4.5 shows the descriptive statistics of pre-test scores.

Table 4.5 Descriptive Statistics of Pre-test scores

	N	Minimum	Maximum	Mean	SD
Pretest	40	30.00	87.00	59.6750	10.05919
Valid N (listwise)	40				

As can be seen from Table 4.5, the mean score (M) of the pre-test was 59.67 which is rounded to 60. With the standard deviation (SD) of around 10, the levels would be classified as follows.

- High Proficiency: Scores $> M + 1SD$ (greater than 70)
- Medium Proficiency: Scores within $M \pm 1SD$ (between 50 and 70)
- Low Proficiency: Scores $< M - 1SD$ (less than 50)

With this classification, there were 10 students at the high level, 19 students at the medium level, and 11 students at the low level, respectively. In order to see the differences in the development of these three groups, one-way ANOVA would be employed.

4.1.2.2 One-way ANOVA

After dividing participants into three different groups, the change scores of each participant were calculated using the Transform function in SPSS. Once the calculation of change scores was completed, one-way ANOVA was conducted to compare the change scores of each group. Table 4.6 illustrates the results of one-way ANOVA of the change scores.

Table 4.6 One-way ANOVA of the Change Scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34.311	2	17.155	16.249	.000
Within Groups	39.064	37	1.056		
Total	73.375	39			

It is obvious from Table 4.6 that there was a significant difference in the improvement of the three groups ($p=0.000$). This can be interpreted as the effects of the PLE varied across different performance levels. In addition, Test of Homogeneity of Variances was carried out and the results are shown in Table 4.7.

Table 4.7 Results of Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
ChangeScore	Based on Mean	1.915	2	37	.162
	Based on Median	.946	2	37	.397
	Based on Median and with adjusted df	.946	2	18.993	.406
	Based on trimmed mean	1.359	2	37	.269

From Table 4.7, it shows that there was no significant difference in variances across the groups. In other words, the assumption of equal variances (homogeneity of variances) is not violated. Post-Hoc comparisons were carried out using Tukey's HSD to identify which groups' enhancement significantly differed from each other. Tables 4.8 and 4.9 demonstrate the findings of the Post-Hoc tests and descriptive statistics of the change scores.

Table 4.8 Results of Post-Hoc Tests

Multiple Comparisons						
Dependent Variable: ChangeScore						
Turkey HSD						
(I) Proficiency	(J) Proficiency	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
High	Medium	-2.27368*	.40143	.000	-3.2538	-1.2936
	Low	-1.25455*	.44895	.022	-2.3507	-.1584
Medium	High	2.27368*	.40143	.000	1.2936	3.2538
	Low	1.01914*	.38929	.033	.0687	1.9696
Low	High	1.25455*	.44895	.022	.1584	2.3507
	Medium	-1.01914*	.38929	.033	-1.9696	-.0687

*. The mean difference is significant at the 0.05 level.

Table 4. 9 Descriptive Statistics of Change Scores

	N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
High	10	2.200	.421	.133	1.898	2.501	2.00	3.00
Medium	19	4.473	.841	.192	4.068	4.879	3.00	6.00
Low	11	3.454	1.572	.474	2.398	4.511	2.00	8.00
Total	40	3.625	1.371	.216	3.186	4.063	2.00	8.00

As can be seen from Table 4.8 and Table 4.9, there were significant differences between high-level and medium-level groups ($p=0.000$), between high-level and low-level groups ($p=0.022$), and between medium-level and low-level groups ($p=0.033$). The descriptive statistics show that the medium-level group improved the most with the mean in the change scores of 4.47, followed by the low-level group ($M=3.45$), and high-level group ($M=2.20$).

To conclude, the paired samples t-test reveals that there was a significant difference between pre-speaking test and post-speaking test scores ($p=0.000$). The differences were also seen in all aspects of speaking skills, including Fluency and Coherence ($p=0.000$), Grammar ($p=0.000$), Lexical Resources ($p=0.000$), and Pronunciation ($p=0.000$). This indicates that the PLE considerably promoted students' English speaking skills after 8 weeks of the experiment. The improvement occurred in all four aspects of speaking skills, especially Fluency and Coherence, and Lexical Resources. In addition, the results from one-way ANOVA found that the enhancement of three groups of performance levels (high, medium, low) differed from each other ($p=0.000$). This demonstrates the variation in the effects of the PLE on different speaking performance levels. The descriptive statistics provided further information that the largest development belonged to the medium-level group, followed by the low- and high-level groups.

4.2 Answer to Research Question 2

Regarding research question 2 “*What are the effects of the PLE on the self-regulated learning of Vietnamese EFL undergraduate students?*”, the answer is that students' self-regulated learning level significantly enhanced in all aspects after the experiment. This could be seen from the results of the paired samples t-test employed to compare the mean in the scores of the pre-and post-SRL questionnaires. As described in the Methodology section, there were two parts to the SRL questionnaires, namely Demographic Information and Students' Levels of SRL.

4.2.1 Students' Demographic Information

Part 1 of the questionnaire was comprised of 4 items investigating participants' demographic information. Table 4.10 illustrates the results of students' demographic information before and after the experiment.

Table 4.10 Results of Students' Demographic Information

Items	Results	
1. Gender	<ul style="list-style-type: none"> ● Male: 17 (42.5%) ● Female: 23 (57.5%) ● Other: - (0%) 	
2. Age	<ul style="list-style-type: none"> ● 18 years old: 36 (90%) ● 19 years old: 4 (10%) ● 20 years old: - (0%) ● Other: - (0%) 	
3. Years of learning English	<ul style="list-style-type: none"> ● Less than 1 year: - (0%) ● 1-3 years: - (0%) ● 3-7 years: - (0%) ● More than 7 years: 40 (100%) 	
4. Knowledge about self-regulated learning	<u>Before the experiment</u>	<u>After the experiment</u>
	<ul style="list-style-type: none"> ● not at all: 28 (70%) ● a little: 9 (22.5%) ● average: 3 (7.5%) ● a lot: - (0%) ● very much: - (0%) 	<ul style="list-style-type: none"> ● not at all: - (0%) ● a little: - (0%) ● average: 14 (35%) ● a lot: 21 (52.5%) ● very much: 5 (12.5%)

As can be seen from Table 4.10, 42.5% of the participants were male and the rest (57.5%) were female. In terms of age, the majority of participants (90%) were 18 years old, and only 10% were 19 years old. Regarding years of learning English, all students (100%) revealed that they had been learning English for more than 7 years.

Concerning how much they know about self-regulated learning, there was a difference before and after the treatment. Before the experiment, 70% of participants were completely unfamiliar with SRL. Merely 9% possessed minimal knowledge about SRL, and another 7.5% had an average understanding of the concept. In contrast, after the experiment, the proportion of participants with average knowledge of SRL rose to 35%. Most notably, 52.5% reported having considerable knowledge about SRL, while 12.5% revealed they had gained a profound understanding of SRL. This indicated that there was an enhancement in participants' knowledge about SRL after the experiment.

4.2.2 The Considerable Enhancement of Students' Self-regulated Learning

Levels

Students' SRL levels saw a significant enhancement in all aspects (i.e. goal setting, environment structuring, task strategies and time management, help-seeking, and self-evaluation) after they learnt with the PLE. This result came from the analysis of the difference in the mean scores of part 2 of the questionnaire which was comprised of 19 5-point Likert-scale questions to gauge the degree of students' agreement with each statement about their sense of SRL levels. To compare the mean scores of students' levels of SRL before and after the experiment, paired samples t-test was utilized. In addition, descriptive statistics analysis provided further information for the results. The results are displayed in Table 4.11.

Table 4.11 Results of Paired Samples T-test of Pre-and Post SRL Questionnaires

No.	Statement	Pre-SRL	SD	Post-SRL	SD	Sig.
Goal setting						
1	I set short-term (daily or weekly) goals as well as long-term (monthly or for the semester) goals in English 2 course.	2.77	0.619	4.12	0.686	.000
2	I set standards for my assignments in English 2 course.	2.70	0.516	4.05	0.638	.000
3	I set goals to help me manage study time in English 2 course.	3.12	0.647	4.05	0.714	.000
4	I properly make plans to combat my problems in learning in English 2 course.	2.80	0.607	3.95	0.749	.000
	MEAN	2.84	0.603	4.04	0.675	.001
Environment Structuring						
5	I choose a good location when learning to avoid too much distraction.	3.02	0.659	4.02	0.697	.000
6	I know where I can learn most efficiently.	2.95	0.597	4.10	0.632	.000
7	I choose a time with few distractions when studying.	2.92	0.572	4.12	0.607	.000
	MEAN	2.96	0.583	4.08	0.641	.003
Task strategies and time management						
8	I prepare my questions before learning instructional materials online.	2.75	0.543	4.32	0.572	.000
9	I select and use appropriate technological tools to improve the areas I'm weak in.	2.85	0.579	4.45	0.503	.000
10	I search for more related online materials in addition to the suggested ones to master the course content.	2.87	0.563	4.42	0.594	.000
11	I allocate extra study time to learning English speaking skills because I know it is time-consuming.	2.85	0.622	4.20	0.563	.000
12	I try to schedule the same time every day or every week to learn English speaking skills, and I observe the schedule.	3.07	0.572	4.30	0.686	.000
	MEAN	2.87	0.559	4.33	0.568	.000

Table 4.11 Results of Paired Samples T-test of Pre-and Post SRL Questionnaires (Cont.)

No.	Statement	Pre-SRL	SD	Post-SRL	SD	Sig.
Help-seeking						
13	I search related materials online when I have difficulties in the learning process.	3.10	0.590	4.17	0.549	.000
14	I ask my teacher for help through technological tools when I have problems.	2.85	0.533	3.82	0.594	.000
15	I share my problems with my classmates online so we can solve our problems together.	2.75	0.588	4.05	0.552	.000
	MEAN	2.90	0.547	4.01	0.561	.008
Self-evaluation						
16	I ask myself a lot of questions about the course materials.	2.67	0.525	4.05	0.597	.000
17	I often self-assess my English speaking progress.	2.77	0.576	3.72	0.640	.000
18	I reflect on my learning English speaking and think the ways I did was good or not.	2.75	0.543	3.65	0.579	.000
19	I adjust my plans to make my learning more effective.	2.80	0.516	3.70	0.648	.000
	MEAN	2.74	0.535	3.78	0.603	.003
	TOTAL	2.86	0.574	4.04	0.632	.000

Generally, from Table 4.11, there was a significant difference between the mean scores of students' SRL before and after the experiment from 2.86 to 4.04 ($p=0.000$). Specifically, the p -values of the five aspects of SRL (Goal Setting, Environment Structuring, Task Strategies and Time Management, Help-seeking, and Self-evaluation) were less than 0.05. It means that students' levels of SRL considerably enhanced after 8 weeks of learning with the PLE lessons.

To be more specific, in terms of Goal Setting dimension, profound increases were noted from 2.84 to 4.04 ($p = 0.001$). Particularly, Item 1 saw mean scores rise from 2.77 to 4.12, showing the improvement in the students' ability to set both immediate and long-term learning objectives. Similar significant enhancement was noted in setting standards for assignments and managing study time, where mean scores increased from 2.70 to 4.05 and from 3.12 to 4.05, respectively. Planning to deal with learning problems (Item 4) also showed considerable progress, with mean scores moving from 2.80 to 3.95. These statistical improvements underline the PLE's impact on students' ability to set goals for their learning.

Significant enhancements in Environment Structuring were also reported ($p = 0.003$), in selecting efficient study locations (Items 5 and 6) and choosing times with minimal distractions (Item 7). Students' mean scores ascended from 3.02 to 4.02 (Item 5) and 2.95 to 4.10 (Item 6) for the ability to choose optimal study locations, and from 2.92 to 4.12 for selecting study times, underlining the adaptation to beneficial learning

environments. These results suggest that students became better at structuring the learning environment to enhance focus and academic performance.

Regarding Task Strategies and Time Management domain, the results revealed the most significant advancements with the increase from 2.87 to 4.33 ($p = 0.000$). To be more specific, the preparation of questions before learning sessions (Item 8) saw a mean score increase from 2.75 to 4.32. Additional efforts in using technological tools for improvement (Item 9) and seeking supplementary materials (Item 10) were substantially higher, moving from means of 2.85 and 2.87 to 4.45 and 4.42, respectively. A growth from 2.85 to 4.20 was also witnessed in the allocation of extra time to learn (Item 11). These improvements reflect a strategic enhancement in both the planning and execution of study tasks.

Help-seeking aspect also significantly improved from 2.90 to 4.01 ($p=0.008$). Specifically, Item 13 illustrated the notable shift as students' mean scores moved from 3.10 to 4.17, indicating a strong tendency towards seeking help from online materials. In addition, collaborative problem-solving with peers (Item 15) was improved from 2.75 to 4.05. This inclination, alongside improvements from 2.85 to 3.82 in seeking assistance from instructors (Item 14) points to a nurtured educational ecosystem fostered by the PLE. This significant enhancement emphasized the role of the PLE as a supportive and interconnected learning community, where students feel empowered to seek and offer assistance, fostering an environment rich in collaboration and mutual improvement.

Lastly, the Self-evaluation dimension showed the least impressive change from 2.74 to 3.78 ($p=0.003$), particularly in reflecting on learning strategies (Item 18) where mean scores rose from 2.75 to 3.65. A similar trend was seen in self-assessing learning progress (Item 17) and modifying plans (Item 19), increasing from 2.77 and 2.80 to 3.72 and 3.70, respectively. The most noticeable enhancement in this aspect belongs to Item 16 in terms of continuous questioning of course materials, moving from a mean of 2.67 to 4.05. These results show that although there was a significant difference in the self-evaluation, it was still a challenge for students in this aspect, especially in metacognitive activities.

In short, the results from the paired-sample t-test show that in general, there was a significant difference in the SRL levels of the students before and after the treatment ($p<0.05$). The difference was seen in all dimensions which are goal settings, environment structuring, task strategies and time management, help-seeking, and self-evaluation. This indicates that all aspects of SRL of the students were enhanced after the time learning with the PLE lessons. In addition, the descriptive statistics reveal that of five aspects, Task strategies and Time management experienced the most significant

improvement (from 2.87 to 4.33). Meanwhile, Self-evaluation saw the least impressive development compared to the other facets (2.74 to 3.78). In other words, students' self-evaluation is the most challenging SRL strategy.

4.3 Answer to Research Question 3

In terms of research question 3 “*What are the effects of the PLE on the interaction of Vietnamese EFL undergraduate students?*”, the answer is that students' interaction enhanced considerably after the experiment. This finding was found through repeated measures ANOVA which was utilized to compare the mean in the frequency of interaction within the Facebook group and Zalo chat sessions among three times of counting (Week 3, Week 5, Week 8). The counting focused on different online activities such as posting, commenting, and replying to capture a holistic view of student-content, student-student, and student-teacher interaction within the PLE.

First of all, Mauchly's test was conducted to assess sphericity. Table 4.12 illustrates the results of Mauchly's test.

Table 4.12 Mauchly's Test of Sphericity^a

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Greenhouse-Geisser	Epsilon ^b Huynh-Feldt	Lower-bound
Time	.642	16.858	2	.000	.736	.758	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: Time

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

As can be seen from Table 4.12, the p-value was less than 0.05, which means that sphericity was violated ($\chi^2(2)=16.85$; $p=.000$). As a result, Greenhouse-Geisser correction would be applied. The repeated measures of ANOVA under Greenhouse-Geisser generated the results shown in Table 4.13.

Table 4.13 Tests of Within-Subjects Effects

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Sphericity Assumed	1002.867	2	501.433	906.765	.000
	Greenhouse-Geisser	1002.867	1.472	681.099	906.765	.000
	Huynh-Feldt	1002.867	1.516	661.461	906.765	.000
	Lower-bound	1002.867	1.000	1002.867	906.765	.000
Error (Time)	Sphericity Assumed	43.133	78	.553		
	Greenhouse-Geisser	43.133	57.425	.751		
	Huynh-Feldt	43.133	59.129	.729		
	Lower-bound	43.133	39.000	1.106		

From Table 4.13, it is found that the differences in interaction among the three observed timepoints were statistically significant ($F(1.472)=906.76$; $p<0.05$). Further analysis was carried out through post-hoc comparisons employing the Bonferroni correction (Table 4.14) to pinpoint where the significant changes lie.

Table 4.14 Post-hoc Tests for Pair-wise Comparisons

(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	-5.950*	.129	.000	-6.272	-5.628
	3	-6.300*	.209	.000	-6.824	-5.776
2	1	5.950*	.129	.000	5.628	.272
	3	-.350	.150	.075	-.725	.025
3	1	6.300*	.209	.000	5.776	6.824
	2	.350	.150	.075	-.025	.725

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

The findings from Table 4.14 indicate a notable statistical difference between the first and second timepoints (mean difference= 5.950; $p=0.000$), and similarly, a significant difference was observed between the first and third timepoints (mean difference=6.300; $p=0.000$). Although a mean difference of .350 was seen between the second and third timepoints, this did not achieve statistical significance at the .05 level ($p=0.075$). In summary, the finding revealed that there was a significant increase in student interaction throughout the study period. In order to know more about the differences among the three types of interaction, descriptive statistics was run. The findings are illustrated in Table 4.15.

Table 4.15 Descriptive Statistics of Students' Interactions

Interaction Frequency	Time 1		Time 2		Time 3	
	M	SD	M	SD	M	SD
Student-content	29.85	3.71	32.10	3.79	32.35	4.05
Student-student	25.40	4.64	27.30	5.12	27.42	5.31
Student-teacher	14.15	3.53	16.02	3.24	16.07	3.42
Total	69.50	11.69	75.45	11.79	75.80	11.98

It is apparent from Table 4.15 that student-content interaction was the most common type of interaction occurring within the PLE with mean scores of 29.85, 32.10, and 32.35 in time 1, time 2, and time 3, respectively. Following that, student-student interaction stood at the second position ($M_1=25.50$; $M_2=27.30$; $M_3=27.42$). Student-teacher came last with the mean scores of 14.15, 16.02, and 16.07 in three timepoints.

In general, the repeated measures ANOVA found that there was a significant difference in the interaction of students three times ($p < 0.05$). To be more specific, considerable differences were found between time 1, time 2 ($p < 0.05$) and time 1, time 3 ($p < 0.05$) but not between time 2 and time 3 ($p > 0.05$). This indicates that students' interaction was enhanced after the intervention and their interaction was steady from timepoint 2. Additionally, according to descriptive statistics, among the three types of interaction, student-content was the most popular in all three timepoints ($M = 29.85, 32.10, 32.35$). This means that the PLE could enhance students' interaction with the content the most.

4.4 Answer to Research Question 4

In respect of the research question 4 “*What are the perceptions of Vietnamese EFL undergraduate students towards using the PLE to enhance speaking skills, self-regulated learning, and interaction?*”, the answer is that students had a positive perception of the use of the PLE to improve their speaking skills, SRL, and interaction. This finding comes from the analysis of the three research instruments including a perception questionnaire, reflective journals, and semi-structured interviews. The results of each research instrument are presented below.

4.4.1 Results of the Perception Questionnaire

There are two parts of the questionnaire, namely Learning English Information and Perception of Learning with the PLE. The first part investigated some of the students' information related to their learning English while the second part explored students' perceptions towards using the PLE to enhance English speaking skills, SRL, and interaction.

4.4.1.1 Results of Students' Learning English Information

Regarding Part 1 of the questionnaire, the results from Descriptive Statistics are shown in Table 4.16.

Table 4.16 Results of Part 1 of the Perception Questionnaire

Items	Results
1. Technological devices to learn English	<ul style="list-style-type: none"> ● Mobile phone: 40 (100%) ● Laptop: 40 (100%) ● PC: 12 (30%) ● Other: Ipad (9) (22.5%)
2. Hours of learning English on the PLE per week	<ul style="list-style-type: none"> ● Less than 1 hour: - (0%) ● 1-5 hours: - (0%) ● 5-10 hours: 12 (30%) ● More than 10 hours: 28 (70%)

It is found from Table 4.16 that 100% of the students had both mobile phones and laptops to learn English while 12% and 9% owned PCs and Ipads, respectively. In addition, when being asked how many hours per week they had spent learning or practicing English speaking skills on the PLE, the majority of them (70%) disclosed that they had used more than 10 hours per week to learn. The rest of them (30%) spent 5-10 hours studying on the PLE.

4.4.1.2 Results of Students' Perceptions of Learning with the PLE

In terms of students' perceptions towards using the PLE to enhance their speaking skills, SRL, and interaction, Table 4.17 displays the results.

Table 4.17 Results of Students' Perceptions

No.	Statement	N	M	SD
Speaking Skills				
1	The PLE helped me improve my English speaking skills.	40	4.22	0.659
2	I feel more confident in my English speaking skills after participating in the PLE.	40	4.17	0.594
3	The PLE provided opportunities for me to practice my speaking skills anytime and anywhere.	40	4.37	0.627
4	The feedback I received during the PLE lessons was helpful for improving my speaking skills.	40	4.00	0.679
MEAN		40	4.19	0.621
Self-regulated Learning				
5	The PLE has helped me set clear learning goals for myself.	40	4.12	0.686
6	I was able to structure my learning environment more effectively.	40	4.15	0.622
7	I feel more confident in managing my time and study strategies since using the PLE.	40	4.42	0.607
8	I knew how to seek help when I got difficulties.	40	4.20	0.607
9	The PLE improved my ability to self-evaluate my learning.	40	3.90	0.590
MEAN		40	4.15	0.614
Interaction				
10	The PLE increased my interaction with the learning materials.	40	4.20	0.757
11	The PLE helped me interact more effectively with my peers.	40	4.10	0.744
12	My communication with teachers has improved because of the PLE.	40	4.07	0.655
MEAN		40	4.12	0.713
PLE Lessons				
13	I prefer learning English speaking skills with the PLE lessons.	40	4.17	0.747
14	I found the PLE lessons engaging and interesting for speaking English.	40	4.10	0.744
15	I would recommend PLE lessons to other students learning English speaking skills.	40	4.27	.0750
MEAN		40	4.18	0.738
TOTAL		40	4.16	0.642

Overall, students had a positive perception towards using the PLE to enhance their English speaking skills, self-regulated learning, and interaction (M=4.16, SD=0.64). Specifically, the mean scores of all aspects of the questionnaire, including

speaking skills, SRL, interaction, and PLE lessons were more than 4.00, which means they agreed with all statements.

In respect of Speaking Skills, responses indicated a generally positive perception of the PLE's impact ($M=4.19$, $SD=0.62$). Notably, the highest mean score was for item 3 "*The PLE lessons provided opportunities for me to practice my speaking skills anytime and anywhere*" with a mean of 4.37 ($SD = 0.62$), highlighting the PLE's flexibility and accessibility. In contrast, the lowest mean score was observed for "*The feedback I received during the PLE lessons was helpful for improving my speaking skills*", which recorded a mean of 4.00 ($SD = 0.67$).

In the matter of Self-regulated Learning, participants indicated that the PLE effectively encouraged self-regulation in learning ($M=4.15$, $SD=0.61$). The ability to manage time and study strategies achieved the highest score with a mean of 4.42 ($SD = 0.60$). Meanwhile, the lowest score was attributed to the statement "*The PLE improved my ability to self-evaluate my learning.*" with a mean of 3.90 ($SD = 0.59$).

As regards Interaction, strong positive responses were recorded ($M=4.12$, $SD=0.71$), particularly for using learning tools and materials. The highest mean score was for item 10 relating to the effects of the PLE on their interaction with learning tools and materials ($M=4.20$, $SD=0.75$), indicating that the PLE excels in engaging students with educational resources. However, the lowest rated area in this aspect belonged to item 12 which is about the interaction with the teacher, scoring a mean of 4.07 ($SD = 0.65$).

Positive results were also seen in the PLE Lessons section ($M=4.18$, $SD=0.73$). To be more specific, the respondents' willingness to recommend the PLE to others stood out with the highest mean score of 4.27 ($SD = 0.75$), indicating their satisfaction with the learning experience. The preference for learning English speaking skills via the PLE came second, achieving a mean score of 4.17 ($SD = 0.74$). The last one was students' feelings towards the engagement of the PLE lessons ($M=4.10$, $SD=0.74$).

In conclusion, the findings revealed that students had positive perceptions towards using the PLE to enhance their speaking skills, SRL, and interaction ($M=4.16$). To be more specific, the mean scores of speaking skills, SRL, and interaction were 4.19, 4.15, and 4.12, respectively. The results from the questionnaire help confirm the findings from the research questions 1, 2, and 3.

4.4.2 Results of the Semi-structured Interviews and Reflective Journals

In order to get further insights into the students' perceptions of the use of the PLE to enhance speaking skills, SRL, and interaction, semi-structured interviews and

reflective journals were employed in this study. 12 participants were selected based on their post-test scores and willingness to take part in the interviews. In addition, students were required to write reflective journals after finishing each topic and one journal at the end of the course. The data were analyzed utilizing thematic analysis. Since there were similarities in the themes identified in the reflective journals and semi-structured interviews, this section will report the results of these two instruments together. Specifically, there were four main themes generated after the coding and decoding process (Figure 4.3). The four themes include: (1) students' satisfaction, (2) skill development, (3) challenges, and (4) suggestions. These themes will be explained as follows:

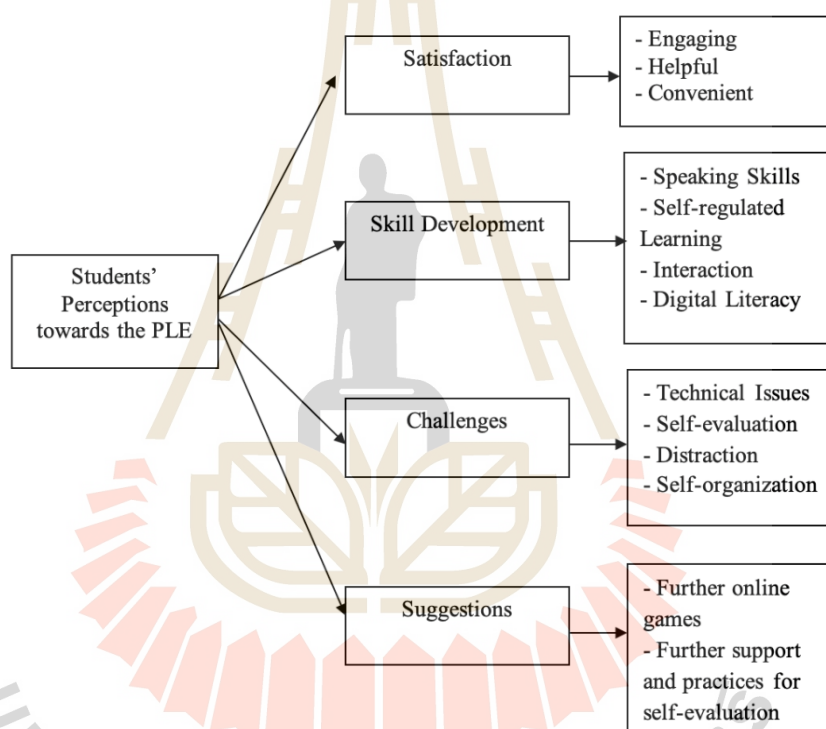


Figure 4.1 Students' Perceptions towards the PLE

Theme 1: Students' Satisfaction towards the PLE

The first part of the interview and the final reflective journal asked students to express their satisfaction towards the PLE. The responses revealed that most students were satisfied with learning through the PLE since it is engaging, helpful, and convenient.

Sub-theme 1: Engaging with Content

Participants stated that the learning content in the PLE was engaging, which made them feel interested and motivated to learn. They showed their appreciation

for the diverse range of multimedia materials, interactive activities, and real-life scenarios integrated into the PLE lessons. Here are some examples of their answers.

“I found the videos and articles very interesting. They made learning English feel less boring and more like an enjoyable experience.” (S3, Semi-structured Interviews)

“I found the role-play scenarios in the PLE particularly interesting. They allowed me to apply what I have learned in real-life situations, which made the learning process more enjoyable and meaningful” (S11, Semi-structured Interviews)

“The topics covered in the PLE were quite interesting and relevant to our lives. It kept me engaged and wanting to learn more.” (S16, Reflective Journals)

Sub-theme 2: Helpful for Learning

In addition, students posited that the PLE is helpful in which they could get access to a variety of learning tools and resources that supported their language learning journey. They also mentioned the value of the PLE in facilitating communication with their teacher and peers. Some examples of their responses are as follows.

“The grammar tutorials in the PLE were invaluable. They provided clear explanations and examples that helped me grasp difficult concepts and improve my speaking accuracy.” (S26, Reflective Journals)

“I love the vocabulary quizzes in the PLE. They helped me expand my word bank and express myself more confidently in English.” (S2, Semi-structured Interviews)

“In the PLE, I could communicate with the teacher and peers any time. This helped me a lot whenever I had any difficulties in the learning process.” (S10, Semi-structured Interviews)

Sub-theme 3: Convenient for Learning

Finally, the convenience of the PLE was disclosed since they could learn anytime and anywhere with any tools. Another thing they mentioned was that learning through familiar social networks (Facebook and Zalo) was literally handy for them. In addition, the availability of the resources facilitated their learning. The following excerpts demonstrate this point.

“The PLE was really convenient for me because I could learn anytime and anywhere I like.” (S34, Reflective Journals)

“The thing I liked about the PLE was that I could easily use Zalo and Facebook for learning instead of using LMS.” (S3, Semi-structured Interviews)

“What I appreciate most about the PLE is the ability to tailor it to my learning needs. If I’m struggling with a topic, I can easily find additional resources. It’s like having a personalized tutor that’s available 24/7.” (S8, Semi-structured Interviews)

Theme 2: Skill Development from the PLE

The second theme generated from semi-structured interviews and reflective journals is Skill Development. This theme includes four sub-themes, namely Improvement in Speaking Skills, Improvement in SRL, Improvement in Interaction, and Improvement in Digital Literacy.

Sub-theme 1: Improvement in Speaking Skills

Participants revealed that they experienced a notable enhancement in their speaking skills after learning through the PLE lessons. To be more specific, most students reported that they could improve their grammar, vocabulary, pronunciation, fluency, and confidence in speaking English. Some factors leading to these improvements were also disclosed through the answers.

Increased Speaking Opportunities

Firstly, the majority of them emphasized the increased speaking opportunities that the PLE provided to them. To illustrate, here are some excerpts from the transcripts.

“One of the most noticeable improvements I experienced was my speaking skills. The PLE provided me with ample opportunities to practice speaking English through interactive tasks, role-plays, and online discussions. This consistent practice helped me become more fluent and articulate in expressing myself orally.” (S7, Semi-structured Interviews)

“The PLE’s emphasis on speaking practice was invaluable for me. I appreciated the diverse range of speaking activities available. By practicing regularly, I gradually became more confident in my ability to communicate effectively in English.” (S34, Reflective Journals)

“One of the key benefits of the PLE was the opportunities it provided for consistent speaking practice through the interactive activities. Through

regular practice and feedback, I felt more confident and proficient in my spoken English.” (S9, Semi-structured Interviews)

Personalized Feedback

Secondly, students stated that it was personalized feedback from the teacher and peers that could improve their speaking skills. Here are some examples.

“One aspect of the PLE that greatly contributed to my improvement in speaking skills was the personalized feedback provided by the teacher and peers. After completing speaking tasks, I received detailed feedback on my vocabulary, pronunciation, grammar, and fluency, which helped me identify areas for improvement and track my progress over time.” (S2, Semi-structured Interviews)

“The feedback I received from the teacher and my friends on my speaking tasks was really helpful for my learning journey. I could know my strengths and weaknesses, enabling me to focus on specific aspects of my speaking skills that needed improvement.” (S21, Reflective Journals)

“I didn’t know I mispronounced the word “preparation” until I got the feedback from my peers. Through the PLE, I received more feedback from many people for my speaking performance than before, which helped me improve my speaking skills.” (S36, Reflective Journals)

Confidence-building Opportunities

Thirdly, participants mentioned the confidence-building opportunities from the PLE, which could lead to the improvement in their speaking skills. Some illustrations are as follows.

“One of the most significant benefits of the PLE was the improvement in my confidence. The speaking activities and supportive learning environment provided by the platform encouraged me to step out of my comfort zone and actively participate in speaking tasks. Over time, I felt more confident in expressing myself fluently and articulately in English.” (S7, Semi-structured Interviews)

“The PLE provided me with a lot of opportunities to practice speaking English in a safe and supportive environment. As I engaged with the speaking tasks and interacted with peers, my confidence in my speaking abilities grew significantly. The positive feedback and encouragement from the teacher and classmates further enhanced my confidence and motivated me to strive for improvement.” (S12, Reflective Journals)

“I used to be scared of speaking English since I am afraid of making mistakes and people won’t understand me but learning English in the PLE reduced my fear and I felt more comfortable to express ideas in English.” (S30, Reflective Journals)

Qualified Learning Materials and Tools

Last but not least, all students uncovered that qualified learning materials and tools played an important role in enhancing their speaking skills. Here are some comments about learning materials.

“One aspect of the PLE that significantly contributed to my improvement in speaking skills was the quality of learning materials and tools provided. The video resources were engaging and relevant, exposing me to authentic language use in various contexts. These materials enhanced not only my speaking skills but also my listening comprehension, pronunciation and intonation.” (S4, Semi-structured Interviews)

“The learning materials shared in the PLE were really beneficial. The variety of video resources, articles, and apps offered many opportunities for language practice and reinforcement. Access to high-quality materials and tools enriched my learning experience and facilitated my progress in speaking English in terms of fluency and accuracy.” (S15, Reflective Journals)

“Instead of learning fixed and boring content in the textbook, I had a chance to learn with authentic materials from the videos and articles shared on the Facebook group. This motivated me a lot to learn English speaking skills.” (S9, Semi-structured Interviews)

Sub-theme 2: Improvement in Self-regulated Learning

The second sub-theme that emerges from the interviews and reflective journals is the significant improvement in SRL. Participants reported that the PLE supported their SRL for goal setting, environment structuring, time management and task strategies, and self-evaluation.

Goal Setting

To start with, many students reported a noticeable change in their ability to articulate clear, specific, and achievable learning objectives thanks to goal-setting practices and support through the PLE lessons. The explanations for this are as follows.

“I hadn’t known how to set a learning goal until I studied with the PLE lessons. The template provided in the PLE helped me get familiar with this

and you know gradually I could do it myself.” (S8, Semi-structured Interviews)

“The feedback from the teacher for my learning plans helped me know how I could set an achievable learning goal and make clear plans.” (S1, Semi-structured Interviews)

“My ability to set learning goals and make study plans has been gradually better because it became my habit before any lessons. Also, learning from my peers’ goals and plans could help me set clearer and achievable goals.” (S25, Reflective Journals)

Environment Structuring

Next, students identified notable improvement in their ability to organize the learning environments to better support their learning objectives. Here are some reasons for this enhancement.

“The flexibility to access the PLE from anywhere, at any time not only made me aware of choosing conducive environments for studying, but actually helped me in creating them.” (S5, Semi-structured Interviews)

“Learning with the PLE has made me realize the importance of the learning environment to my studying. I found that a simple arrangement helped me concentrate better, so I made changes to create such an environment for myself.” (S22, Reflective Journals)

“Normally we just study in the classroom but with the PLE, we could choose where to learn. This made me know that a café was an ideal place for me to better concentrate on my learning.” (S6, Semi-structured Interviews)

Task Strategies and Time Management

Remarkably, a lot of students experienced substantial improvements in managing their time and organizing their study more effectively after learning with the PLE. To be more specific, personalized learning allowed them to adopt and benefit from strategic practices to achieve their learning goals. This included deliberate preparation before accessing materials, the tactical use of technology to address learning gaps, and the proactive extension of learning resources beyond the provided materials. In addition, they knew how to allocate time and establish regular routines for skill development by setting goals and plans for each lesson. Here are some excerpts for this.

“I started the habit of questioning myself about my needs before diving into any online materials or tools shared in the PLE. This made the learning more effective.” (S9, Semi-structured Interview

“I found the materials and tools in the PLE very useful but I also searched for additional resources according to my needs to complete the tasks.” (S1, Semi-structured Interviews)

“Based on the template and the support from the teacher and peers, I practiced planning my study, setting the schedules for each activity and sticking to it. This helped me achieve my learning goals.” (S31, Reflective Journals)

Help-seeking

In addition, they stated that the PLE improved their ability to seek academic help effectively. Their responses highlight several important features of the PLE that led to this positive change, including peer collaboration forums, easy communication, and supportive feedback. These features created a supportive learning environment where they felt more empowered to actively seek assistance when faced with challenges. The following excerpts demonstrate this.

“The forums on the Facebook group made me much more open to asking for help.” (S6, Semi-structured Interviews)

“I found it convenient to communicate with the teacher and peers via Zalo or Facebook compared to LMS like before. I could receive immediate support rather than have to wait so long.” (S10, Semi-structured Interviews)

“It was supportive and useful feedback from the teacher and peers that encouraged me to ask for their help any time I got any problems.” (S39, Reflective Journals)

Self-evaluation

Last but not least, the majority of participants perceived the benefits of the PLE in enhancing their self-evaluation skills. They mentioned the usefulness of the reflection task using rubrics or tools in promoting metacognitive awareness and the ability to monitor their learning progress. They reported that reflecting practice helped them realize their strengths and weaknesses, enabling them to adjust their learning strategies. What is more, because of the richness of learning tools and materials, they got used to self-evaluating their relevance before using them to achieve their learning goals. The excerpts below explain this point.

“I found reflecting practices based on the template helped me a lot in knowing my strengths and weaknesses after each lesson. Therefore, I could make changes for the next lesson.” (S5, Semi-structured Interviews)

“Thanks to the speaking rubrics and also the personalized feedback in the learning tools such as ELSA or Duolingo, I could self-evaluate and monitor my progress.” (S3, Semi-structured Interviews)

“With so many learning materials and tools shared on the PLE, I need to self-evaluate the relevance of them to meet my learning goals.” (S28, Reflective Journals)

Sub-theme 4: Improvement in Interaction

The analysis from semi-structured interviews and reflective journals also uncovered that students perceived improvement in three main types of interaction: student-student, student-teacher, and student-content.

Student-student Interaction

Firstly, most of them reported that it was collaborative tools and online interactive activities in the PLE that engaged them to communicate with their peers during the learning process. They explained as follows.

“The discussion forums on the Facebook group made me closer to my peers. We shared resources, provided feedback, and solved problems together much more than before.” (S10, Semi-structured Interviews)

“I like learning through Facebook and Zalo because it was easy for me to communicate with my classmates whenever I needed immediate support.” (S2, Semi-structured Interviews)

“Interactive speaking activities within the PLE had improved how I collaborated with classmates. It felt like we were learning from each other in a more meaningful way.” (S29, Reflective Journals)

Student-teacher Interaction

Secondly, participants mentioned the improvement in the access to the teacher thanks to features such as direct messaging on social networks, and personalized feedback. The following excerpts explain this point.

“Being able to directly message the teacher via Zalo with questions made me feel more comfortable to communicate with the teacher. The responses were quick and incredibly helpful.” (S5, Semi-structured Interviews)

“It was personalized feedback from the teacher in speaking activities that motivated me to ask the teacher for more details”. (S7, Reflective Journals)

“I felt the distance between me and the teacher was shortened since we communicated with each other on social networks rather than emails or LMS.” (S4, Semi-structured Interviews)

Student-content Interaction

Thirdly, all of the participants posited that they felt engaged with the learning tools and materials. They explained that personalized learning paths in the PLE enabled them to select their favorite ones to learn. In addition, the diversity of qualified materials and interactive quizzes made their learning more engaging, allowing for a deeper connection with the study materials. Here are some examples.

“Before we only learnt through one textbook but in this course we could access a lot of materials and choose the ones we liked to learn.” (S4, Semi-structured Interviews)

“The thing I liked about the materials in this course was that most of them were interesting and suitable for my level, especially videos and quizzes.” (S7, Semi-structured Interviews)

“I loved learning through the videos shared on the Facebook groups. They were authentic and less boring than learning with the textbook.” (S17, Reflective Journals)

Sub-theme 5: Improvement in Digital Literacy

The development in digital literacy is a surprising result unveiled in interviews and reflective journals. Their opinions are as follows:

Increased Confidence and Ability in Digital Navigation

Most students expressed their confidence in navigating digital interfaces, accessing online resources, and utilizing digital tools to support their learning journey after the course.

“I used to feel overwhelmed by all the online resources available, but now I feel much more confident navigating through different platforms and finding what I need for my studies.” (S8, Semi-structured Interviews)

“The PLE helped me become more comfortable using various online tools and platforms. Now, I can easily navigate through different websites

and access the resources I need for my assignments.” (S16, Reflective Journals)

“I used to be scared of using technology for learning but then using the PLE boosted my confidence significantly. I'm no longer intimidated by a variety of digital resources; instead, I'm eager to explore and utilize them for my studies. (S34, Reflective Journals)

Improved Ability to Search for and Evaluate Online Resources

In addition, many participants noted a significant enhancement in their ability to effectively search for, evaluate, and integrate digital learning materials into their study routines.

“Before, I struggled to find reliable information online, but now I've learned how to conduct effective online searches and critically evaluate the credibility of sources.” (S6, Semi-structured Interviews)

“Through the PLE, I've become better at finding relevant online resources and discerning which ones are trustworthy and relevant to my studies.” (S22, Reflective Journals)

“Engaging with diverse online resources within the PLE has expanded my ability to search for, access, and critically evaluate information. I now feel more confident in my research skills and can discern high-quality sources to support my learning objectives.” (S3, Semi-structured Interviews)

Enhanced Digital Communication

Participants also revealed their digital communication was enhanced since they knew how to communicate more effectively in the digital environment, using social networking sites. They mentioned:

“Communicating effectively in a digital era is crucial. Through the discussion forums and collaborative activities in the PLE, I've improved my digital communication skills, learning the ways of conveying ideas clearly and professionally online.” (S9, Semi-structured Interviews)

“Usually I just use Facebook and Zalo for informal purposes but now I know how to use them more effectively to communicate with my friends and teacher for learning purposes.” (S23, Reflective Journals)

“The collaborative nature of the PLE has provided numerous opportunities for digital communication and collaboration. Engaging in online discussions, group projects, and peer feedback activities has

enhanced my ability to communicate effectively in digital environments.”
(S12, Semi-structured Interviews)

Raised Awareness of the Importance of Digital Literacy

Moreover, a lot of students mentioned their awareness of the importance of digital literacy in today’s interconnected world and expressed gratitude for the opportunities provided by the PLE to develop these essential skills. They expressed that:

“I used to take the ability to use technology for granted, but now I realize how essential it is for academic success and lifelong learning in today’s digital world.” (S6, Semi-structured Interviews)

“The PLE has helped me recognize the importance of technology skills and has motivated me to continue improving in this to assist my academic pursuits.” (S13, Reflective Journals)

“Through my experiences with the PLE, I’ve realized the important role of digital literacy in lifelong learning and career success.” (S40, Reflective Journals)

Theme 3: Challenges of Learning with the PLE

Despite the various benefits highlighted by the participants, the semi-structured interviews and reflective journals also uncovered several challenges that affected their learning experience. These include technical issues, self-evaluation, distraction, and organization.

Sub-theme 1: Technical Issues

Firstly, some participants expressed their frustration with technical issues such as internet connections or compatibility issues with certain devices, which hindered their learning experience. The excerpts below demonstrate this point.

“Sometimes I felt frustrated because the Internet was so slow that I couldn’t upload the videos or download the materials.” (S4, Semi-structured Interviews)

“There were some materials I couldn’t see with my laptop.” (S17, Reflective Journals)

“Sometimes I was fed up with the Internet connection, which hindered me from accessing the materials.” (S6, Semi-structured Interviews)

Sub-theme 2: Difficulties in Self-evaluation

The second problem mentioned by a few participants is related to self-evaluation. They said that they found it difficult to self-evaluate their learning process. What they mentioned is as follows.

“I tried a lot but still found it difficult to self-assess my speaking because I am not confident about my speaking skills.” (S5, Semi-structured Interviews)

“So far I just got an assessment from my teacher, I am not familiar with self-grading my speaking skills.” (S28, Reflective Journals)

“One area where I struggled during the PLE experience was in self-evaluation. While I understood the importance of assessing my own progress and identifying areas for improvement, I found it challenging to objectively evaluate my own performance and determine the effectiveness of my learning strategies.” (S33, Reflective Journals)

Sub-theme 3: Distraction When Learning

Next, several participants raised the issue of distraction due to learning through social media. The distractions might be from the news, messages, or notifications. Below are student’s mentions of this problem.

“It was difficult for me to focus 100% when learning on Facebook and Zalo due to the messages and notifications.” (S9, Semi-structured Interviews)

“Sometimes I was distracted by my friends’ messages during the learning time.” (S19, Reflective Journals)

“Staying focused and avoiding distractions was a big challenge for me within the PLE. The constant notifications, social media updates, and other online distractions made it difficult to maintain attention.” (S11, Semi-structured Interviews)

Sub-theme 4: Difficulties in Self-organization

Finally, some participants reported that they could not self-organize their learning effectively with such a vast amount of information in the PLE. Here are their expressions.

“I felt stressed to select appropriate learning materials since it took me a lot of time.” (S1, Semi-structured Interviews)

“I felt overwhelmed by such a lot of resources and actually I couldn’t manage my time well to make use of them to complete the assignments.” (S38, Reflective Journals)

“I thought managing my studies in a PLE would be straightforward, but the freedom to learn at my own pace sometimes leads to procrastination.” (S7, Semi-structured Interviews)

Theme 4: Suggestions

The last theme constructed from the interviews and reflective journals is suggestions. There are two main recommendations revealed by the participants related to learning materials, and self-evaluation.

Sub-theme 1: Further Online Games

Firstly, participants mentioned the provision of more online games in the PLE lessons. They thought it could make learning even more engaging and fun. Here are some excerpts demonstrating this.

“I think there should be more online games provided in the PLE, it will make it even more fun to learn.” (S7, Semi-structured Interviews)

“I loved the online games to review knowledge. I could learn and play at the same time. So I suggest providing more online games for each topic.” (S12, Semi-structured Interviews)

“In my opinion, we can practice more about grammar, vocabulary, or pronunciation through online games on websites or apps. It will make us feel even more motivated.” (S9, Reflective Journals)

Sub-theme 2: Further Support and Practices for Self-evaluation

Secondly, after mentioning the difficulties in self-evaluation, students suggested that more scaffolding and support would be needed for those who struggled with this activity. In addition, they thought that there should be more opportunities to practice self-assessment or self-reflection.

“I think I need more help in self-evaluation because it was the first time I had done it.” (S5, Semi-structured Interviews)

“I think further feedback from the teacher for our reflection shared on the Facebook group is needed so that we can know in more detail where we should improve in writing reflection.” (S5, Semi-structured Interviews)

“Actually, I think activities such as self-assessment or self-reflection are really challenging. We need further practice to better it. For example, we can write a reflection after every lesson” (S28, Reflective Journals)

In summary, the results from the interviews and reflective journals disclosed that students who were subjected to the PLE had positive perceptions towards the PLE. They were satisfied with the PLE which was engaging, helpful, and convenient. In addition, they perceived their skill improvement in terms of speaking skills, SRL, interaction, and digital literacy. They also revealed some challenges they faced such as technical issues, distraction, self-evaluation, and self-organization. Last but not least, some recommendations were made by the students including further online games and further support and practice for self-evaluation.

4.5 Summary

This chapter reported the findings of this study by describing the data and analysis responding to the four research questions. Firstly, the results revealed that students' speaking skills significantly improved after learning with the PLE. Secondly, students' self-regulated learning is considerably enhanced. Thirdly, a noticeable development in students' interaction was also witnessed after the treatment. Finally, the results from the questionnaire, semi-structured interviews, and reflective journals showed that students had positive perceptions towards using the PLE in their learning.

CHAPTER 5

DISCUSSION

This chapter aims to discuss the results presented in Chapter 4. The discussion is structured according to the research questions in the study. The first two sections are related to the effects of the PLE on students' speaking skills and self-regulated learning. The next section deals with the effects of the PLE on students' interaction. After that, students' perceptions towards using the PLE to enhance speaking skills, self-regulated learning, and interaction are discussed. The final section will summarize this chapter.

5.1 The Effects of the PLE on Students' Speaking Skills

The first purpose of this study was to explore the effects of PLE on Vietnamese EFL students' English speaking skills. The findings showed that there was a statistically significant difference between the pre-test and post-test scores. Specifically, an increase in the mean scores of students' speaking skills was seen when comparing the results of the pre-test and post-test scores. Therefore, it can be concluded that students' English speaking skills considerably improved after 8 weeks of learning with the PLE. In addition, there was a significant difference in the change scores among three groups of students. What is more, the medium-level group improved the most compared to the other ones. Several reasons could explain this enhancement and differences.

5.1.1 The Significant Enhancement of Students' Speaking Skills

The first factor contributing to the significant enhancement in English speaking skills seen in this study could be the personalized learning experience facilitated by the PLE. Since personalization is one of the components of the PLE (see 3.5.1.1.2), this feature was integrated into all lessons. Specifically, students had the freedom to choose their favorite learning tools and materials according to their needs. Also, they could learn anytime and anywhere at their own pace. Personalized learning approaches have a profound impact on student motivation, comprehension, and overall learning outcomes (Pontual Falcão et al., 2018). According to Pane et al. (2015), by enabling students to customize their learning pathways, pace, and preferences, personalized learning empowers learners to take ownership of their language learning journey, fostering a sense of autonomy and intrinsic motivation. This allows instructors to cater to the individual needs and learning styles of students, ensuring that

instructional materials and activities are relevant, engaging, and accessible (Thomas, 2023). As a result, students benefit from the opportunity to explore topics of personal interest, receive targeted feedback, and progress at their own pace, leading to greater confidence and proficiency in spoken English (Pontual Falcão et al., 2018). In this study, all the speaking topics, learning materials, and activities were selected based on students' needs and preferences. Students therefore could customize or search for more appropriate learning content and share it with other people. Previous studies such as Zakaria et al. (2024), and Eom (2024) showed the positive effects of personalized learning on students' intrinsic motivation, and language skills, particularly speaking skills. In addition, students disclosed in the semi-structured interviews and reflective journals that the personalization in the PLE engaged them in learning speaking skills since they could learn at their own pace by accessing materials at any time and anywhere (see excerpts in 4.4.2).

The second possible factor leading to the development of students' speaking skills is the quality of learning materials integrated into the PLE. The quality of the materials in this study can be seen in the aspects of relevance. In terms of relevance, Zhao (2014) states that materials that align with students' needs and interests are more likely to arouse their attention and sustain their engagement in foreign language learning. In this research, students' needs and preferences were identified through a preliminary survey. After that, relevant topics and materials were selected based on the results. Apart from the relevance, the authenticity of the materials was considered when choosing the materials. Authenticity refers to the degree to which materials reflect real-world language use and contexts, allowing students to develop practical speaking skills applicable to authentic communication situations (Brown, 2014; Garajayev, 2018; Hartatik, 2016; Ali, 2019). For those reasons, in this study, relevant authentic videos, and reading materials such as articles and news, were integrated into the PLE, enabling students to get access to and learn from them. In order to ensure the quality of the materials, they were validated by the three experts in ELT. In addition, the materials were piloted by 18 participants. After that, necessary modifications were made to make sure the materials were appropriate for being used for the course. Alserhan and Yahaya (2021), Guzmán and Vega (2021), and Vázquez-Cano (2017) emphasize the role of learning resources embedded in PLEs on students' interests and outcomes. The results from the semi-structured interviews and reflective journals also confirmed the role of high quality in the improvement of their speaking skills. Participants stated that relevant and authentic materials were beneficial for their speaking skills (see excerpts in 4.4.2).

The third factor for the improvement of students' speaking skills could stem from the feedback and assessment component in the proposed PLE, which provided students with personalized and constructive guidance on their speaking performances. The provision of timely and relevant feedback allows students to identify their strengths and weaknesses, thereby facilitating targeted improvements in their speaking skills (Kusumayanthi & Lestari, 2022). The feedback from the teacher provides learners with expert guidance and evaluation, highlighting areas for improvement and offering specific suggestions for enhancement (Au & Bardakçi, 2020). Moreover, peer feedback fosters collaborative learning environments where students can learn from one another's experiences and perspectives, thereby enriching their speaking practice (Gikandi & Morrow, 2016). Apart from teacher and peer feedback, self-assessment is a useful way to evaluate students' speaking skills in which students have opportunities to discover, know, and improve their speaking skills (Alek et al., 2020; Mendoza, 2022; Ariaifar & Fatemipour, 2013). In the present study, students posted their speaking performances such as vlogs or video recordings of online role plays on the Facebook group. After that, they would receive feedback from the teacher and their peers. Regarding peer feedback, all students were trained to give constructive feedback based on the marking criteria of the IELTS speaking test at the beginning of the course. For the self-assessment, students assessed their English speaking skills through the speaking rubric as well as through learning tools such as ELSA and Duolingo which could provide them with personalized feedback in terms of grammar, vocabulary, and pronunciation. Previous studies in PLEs including Ehiyazaryan-White (2012), and Ross & Welsh (2007) highlighted the roles of formative feedback and assessment in enhancing the learning outcomes of the students. In addition, the results of the perception questionnaire showed that the majority of the students agreed that the feedback they received during the PLE helped improve their speaking skills. Most students also revealed in the interviews and reflective journals that their speaking skills were developed from personalized feedback in terms of vocabulary, pronunciation, grammar, and fluency. The feedback helped them identify what areas they needed to improve (see excerpts in 4.4.2).

Another notable factor that could trigger the improvement in English speaking skills is the opportunities for speaking skills coming from interactive learning activities within the PLE. In this study, students took part in online interactive activities such as online discussion, role plays, and vlogging. Through these collaborative activities, students had the chance to practice speaking English in authentic communicative contexts, interact with peers from diverse linguistic and cultural

backgrounds, and receive constructive feedback on their performances. Collaborative learning promotes language development by providing opportunities for negotiation of meaning, scaffolding of language learning, and development of social and cognitive skills (Oxford, 1997; Salma, 2020). The effects of speaking opportunities are confirmed in the perception questionnaire in which many students agreed that the PLE provided opportunities for them to practice their speaking skills anytime and anywhere. They also mentioned in the interviews and reflective journals that they had ample opportunities to practice speaking more than before. Regular practice in a less intimidating environment like the PLE made them feel more confident and proficient in their spoken English (see excerpts in 4.4.2).

The final factor contributing to students' speaking skills enhancement may come from social constructivism and connectivism theories. Social constructivism emphasizes the importance of social interactions and collaborative learning in constructing knowledge. Vygotsky (1978) highlights that learning is a social process where students construct knowledge through interactions with peers and instructors. In addition, connectivism underscores the role of digital networks and the ability to connect with diverse information sources (Siemens, 2005). The present study corresponds well with the principles of these theories in which students learnt by connecting with a variety of learning materials and tools and interacting with their counterparts and teachers via social networking sites through speaking activities. The confirmation came from the results of the perception questionnaire as well as semi-structured interviews and reflective journals. To be more specific, most of the students reported that the PLE enhanced their interaction with the learning materials and communication with their peers and teachers. The opportunities to get access to a lot of learning resources and to connect with friends and teachers via Facebook and Zalo could improve their speaking skills (see excerpts in 4.4.2).

This finding of the study is consistent with what has been found in previous studies with similar purposes such as El-Magd and Mohammad (2015), Parnkul (2018), Ospina Villabona (2019), Drajeti and Handayani (2020). Even though these studies investigated the impacts of the PLE on different language skills including listening comprehension, writing, and English proficiency in general, the results showed an improvement in **students'** performances after learning with PLEs. The result of this research, therefore, confirmed the positive effects of PLEs on students' English proficiency.

5.1.2 Differential Improvements in Speaking Skills across Speaking

Performance Levels

Another point worth discussing is the varied degree of development in speaking skills across three distinct groups of participants, categorized as low, medium, and high performance levels according to the pre-speaking test scores. The findings from ANOVA analysis indicated that there was a significant difference in the speaking improvement of the students among the three groups. To be more specific, according to the mean of the change scores, while all proficiency groups showed improvement, the medium-level group exhibited the most considerable growth, followed by the low-level group, and the high-level group demonstrated the least enhancement. The significant differences in the improvement among low, medium, and high-performance level groups can be attributed to several factors.

Firstly, cognitive and linguistic foundations could be one of the factors leading to this result. The medium-level group may benefit from a phenomenon known as the “Zone of Proximal Development” (ZPD) which is a key concept in social constructivism theory proposed by Vygotsky (1978). Within this zone, medium-level students can successfully handle learning challenges and grasp new concepts with appropriate assistance, thus experiencing optimal cognitive growth. In the context of this study, students in the medium performance level group may find themselves comfortably navigating through the PLE resources and activities, leveraging their existing language knowledge to enhance their speaking skills while simultaneously being challenged to stretch beyond their current linguistic boundaries. In contrast, students in the high-performance level group may find fewer opportunities that expand their capabilities within the ZPD, while low-performance level students might probably need further foundational support to reach the lower bounds of their ZPD through PLE activities. The qualitative data collected from semi-structured interviews and reflective journals support this point. Specifically, participants in the medium-level group unveiled that they were satisfied with all learning materials, activities, and support in the PLE. Meanwhile, those who are in the high-level group expressed that even though the PLE was helpful for them in which it provided them with a variety of learning materials for all levels, they expected to get access to further advanced learning materials. The low-level group disclosed that they needed more scaffolding and detailed feedback for their learning. In this case, one of the implications would be that when implementing the PLE, it is necessary to frequently update based on their reflection. Another consideration is to encourage them to search for further materials

that they are interested in and share them with their counterparts. By doing so, their personalization will be facilitated during the learning process.

Another possible demonstration of this interesting finding is that students with higher levels might need longer practice time compared to lower levels (Vu, 2021). Cambridge University Press states that for an adult beginner to attain an A1 level according to the CEFR, they need to invest between 90 and 100 hours. To progress from a B2 to a C1 level, an individual must spend 200 to 300 hours on their studies, and an extra 300 to 400 hours are required to reach the C2 level (Knight, 2018). This can explain why a less impressive improvement in speaking skills was seen in the high-level group in comparison with medium and low-level groups. Since this course only lasted 8 weeks, a longer time may be needed so that high level students can have more remarkable enhancement. To the best knowledge of the researcher, no previous studies probed into the variations in the effects of PLE on different performance levels. Hence, this study is the first one to figure out how the effects of PLE vary across individuals with different speaking performance levels.

In conclusion, the enhancement of the students' speaking skills after learning with the proposed PLE could be explained by several factors including personalized learning experience, quality of learning materials, feedback and assessment, and interactive learning activities of the PLE. In addition, the variations in the effects of the PLE on students' speaking skills improvement among the three level groups could be from cognitive and linguistic foundations, and differences in the required time for proficiency development.

5.2 The Effects of the PLE on Students' Self-regulated Learning

The second purpose of this study was to investigate the effects of the PLE on students' SRL levels. Overall, the findings uncovered that students' SRL significantly enhanced after 8 weeks. Additionally, among the five facets of SRL, task strategies and time management, and self-evaluation were the most and the least enhanced, respectively. This section, hence, aims to discuss these results.

5.2.1 The Considerable Enhancement of Students' Self-regulated Learning Levels

The result from the data analysis indicated that there was a statistically significant difference in the mean scores of the pre-SRL questionnaire and post-SRL questionnaire. To be more specific, the mean scores of the five SRL aspects in the post-SRL questionnaire were higher than those in the pre-SRL questionnaire. This means that after the treatment, the PLE could significantly enhance students' SRL in

all aspects: Goal Setting, Environment Structuring, Task Strategies and Time Management, Help-seeking, and Self-evaluation. The comprehensive enhancement of students' SRL was also confirmed by the results from the Perception questionnaire. There are several factors leading to this result.

The first possible factor contributing to the enhancement of SRL levels within the PLE is the ability to give students greater autonomy and control over their learning process (Dabbagh & Kitsantas, 2012). By allowing students to set their own goals, monitor their progress, and select materials that match their individual needs and interests, the PLE empowered students to take control of their learning journeys. They could also have the right to learn anywhere at their convenience, which facilitated environmental structuring skills. This autonomy likely increased their motivation and engagement, which are essential components of effective SRL (Zimmerman, 2002). It also fosters a sense of ownership and responsibility for learning, empowering students to take charge of their academic development and cultivate important SRL skills such as setting goals, planning, managing the learning contents, and communicating with others to achieve their learning goals (Van Harmelen, 2008). This factor was also mentioned in the semi-structured interviews in which participants emphasized the flexibility of the PLE in raising awareness of all the aspects of SRL (see excerpts in 4.4.2).

The second noticeable factor leading to the SRL levels enhancement is the PLE's capacity to facilitate metacognitive reflection and self-assessment. Through the PLE, students were provided with opportunities for regular reflection on their learning progress, strategies, and outcomes. To be more specific, they were required to write reflective journals after every two lessons via Google Docs and share their reflection on the Facebook group. They also self-assessed their progress using the rubric and available interactive tools shared on the PLE. The inclusion of reflective prompts and self-assessment tools within the PLE encouraged students to monitor their learning, identify areas for improvement, and set goals for future learning endeavors. In other words, this metacognitive awareness enabled students to develop a deeper understanding of their learning strengths and weaknesses, leading to more effective self-regulation (Pintrich, 2002; Cera, 2013).

The third reason for the development of students' SRL might be from scaffolding which is one of the components of the proposed PLE. Since learning through PLEs requires SRL, students need to be scaffolded by other people in terms of this skill (Dabbagh & Kitsantas, 2012). In the very first lessons of the course, students practiced SRL strategies with the support of the teacher. This is considered to be the

scaffolding for the students to get accustomed to SRL. When they were familiar with this process, they could do it by themselves after that (Wong, 2019). According to Azevedo and Hadwin (2005), and Devolder et al. (2012), scaffolding students' SRL during learning within a digital learning environment is indispensable for their SRL improvement. By practicing the SRL process, they became better at managing time and adjusting strategies to complete the tasks. In addition, teachers and peers' support and feedback through the learning process facilitated their SRL (Dong, 2023). As disclosed in the semi-structured interviews and reflective journals, students valued the SRL template provided in the PLE which helped them practice SRL strategies. What is more, a supportive learning environment encouraged them to seek help (see excerpts in 4.4.2).

Since there is a lack of empirical research investigating the effects of PLE on students' SRL, a comparison is made between the results of this study and the previous studies regarding the connection between PLEs and SRL. Dabbagh and Kitsantas (2013) and Dabbagh et al. (2015) explored students' SRL process when developing their PLEs and found that PLEs and SRL are closely related in which PLEs can support students' SRL. The findings of this study confirm their results but provide more comprehensive evidence of the PLE support in all SRL aspects including goal setting, environment structuring, time management and task strategies, help-seeking, and self-evaluation. For instance, in Dabbagh and Kitsantas (2013)'s study, they found that time management and self-evaluation were not really supported during the PLE development process. The reason was explained by the participants in which they were not trained on how to carry out these strategies in effective ways. The students in the present study were scaffolded and supported before and during the experiment to practice these strategies. Similarly, Dabbagh et al. (2015) also only revealed the support of PLEs in goal setting, self-monitoring, task strategies, and self-evaluation. Time management and help-seeking were not perceived to be supported during the PLE development in these studies. The reason for this is that these studies used only interviews as the instrument to collect the data and the questions posed during the interviews did not directly inquire about the SRL aspects of time management and help-seeking. Instead, the concentration was on exploring how participants viewed the extent to which developing PLE facilitated goal setting, task strategies, motivation, self-monitoring, and self-evaluation. This study's results are also not aligned with Barnard-Brak et al. (2010) since their findings showed that there was no significant difference in students' SRL in online learning over time. The reason for this, as explained in their research, is the lack of scaffolding in terms of SRL. In the present study, SRL support

from the teacher is an important aspect of the PLE, which could boost students' SRL after the period.

5.2.2 Task Strategies and Time Management, and Self-evaluation: the Most Developed and the Most Challenging Skills

In addition to the development of all SRL aspects in general, the results found that Task Strategies and Time Management witnessed the highest improvement. Meanwhile, self-evaluation obtained the least improvement when comparing the mean score before and after the treatment.

On the one hand, the remarkable improvement in Task Strategies and Time Management highlights the positive effects of the PLE in boosting students' ability to effectively organize, manage, and strategize their learning activities. To be more specific, the findings showed students' enhancement in the preparation of questions before studying online materials, selection and usage of technological tools, active searching for additional content, and scheduling for English speaking skills mastery. This enhancement could be attributed to the direct support of the PLE in setting goals, planning, scheduling, and executing tasks. The PLE's rich resources, including technological tools and online materials, likely empowered students to refine their study strategies, thereby facilitating a more structured and time-efficient learning process. Moreover, the emphasis on preparing questions and scheduling regular study sessions, particularly for English speaking skills, suggests that the PLE offered an engaging environment within which students could actively interact with the learning content before the lessons. When comparing to the previous studies related to SRL in an online learning context, it must be pointed out that this result is not in line with their findings. Redjeki and Hapsari (2022), Zheng et al. (2016), and Kirmizi (2014) found that Task Strategies and Time Management are the least used strategies by students when learning English in an online learning environment. A possible reason for it could be from the nature of the PLE. Even though the learning process with the PLE is supposed to occur in an online learning environment, students have more control over their learning, which requires them to plan, organize, adjust, and prepare themselves to achieve their learning goals.

On the other hand, the findings revealed a less noticeable improvement in the facet of self-evaluation compared to the other aspects, particularly in self-assessing progress, reflecting on learning experiences, and adjusting learning plans. The only high improvement was witnessed in the aspect of self-questioning about learning materials. The comparatively impressive improvement in terms of self-questioning about learning materials indicates that students became increasingly proficient in engaging critically

with content. This ability to scrutinize and question learning materials directly might prove the PLE's effect in making resources available and accessible in a manner that stimulates learners' curiosity and analytical skills. This can be because the learning materials were selected based on the survey's results that had identified their needs and preferences. In addition, this could imply that when the PLE provides diverse and rich learning materials, it can prompt students to actively think about and engage with these materials at a critical level. Despite the improvement of self-questioning learning materials, the overall enhancement in the self-evaluation aspect remains modest. This indicates that students might have encountered challenges in reflective practices and self-assessing their learning progress effectively. Tham (2015), Curry et al. (2017), and Dabbagh and Kitsantas (2013) found similar results in which self-evaluation is the most challenging skill for students. In this study, students were required to write reflective journals after every two lessons. In addition, they were provided with rubrics so that they could self-assess their speaking progress. However, in the interviews, some participants admitted that it was rather difficult for them to self-assess their speaking progress since they were not confident about their speaking skills and were not familiar with self-grading (see excerpts in 4.4.2). This is in line with the previous studies (Gottlieb, 2006; Sakai et al, 2005; Yildirim, 2012). They found that EFL learners are not used to self-assessment and that they felt skeptical about their self-assessment ability when they had a chance to do it. In addition, a possible factor leading to these results is the duration of the course, which might not be long enough for them. The responses from the interviews revealed that despite the guidance and support, they needed more time to be better in self-reflection and self-assessment practice (see excerpts in 4.4.2). Tham (2015) and Gottlieb (2006) suggest that there should be a gradual scaffolding and it takes time before students can conduct self-reflection and self-assessment independently.

Altogether, some factors contributing to the enhancement of students' SRL levels consist of the PLE's ability to provide students with autonomy and control, the facilitation of metacognitive reflection and self-assessment; and scaffolding. Furthermore, the personalized nature of the PLE and the regular SRL practice led to the remarkable improvement of task strategies and time management. Meanwhile, the least noticeable enhancement of self-evaluation is attributed to students' lack of confidence in self-assessing and unfamiliarity with self-reflection.

5.3 The Effects of the PLE on Students' Interaction

The third purpose of this study was to examine the effects of the PLE on students' interaction. Generally, the results from interaction frequency counts found that students' interaction significantly enhanced after the treatment. There was a significant difference in the interaction of time 1, time 2, and time 1, time 3 but no significant difference was seen between time 2 and time 3. Furthermore, student content was the most frequent among the three types of interaction. The enhancement of students' interaction was also shown in the findings of the perception questionnaire. This section will discuss these results.

5.3.1 The Substantial Enhancement of Students' Interaction

The results revealed that a substantial increase was witnessed in the interaction frequencies of all types of interaction after 8 weeks of the experiment. This can be interpreted as the PLE could improve students' level of interaction with their teacher, peers, and content.

The first factor contributing to the enhancement of interaction is the use of social media platforms for the learning process in this PLE. In this study, the two most prevalent social media tools in Vietnam including Facebook and Zalo were employed as the main and supplementary platforms for students' learning based on the results of the survey. According to Bozkurt et al. (2017), Cardona-Divale (2012), and Dabbagh and Kitsantas (2012), using social networking sites in PLEs can support students' communication, collaboration, and interaction. Participants also uncovered in the interviews that learning through Facebook made them feel closer to their peers, encouraging them to share resources, provide feedback, and solve problems. They also stressed the convenience when communicating with the teacher and classmates via Facebook and Zalo since they could get support immediately (see excerpts in 4.4.2).

Secondly, it might be because of the interaction opportunities that the PLE created for students. The PLE provided students with chances for communication through collaborative activities. What is more, peer feedback activity encouraged students to interact more with each other. The PLE therefore created a supportive and interactive learning environment where students could engage in meaningful interactions with their peers. Through collaborative discussions, group projects, and peer-to-peer interactions, students can exchange ideas, share perspectives, and co-construct knowledge collaboratively, thereby deepening their understanding of the learning content (Vygotsky, 1978; Asterhan & Bouton, 2017).

Thirdly, the diversity of learning materials and tools in the PLE facilitated their interaction with the learning content. Through multimedia resources such as Youtube videos, articles, and online quizzes, the PLE provided students with access to a variety of learning materials that catered to diverse learning preferences and styles (Dhivya et al, 2023; Ampa et al., 2013). In the present study, students got access to the materials provided on the Facebook group before the lesson. After that, they shared what they learned from the materials on the Facebook posts. In addition, students could actively search for more related materials and share them with their peers. This aligns with the principles of connectivism, which underline the importance of interacting with various resources and constructing connections with different nodes of information (Siemens, 2005).

Fourthly, the student-teacher interaction could also be enhanced through the comfortable atmosphere of learning via the PLE. The teacher could provide personalized support and guidance, and facilitate meaningful learning experiences (Gikandi et al, 2011). By creating a supportive learning environment, students become more comfortable interacting with their teacher and hence the teacher also can build rapport with students (Ali et al., 2020). The flexibility of the PLE could also encourage them to interact with the teacher at any time and from anywhere with Internet access through Facebook or Zalo, thereby overcoming communication barriers which is normally seen in traditional face-to-face settings. This point is also demonstrated in students' responses in the semi-structured interviews and reflective journals. They revealed that personalized feedback and support from the teacher through communication via Facebook and Zalo made them feel the distance between them reduced (see excerpts in 4.4.2).

Since there have not been any research studies investigating the interaction in a PLE, these findings are compared to the previous ones related to interaction in technology-enhanced language learning environments. The studies by Mompean (2010), Omar et al. (2012), and Wozniak and Silveira (2004) showed similar positive impacts of technology-based learning on students' interaction frequency and student engagement. Overall, the interactive and personalized features of the PLE in this study provided students with the flexibility and autonomy to engage with course content, collaborate with peers, and communicate with the teacher in ways that suited their individual learning preferences and needs.

5.3.2 The Steadiness of Interaction Development

As reported in the results section, when comparing the mean of the interaction in three timepoints, there was a significant difference between time 1 and

time 2, time 1 and time 3. However, no significant difference was seen between time 2 and time 3. This indicates that there was a steadiness of the interaction development of the students.

The remarkable increase in interactions from time 1 to time 2 suggests that the treatment was effective in enhancing the level of interaction. Such an increase could be attributed to several factors mentioned in section 5.3.1. Likewise, the noticeable increase from time 1 to time 3 highlights the lasting effects of the initial changes. This underscores the long-lasting engagement of the PLE in encouraging students' interaction. However, the lack of a significant difference between time 2 and time 3, despite a mean difference in interaction frequencies, is an interesting result. One possible explanation could be that the students reached a saturation point in their interaction by time 2, leading to a plateau in interaction levels thereafter. This might be because when they became familiar with the environment and engaged enthusiastically with the learning materials and activities, further significant increases in interaction were no longer observed in the latter time. In other words, the level of interaction was stabilized from time 2 to time 3 when students got accustomed to the environment. This was found in the students' answers in the semi-structured interviews and reflective journals in which students posited that at first, they had trouble in connecting with the resources and other people for learning but with the support from them, they were gradually familiar with learning through the PLE.

5.3.3 Student-content and Student-teacher: The Most and the Least Common Interactions

Another point worth discussing is the difference in the frequency of three types of interaction within the PLE. To be more detailed, student-content interaction witnessed the most frequency in three timepoints, followed by student-student interaction and student-teacher interaction. This difference shows the variation in the impact of the PLE on different types of interaction.

The dominance of student-content interaction could be explained by the fact that the primary feature of a PLE is the richness of learning tools and resources in which students select to create, organize, and package learning content to facilitate effective and efficient learning (Rubin, 2010; McGloughlin & Lee, 2010; Dowdy, 2010; Siemens, 2007; Rahimi, 2015). The PLE's emphasis on personalized learning experiences lets students navigate, select, and customize learning materials based on their individual preferences, interests, and learning goals. This autonomy and control over their learning journey encouraged students to explore content at their own pace and depth, leading to more meaningful interactions with the materials. In addition, the

PLE offered flexibility in terms of when and where students could access learning materials at their convenience. In other words, students could engage with content in a manner that suited their schedules and preferences, fostering a beneficial environment for prolonged interaction with course materials.

On the other hand, among the three types of interaction, student-teacher interaction was the least common one. This is simply because PLE is a learner-centered approach using technology for learning (Haworth, 2016; Attwell, 2007). Within the PLE, students take control of their learning by getting knowledge from different information resources. In the PLE, the role of the teacher is just a facilitator who supports students and facilitates their communication (Shaikh & Khoja, 2012). This is in line with previous studies in which they showed that in an online collaborative learning environment, students tend to interact with their peers rather than the teacher (Huang & Nakazawa, 2010; Quadir, 2022, Al-Dheleai & Tasir, 2017).

It can be seen that the results of this study underscore the importance of student-content interaction in the digital learning environment. The abundance of learning materials and personalization facilitate the interaction of the students with the content, leading to the enhancement of learning outcomes. When comparing these results to those of previous studies in digital learning environments, it must be pointed out that these findings are not in accordance with findings reported by Al-Dheleai and Tasir (2017), and Hawwini (2019). Specifically, these studies showed students' perceived enhancement in student-student and student-teacher interaction. This could be explained by the fact that the nature of the PLE is different from a normal online learning environment. These studies only focused on the interaction in an online platform with less flexibility in terms of selecting tools and materials. Therefore, there was not much space for student-content interaction, which is also crucial for students' learning process.

To sum up, students' enhancement in interaction could stem from the use of social media in the PLE, the diversity of learning materials and tools, interaction opportunities, and the comfortable atmosphere. Additionally, the gradual familiarity of the students with the environment might lead to the steadiness of interaction development. Finally, student-content interaction was recorded as the most common interaction due to the abundance of learning materials and tools in the PLE.

5.4 Students' Perceptions towards Learning with the PLE

The fourth purpose of the current study is to explore students' perceptions towards learning through the PLE lessons. In general, data analysis from the perception

questionnaire, semi-structured interviews, and reflective journals disclosed that students had positive views about the PLE. This section will discuss these results including students' satisfaction, students' skill development (speaking skills, SRL, interaction, digital literacy), and challenges of learning with the PLE.

5.4.1 Satisfaction with the PLE

The results from the questionnaire, interviews, and reflective journals showed that all participants liked learning English speaking skills through the PLE. This is because it was engaging, helpful, and convenient.

First of all, the PLE lessons were engaging since they had the opportunity to get access to a variety of multimedia materials, take part in interactive activities, and personalize their learning. According to Dhivya et al. (2023), Makhmudova (2019), and Ampa et al. (2013), the use of multimedia in English education, especially in teaching speaking skills has become essential for engaging and inspiring students, consistent with the principles of Education 4.0. This result also corresponded well with Ullah and Anwar (2020) in which they found that employing technology, along with group-based collaborative and interactive tasks, can have a positive effect on engaging students. In terms of personalized learning experience, Chen et al. (2021), Suppasetsee et al. (2023), Wisudawati (2019), and Sabrina (2020) revealed the positive impacts of personalized learning on EFL students' engagement. Students in the present study had a chance to customize the learning materials in the PLE to meet their needs and preferences and to complete collaborative activities.

Additionally, the PLE lessons were helpful since the learning tools and materials could support their learning journey. Students could communicate with their peers and teachers, who provided them with help and feedback during the learning process. The reason is that the tools and materials included in the PLE were selected based on students' needs and preferences. In addition, they were in line with their English levels. All the materials were validated by the three experts in ELT and piloted with 18 students before being used in the main study. The validation and the pilot will help researchers ensure the effectiveness of the materials for the main experiment (Fraser et al. 2018; Each & Suppasetsee, 2021). In addition, students in this study received feedback and support from their peers and the teacher about their speaking performances through the Facebook group and Zalo chat group. According to social constructivism theory, students construct new knowledge from social interaction with other people (Vygotsky, 1978).

Last but not least, the PLE was convenient since they could access the PLE by using any kind of personal computer, laptop, or mobile phone anytime and

anywhere at their convenience. Instead of going to the classroom, they could learn at home or go to the café where they felt comfortable in their learning. This convenience could be partially explained by the usefulness and handiness of Facebook and Zalo, which are the two most commonly used social networking sites in Vietnam (Statista, 2023; Le, 2022). The flexibility also comes from the personalized feature of the PLE, which provides students with freedom and choice in their learning process.

5.4.2 Skill Development

As reported by the participants through the questionnaire, interviews, and reflective journals, improvement was seen in terms of their speaking skills, SRL, and interaction. In addition, digital literacy was an unexpected outcome revealed by the participants.

Firstly, the PLE lessons helped them enhance their speaking skills through speaking opportunities, personalized feedback, and confidence-constructing chances from the PLE. In addition, the quality of the learning materials and tools was considered to be a factor contributing to their speaking improvement. The positive perception of the students towards the impacts of PLEs on academic achievement in ELT was also reported by Harwood (2014), Parnkul (2018), and Suppasetsee et al. (2023). The participants in these studies perceived improvement in their learning achievements such as communication skills, writing, vocabulary, and pronunciation after experiencing learning English through the PLEs.

Secondly, in terms of SRL, goal-setting practices through the PLE lessons familiarized them with setting their learning goals. In addition, the flexibility feature of the PLE raised their awareness of structuring effective learning environments. Personalized learning also benefited them in implementing task strategies to achieve their learning goals. Their time management skills were improved through planning practices. What is more, a supportive and collaborative learning environment using Facebook and Zalo as communication tools encouraged them to conveniently seek assistance whenever they needed help. Regarding self-evaluation, they emphasized the merits of the reflection task with the guide from the template and the rubric provided by the teacher. This finding corresponds well with previous studies such as Dabbagh et al. (2015), Boonrasamee et al. (2019), and Parnkul (2018) in which participants perceived that there was an enhancement in their SRL skills during their learning process with PLEs.

Thirdly, the positive perceptions of students towards using the PLE to enhance their interaction with content, their peers, and their teachers could be from some reasons. The first reason was the richness of materials in which they could be

free to discover and learn (Ampa et al., 2013). In addition, the convenience of Facebook and Zalo motivated them to communicate and collaborate with their peers during interactive activities. Additionally, the encouragement to interact with their teacher is thanks to direct messaging and personalized feedback. This study pioneered to provide insights into students' perceptions of interaction improvement through the PLE.

Fourthly, an unexpected outcome disclosed after the qualitative data analysis is that students perceived development in their digital literacy. Learning with the PLE improved their confidence in navigating digital interfaces, getting access to online resources, and employing digital tools for their learning. Additionally, they could be better at searching for, evaluating, and integrating digital learning materials into their study routines. They also enhanced the ability to communicate in the digital context, by utilizing social networking sites. Last but not least, learning through the PLE raised their awareness of the significance of digital literacy in today's world. This is in line with the definition of digital literacy from Gilster (1997, p.220). He defined digital literacy as *"a set of skills to access the Internet, find, manage and edit digital information; join in communications, and otherwise engage with an online information and communication network. It is the ability to properly use and evaluate digital resources, tools, and services, and apply it to lifelong learning processes"*. These findings could be explained by the fact that when learning with the PLE lessons, students in this study were supposed to immerse themselves in the self-regulated digital learning environment where they connected with technological and human tools and resources to achieve their learning goals. This required them to effectively identify and select appropriate ones. These findings also support the enhancement of the student-content interaction in this study, which is the most noticeable among the three types of interaction. Similar results were found in the study of Chatwattana (2021), Perera and Gardner (2018), and Hongthong and Temdee (2018). They uncovered that personalized learning in the technology-mediated learning environment could boost their digital literacy skills.

5.4.3 Challenges of Learning with the PLE

Despite positive perceptions of students towards learning with the PLE, some challenges were revealed in the interviews and reflective journals. Firstly, some of the participants raised concerns about technical issues which affected their learning process. In this study, the learning process occurred mainly in the online environment where students used the Internet to get access to the materials, upload videos on the Facebook group, and communicate with other people through Facebook and Zalo. The inconsistency of the Internet, therefore, negatively impacted the learning

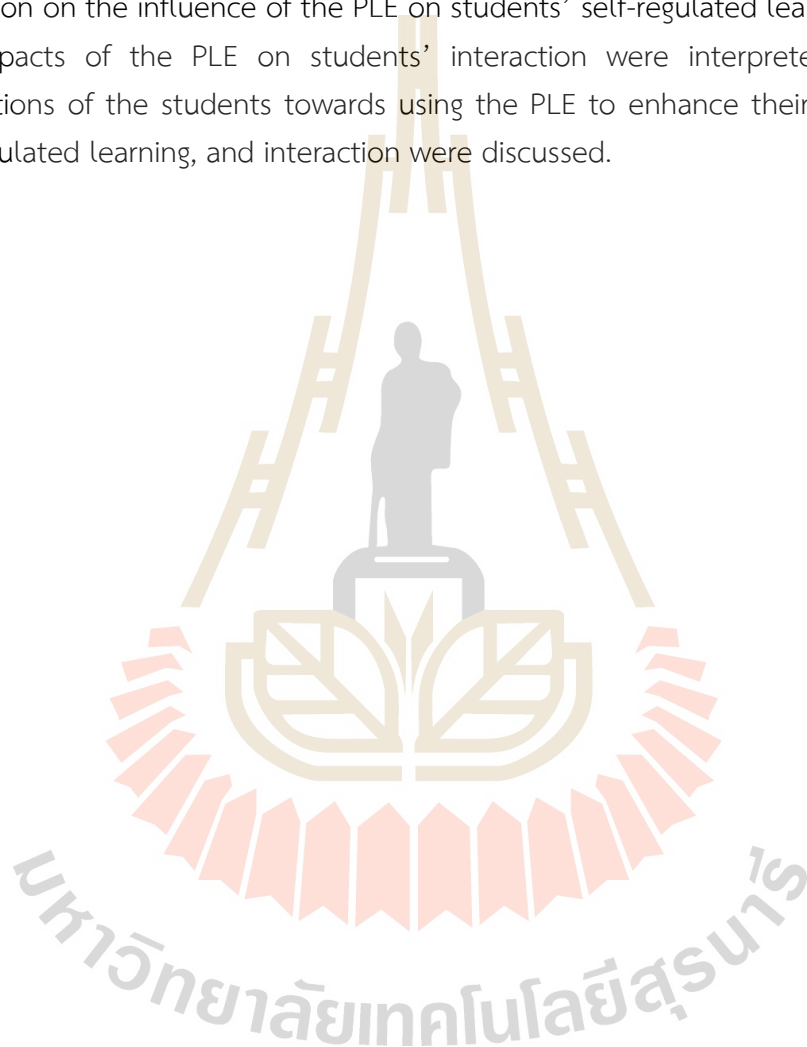
procedure. This issue has been mentioned in studies in the area of technology-enhanced language learning such as Each and Suppasetseree (2021), Suppasetseree et al. (2023), and Bunjan (2016). Participants in these studies all raised concerns about poor Internet connection which disabled them from getting access to the materials and practice exercises. Therefore, students must choose appropriate locations with strong Internet connections for learning. Secondly, a small number of the participants mentioned the difficulties in self-evaluation. Tham (2015) and Curry et al. (2017) found similar results when exploring students' SRL after the experiments. The thing is students are not confident about their capacity to be able to self-assess their performance. In addition, the lack of self-reflection practice makes it difficult to self-reflect on their learning process. Hence, Tham (2015) and Curry et al. (2017) recommended that students need much practice and support to be able to perform successful self-evaluation. Thorough training before the course is also crucial to make sure students know how to self-assess and self-reflect on their learning. Thirdly, distraction is another problem mentioned by the participants, which hindered their complete attention. This is one of the disadvantages of learning through social media (Sabeeh, 2019; Bobkina, & Romero, 2020; Jayarathna, 2021). Since the main purpose of social media is connection and communication, when learning through social networking sites, it is easy for learners to be distracted from notifications of messages, newsfeeds, and updated information. This highlights the importance of setting clear goals and plans to minimize distractions during the learning time. Last but not least, the overwhelming number of tools and materials challenged some students in organizing their learning. To succeed in learning through the PLE, students are supposed to be able to control their learning, which requires them to make decisions and effectively deal with such vast amounts of information. This challenge is analyzed by Ebner et al. (2011) and Martindale and Dowdy (2016) in which PLE users commonly suffer from an overwhelming influence from a large amount of information gathered in a short time. Learning via PLEs requires students to be able to organize and filter the flow of information otherwise it will be challenging to grasp an overview of the available content and select the most appropriate items for specific tasks (Hummel et al., 2007). That is why Ebner et al. (2011) suggest that educators can pre-select the information so that students can find necessary information faster when they need it.

In short, students' positive perceptions towards the PLE were explained by the benefits of the PLE in this study in terms of their satisfaction and skill development. Apart from the merits of the PLE, students uncovered the challenges they faced in the learning process such as technical issues, distraction, self-organizing, and self-

evaluation. These problems should be solved to maximize students' progress and positive experiences when learning with the PLE.

5.5 Summary

This chapter discussed the results of the study in response to research questions. It started with the effects of the PLE on students' speaking skills, followed by a discussion on the influence of the PLE on students' self-regulated learning. After that, the impacts of the PLE on students' interaction were interpreted. Finally, the perceptions of the students towards using the PLE to enhance their speaking skills, self-regulated learning, and interaction were discussed.



CHAPTER 6

IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSION

This chapter aims to wrap up the thesis, structured into four sections. The first section provides a summary of the present study, consisting of the purposes, the procedures, and the main findings. The second section delves into the pedagogical implications of the study. The third section discusses some limitations and recommends promising directions for future research. The final section is the conclusion of the study.

6.1 Summary of the Study

This study first aimed to explore the effects of a proposed Personal Learning Environment (PLE) on Vietnamese EFL undergraduate students' speaking skills. The second purpose was to examine the effects of the PLE on students' self-regulated learning (SRL). The third goal was to investigate the effects of the PLE on students' interaction. Finally, another aim of this study was to probe into students' perceptions towards using the PLE to enhance speaking skills, SRL, and interaction. In order to achieve these goals, the present study employed a mixed-method approach. The quantitative method was utilized to figure out the effects of the PLE on students' speaking skills, SRL, and interaction as well as to understand students' perceptions throughout the survey questionnaire. Meanwhile, the qualitative method was aimed to explore further insights into students' perceptions via semi-structured interviews and reflective journals.

A group of forty non-English major freshmen at the University of Economics and Finance, Ho Chi Minh City, Vietnam took part in the research project. The experiment lasted eight weeks in Semester 2. In the beginning, students were required to do a pre-speaking test and fill out a pre-SRL questionnaire. Within 8 weeks of learning with the PLE lessons, they wrote reflective journals after finishing every two lessons. Interaction frequency counts were conducted by the researcher after completing every two topics. At the end of the experiment, students took a post-speaking test, filled out a post-SRL questionnaire, and wrote the final reflective journal. In addition, 12 participants took part in the semi-structured interviews. The quantitative data were analyzed using paired-sample t-test, one-way ANOVA, repeated-measures ANOVA, and descriptive

statistics on SPSS. Meanwhile, the qualitative data were analyzed employing a thematic approach.

The major findings of the study can be summarized as follows:

Firstly, a significant difference was observed in the mean scores of the pre-speaking test and post-speaking. There were also differences between the mean scores of all facets of speaking skills (i.e. Fluency and Coherence, Grammar, Lexical Resources, and Pronunciation). This suggests that the PLE significantly boosted students' speaking skills over eight weeks. Furthermore, the degree of enhancement varied among three groups (high, medium, low), indicating differing impacts of the PLE on distinct speaking performance levels. Specifically, the most substantial progress was observed in the medium-level group, followed by the low- and high-level groups.

Secondly, a notable difference was witnessed in the SRL levels of the students before and after the intervention. This difference was evident across all dimensions comprised of goal setting, environment structuring, task strategies and time management, help-seeking, and self-evaluation. This demonstrates that the implementation of PLE lessons led to enhancements in all aspects of students' SRL. Furthermore, the most significant development was in task strategies and time management while self-evaluation showed comparatively modest progress in comparison to the other dimensions.

Thirdly, in terms of students' interaction, the results found that there was a considerable difference in the interaction frequency of students across three timepoints of counting. Specifically, significant differences were noted between time 1 and time 2, as well as between time 1 and time 3, but not between time 2 and time 3. In other words, the PLE noticeably developed students' interaction, and the stabilization of the interaction was seen from time 2. In addition, student-content interaction was recorded as the most prevalent in all three times. This indicates that the PLE was able to improve the interaction between the students and content the most compared to the other types of interaction.

Finally, the participants expressed satisfaction with the PLE, finding it engaging, helpful, and convenient. Furthermore, they noted enhancements in their speaking skills, self-regulated learning, interaction, and digital literacy. Challenges such as technical problems, distractions, difficulties with self-assessment, and organizing themselves were also reported. Lastly, the students suggested additions such as more online games and increased support and opportunities for practicing self-evaluation.

6.2 Pedagogical Implications

The findings of the present study provide considerable implications for the stakeholders including teachers, and policymakers in English language teaching and learning in general and speaking skills in particular. The specific implications will be described as follows.

6.2.1 For Teachers

Firstly, the present study demonstrates that students significantly enhanced their speaking skills through learning with the PLE, and they also expressed a favorable perception towards this approach. These findings indicate the potential of employing the PLE approach in speaking instruction and advocate for its recommendation among teachers in EFL/ESL settings. To be more specific, teachers are encouraged to employ a student-centered approach to design instruction and integrate personalized learning experiences within language courses. Based on the principles of the PLE approach, teachers can tailor instruction to meet the diverse needs, interests, and preferences of individual learners by taking advantage of technology. This includes providing students with a variety of learning resources, tools, and activities. After that, students have the choice, freedom, and flexibility to customize them for their studies. This will further engage students in their learning and foster their ownership of the learning process. In addition, the variation in the effects of the PLE on students with different English proficiency emphasizes the importance of recognizing and addressing the varying needs and proficiency levels of students when designing and delivering PLE lessons. For example, in this study, even though students were supposed to be at pre-intermediate levels, there were differences in proficiency among them. Some had higher levels of proficiency than the others in the group. Therefore, a survey is absolutely needed to identify as diverse as possible the materials, activities, and even assessments to suit the linguistic abilities and learning styles of each group. In addition, during the time of implementing PLEs, teachers need to update the materials according to their reflections as well as encourage them to search for more appropriate materials to satisfy their needs.

Secondly, the considerable enhancement in students' SRL levels, particularly in task strategies and time management after learning with the PLE, highlights the importance of creating a digital learning environment so that students can exercise SRL strategies. In such environments, students take control of their learning by connecting with a variety of learning materials, communicating with other people, and self-evaluating their learning process to achieve their learning goals. However, teachers still play a crucial role in scaffolding students' development of SRL

skills within the PLE framework. Teachers can provide students with support, guidance, and feedback to help students become more effective and independent learners. This might involve explicitly instructing students to set learning goals, plan, monitor, and reflect on their learning. Since self-evaluation is the most challenging for students, teachers should spend more time training students and creating more opportunities for them to practice this skill. Overall, by equipping students with SRL strategies, students can be empowered to take greater control of their learning and develop lifelong learning skills that are pivotal for their academic success.

Thirdly, the significant effect of the PLE on students' interaction, especially student-content interaction implies that teachers can utilize the PLE in EFL courses in general, and in English speaking courses in particular to enhance student-student, student-teacher, and student-content interaction. In the digital age, the most important thing is to integrate a variety of multimedia materials and tools to encourage them to interact with the course content rather than depend on only the textbook. In addition, teachers can design collaborative learning activities, facilitate online discussions, and promote peer interaction and feedback to encourage knowledge construction and social learning. Collaborative interaction within the PLE fosters a sense of community, belonging, and responsibility for learning outcomes. Another implication is when designing PLEs for their courses, teachers should pay more attention to student-content interaction since it is the key to the learning outcomes within the PLEs. By providing a wide range of learning materials and tools, student-content interaction will be optimized.

Fourthly, as students reported in the qualitative data that they perceived improvements in digital literacy after learning with the PLE, it is important to include such skills in language instruction. To be more detailed, teachers should create opportunities for students to develop necessary digital skills, such as navigating online resources, evaluating information credibility, and effectively communicating in digital formats. It is obvious that integrating technology-enhanced language learning tools and activities into the lessons not only improves students' language proficiency but also enhances students' essential 21st century skills to be successful in the digital age.

Fifthly, the challenges of students should be taken into consideration when implementing the PLE in ELT. Since learning with the PLE is supposed to occur in an online environment, technical issues such as Internet connection should be considered whether it is doable or not. In addition, equipping students with the necessary skills such as self-evaluation and self-organization is literally important to ensure that students can learn effectively with the PLE.

In short, the pedagogical implications for teachers from this study underline the necessity of using a student-centered approach, incorporating SRL, creating interactive learning environments, and developing students' digital literacy. In order to implement these pedagogical strategies, teachers are encouraged to optimize students' language learning experiences through the PLE, which can boost students' engagement, autonomy, and language proficiency.

6.2.2 For Policymakers

In the first place, students' improvements in English speaking skills, SRL, interaction, and even digital literacy stress the effects of PLEs in facilitating learner-centered and personalized learning experiences. Therefore, policymakers are encouraged to integrate the PLEs into the curricula of English language education as well as instructional practices. Instructional approaches that boost students' active engagement, collaboration, and SRL, in accordance with the principles of PLEs such as project-based learning should be advocated.

In the second place, constructing a PLE needs scaffoldings, training programs are necessary for teachers and students to be able to develop and implement PLEs in teaching and learning. Teachers should be trained in how to incorporate PLEs in their teaching practices through workshops or seminars. Students should be equipped with SRL skills, especially digital literacy. This can be explicitly instructed regularly, especially before starting courses. By doing so, gradually they will be able to construct their PLEs for their lifelong learning.

To sum up, from the findings of this study, policymakers can make some changes in terms of curricula, encouraging teachers and students to teach and learn through PLEs. In addition, training is indispensable for teachers and students to be able to construct and use PLEs effectively.

6.3 Limitations and Recommendations for Future Research

Even though this study has indicated the positive effects of the PLE on students' English speaking skills, SRL, and interaction, there are several limitations. These limitations can be further investigated in future research.

Firstly, there are concerns about the sample size and generalization. This study might be limited to the relatively small sample size of only 40 first-year university students as the participants. Also, the context of this study was only in a specific university in Vietnam. These may affect the generalizability of the findings to other populations. As a result, future research is encouraged to conduct studies with a larger sample size in other EFL contexts to enhance the generalizability of the results.

Secondly, it is related to the duration of the intervention. Since the experiment only lasted 8 weeks due to the policy of the institution, it might have constrained the depth and sustainability of the effects. Other researchers can conduct longitudinal research to examine the long-term effects of PLEs on language learning achievements.

Thirdly, in terms of investigating students' interaction in this study, the researcher mainly focused on the quantity of the interaction frequency supported by the qualitative data from semi-structured interviews and reflective journals. Subsequent research can explore students' interaction patterns during the time they learn with the PLE.

Fourthly, students' improvement in their digital literacy was an unpredicted result in this study, which was revealed through qualitative data analysis. Further research is needed to confirm this enhancement by using other research instruments such as pre- and post-questionnaires and so on.

6.4 Conclusion

In conclusion, this thesis has been carried out to explore the potential of implementing the PLE approach in English teaching and learning. A PLE for speaking skills, SRL, and interaction was proposed by the researcher based on the theories and principles. The results were positive in which students' speaking skills, SRL, and interaction witnessed significant enhancement after an 8-week intervention. This demonstrates that the development and implementation of the PLE in English language teaching and learning are really encouraging. There should be changes in the teaching and learning practices of teachers and students to adapt to the advancement of technology. Policymakers also need to make modifications to the curricula as well as teacher training. In other words, the success of this study points out that PLE is a potential and promising approach in ELT that all stakeholders should pay more attention to. Further work is still needed to confirm the results of this study as well as examine more about other aspects of PLEs. This is also the end of the thesis.

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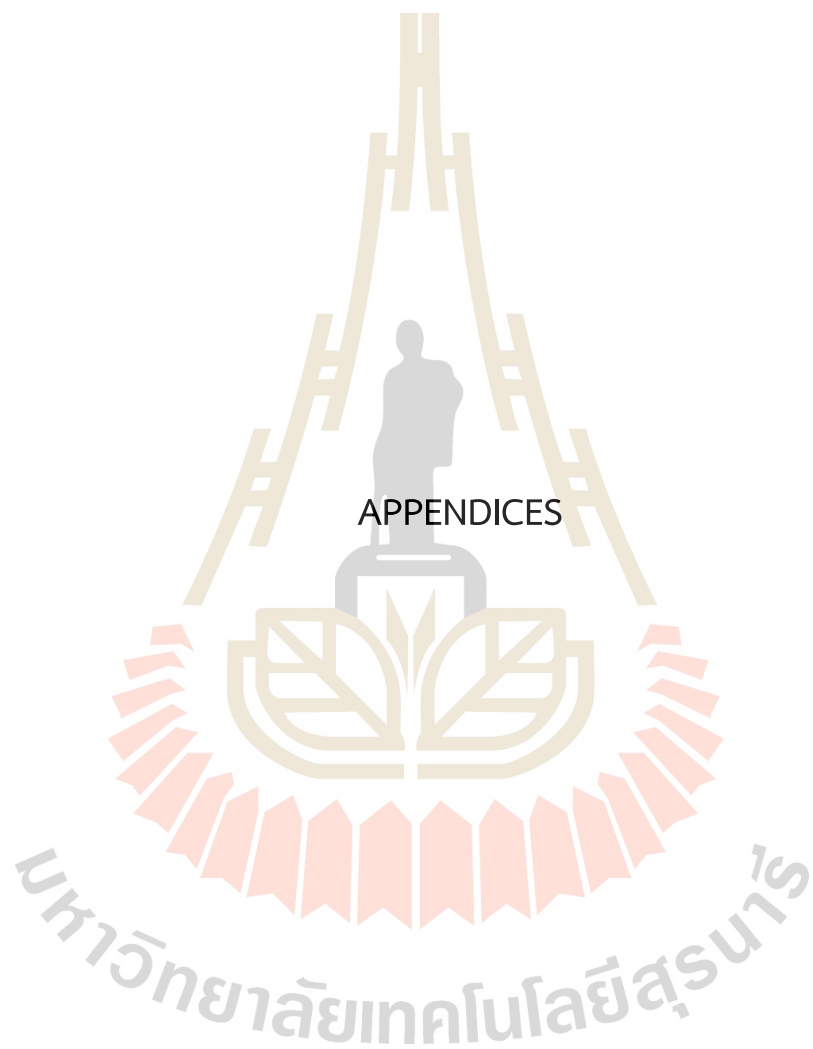
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APPENDIX A

A SURVEY ON DIFFICULTIES AND NEEDS IN LEARNING ENGLISH SPEAKING SKILLS

KHẢO SÁT KHÓ KHĂN VÀ NHU CẦU TRONG VIỆC HỌC KỸ NĂNG NÓI TIẾNG ANH (A SURVEY ON DIFFICULTIES AND NEEDS IN LEARNING ENGLISH SPEAKING SKILLS)

Xin các bạn,

Thầy tên là Hoàng Việt Hiên, giảng viên khoa tiếng Anh - UEF. Hiện tại Thầy đang là nghiên cứu sinh tại Đại học Công Nghệ Suranaree Thái Lan. Bảng khảo sát này là một phần trong nghiên cứu của Thầy, với mục đích tìm ra khó khăn và nhu cầu của bạn trong việc học kỹ năng Nói tiếng Anh. Mong các bạn dành chút thời gian điền bảng khảo sát này.

Cảm ơn các bạn nhé!
Dear all,

My name is Hoang Viet Hien, an English lecturer at UEF. Currently, I am a PhD student at Suranaree University of Technology in Thailand. This survey is a part of my research, aiming to identify the difficulties and needs you have in learning English speaking skills. I kindly request you to spare some time to complete this survey.

Thank you very much!

Best regards,
Hoang Viet Hien

[Đăng nhập vào Google](#) để lưu tiến trình của bạn. [Tìm hiểu thêm](#)

* Biểu thị câu hỏi bắt buộc

มหาวิทยาลัยเทคโนโลยีสุรนารี

Năm sinh (Year of birth)? *

Câu trả lời của bạn _____

Số năm học tiếng Anh? (Years of learning English) *

Câu trả lời của bạn _____

Bạn có gặp khó khăn gì khi học kỹ năng Nói tiếng Anh không? Nếu có xin vui lòng liệt kê chi tiết. (Do you have any difficulties in learning English speaking skills? If yes, please clarify) *

Câu trả lời của bạn _____

Bạn có nhu cầu gì trong việc phát triển kỹ năng Nói tiếng Anh không? (Do you have any needs in improving English speaking skills?) *

Câu trả lời của bạn _____



APPENDIX B

A SURVEY ON DIFFICULTIES AND NEEDS IN TEACHING ENGLISH SPEAKING SKILLS

KHẢO SÁT VỀ KHÓ KHĂN VÀ NHU CẦU GIẢNG DẠY KỸ NĂNG NÓI TIẾNG ANH (A SURVEY ON DIFFICULTIES AND NEEDS IN TEACHING ENGLISH SPEAKING SKILLS)

Xin kính chào quý Thầy/Cô,

Em tên là Hoàng Việt Hiên, giảng viên khoa tiếng Anh - UEF. Hiện tại em đang là nghiên cứu sinh tại Đại học Công Nghệ Suranaree Thái Lan. Bảng khảo sát này là một phần trong nghiên cứu của em, với mục đích tìm ra khó khăn và nhu cầu của Thầy/Cô trong việc giảng dạy kỹ năng Nói tiếng Anh. Kính mong quý Thầy/ Cô dành chút thời gian điền bảng khảo sát này.

Em xin cảm ơn Thầy/Cô

Deal all,

My name is Hoang Viet Hien, lecturer in English department - UEF. Currently, I am a PhD student at Suranaree University of Technology, Thailand. This survey is part of my research, with the purpose of finding out the difficulties and needs of teachers in teaching English Speaking skills. We hope you will take some time to fill out this survey. Thank you very much!

Best regards,
Hoang Viet Hien

[Đăng nhập vào Google](#) để lưu tiến trình của bạn. [Tìm hiểu thêm](#)

* Biểu thị câu hỏi bắt buộc

มหาวิทยาลัยเทคโนโลยีสุรนารี

Năm sinh (Year of birth)? *

Câu trả lời của bạn

Số năm giảng dạy? (Years of teaching) *

Câu trả lời của bạn

Đối tượng giảng dạy? (Subjects of teaching) *

Câu trả lời của bạn

Thầy/Cô có gặp vấn đề gì khi giảng dạy kỹ năng Nói tiếng Anh không? Nếu có xin vui lòng liệt kê chi tiết. (Do you have any problems in teaching English speaking skills? If yes, please clarify) *

Câu trả lời của bạn

Thầy/Cô có giải pháp gì giúp sinh viên phát triển kỹ năng Nói tiếng Anh không? (Do you have any suggestions to improve students' English speaking skills?) *

Câu trả lời của bạn

มหาวิทยาลัยเทคโนโลยีสุรนารี

APPENDIX C

A SURVEY ON STUDENTS' PREFERENCES IN LEARNING ENGLISH SPEAKING SKILLS

Part	No.
Part 1: Personal information	1. What is your gender? <input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Other
	2. How old are you? <input type="checkbox"/> 18 <input type="checkbox"/> 19 <input type="checkbox"/> 20 <input type="checkbox"/> Other:
	3. What year are you in? <input type="checkbox"/> 1 st year <input type="checkbox"/> 2 nd year <input type="checkbox"/> 3 rd year <input type="checkbox"/> 4 th year <input type="checkbox"/> Other:.....
	4. What is your major?
	5. How long have you been learning English? <input type="checkbox"/> Less than 5 years <input type="checkbox"/> 5-10 years <input type="checkbox"/> 11-15 years <input type="checkbox"/> More than 15 years
	6. How would you rate your overall English speaking skills on a scale of 1 to 5 (1 being the lowest and 5 being the highest)? <input type="checkbox"/> 1- Very poor <input type="checkbox"/> 2- Poor <input type="checkbox"/> 3- Average <input type="checkbox"/> 4- Good <input type="checkbox"/> 5 - Excellent
Part 2: Speaking Skill Needs	7. Which aspect of speaking skills do you find most challenging? (You can choose more than 1 option) <input type="checkbox"/> Pronunciation and accent <input type="checkbox"/> Vocabulary and expressions <input type="checkbox"/> Grammar and sentence structure <input type="checkbox"/> Fluency and coherence <input type="checkbox"/> Confidence and overcoming anxiety <input type="checkbox"/> Other (please specify)
	8. In which of the following situations do you feel you need to improve your English speaking skills the most? (You can choose more than 1 option) <input type="checkbox"/> Casual conversations <input type="checkbox"/> Giving presentations or speeches <input type="checkbox"/> Participating in group discussions <input type="checkbox"/> Debating or arguing a point <input type="checkbox"/> Describing experiences and telling stories <input type="checkbox"/> Other (please specify)

Part	No.
	<p>9. Which type of speaking skill do you think is most important for you to develop further? (You can choose more than 1 option)</p> <p><input type="checkbox"/> Accuracy (correct grammar, pronunciation, and vocabulary)</p> <p><input type="checkbox"/> Fluency (speaking smoothly and without hesitation)</p> <p><input type="checkbox"/> Clarity (speaking clearly and understandably)</p> <p><input type="checkbox"/> Coherence (organizing ideas logically and cohesively)</p> <p><input type="checkbox"/> Confidence (speaking assertively and overcoming anxiety)</p> <p><input type="checkbox"/> Other (please specify)</p>
<p>Part 3: Learning Speaking Preferences</p>	<p>10. What type of speaking activities do you enjoy the most? (You can choose more than 1 option)</p> <p><input type="checkbox"/> Role plays</p> <p><input type="checkbox"/> Discussions</p> <p><input type="checkbox"/> Debates</p> <p><input type="checkbox"/> Presentations</p> <p><input type="checkbox"/> Vlogs</p> <p><input type="checkbox"/> Other (please specify)</p>
	<p>11. Which of the following topics interest you the most when practicing speaking? (You can choose more than 1 option)</p> <p><input type="checkbox"/> Shopping</p> <p><input type="checkbox"/> Restaurant</p> <p><input type="checkbox"/> City</p> <p><input type="checkbox"/> People</p> <p><input type="checkbox"/> Entertainment (movies, music, etc.)</p> <p><input type="checkbox"/> Other (please specify)</p>
	<p>12. How do you prefer to practice speaking? (You can choose more than 1 option)</p> <p><input type="checkbox"/> One-on-one with a partner</p> <p><input type="checkbox"/> Small group discussions</p> <p><input type="checkbox"/> Whole class activities</p> <p><input type="checkbox"/> Speaking with a teacher</p> <p><input type="checkbox"/> Other (please specify)</p>
	<p>13. What type of feedback do you find most helpful when improving your speaking skills? (You can choose more than 1 option)</p> <p><input type="checkbox"/> Immediate corrections during speaking</p> <p><input type="checkbox"/> Written feedback after speaking</p> <p><input type="checkbox"/> Audio/video recordings of yourself for self-evaluation</p> <p><input type="checkbox"/> Peer feedback from classmates</p> <p><input type="checkbox"/> Other (please specify)</p>

Part	No.
	<p>14. Which of the following types of online interactions do you find very helpful for improving your speaking skills? (You can choose more than 1 option)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Text-based chats with peers or teacher <input type="checkbox"/> Video calls with peers or native speakers <input type="checkbox"/> Participating in online discussion groups or forums <input type="checkbox"/> Sharing audio or video recordings of yourself speaking <input type="checkbox"/> Receiving written or recorded feedback on your speaking <input type="checkbox"/> Other (please specify).....
<p>Part 4: Technological Tools and Materials</p>	<p>15. How often do you use technology tools to support your English speaking practice?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Rarely <input type="checkbox"/> Never
	<p>16. Which platform(s) do you want to use as a main learning community to learn English speaking skills? (You can choose more than 1 option)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Facebook <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Google Classroom <input type="checkbox"/> University E-learning (Moodle) <input type="checkbox"/> Others: (please specify)
	<p>17. What types of online tools or materials do you prefer to practice or improve your English speaking skills? (You can choose more than 1 option)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Language learning apps (e.g., Duolingo, Babbel) <input type="checkbox"/> Video conferencing tools (e.g., Zoom, Skype) <input type="checkbox"/> Social media (e.g., Facebook, Zalo) <input type="checkbox"/> Online forums or discussion boards <input type="checkbox"/> Podcasts or audio resources <input type="checkbox"/> YouTube or video resources <input type="checkbox"/> Online dictionaries or translators <input type="checkbox"/> Other (please specify).....

APPENDIX D

VALIDATION FORM OF THE PERSONAL LEARNING ENVIRONMENT (PLE)

The objective of this validation form is to assess the appropriateness of the PLE for English speaking skills which is used for the study.

Instructions: Please go over the PLE description and put a tick (✓) in front of the statement 'Yes' = 1, 'No' = -1, or 'Not Sure' = 0. If your answer is 'No' or 'Not Sure' please kindly give comments for improvement.

No.	Statement	Score	Comment
1	The PLE can facilitate students' personalization.		
2	The PLE can shift the responsibility of learning from institution to learner.		
3	The PLE can replace traditional LMS.		
4	The PLE can support learner as co-designer of learning environment.		
5	The PLE can enhance learner sense of control and ownership.		
6	The PLE can increase learner agency in learning process.		
7	The PLE can support collaborative learning.		
8	The PLE can be as a dynamic output of the learning process.		
9	The PLE can foster self-regulated learning.		
10	The PLE can support learners' role as prosumer of content		

IOC Analysis of PLE

Item	Experts			IOC Value	Interpretation
	1	2	3		
1	+1	+1	+1	1.00	Good
2	0	+1	+1	0.67	Acceptable
3	+1	+1	0	0.67	Acceptable
4	+1	+1	+1	1.00	Good
5	+1	+1	+1	1.00	Good
6	+1	+1	+1	1.00	Good
7	+1	+1	+1	1.00	Good
8	+1	0	+1	0.67	Acceptable
9	+1	+1	+1	1.00	Good
10	+1	+1	0	0.67	Acceptable

The result of IOC: (IOC = $\sum R / N$)

Number of items: 10

R = 9+9+8 = 26 (Scores from the experts)

N = 3 (Number of experts)

IOC = $26/3 = 8.66$ Percentage: $8.66/10 \times 100\% = 86.60\%$

Based on the analysis results of IOC, the PLE obtained a score of 8.66, corresponding to a percentage of 86.60%. This percentage exceeds the required threshold of 80%, indicating that PLE is highly suitable for adoption in the main study.

APPENDIX E
A SAMPLE OF THE LESSON PLAN
Session 2

1. **Course:** English 2
2. **Proficiency Level:** Pre-Intermediate
3. **Topic/ Lesson:** Shopping
4. **Periods:** 3 (135 minutes)
5. **Objectives:**

After this lesson, students will be able to:

 - use opposites to describe products
 - use comparatives to compare products
 - role play bargaining at the shop
6. **Materials:** Various online resources in the PLE
7. **Learning Procedure**

Learning Phase		Activities	Materials	Learning Mode	Duration
Before lesson	Setting goals, Planning, Exploring Resources	<ol style="list-style-type: none"> 1. Ss read the objectives of the two lessons covering the topic “Shopping” shared on the FB group. 2. Ss set their own goals, make a plan based on a template on FB. 3. Ss explore materials related to the lesson shared by the teacher. 4. Ss are encouraged to search for more related resources, share them on the FB group. 		Online	
During lesson	Warm-up	<ol style="list-style-type: none"> 1. Ss go to a post on the FB group and share their shopping experiences and preferences. 2. T reads their comments and asks some students to talk more about their comments and tells Ss that they are going to learn about Shopping. 		Online	10ms

Learning Phase	Activities	Materials	Learning Mode	Duration
Vocabulary	1. Ss access the materials shared on the FB group and learn about opposites. 2. Ss list out opposites they have learnt on the FB post.	- Video-based https://www.youtube.com/watch?v=wMp2cXCyVus https://www.youtube.com/watch?v=dd8xTzYHg1w https://www.youtube.com/watch?v=lvHsZKDlc7M - Text-based https://slideplayer.com/slide/13626749/ https://www.englishlessonviaskype.com/adjectives-to.../ https://www.ucan.vn/.../adjectives-describing-clothes... https://www.englishlearnsite.com/.../describing-clothes.../	Online Online	15ms
	1. Ss practice describing things they own by using opposites in pairs. 2. Ss make a video recording and post it on the FB group. 3. Ss give feedback or ask questions about the videos.		Online Online Online	20ms
	1. Ss access the materials shared on the FB group and learn about comparatives. 2. Ss comment what they have learnt on the FB post. 3. Ss do a quiz posted on FB.	- Video-based https://www.youtube.com/watch?v=wXiD0FdON7k https://www.youtube.com/watch?v=HqueToxC4d4 https://www.youtube.com/watch?v=vj3SbCwQd9I https://www.youtube.com/watch?v=ewMviiHsbiv - Text-based https://games4esl.com/comparative-adjectives-ppt/ https://slideplayer.com/slide/16567979/ https://www.slideserve.com/.../using-comparative... https://learnenglish.britishcouncil.org/.../comparative... https://dictionary.cambridge.org/.../comparison... https://www.englishclub.com/.../adjectives-comparative.php - Quiz https://quizizz.com/admin/quiz/5bd63ada784210001af0a6b6	Online Online Online	25ms
	1. Ss look at 3 pairs of products posted on FB, work in pairs and practice comparing products using comparatives.		Online	15ms

Learning Phase	Activities	Materials	Learning Mode	Duration
After lesson	Pronunciation 1. Ss access the materials shared on the FB group and learn about how to link sounds in English. 2. Ss comment what they have learnt on the FB post. 3. Ss work in pairs to practice saying the words provided on the post.	- Video-based https://youtu.be/nbnRm_3_OKU https://www.youtube.com/watch?v=pXxAlGzSEOW https://www.youtube.com/watch?v=OGfOAVpEHIE - Text-based https://slideplayer.com/slide/13194892/ https://www.slideshare.net/chang.../4linking-sounds-14818782 https://www.slideserve.com/tyne/linking-sounds-and-letters https://www.englishclub.com/pronunciation/linking.php https://pronuncian.com/introduction-to-linking https://goga.ai/link-sounds-in-english/	Online	10ms
			Online	
			Online	
After lesson	Listening 1. Ss watch videos shared on the FB group. 2. Ss summarize the key information and share it on the post. 3. Ss share common expressions for bargaining which they have learnt on the post. 4. Ss practice the conversation in pairs using the transcript provided on the post.	https://www.youtube.com/watch?v=xfeZ4ledjfg https://www.youtube.com/watch?v=E7y955l8SoM	Online	35ms
			Online	
			Online	
After lesson	Wrap-up 1. Ss go to a post on FB and comment what they have learnt today. 2. T summarizes the content.		Online	5ms
After lesson	Speaking Practice Monitoring 1. Ss read the homework assignment posted on FB and ask questions if any. 2. Ss work in pairs to create a role play bargaining at the shop. Student A is a seller and student B is a buyer. In order to do it, they are supposed to use resources provided by the teacher or search by themselves. They can also ask the teacher or peers for support by posting questions on the FB group. 3. Ss practice the role play, record it, and share it on the FB group for feedback from the teacher and their peers. 4. Ss are also asked to monitor their learning process.		Online	

Session 3

1. **Course:** English 2
2. **Proficiency Level:** Pre-Intermediate
3. **Topic/ Lesson:** Shopping (cont)
4. **Periods:** 3 (135 minutes)
5. **Objectives:**

After this lesson, students will be able to:

- use adjectives to describe how clothing looks and fits
- use “enough”, “too” to talk about things they don’t like wearing and things they never wear.
- create a vlog talking about a good place to shop.

6. **Materials:** Various online resources in the PLE

7. Learning Procedure

Learning Phase		Activities	Materials	Learning Mode	Duration
During lesson	Before lesson Exploring Resources	1. Ss explore resources related to the lesson shared by the teacher. 2. Ss are encouraged to search for more related resources, share them on the FB group.		Online	
	Review	1. Ss do a quiz posted on FB to review previous knowledge.	https://quizizz.com/admin/quiz/5bd0667c0a3c0001b9eb5f3/comparatives	Online	5ms
	Warm-up	1. Ss join a discussion on the FB to share their clothing preferences and shopping experiences. 2. T reads their comments and asks some students to talk more about their comments.		Online	10ms
	Vocabulary	1. Ss access the materials shared on the FB group and learn about adjectives to describe clothing. 2. Ss list out adjectives they have learnt on the FB post.	Video-based https://youtu.be/chnKaUTbBo0 https://youtu.be/flduxVapY7s https://youtu.be/wMp2cXCYVus Text-based https://slideplayer.com/slide/13626749/ https://www.englishlessonviaskype.com/adjectives-to-describe-clothes-in-english/	Online	25ms

Learning Phase		Activities	Materials	Learning Mode	Duration
	Speaking	1. Ss work in pairs and practice describing things they own, using adjectives they have learnt.			10ms
	Grammar	1. Ss access the materials shared on the FB group and learn about “enough” and “too”. 2. Ss comment what they have learnt on the FB post. 3. Ss do a quiz posted on FB.	Video-based https://youtu.be/ke0PEye3dkO https://youtu.be/q4xfTdojGEM https://youtu.be/_llUe-sHqWQ Text-based https://www.slideshare.net/joseanis/too-vs-not https://www.slideshare.net/yolyordam/too-enough-presentation-864604 https://res.edu.vn/cau-truc-enough-to-va-too-to/ https://efc.edu.vn/va-enough-cach-dung-cau-truc-bai-tap https://langgo.edu.vn/chi-tiet-ve-enough-vs-too-cach-dung-va-bai-tap-thuc-hanh Quiz https://quizizz.com/admin/quiz/5bf518a4ae792a001bb097ad/too-enough	Online Online Online	25ms
	Speaking	1. Ss practice talking about things they don't like wearing and things they never wear using “enough” and “too”. 2. Ss make a video recording and post it on the FB group. 3. Ss give feedback or ask questions about the videos.		Online Online Online	25ms
	Reading	1. Ss go to the FB group and read an article about a famous weekend market in Bangkok, Thailand. 2. Ss share what they have learnt from the article on the FB post.	https://www.thailandmagazine.com/chatuchak-weekend-market/?lang=en	Online Online	30ms
	Wrap-up	1. Ss go to a post on FB and comment what they have learnt today. 2. T summarizes the content.		Online	5ms

Learning Phase	Activities	Materials	Learning Mode	Duration
After lesson <i>Speaking Practice Reflection</i>	<ol style="list-style-type: none"> 1. Ss read the homework assignment posted on FB and ask questions if any. 2. Ss will make a vlog talking about a good place to shop. In order to do it, they are supposed to use resources provided by the teacher or search by themselves. They can also ask the teacher or peers for support by posting questions on the FB group. 3. Ss share the videos on the FB group for feedback from the teacher and their peers. 4. Ss are asked to reflect their learning after finishing the topic Shopping. They can share the reflection on the FB group. 		Online	

APPENDIX F
VALIDATION FORM OF THE PLE LESSON PLAN

The objective of this validation form is to assess the appropriateness of the PLE lesson plan for English speaking skills which is used for the study.

Instructions: Please read the lesson plan and put a tick (✓) in front of the statement 'Yes' = 1, 'No' = -1, or 'Not Sure' = 0. If your answer is 'No' or 'Not Sure' please kindly give comments for improvement.

No.	Statement	Score	Comment
1	The objectives of each lesson are clear and easy to understand.		
2	The lesson plan aligns well with the stated learning objectives for each session.		
3	The ways in which the PLE is integrated into each lesson plan are clear and effective.		
4	The lesson plan incorporates engaging activities that encourage student interaction and participation.		
5	The topics are appropriate to the level of the students.		
6	The learning materials are relevant to the level of the students.		
7	The instructions of learning and teaching activities listed in the lesson plans are clear and comprehensible.		
8	The allotted time for each lesson plan is appropriate for learners to learn speaking skills.		

IOC Analysis of Lesson Plan

Item	Experts			IOC Value	Interpretation
	1	2	3		
1	0	+1	+1	0.67	Acceptable
2	+1	+1	+1	1.00	Good
3	+1	+1	+1	1.00	Good
4	+1	+1	+1	1.00	Good
5	+1	+1	+1	1.00	Good
6	+1	+1	0	0.67	Good
7	0	+1	+1	1.00	Acceptable
8	+1	0	+1	0.67	Good

The result of IOC: ($IOC = \sum R / N$)

Number of items: 8

$R = 6+7+7 = 20$ (Scores from the experts)

$N = 3$ (Number of experts)

$IOC = 20/3 = 6.67$ Percentage: $6.67/8 \times 100\% = 83.33\%$

The analysis findings indicate a score of 6.67, which corresponds to a percentage of 83.33%. This percentage surpasses the minimum threshold of 80%, suggesting that the lesson plans are well-suited for implementation in the main study.



APPENDIX G

PRE-SPEAKING TEST

Descriptions:

This test is adapted from the format of IELTS speaking section which is one-to-one interaction between the examiner and the test taker. All test items were purposely selected from real tests so that they are appropriate with the topics of the course. However, the number of items were shortened due to time limitation. This test, therefore, includes three parts and lasts around 7 to 10 minutes.

Part 1: Introduction and Interview.

In this part of the test, the examiner will ask the students general questions on familiar topics. This part lasts around 2-3 minutes.

Let's talk about Shopping.

1. Do you enjoy shopping?
2. How often do you go shopping?

Let's talk about City.

1. Do you like the city you are living in now?
2. Do you prefer the city or the countryside?

Part 2: Individual long turn.

In this part of the test, the students will be given a task card to talk about a specific topic. They have 1 minute to prepare and 1-2 minutes to talk. The examiner may ask one or two further questions on the same topic. This part lasts around 1-2 minutes.

Topic: **Describe a famous person who you admire.**

You should say:

- who the person is
- why he/she is famous
- why you admire this person
- what you would do if you met this person.

Part 3: Two-way discussion.

In this part of the test, the examiner will ask students further questions related to the topic in Part 2. These questions give students an opportunity to discuss more issues. This part lasts around 2-3 minutes.

1. How to become famous?
2. Are there any differences between famous people now and in the past?

POST-SPEAKING TEST

Descriptions:

This test is adapted from the format of IELTS speaking section which is one-to-one interaction between the examiner and the test taker. All test items were purposely selected from real tests so that they are appropriate with the topics of the course. However, the number of items were shortened due to time limitation. This test, therefore, includes three parts and lasts around 7 to 10 minutes.

Part 1: Introduction and Interview.

In this part of the test, the examiner will ask the students general questions on familiar topics. This part lasts around 2-3 minutes.

Let's talk about Entertainment.

1. What kind of music do you like?
2. How often do you go to the cinema to watch a movie?

Let's talk about Changes.

1. Do you like the changes?
2. What do you plan to change next year?

Part 2: Individual long turn.

In this part of the test, the students will be given a task card to talk about a specific topic. They have 1 minute to prepare and 1-2 minutes to talk. The examiner may ask one or two further questions on the same topic. This part lasts around 1-2 minutes.

Topic: **Describe a restaurant that you enjoyed going to.**

You should say:

- where the restaurant was
- who you went with
- what type of food you ate in that restaurant
- and explain why you thought the restaurant was good.

Part 3: Two-way discussion.

In this part of the test, the examiner will ask students further questions related to the topic in Part 2. These questions give students an opportunity to discuss more issues. This part lasts around 2-3 minutes.

1. What do you think are the advantages and disadvantages of eating at home compared to eating out?
2. Do you think bigger restaurants tend to be better than small ones?

APPENDIX H

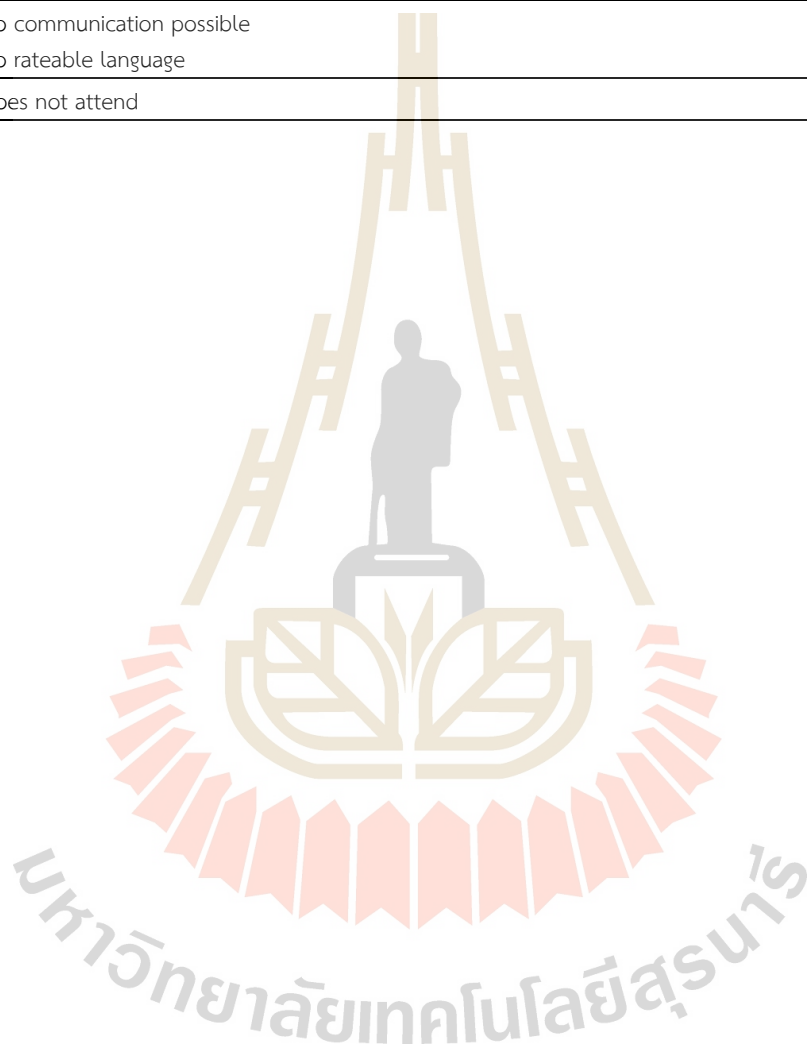
SPEAKING RUBRIC

Description: *This speaking rubric is adapted from IELTS speaking descriptor. Four criteria of the speaking test will be evaluated, which includes Fluency and Coherence, Lexical Resource, Grammatical Range and Accuracy, and Pronunciation. The total point is 100 and therefore, each criterion takes up 25 points.*

Score	Fluency and Coherence	Lexical Resource	Grammatical Range and Accuracy	Pronunciation
23-25	<ul style="list-style-type: none"> 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 than to find words or grammar features develops topics fully and appropriately 	<ul style="list-style-type: none"> uses vocabulary with full flexibility and precision in uses idiomatic language naturally and accurately all topics 	<ul style="list-style-type: none"> uses a full range of structures naturally and appropriately produces consistently accurate structures apart from 'slips' characteristic of native speaker speech 	<ul style="list-style-type: none"> uses a full range of pronunciation features with precision and subtlety sustains flexible use of features throughout is effortless to understand
20-22	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> uses a wide vocabulary resource readily and flexibly to convey precise meaning uses less common and idiomatic vocabulary skillfully, with occasional inaccuracies uses paraphrase effectively as required 	<ul style="list-style-type: none"> uses a wide range of structures flexibly produces a majority of error-free sentences with only very occasional inappropriacies or basic/non-systematic errors 	<ul style="list-style-type: none"> 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
17-19	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> uses a range of complex structures with some flexibility frequently produces error-free sentences, though some grammatical mistakes persist 	<ul style="list-style-type: none"> shows all the positive features of 13-15 and some, but not all, of the positive features of 19-21

Score	Fluency and Coherence	Lexical Resource	Grammatical Range and Accuracy	Pronunciation
	discourse markers with some flexibility	• uses paraphrase effectively		
14-16	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Has a wide enough vocabulary to discuss topics at length and make meaning clear in spite of inappropriacies • generally paraphrases successfully 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 not sustained control reduces clarity at times
11-13	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • manages to talk about familiar and unfamiliar topics but uses vocabulary with limited flexibility • attempts to use paraphrase but with mixed success 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • shows all the positive features of 8-10 and some, but not all, of the positive features of 14-16
8-10	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • produces basic sentence forms and some correct simple sentences but subordinate structures are rare • errors are frequent and may lead to misunderstanding 	<ul style="list-style-type: none"> • 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
5-7	<ul style="list-style-type: none"> • speaks with long pauses • has limited ability to link simple sentences • gives only simple responses and is 	<ul style="list-style-type: none"> • uses simple vocabulary to convey personal information • has insufficient vocabulary for less familiar topics 	<ul style="list-style-type: none"> • attempts basic sentence forms but with limited success, or relies on apparently memorized utterances • makes numerous errors 	<ul style="list-style-type: none"> • shows some of the features of Band 2 and some, but not all, of the positive features of Band 4

Score	Fluency and Coherence	Lexical Resource	Grammatical Range and Accuracy	Pronunciation
	frequently unable to convey basic message		except in memorized expressions	
2-4	<ul style="list-style-type: none"> pauses lengthily before most words little communication possible 	<ul style="list-style-type: none"> only produces isolated words or memorized utterances 	<ul style="list-style-type: none"> cannot produce basic sentence forms 	<ul style="list-style-type: none"> speech is often unintelligible
1	<ul style="list-style-type: none"> no communication possible no rateable language 			
0	<ul style="list-style-type: none"> does not attend 			



APPENDIX I

VALIDATION FORM OF THE PRE- AND POST-SPEAKING TESTS, AND THE SPEAKING RUBRIC

The objective of this validation form is to assess the appropriateness of the pre-and post- speaking tests, and the speaking rubric.

Instructions: Please go over the tests and rubric and put a tick (✓) in front of the statement 'Yes' = 1, 'No' = -1, or 'Not Sure' = 0. If your answer is 'No' or 'Not Sure' please kindly give comments for improvement.

No.	Statement	Score	Comment
1	The instructions for the pre-and post-speaking tests are clear and easy to understand.		
2	The pre-and post-speaking tests covers a wide range of speaking skills.		
3	The test items are relevant to the content of the course.		
4	The speaking rubric provides clear and specific criteria for assessing speaking skills.		
5	The speaking rubric is easy to understand and use for evaluating speaking skills.		
6	The speaking rubric adequately covers various aspects of speaking, such as pronunciation, vocabulary, grammar, and fluency.		

IOC Analysis of Pre-and post- speaking Tests, and the Speaking Rubric.

Item	Experts			IOC Value	Interpretation
	1	2	3		
1	0	+1	+1	0.67	Acceptable
2	+1	+1	+1	1.00	Good
3	+1	+1	+1	1.00	Good
4	+1	+1	+1	1.00	Good
5	+1	+1	0	0.67	Good
6	+1	+1	+1	1.00	Good

The result of IOC: (IOC = $\sum R / N$)

Number of items: 6

R = 5+6+5 = 16 (Scores from the experts)

N = 3 (Number of experts)

IOC = $16/3 = 5.33$ Percentage: $5.33/6 \times 100\% = 88.89\%$

Based on the analysis results of IOC, the pre-and post-speaking tests and rubric obtained a score of 5.33, corresponding to a percentage of 88.89%. This percentage exceeds the required threshold of 80%, indicating that the pre-and post-speaking tests and the speaking rubric are highly suitable for adoption in the main study.



APPENDIX J
SRL QUESTIONNAIRE

Dear participants,

This questionnaire is a part of a study entitled “The Effects of a Personal Learning Environment on Vietnamese EFL Undergraduate Students’ Speaking Skills, Self-regulated Learning, and Interaction”.

This questionnaire aims to investigate EFL learners’ perceptions of the enhancement of their self-regulated learning using the PLE in learning English speaking skills.

We would highly appreciate it if you could give your responses for the following questions. The data collected are used in the research paper only, not for any other purposes. Thank you very much for your help.

Part 1: Personal information

Direction: Please provide the information by ticking (✓) in the box.

1. Gender: Male Female Other:
2. Age: 18 years old 19 years old 20 years old Other:
3. How long have you been learning English?
 less than 1 year 1-3 years 3-7 years More than 7 years
4. How much do you know about “self-regulated learning” before this course?
 not at all a little average a lot very much

Part 2: Self-regulated learning in learning English speaking skills.

Direction: Please give your opinion about the statements below by ticking (✓) ONE answer for each.

The numbers 1 to 5 stand for the following responses:

1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statement	1	2	3	4	5
Goal setting						
1	I set short-term (daily or weekly) goals as well as long-term (monthly or for the semester) goals in English 2 course.					
2	I set standards for my assignments in English 2 course.					
3	I set goals to help me manage study time in English 2 course.					
4	I properly make plans to combat my problems in learning in English 2 course.					

No.	Statement	1	2	3	4	5
Environment Structuring						
5	I choose a good location when learning to avoid too much distraction.					
6	I know where I can learn most efficiently.					
7	I choose a time with few distractions when studying.					
Task strategies and time management						
8	I prepare my questions before learning instructional materials online.					
9	I select and use appropriate technological tools to improve the areas I'm weak in.					
10	I search for more related online materials in addition to the suggested ones to master the course content.					
11	I allocate extra study time to learning English speaking skills because I know it is time-consuming.					
12	I try to schedule the same time every day or every week to learn English speaking skills, and I observe the schedule.					
Help-seeking						
13	I search related materials online when I have difficulties in the learning process.					
14	I ask my teacher for help through technological tools when I have problems.					
15	I share my problems with my classmates online so we can solve our problems together.					
Self-evaluation						
16	I ask myself a lot of questions about the course materials and tools.					
17	I often self-assess my English speaking progress.					
18	I reflect on my learning English speaking and think the ways I did was good or not.					
19	I adjust my plans to make my learning more effective.					

IOC Analysis of SRL Questionnaire

Item	Experts			IOC Value	Interpretation
	1	2	3		
1	+1	+1	+1	1.00	Good
2	0	+1	+1	0.67	Acceptable
3	+1	+1	0	0.67	Acceptable
4	+1	+1	+1	1.00	Good
5	0	+1	+1	0.67	Acceptable
6	+1	+1	0	0.67	Acceptable
7	0	0	-1	-0.33	Deleted
8	+1	+1	+1	1.00	Good
9	+1	+1	+1	1.00	Good
10	-1	0	0	-0.33	Deleted
11	+1	+1	+1	1.00	Good
12	+1	+1	+1	1.00	Good
13	+1	+1	+1	1.00	Good
14	+1	+1	+1	1.00	Good
15	+1	+1	+1	1.00	Good
16	+1	+1	+1	1.00	Good
17	+1	+1	+1	1.00	Good
18	+1	+1	+1	1.00	Good
19	+1	+1	+1	1.00	Good
20	+1	+1	+1	1.00	Good
21	+1	+1	+1	1.00	Good

Notes:

1. +1= the item is congruent with the objective
2. -1= the item is not congruent with the objective
3. 0=uncertain about this item

The result of IOC: $(IOC = \sum R / N)$

Number of items: 21

R = 16+19+16 = 51 (Scores from the experts)

N = 3 (Number of experts)

IOC = $51/3 = 17$ Percentage: $17/21 \times 100\% = 80.95\%$

The analysis findings indicate a score of 17, which corresponds to a percentage of 80.95%. This percentage surpasses the minimum threshold of 80%, suggesting that the questionnaire is well-suited for implementation in the main study. In addition, item 7 and 10 will be deleted since they are not appropriate.

SRL QUESTIONNAIRE (VIETNAMESE VERSION)

Xin chào các bạn,

Bảng câu hỏi này là một phần trong nghiên cứu mang tựa đề "Ảnh hưởng của một Môi trường Học tập Cá nhân đối với Kỹ năng Nói, Học tập Tự chính và Tương tác của Sinh viên Đại học trong ngữ cảnh Việt Nam".

Bảng câu hỏi này nhằm mục đích điều tra nhận thức của các bạn về việc nâng cao việc học tự chính bằng cách sử dụng Môi trường Học tập Cá nhân trong việc học kỹ năng nói tiếng Anh.

Thầy rất trân trọng nếu bạn có thể trả lời những câu hỏi sau đây. Dữ liệu được thu thập chỉ dùng cho bài báo nghiên cứu, không được sử dụng cho bất kỳ mục đích khác. Rất cảm ơn sự giúp đỡ của bạn.

Phần 1: Thông tin cá nhân

Hướng dẫn: Vui lòng cung cấp thông tin bằng cách đánh dấu (✓) vào ô tương ứng.

1. Giới tính: Nam Nữ

2. Tuổi: 18 tuổi 19 tuổi 20 tuổi Khác:

3. Trước khóa học này, bạn biết về "học tự chính" bao nhiêu?

Hoàn toàn không biết Biết một ít Trung bình Biết nhiều Rất nhiều

Phần 2: Học tự chính trong việc học kỹ năng nói tiếng Anh.

Hướng dẫn: Vui lòng cho ý kiến của bạn về những câu sau bằng cách đánh dấu (✓) vào MỘT câu trả lời duy nhất.

Các số từ 1 đến 5 tương ứng với các phản hồi sau đây:

1=Hoàn toàn không đồng ý 2=Không đồng ý 3=Trung lập 4=Đồng ý 5=Hoàn toàn đồng ý

T.T	Phát biểu	1	2	3	4	5
Đặt mục tiêu						
1	Tôi đặt ra mục tiêu ngắn hạn (hàng ngày hoặc hàng tuần) và mục tiêu dài hạn (hàng tháng hoặc cho cả học kỳ) khi học tiếng Anh giao tiếp trực tuyến.					
2	Tôi đặt ra tiêu chuẩn cho bài tập về nhà của mình khi học tiếng Anh giao tiếp trực tuyến.					
3	Tôi đặt ra mục tiêu để giúp quản lý thời gian học tiếng Anh giao tiếp trực tuyến của mình.					
4	Tôi lập kế hoạch phù hợp để khắc phục vấn đề học tiếng Anh của mình thông qua công nghệ.					
Tạo môi trường học tập						
5	Tôi chọn một địa điểm tốt để học tiếng Anh giao tiếp trực tuyến để tránh quá nhiều sự xao lãng.					
6	Tôi biết nơi tôi có thể học tiếng Anh giao tiếp trực tuyến hiệu quả nhất.					
7	Tôi chọn một thời gian ít xao lãng khi học tiếng Anh giao tiếp trực tuyến.					

T.T	Phát biểu	1	2	3	4	5
Chiến lược nhiệm vụ và quản lý thời gian						
8	Tôi chuẩn bị câu hỏi trước khi học tài liệu hướng dẫn trực tuyến.					
9	Tôi chọn và sử dụng những công cụ công nghệ phù hợp để cải thiện những khía cạnh Nói còn yếu.					
10	Tôi tìm thêm các tài liệu trực tuyến ngoài những tài liệu được giao để nắm vững nội dung bài học.					
11	Tôi dành thêm thời gian học tiếng Anh giao tiếp trực tuyến ngoài giờ để biết rằng điều đó tốn nhiều thời gian.					
12	Tôi cố gắng lên lịch học vào cùng một thời gian hàng ngày hoặc hàng tuần và tuân thủ lịch trình.					
Tìm kiếm sự giúp đỡ						
13	Tôi tìm người có kiến thức về việc học tiếng Anh trực tuyến để có thể tư vấn khi cần giúp đỡ.					
14	Tôi hỏi giáo viên để được giúp đỡ qua các công cụ công nghệ khi gặp vấn đề trong việc học tiếng Anh.					
15	Tôi chia sẻ những vấn đề của mình với bạn cùng lớp trực tuyến để chúng ta cùng nhau giải quyết.					
Tự đánh giá						
16	Tôi đặt cho mình nhiều câu hỏi về tài liệu và công cụ trong khóa học.					
17	Tôi thường xuyên theo dõi tiến độ học tiếng Anh với sự hỗ trợ của công nghệ.					
18	Tôi suy ngẫm về việc học kỹ năng Nói trực tuyến của mình.					
19	Tôi điều chỉnh kế hoạch học tiếng Anh của mình để làm việc học hiệu quả hơn.					

APPENDIX K

PERCEPTION QUESTIONNAIRE

Dear participants,

This questionnaire is a part of a study entitled “The Effects of a Personal Learning Environment on Vietnamese EFL Undergraduate Students’ Speaking Skills, Self-regulated Learning, and Interaction”. This questionnaire aims to investigate EFL learners’ perceptions towards learning English speaking skills through PLE lessons.

We would highly appreciate it if you could give your responses for the following questions. The data collected are used in the research paper only, not for any other purposes. Thank you very much for your help.

Part 1: Personal information

Direction: Please provide the information by ticking (✓) in the box.

1. What technological device(s) do you have for learning?

Mobile Phone Laptop PC Other

2. What is the average time per week you spent learning/practicing English speaking on the PLE?

Less than 1 hour 1-5 hours 5-10 hours More than 10 hours

Part 2: Perception

Direction: Please give your opinion about the statements below by ticking (✓) ONE answer for each.

The numbers 1 to 5 stand for the following responses:

1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statement	1	2	3	4	5
Speaking skills						
1	The PLE helped me improve my English speaking skills.					
2	I feel more confident in my English speaking skills after participating in the PLE.					
3	The PLE provided opportunities for me to practice my speaking skills anytime and anywhere.					
4	The feedback I received during the PLE lessons was helpful for improving my speaking skills.					
Self-regulated Learning						
5	The PLE has helped me set clear learning goals for myself.					

No.	Statement	1	2	3	4	5
6	I was able to structure my learning environment more effectively.					
7	I feel more confident in managing my time and study strategies since using the PLE.					
8	I knew how to seek help when I got difficulties.					
9	The PLE improved my ability to self-evaluate my learning.					
Interaction						
10	The PLE increased my interaction with the learning materials.					
11	The PLE helped me interact more effectively with my peers.					
12	My communication with teachers has improved because of the PLE.					
PLE Lessons						
13	I prefer learning English speaking skills with the PLE lessons.					
14	I found the PLE lessons engaging and interesting for speaking English.					
15	I would recommend PLE lessons to other students learning English speaking skills.					



IOC Analysis of Perception Questionnaire

Item	Experts			IOC Value	Interpretation
	1	2	3		
1	+1	+1	+1	1.00	Good
2	+1	+1	+1	1.00	Good
3	+1	+1	+1	1.00	Good
4	+1	+1	+1	1.00	Good
5	+1	+1	+1	1.00	Good
6	+1	+1	+1	1.00	Good
7	+1	+1	+1	1.00	Good
8	+1	+1	+1	1.00	Good
9	+1	+1	+1	1.00	Good
10	+1	+1	+1	1.00	Good
11	+1	+1	+1	1.00	Good
12	+1	+1	+1	1.00	Good
13	0	+1	+1	0.67	Acceptable
14	+1	+1	+1	1.00	Good
15	+1	+1	+1	1.00	Good

Notes:

1. +1= the item is congruent with the objective
2. -1= the item is not congruent with the objective
3. 0=uncertain about this item

The result of IOC: $(IOC = \sum R / N)$

Number of items: 15

R = 14+15+15 = 44 (Scores from the experts)

N = 3 (Number of experts)

IOC = $44/3 = 14.67$ Percentage: $14.67/15 \times 100\% = 97.78\%$

The analysis findings indicate a score of 14.67, which corresponds to a percentage of 97.78%. This percentage surpasses the minimum threshold of 80%, suggesting that the questionnaire is well-suited for implementation in the main study.

PERCEPTION QUESTIONNAIRE (VIETNAMESE VERSION)

Xin chào các bạn,

Bảng câu hỏi này là một phần của một nghiên cứu có tựa đề "Tác động của Môi trường Học tập Cá nhân đối với Kỹ năng Nói Tiếng Anh, Học tập Tự điều chỉnh và Tương tác của Sinh viên Đại học Tiếng Anh trong ngữ cảnh Việt Nam".

Bảng câu hỏi này nhằm mục đích điều tra nhận thức của người học Tiếng Anh về việc học kỹ năng nói thông qua các bài học trong Môi trường Học tập Cá nhân.

Thầy rất trân trọng nếu bạn có thể trả lời những câu hỏi sau đây. Dữ liệu thu thập sẽ chỉ được sử dụng cho bài báo nghiên cứu, không được sử dụng cho bất kỳ mục đích khác. Rất cảm ơn sự giúp đỡ của bạn.

Phần 1: Thông tin cá nhân

Hướng dẫn: Vui lòng cung cấp thông tin bằng cách đánh dấu (✓) vào ô tương ứng.

1. Bạn dùng thiết bị công nghệ nào để học?

Điện thoại di động Máy tính xách tay Máy tính bàn Khác

2. Trung bình hàng tuần, bạn dành bao nhiêu thời gian sử dụng Môi trường Học tập Cá nhân trực tuyến để học kỹ năng nói tiếng Anh?

Dưới 1 giờ 1-5 giờ 5-10 giờ Hơn 10 giờ

Phần 2: Nhận thức

Hướng dẫn: Vui lòng cho ý kiến của bạn về những câu sau bằng cách đánh dấu (✓) vào **MỘT** câu trả lời duy nhất.

Các số từ 1 đến 5 tương ứng với các phản hồi sau đây:

1=Hoàn toàn không đồng ý 2=Không đồng ý 3=Trung lập 4=Đồng ý 5=Hoàn toàn đồng ý

TT	Phát biểu	1	2	3	4	5
Kỹ năng nói						
1	Môi trường Học tập Cá nhân đã giúp tôi cải thiện kỹ năng nói tiếng Anh của mình.					
2	Sau khi tham gia Môi trường Học tập Cá nhân, tôi cảm thấy tự tin hơn trong kỹ năng nói tiếng Anh của mình.					
3	Môi trường Học tập Cá nhân cung cấp cơ hội cho tôi để luyện tập kỹ năng nói của mình mọi lúc mọi nơi.					
4	Phản hồi mà tôi nhận được trong các bài học Môi trường Học tập Cá nhân đã hữu ích cho việc cải thiện kỹ năng nói của tôi.					
Học Tự điều chỉnh						
5	Môi trường học tập cá nhân đã giúp tôi đặt ra mục tiêu học tập rõ ràng cho bản thân.					
6	Tôi đã có thể tổ chức môi trường học tập của mình một cách hiệu quả hơn.					

TT	Phát biểu	1	2	3	4	5
7	Tôi cảm thấy tự tin hơn trong việc quản lý thời gian và các chiến lược học tập kể từ khi sử dụng môi trường học tập cá nhân.					
8	Tôi biết cách tìm kiếm sự giúp đỡ khi gặp khó khăn.					
9	Môi trường học tập cá nhân đã cải thiện khả năng tự đánh giá quá trình học của tôi.					
Tương tác						
10	Môi trường Học tập Cá nhân đã tăng cường sự tương tác của tôi với các tài liệu học tập.					
11	Môi trường Học tập Cá nhân đã giúp tôi tương tác hiệu quả hơn với các bạn học.					
12	Giao tiếp của tôi với giáo viên đã được cải thiện nhờ Môi trường Học tập Cá nhân.					
Các bài học Môi Trường Học Tập Cá Nhân						
13	Tôi thích việc học kỹ năng nói tiếng Anh trong Môi trường Học tập Cá nhân hơn theo cách truyền thống và các bài học thông thường.					
14	Tôi thấy các bài học Môi trường Học tập Cá nhân hấp dẫn và thú vị.					
15	Tôi sẽ giới thiệu các bài học Môi trường Học tập Cá nhân cho các sinh viên khác đang học kỹ năng nói tiếng Anh.					



APPENDIX L
QUESTIONS FOR SEMI-STRUCTURED INTERVIEWS ON STUDENTS' PERCEPTIONS
TOWARDS THE PLE

Introductory Questions

1. After 8 weeks learning with the PLE, what do you think?

Questions about English Speaking Skills

2. Did the PLE improve your English speaking skills? If yes, how?
3. Were there any activities or materials you found it the most beneficial for your learning English skills? If yes, what are they?

Questions about Self-regulated Learning

4. Did the PLE enhance your self-regulated learning? If yes, how?
5. How did the PLE encourage you to set goals, plan, and assess your own performance in speaking English?

Questions about Interaction

6. Did the PLE affect your interaction with learning content, your teacher and peers in learning English speaking skills? If yes, how?
7. Did you receive feedback and support during these interactions? How did this feedback help you?

Questions about the PLE lessons

8. Did you have any difficulties when you learnt with the PLE lessons? If yes, what are they?
9. Do you have any suggestions for the PLE lessons?
10. Would you recommend the PLE lessons to other English language learners? Why or why not?

IOC Analysis of Interview Questions

Item	Experts			IOC Value	Interpretation
	1	2	3		
1	0	+1	+1	0.67	Acceptable
2	+1	+1	+1	1.00	Good
3	+1	+1	+1	1.00	Good
4	+1	+1	+1	1.00	Good
5	+1	+1	+1	1.00	Good
6	+1	+1	0	0.67	Acceptable
7	+1	+1	+1	1.00	Good
8	+1	0	+1	0.67	Acceptable
9	+1	0	+1	0.67	Acceptable
10	+1	+1	+1	1.00	Good

Notes:

1. +1= the item is congruent with the objective
2. -1= the item is not congruent with the objective
3. 0=uncertain about this item

The result of IOC: ($IOC = \sum R / N$)

Number of items: 10

$R = 9+8+9 = 26$ (Scores from the experts)

$N = 3$ (Number of experts)

$IOC = 26/3 = 8.67$ Percentage: $8.67/10 \times 100\% = 86.67\%$

The analysis findings indicate a score of 8.67, which corresponds to a percentage of 86.67%. This percentage surpasses the minimum threshold of 80%, suggesting that the interview questions are well-suited for implementation in the main study.

**QUESTIONS FOR SEMI-STRUCTURED INTERVIEWS ON STUDENTS' PERCEPTIONS
TOWARDS THE PLE (VIETNAMESE VERSION)**

Các Câu hỏi Giới thiệu

1. Sau 8 tuần học với các bài học Môi trường Học tập Cá nhân, bạn nghĩ sao?

Câu hỏi về Kỹ năng Nói tiếng Anh

2. Các bài học Môi trường Học tập Cá nhân có cải thiện kỹ năng nói tiếng Anh của bạn không? Nếu có, cách nào?
3. Có hoạt động hoặc tài liệu nào mà bạn cho là hữu ích nhất đối với việc học kỹ năng nói tiếng Anh không? Nếu có, những hoạt động hoặc tài liệu đó là gì?

Câu hỏi về Học Tự điều chỉnh

4. Các bài học Môi trường Học tập Cá nhân có cung cấp sự cải thiện cho việc học tự điều chỉnh của bạn không? Nếu có, cách nào?
5. Các bài học Môi trường Học tập Cá nhân đã khuyến khích bạn đặt mục tiêu, lập kế hoạch và đánh giá hiệu suất của bản thân trong việc nói tiếng Anh như thế nào?

Câu hỏi về Tương tác

6. Các bài học Môi trường Học tập Cá nhân có ảnh hưởng đến việc tương tác với tài liệu học tập, giáo viên và bạn bè trong việc học kỹ năng nói tiếng Anh không? Nếu có, ảnh hưởng đó như thế nào?
7. Bạn đã nhận được phản hồi về kỹ năng nói tiếng Anh của mình trong quá trình tương tác này không? Phản hồi này đã giúp bạn như thế nào?

Câu hỏi về các bài học Môi Trường Học Tập Cá Nhân

8. Bạn có gặp bất kỳ khó khăn nào khi học với các bài học Môi trường Học tập Cá nhân không? Nếu có, khó khăn đó là gì?
9. Bạn có những góp ý gì cho các bài học Môi trường Học tập Cá nhân không?
10. Bạn có giới thiệu các bài học Môi trường Học tập Cá nhân cho những người học tiếng Anh khác không? Tại sao hoặc tại sao không?

APPENDIX M

A SAMPLE OF A LEARNING PLAN & REFLECTIVE JOURNAL

LEARNING PLAN

Name: Nguyen Viet Phuong

Class: A102

Lecturer: Hoang Viet Hien

WEEK 1 (19/2-25/2)

TOPIC: SHOPPING

Weekly goals (Mục tiêu hàng tuần)	Date (ngày)	How much time will I spend? (Mình dành bao nhiêu thời gian)	How can I achieve my goal? (Cách tôi sẽ làm để đạt được mục tiêu)	Self-reflection (Tự suy ngẫm)
Vocabulary - Học được 15 tính từ đối ngược mô tả sản phẩm - Học được 15 tính từ mô tả quần áo	19/2-25/2	45 phút/ngày	- Tiếp cận tài liệu trên nhóm Facebook - Hỏi thêm từ giáo viên hoặc bạn bè - Thực hành thêm từ các công cụ trên nhóm FB.	1. <i>What did you do during the learning process? (What activity did you do? What learning materials/tools did you use? How long did you spend learning on the PLE this week?) (Bạn đã làm gì trong suốt quá trình học? Hoạt động đã làm? Tài liệu/ công cụ bạn đã sử dụng? Bạn dành bao lâu để học trên PLE?)</i> - Tôi đã sử dụng các tài liệu và công cụ được chia sẻ trên nhóm Facebook để học. Đồng thời tôi kết nối với giáo viên và bạn bè thông qua Facebook và Zalo trong suốt quá trình học.
Grammar - Ôn lại cấu trúc so sánh hơn - Ôn lại cách sử dụng "enough", "too"	19/2-25/2	30 phút/ngày	- Xem các bài giảng trên Youtube được chia sẻ trên FB - Nhờ giáo viên hoặc bạn bè chỉ thêm nếu cần - Làm bài tập quizziz trên FB	- Cụ thể tôi đã sử dụng các tài liệu và công cụ sau: -> Vocabulary: https://www.youtube.com/watch?v=wMp2cXCYVus https://www.englishlearnsite.com/vocabulary/describing-clothes-visual-method/ https://youtu.be/flduxVapY7s https://slideplayer.com/slide/13626749/ https://vi.duolingo.com/ https://www.bbc.co.uk/learningenglish/ -> Grammar: https://www.youtube.com/watch?v=ewMvilHsbw https://games4esl.com/comparative-adjectives-ppi/ https://youtu.be/IUe-sHqWQ https://res.edu.vn/cau-truc-enough-to-va-too-to/ https://quizizz.com/admin/quiz/5bd63ada784210001af0a6b6 https://quizizz.com/admin/quiz/5bf518a4e792a001bb097ad/too-enough
Pronunciation - Biết cách nói âm trong tiếng Anh	19/2-25/2	30 phút/ngày	- Xem các bài giảng trên Youtube được chia sẻ trên FB - Thực hành thêm trên ELSA	-> Pronunciation: https://www.youtube.com/watch?v=pXxAlGzSEOW https://www.youtube.com/watch?v=QGfOAVpEHIE https://pronuncian.com/introduction-to-linking https://goga.ai/link-sounds-in-english/ https://vn.elsaspeak.com/ https://www.oxfordlearnersdictionaries.com/ -> Speaking https://www.youtube.com/watch?v=wA0mQqRkqWM https://youtu.be/chnKaUTbBo0 https://translate.google.com/ - Tôi thường dán tâm 7 tiếng để học thông qua PLESSI
Speaking -Nhớ được các cụm từ dùng để trả giá - Mô tả được nơi mua sắm tốt	19/2-25/2	30 phút/ngày	- Sử dụng google dịch - Nhờ sự giúp đỡ của giáo viên hoặc bạn bè nếu cần	2. <i>How did you feel during the lesson? (Bạn cảm thấy thế nào trong suốt bài học?)</i> Tôi cảm thấy chưa bắt nhịp được với cách học này trong tuần học đầu tiên này. 3. <i>What was good or bad about the experience? (Những trải nghiệm tốt và xấu?)</i> - Trong tuần qua tôi được trải nghiệm phương pháp học mới, điều tôi thích nhất là được tự do chọn tài liệu mình thích, và có thể học ở bất cứ khi nào, nơi đâu. - Điều khó khăn nhất là việc phải chọn tài liệu phù hợp để học, điều đó chiếm khá nhiều thời gian. 4. <i>What might have been the reasons for the good and bad experience?(Những lý do có thể dẫn tới những trải nghiệm tốt hoặc xấu đó?)</i> - Lý do là tôi chưa quen với phương pháp học này, kỹ năng quản lý thời gian chưa tốt dẫn tới việc bị quá tải. 5. <i>What can you learn from this?(Bạn có thể học gì từ những trải nghiệm đó?)</i> Qua những trải nghiệm này tôi mới nhận ra tầm quan trọng của kỹ năng quản lý thời gian. 6. <i>What will you do differently next time?(Lần tới bạn sẽ làm khác như thế nào?)</i> Lần tới tôi sẽ có kế hoạch học tập cụ thể hơn để có thể quản lý thời gian tốt hơn.

APPENDIX N

Guiding Questions for Reflective Journals

1. *What did you do during the learning process? (What activity did you do? What learning materials/tools did you use? How long did you spend learning on the PLE?)*
2. *How did you feel during the lesson?*
3. *What was good or bad about the experience?*
4. *What might have been the reasons for the good and bad experience?*
5. *What can you learn from this?*
6. *What will you do differently next time?*

IOC Analysis of Guiding Questions for Reflective Journals

Item	Experts			IOC Value	Interpretation
	1	2	3		
1	0	+1	+1	0.67	Acceptable
2	+1	+1	+1	1.00	Good
3	+1	+1	+1	1.00	Good
4	0	+1	+1	0.67	Acceptable
5	+1	+1	+1	1.00	Good
6	+1	+1	+1	1.00	Good

Notes:

1. +1= the item is congruent with the objective
2. -1= the item is not congruent with the objective
3. 0=uncertain about this item

The result of IOC: ($IOC = \sum R / N$)

Number of items: 6

$R = 4+6+6 = 16$ (Scores from the experts)

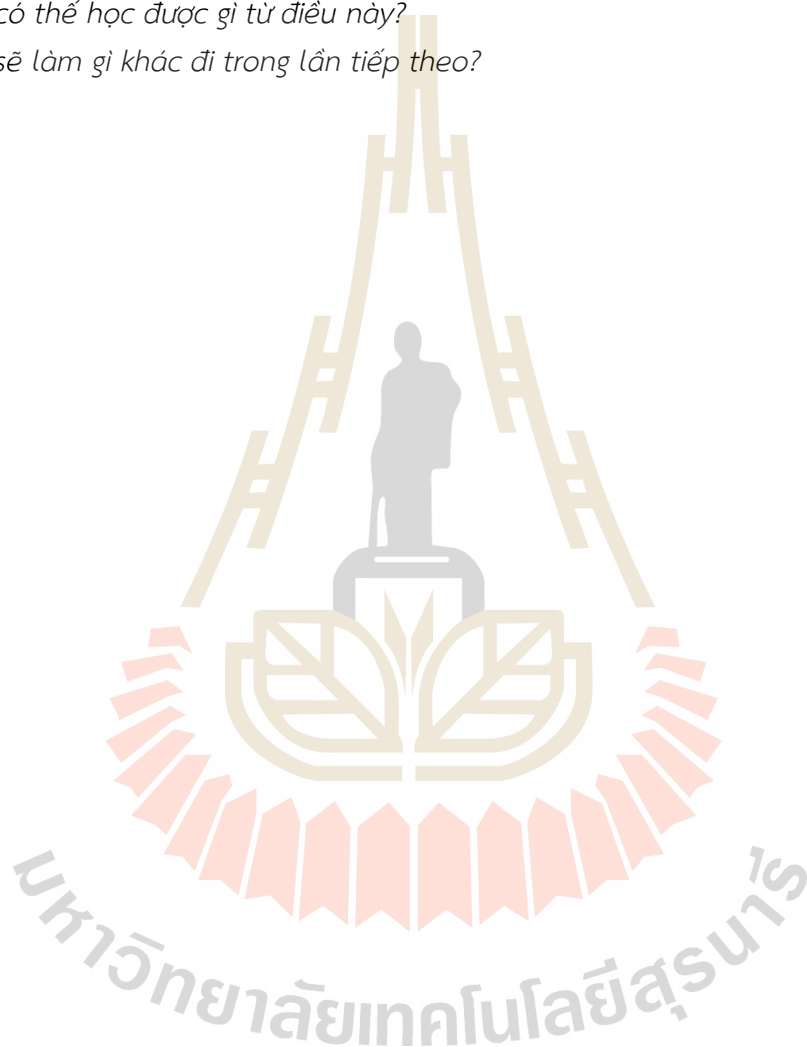
$N = 3$ (Number of experts)

$IOC = 16/3 = 5.33$ Percentage: $5.33/6 \times 100\% = 89\%$

The results of the analysis reveal a score of 5.33, equivalent to 89%. This percentage exceeds the minimum requirement of 80%, indicating that the guiding questions designed for reflective journals are suitable for integration into the primary study.

Guiding Questions for Reflective Journals (Vietnamese Version)

1. Bạn đã làm gì trong quá trình học? (Bạn thực hiện hoạt động nào? Bạn đã sử dụng tài liệu/công cụ học tập nào? Bạn đã dành bao lâu để học trên PLE?)
2. Bạn cảm thấy như thế nào trong suốt bài học?
3. Điều gì tốt hoặc không tốt trong trải nghiệm này?
4. Những lý do nào có thể là nguyên nhân của trải nghiệm tốt và không tốt?
5. Bạn có thể học được gì từ điều này?
6. Bạn sẽ làm gì khác đi trong lần tiếp theo?



APPENDIX O

VALIDATION FORM FOR THE SPREADSHEET TO TRACK STUDENTS' INTERACTION
 A sample of a spreadsheet to track students' interaction

Date: 25/3-6/4/2024			Student-content				Student-student				Student-teacher				TOTAL
No.	Name		Post	Comm	Reply	SC (Total)	Post	Comm	Reply	SS (Total)	Post	Comm	Reply	ST (Total)	
1	Đoàn Hiền Thực	Anh	5	18	12	35	6	15	8	29	2	7	9	18	82
2	Hoàng Thị Phương	Anh	8	17	13	38	3	5	16	24	1	8	6	15	77
3	Nguyễn Quỳnh	Anh	7	12	14	33	4	17	9	30	0	8	8	16	79
4	Nguyễn Thị Mai	Anh	5	20	9	34	5	9	12	26	0	5	7	12	72
5	Vũ Minh	Đăng	6	17	10	33	6	13	11	30	2	6	9	17	80
6	Trần Văn	Đô	6	18	12	36	4	12	10	26	1	7	8	16	78
7	Phạm Xuân Hồng	Hải	2	19	10	31	6	9	12	27	3	9	2	14	72

Validation form for the spreadsheet

The objective of this validation form is to assess the appropriateness of the spreadsheet to track students' interaction.

Instructions: Please go over the sample of the spreadsheet and put a tick (✓) in front of the statement 'Yes' = 1, 'No' = -1, or 'Not Sure' = 0. If your answer is 'No' or 'Not Sure' please kindly give comments for improvement.

No.	Statement	Score	Comment
1	The spreadsheet aligns with the research objectives and the study's focus on tracking interaction.		
2	It effectively captures the interaction activities of the students.		
3	The spreadsheet is easy to follow.		
4	The spreadsheet includes clear headings and labels.		

IOC Analysis of Spreadsheet for Tracking Interaction

Item	Experts			IOC Value	Interpretation
	1	2	3		
1	+1	+1	+1	1.00	Good
2	+1	+1	+1	1.00	Good
3	+1	+1	+1	1.00	Good
4	+1	+1	+1	1.00	Good

Notes:

1. +1= the item is congruent with the objective
2. -1= the item is not congruent with the objective
3. 0=uncertain about this item

The result of IOC: (IOC = $\sum R / N$)

Number of items: 4


R = 4+4+4 = 12 (Scores from the experts)

N = 3 (Number of experts)

IOC = $12/3 = 4$ Percentage: $4/4 \times 100\% = 100\%$

The analysis reveals a score of 4.00, corresponding to a 100% percentage. This exceeds the minimum threshold of 80%, suggesting that the spreadsheet is suitable for integration into the primary study.

APPENDIX P
INFORMED CONSENT FORM

	Suranaree University of Technology Institutional Ethics Committee	Information Sheet for Participants and Informed consent Form
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Informed Consent Form for students at University of Economics and Finance, Ho Chi Minh city, who are invited to participate in the research, titled “The Effects of a Personal Learning Environment on Vietnamese EFL Undergraduate Students’ Speaking Skills, Self-regulated Learning, and Interaction”.

Name of Principle Investigator: Hoang Viet Hien

Name of Organization: Institute of Social Technology

Name of Sponsor:

Name of Project and Version: The Effects of a Personal Learning Environment on Vietnamese EFL Undergraduate Students’ Speaking Skills, Self-regulated Learning, and Interaction

This Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)
- Certificate of Consent (for signatures if you choose to participate)

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

1. Introduction

I am Hoang Viet Hien, English lecturer at University of Economic and Finance (UEF). I am doing research on the effects of a Personal Learning Environment on Vietnamese EFL undergraduate students’ speaking skills, self-regulated learning, and interaction. I am going to give you information and invite you to be part of this research. You do not have to decide today whether you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research. This consent form may contain words that you do not understand. Please ask me to stop as we go through the information, and I will take time to explain. If you have questions later, you can ask them of me or of another researcher.

2. Purpose of the research

A Personal Learning Environment is a pedagogical approach in which learners connect with technological tools and human for learning. The present study mainly aims at exploring the effects of a Personal Learning Environment on EFL undergraduate students’ speaking skills. Furthermore, this study intends to examine the effects of the PLE on students’ SRL, and interaction as well as investigate students’ perceptions towards the PLE lessons.

3. Type of Research Intervention

You are going to study English 2 course in 8 weeks through PLE lessons, using online platforms/ materials and participating in interactive activities. You are supposed to take pre-and post-speaking tests, complete pre-and post-SRL questionnaires, and perception questionnaire. In addition, you need to write reflective journals during the learning process and might take part in semi-structured interviews after the course.

4. Participant Selection

You are being invited to take part in this research since your characteristics are appropriate with the objectives of the study and we expect to get fruitful data from you.

5. Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate, you will continue to study English 2 course as usual and nothing will change.

6. Procedures

A. Brief introduction to the format of the research study.

We are asking you to help us learn more about the effects of Personal Learning Environment on English speaking skills, self-regulated learning, and interaction. We are inviting you to take part in this research project. If you accept, these are things you are asked to do:

Week 1

1. Take a pre-test
2. Fill out the pre-SRL questionnaire

Week 1-Week 8

1. Learn English speaking skills through the PLE lessons.
2. Write reflective journals after finishing every two lessons (1 topic) with guiding questions.
3. Interaction frequency counts in which your interaction on the learning platforms will be counted by the researcher after every two lessons.

Week 8

1. Take a post-test
2. Fill out the post-SRL questionnaire
3. Fill out the perception questionnaire designed on Google Form
4. 12 selected volunteers will take part in semi-structured interviews.

B. Types of questions

Pre- and post-Speaking tests

- Three parts (Introduction and Interview, Individual Long Turn, and Two-way Discussion).
- Take place in the classroom and will be recorded
- The recordings will be kept on a password-protected personal laptop and will be destroyed after 5 years.

Pre- and post-SRL questionnaires

- Two parts (Personal Information, a five-point Likert scale SRL)
- You can do it online at your convenience. The information collected is confidential.

Perception Questionnaire

- Two parts (Personal Information, a five-point Likert scale Perception)
- You can do it online at your convenience. The information collected is confidential.

Reflective Journals

- Write reflective journals during the learning process with guiding questions.
- The information will be kept confidentially and anonymously and will be used for this study only.

Semi-structured Interviews

- Ten interview questions
- The interview can take place where you feel comfortable and will be recorded.
- The recordings will be kept on a password-protected personal laptop and will be destroyed after 5 years.

Interaction Frequency Counts

- Will be done by the researcher using a spreadsheet to track your interaction

7. Duration

The research takes place over 8 weeks (2 months) in total. During that time, you are going to study English speaking skills with the PLE lessons.

Pre- and post-Speaking tests

- Week 1 and Week 8 (7-10 minutes/ student)

Pre- and post-SRL questionnaires

- Week 1 and Week 8 (3-5 minutes)

Perception Questionnaire

- Week 8 (3-5 minutes)

Reflective Journals

- Every two lessons (15 minutes/each journal)

Semi-structured Interviews

- Week 8 (15 minutes/ each interview)

Interaction Frequency Counts

- This will be done by the researcher after every two weeks.

8. Risks

Participating in this research project does not pose any known risks. If you experience any feelings of threat or discomfort during your involvement in the study, you have the option to withdraw at any time without facing any consequences.

9. Benefits

Taking part in this study offers the following advantages. Firstly, there is the potential for improvement in your English-speaking proficiency, self-regulated learning and interaction by learning with an innovative teaching approach (PLE). Secondly, you will gain knowledge and skills in utilizing technology tools to enhance your independent learning.

10. Reimbursements

As a participant of this study, in addition to the benefits gained from the study, you will be given a present. I hope this present can help you more in your English learning journey.

11. Confidentiality

To ensure the utmost confidentiality, all data collected from research participants in this study will be handled with strict confidentiality and solely used for research purposes. Participant responses will be treated as anonymous. The researchers will take the following measures to protect confidentiality:

- Participants in the research will be assigned code names or pseudonyms in all research notes and documents.
- All student reflections, interview transcriptions, and any other participant-provided information will be stored in a locked file cabinet accessible only to the researchers. Upon the completion of the research, audio recorded interviews will be securely destroyed.
- Electronic data will be stored on a password-protected personal laptop, accessible exclusively to the researchers. All saved files will be securely disposed of upon the completion of the research.

12. Sharing the Results

No data collected in this study will be shared with anybody outside the research team, and nothing will be attributed to you by name. The knowledge that we get from this research will be shared with you and your community before it is made widely available to the public. Each participant will receive a summary of the results. There will also be small meetings in the community, and these will be announced. Following the meetings, we will publish the results so that other interested people may learn from the research.

13. Right to Refuse or Withdraw

The choice to participate in this study is completely voluntary and entirely yours to make. You have the option to decline participation without facing any negative consequences or missing out on any potential benefits.

14. Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact any of the following:

Name: Hoang Viet Hien

Department: Institute of Social Technology

Address: Faculty of English, University of Economics and Finance, Ho Chi Minh city

Phone: 0973405580

Email: hoanghien148@gmail.com

This proposal has been reviewed and approved by Ethics Committee for Researches Involving Human Subjects, Suranaree University of Technology, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the EC, contact Ethics Committee Officer, Institute of Research and Development, Suranaree University of Technology Tel. 044-224757.

CURRICULUM VITAE

Hoang Viet Hien was born on August 14, 1990 in Nghe An province, Vietnam. He received his Bachelor of English Language from Banking University, Ho Chi Minh city in 2012. After that, he obtained his Master of Teaching English to Speakers of Other Languages (TESOL) from Victoria University, Australia in 2017. He is currently working at the Faculty of English, University of Economics and Finance, Ho Chi Minh city, Vietnam. In 2020, he started his Ph.D. study in the School of Foreign Languages, Institute of Social Technology, Suranaree University of Technology, Thailand. His research interests include Technology Enhanced Language Learning, Learner Autonomy, and Teaching Methodology.

