



**THE ENHANCEMENTS OF SELF-DIRECTED LEARNING ON
TERTIARY LEVEL STUDENTS' ENGLISH READING SKILLS:
A THAI PRIVATE UNIVERSITY CONTEXT**



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Abstract

The purpose of this study aimed to investigate the enhancements of Self-Directed Learning (SDL) on tertiary level students' English reading skills in a private university context, as well as their perceptions toward it. The study employed a mixed method of quantitative and qualitative approaches with four instruments for data collection: 1) Pre-test and Post-test, 2) Student's reading exercise, 3) Student's journal, and 4) Opinion questionnaire. The study period was six weeks, a sample of 38 students was randomly chosen from College of Liberal Arts of the first-year undergraduates enrolling in the first semester of 2021 academic year. The results revealed that the mean of Post-test was (\bar{X} =32.16, SD=5.17) higher than the Pre-test score (\bar{X} =22.11, SD=5.34), which means that the students' English reading skills have been significantly enhanced with SDL. While their reading exercises were 7.37, 9.84, 11.05, 11.16, and 13.05 on the first to fifth week respectively, this means that the students' English reading skills were improving every week. The student's journal showed that the difficulties students encountered in readings were unknown vocabularies and the corresponding reading strategies were look up dictionary and the Internet. The results of the opinion questionnaire showed that students had high perceptions toward SDL. They expressed that SDL gave them learning freedoms that could increase their learning enthusiasms, personal growth and thinking abilities. It can be concluded that SDL was not only an effective learning method that could enhance students' English reading skills, but also could increase their SDL capacities.

(Total 175 pages)

Keywords: Self-Directed Learning, Tertiary Level Students, English Reading Skills

Student's Signature..... Thesis Advisor's Signature.....

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CHAPTER 1

INTRODUCTION

The first chapter provides the introductory note of this paper. It explains the background of the study, statement of the problem and significance of the research. It sets research objectives, research questions as well as hypothesis. It enunciates the scope of the study, instruments, data collection process, data analysis, the limitation of the study, and definition of terms.

1.1 BACKGROUD OF THE STUDY

In 21st century, people from different countries choose English to communicate with each other without boundaries. With the development of information technology and globalization, English is widely used in the education, business, services, tourism, and entertainment etc. English is one of the most widely used language and it is considered an international language (Rao, 2019).

English is one of the most frequently used foreign languages in Thailand. Thailand has long been one of the world's most famous tourist countries, and numerous people from native English-speaking countries have made Thailand a vocation destination. As a country with tourism as its main economic industry, Thailand receives a large number of tourists from European and American countries every year (Kaur, Young & Kirkpatrick, 2016). Some of them even live here, work and set businesses. This prompt the use of English to become common in Thailand. With the frequent exchanges between Southeast Asian countries, English has become an essential tool for Thai ASEAN community communication (Prasongporn, 2016).

Many non-native English countries have listed English as one of the key subjects to study and focused on the development of English-centric bilingual

education projects in addition to their native language, including Thailand. Since the beginning of modern education reform and development in the middle of the 19th century, Thailand has implemented diversified foreign language education in elementary and secondary schools. Among them, English is one of the basic skills since the students start their school lives in very early ages, and it is a compulsory subject from the primary level to the higher education for all students (Prasongporn, 2016).

In Thailand, all subjects tertiary level students must take English subjects, and the credits become the standard to measure whether they can graduate. This means that if the credits of the English course taken by Thai tertiary level students do not meet the graduation criteria, they will not be able to graduate and need to study it again. Therefore, English learning for Thai tertiary level students is not only a measure of their comprehensive academic ability, but also a criterion to determine whether they can graduate on time.

Although the Thai government has long attached great importance to its English education (Kaur et al., 2016), but the effect is still not significant. The reports from EF English Proficiency Index EF EPI (2017-2021), a ranking of 112 countries by English skills, Thailand has ranked for four years in a row with a very low English proficiency, far behind Vietnam, Indonesia, and Cambodia.

There are a few factors that impact Thai tertiary level students' English proficiency. The main one may relate to the lack of English language environment. Thai as the national language is widely used in various fields of Thai society, and is one of the most important signs of Thai national identity (Baker & Jarunthawatchai, 2017). Although there are many English version medias, newspapers, and traffic signs can be seen in everywhere in Thailand, the mainstream society is still dominated by Thai. Ordinary Thai people speak English are very rare, so it is strange for Thai tertiary level students to communicate in English privately. In a non-English environment, students lack the opportunity to practice the English knowledge gained

from the class, which will inevitably affect their English performances (Phantharakphong, Sudathip & Tang, 2019).

The teaching and learning methods are also affecting students' success in English reading comprehension. Teaching in Thailand is still mainly teacher-centered and exam oriented (Tantiwich & Sinwongsuwat, 2021), English teaching is based on rote and grammar-translation learning, regardless of ability levels, interests and needs (Kaur et al., 2016).

A lack of skilled English teachers can also be attributed to Thai students' low academic English performance (Charunsri, 2019). Many universities now employ teachers from native English-speaking countries to teach English, but the ability of these teachers is uneven, and some lack teaching practice, especially lacking experience in making students understand the knowledge while teaching due to Thai students' low English proficiency (Tang, 2020).

Most Thai students are passive learners, they tend to be obedient rather than critical thinking (Young, 2021). Most students are reluctant to ask questions and lack confidence in their use of English, for fear of making a mistake and causing the teacher to lose face. This is due to social hierarchy and respect for elders being very important in Thai culture, so they usually avoid it (Supriyani, 2018).

However, reading skill is related to Thai tertiary level students' academic performance (Dawkins, 2017). Thai college students must pass the annual English test in order to ensure successful graduation. The main items of the exams are listening and reading comprehension. Among reading test aims to measure students' academic reading skill, which includes comprehending, analyzing and discussing academic documents, including textbook chapters, abstracts, journal articles, research reports etc. (Taladngoen, Palawatwichai & Estaban, 2020). Also, Thai tertiary level students need to read a lot of English academic books and look up the Internet to help them find some resources for their academic essays or studies, and many of these materials are in English. Horiba and Fukaya (2015) also state that students who are proficient in

reading usually succeed in almost all subjects, while students who read less fail in many subjects. Therefore, for Thai tertiary level students wish to achieve better academic performances or graduate on time should master English reading skills.

Reading skill is considered one of the most fundamental skills which require almost everyone needs to master it. It is a gateway to acquire knowledge and learn new things. Yet, English reading is one of the most important skills in almost all languages. As the pace of internationalization accelerates, the exchanges between countries become more frequent, which makes the ability of reading English even more significant. 85% of world scientific journals are published in English and almost all books on engineering, science, medicine, technology etc. are only written in English globally (Rao, 2019).

In terms of English learning, reading plays a key role in the acquisition of overall English skills. Reading is one of the important skills for gaining knowledge (Zhang, 2016). Reading process requires combining learners' background knowledge; for L2 English learners through reading can learn a lot of knowledge related to the West, which become the background knowledge for them to better comprehend English materials they read (Taladngoen et al., 2020). Also, there are four skills in English learning: reading, speaking, listening, and writing. Among them, reading has been considered the foundation of the other three skills. (Annan & Yeboah, 2020) state that L2 learners have good reading skill; they will be able to use reasonably structured and meaningful English sentences in speaking and writing. To achieve these goals, they can easily acquire massive vocabularies through reading. When learners have a certain vocabulary and grammatical knowledge through reading, their listening skills will be naturally improved.

Considering the role of reading in mastering overall English skills, for the lack of an English language environment, the best way for Thai tertiary level students to develop their English language knowledge is by reading a lot of English materials. By reading in English, it will also help Thai tertiary level students expand their knowledge in order to learn more information and gain new skills (Wichadee, 2011).

Yet, the time for students to read in English class is limited. Thus, it is necessary to guide students outside classroom English reading activities.

Nowadays, technology plays an important role in learning in many ways including learning English, students can learn English by themselves and expand their knowledge from the classrooms. And many studies have already shown Self-Directed Learning (SDL) plays a vital role in the success of English learning (Taladngoen et al., 2020). It can help learners make use of technology to learn freely without limitation. It enables learners according to their needs to pursue their knowledge, skills, or performance enhancements by using any material, method, and strategy flexibly (Herlo, 2017). It also ensures students can not only learn from their teachers, but also can learn from their peers, books, internet, or any useful learning resources (Jenwitthayayot & Tepsuriwong, 2016). Especially with the rapid development of intelligent technology, tertiary level students can apply according to their own needs easily find a lot of English resources they are interested in from the Internet, and read them anytime, anywhere through various devices.

1.2 STATEMENT OF THE PROBLEM

According to the Ministry of Education, Thai undergraduates need to achieve a minimum English proficiency of B2 level before graduation (Office of the Education Council, 2017). Yet, some studies have shown that based on the CEFR test results, the average English level of Thai college students is only between A1-A2 level (Waluyo, 2019). Wannathong (2016) points out that Thai tertiary level students have weak English reading skills and reading comprehension has become a major problem for them. Hayikaleng, Nair and Krishnasamy (2016) state that Thai tertiary level students have difficulties in reading English academic books.

In Thai university English class context, the class time mostly given by teachers' lectures, the time for students to read in class is limited. Thailand lacks an English language environment; students do not have the opportunity to use English in

real setting, so it is difficult for them to enhance their English reading skills only by exposing to listening to lectures in the class.

With the development of the epidemic, online teaching is becoming a new trend that is slowly replacing the traditional classroom teaching mode. Affected by Covid-19, many classes have moved to online teaching. Due to the limitations of online teaching, it is often easier to ignore students' feelings than traditional face-to-face classroom teaching. Most Thai students grow up under the teacher-led teaching mode, and generally lack the initiative to learn. Especially for students who lack self-control and do not know how to learn, online teaching will undoubtedly affect the learning of these students due to the lack of teacher supervision.

Under the highly developed and competitive environment of economy and technology in the 21st century, people need to conduct lifelong learning to ensure that they will not be eliminated by the times. As a part of lifelong learning, SDL has been taken out by many scholars for research in recent years. Many studies have confirmed that SDL is very helpful in enhancing English learning, but to what extent it can enhance English reading skills is the center of this research. Thus, this study seeks to examine the enhancements of the English reading skills of the first-year undergraduates from College of Liberal Arts enrolling in the first semester of 2021 academic year by using SDL in Rangsit University.

1.3 SIGNNIFICANCE OF THE STUDY

This study can provide Thai tertiary level students some practical guidelines of SDL and make them realize the effects of SDL for enhancing English reading skills, which can inspire them to adopt this learning method actively to assist their English learning outside of school. As reading and SDL skills both are lifelong learning skills that can not only help them to accumulate English knowledge and extend their English skills infinitely, but also can apply these two skills in any other field of learning.

Regarding reading and SDL skills both are the foundation of lifelong learning skills, so the findings can also provide certain reference suggestions for learners who have left the campus but continue to study. Continued learners can adopt these skills to apply to their amateur English learning to enrich their knowledge reserves to better adapt to various workplace competitions so as not to be eliminated by the times.

The research results can provide some insights to Thai English teachers, so that they can introduce SDL into their English teaching, and focus on cultivating students' SDL abilities, and teach them to connect the English learning in class and out of class through SDL and encourage them to use SDL to learn English after class, so as to further increase their English reading skills and the accumulation of English knowledge.

The research results will assist Thai universities in designing and developing in favor of SDL curricula and teaching methods for college students, and create an SDL English learning atmosphere for them on campus to help them learn English better.

1.4 OBJECTIVES OF THE STUDY

- 1) To investigate the enhancements of self-directed learning on tertiary level students' English reading skills in a Thai private university context.
- 2) To investigate the perceptions of the tertiary level students toward self-directed learning for enhancing their English reading skills in a Thai private university context.

1.5 RESEARCH QUESTIONS AND HYPOTHESIS

1.5.1 Research Questions

To measure the enhancements of the tertiary level students' English reading skills by using self-directed learning, following two research questions will be answered in this study:

- 1) What are the extents of the enhancements of the tertiary level students' English reading skills by using self-directed learning in this study?
- 2) What are the opinions of the tertiary level students toward self-directed learning for enhancing their English reading skills in this study?

1.5.2 Hypothesis

- 1) The English reading skills of these tertiary level students participating in this six-week self-directed learning experiment will significantly enhance in the post-test comparing the pre-test in this study.
- 2) After the six-week self-directed learning experiment, the perceptions of these tertiary level students participating in the research toward self-directed learning are positive in this study.

1.6 SCOPE OF THE STUDY

This research employs mixed methods combining quantitative and qualitative designs to measure the enhancements of Thai tertiary level students' English reading skills by using SDL and their perceptions toward it. Its scope of the study covers population and sample, location of the study and duration.

1.6.1 Population and Sample

This study was conducted at Rangsit University, Thailand. The population was the 278 first-year English majored Thai undergraduates studying in the first semester of 2021 academic year enrolling in RELI, the course of ENL126 which was an English compulsory course. The study employed random sampling technique with

one group sample of 38 students, 31 female, 7 male, from the ages of 17 to 21. The reason for choosing this sample is that English majors are required to read a large amount of English literatures to meet the requirements of their professional skills; second, considering that first-year students are in the transition period from high school to university, many students have not adapted to the university's English teaching modes and their English scores are not satisfactory, and they may need to use the time after class to have tuition.

1.6.2 Location of the Study and Duration

This study was conducted in Rangsit University in Pathum Thani, Bangkok. It is a local private university in Thailand. The study was held for six weeks of the first semester in 2021 academic year).

1.7 INSTRUMENTS

There are four instruments in this study for data collection: 1) pre-test and post-test, 2) student's reading exercise, 3) student's journal, and 4) opinion questionnaire.

1) Pre-test and post-test were used to measure the enhancements of the participants' English reading skills. The test material employed was the section of reading comprehension of Chinese official college English CET4 exam paper, which used twenty multiple-choice questions with four options of answers.

2) Student's reading exercise was used to ensure the participants completed the reading assignments without monitoring and to help the researcher better understood their learning progresses. The treatment of reading materials used for participants to read were the same as pre-test and post-test, but with different contents. Each article involved five exercises for them to do.

3) Student's journal: was used to collect the participants' SDL experiences which involved problems they had and strategies they used in their reading processes.

4) Opinion questionnaire: it was used to collect the participants' perceptions towards SDL after study. There were twenty questions which involved three demographic questions, fifteen close-ended questions and two open-ended questions. Among them, the 5-point of Likert scale (1932) was used for the close-ended questions to collect the participants' perceptions toward SDL. The open-ended questions were used to collect their opinions for it.

1.8 DATA COLLECTION PROCESS

The conceptual framework of this study is shown as follow:

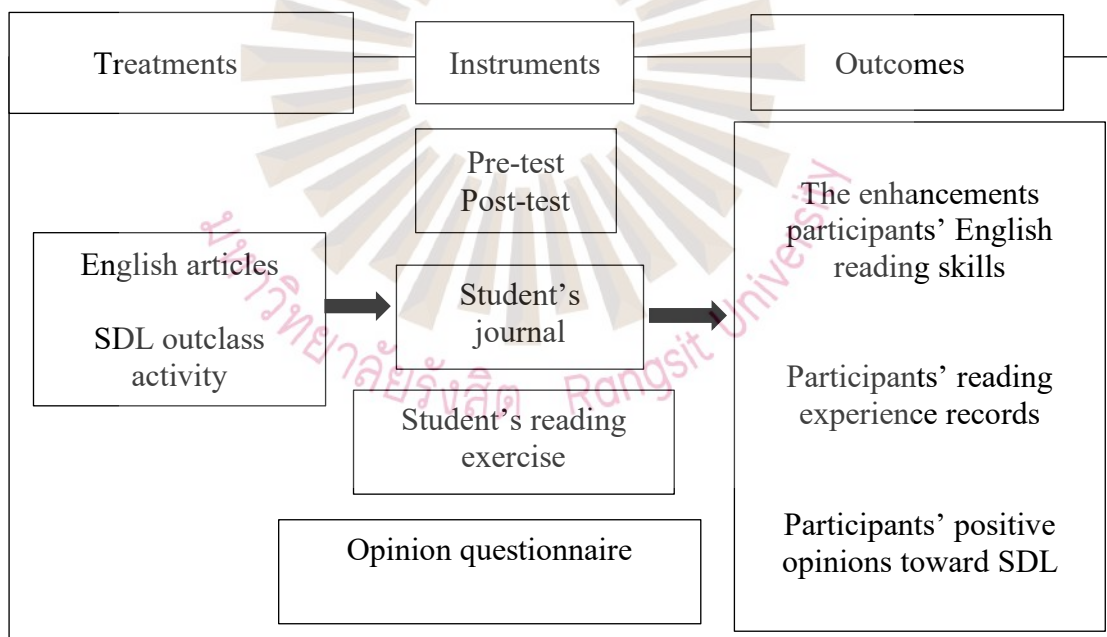


Figure 1.1 Conceptual Framework of the Study

Firstly, the participants' average English reading skills were measured through the pre-test, and then the researcher gave them some reading strategies training on the first week, such as guess the word contextually and analyzing complex grammars, etc. From week two to five, they started out-class SDL reading activity.

Every Monday morning the researcher sent the articles via LINE group to participants. Participants would read the articles and do the prescribed exercises in their own time and submitted to the researcher on Sunday. At the fifth week, the participants were required to record their journals according to their reading experiences. Finally, the post-test would measure whether the participants' average English reading skills had been enhanced after SDL and filled out an opinion questionnaire based on their SDL learning experiences.

1.9 DATA ANALYSIS

1) The data of pre-test and post-test were analyzed using SPSS. Pre-test and post-test were used paired-sample t-test to compare the significance value of dependent variables of post-test and pre-test independent variables.

2) Student's reading exercise was analyzed counting the scores of all participants' reading exercise weekly, then calculated the average scores of each week and compared them.

3) Student's journal was analyzed by using thematic content analysis. First divided into two categories of difficulties encountered and strategies used, and then the original information is discharged according to the above two categories.

4) The questionnaire used a simple statistic calculation of SPSS to get frequency and percentage to analyze the data. The open-ended questions were analyzed by thematic content analysis. Read each the original information line by line and marked each key word or sentence and put the same meanings into one category, then summarized each category, finally extracted theme according to each category's central idea.

1.10 THE LIMITATION OF THE STUDY

This study was conducted in Rangsit University, Thailand. The participants of the study were the first year of College of Liberal Arts local Thai undergraduates studying in the first semester of 2021 academic year, thus the findings are not applicable to other Thai local students in other grades and other majors of the school, nor are they applicable to other schools and international students studying in Thailand. It would only be useful to the similar English learning contexts in schools throughout Thailand.

1.11 DEFINITION OF TERMS

The definition of terms is defined according to the context used in this study. To ensure the consistency of the entire study and for future reuse, the operational definitions are provided as follows:

The Enhancements refer to the improvements in quality, value, or extent of the participants' progress after adopting Self-Directed Learning (SDL) English reading into their learning processes.

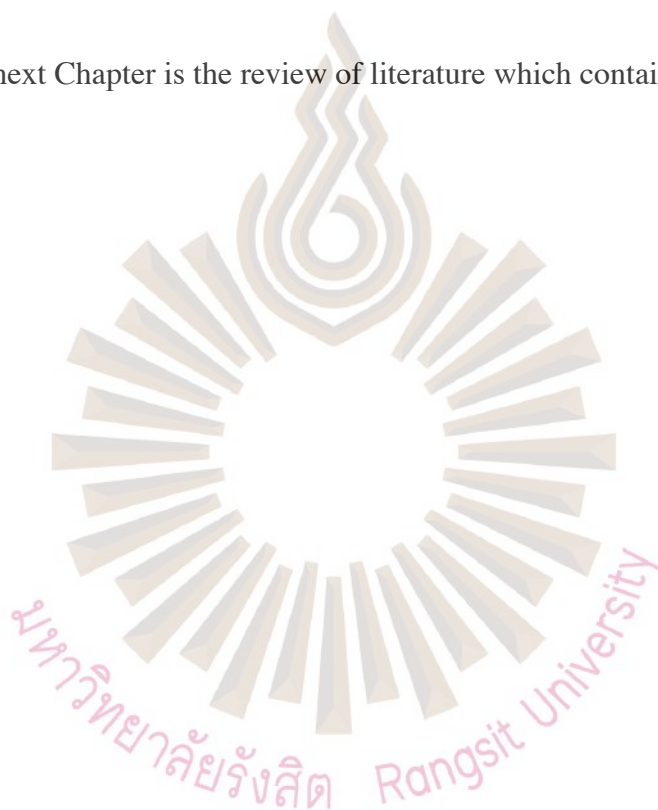
Self-Directed Learning (SDL) refers to a flexible learning method which the first-year students studying in College of Liberal Arts at Rangsit University according to their own needs to plan, implement, monitor, and evaluate their learning by choosing either to study with peers or isolate from others, with the help of the Internet or any other way to choose proper learning materials for learning at anytime, anywhere outside of class without limitation.

Tertiary Level Students refers to the first-year students who were studying in the first semester of 2021 academic year under-graduate level from College of Liberal Arts in Rangsit University in this study.

English Reading Skills refers to the ability of the first-year students at a Thai private university in this study to read, comprehend and interpret written words in English on a page of an article or any other reading materials.

Thai Private University Context refers to the learning environment, which was in Rangsit University, Pathum Thani, Thailand, where of the first-year students participated in this study.

The next Chapter is the review of literature which contained in this study.



CHAPTER 2

LITERATURE REVIEW

SDL as an adult education has always been valued by educators from various fields, and many researchers from the West have applied SDL in the field of language learning since a long time and have hit certain marks. In recent years, more and more researchers have applied SDL to the study of foreign language learning, including English. Therefore, this chapter provides a theoretical foundation for current research by reviewing the existing literatures on SDL and reading skills. It first presents a concise introduction of SDL, followed by the relevant theories of SDL, which includes the concept of SDL, the theoretical framework, the advantages of SDL, factors affecting SDL, the disadvantages of SDL and the application of SDL. The theories on reading skills cover the concept of reading skill, the reading strategy, four types of reading techniques, factors affecting L2 English reading skills, SDL for English reading skills. After a summary of relevant research previously, a conclusion followed.

2.1 THEORIES ON SELF-DIRECTED LEARNING

2.1.1 The Definition of Self-Directed Learning

The earliest concept of SDL can be traced back to classical Greek period, such as Socrates, Plato, and Aristotle are the first who applied SDL in their studying. However, the academic community officially embraced SDL in the study when Houle tried to examine the continuing education of adults through interviews in 1961 (Meshkat & Hassanzade, 2013). Since then, SDL has been a topic of adult learning which has caught various scholars and adult education practitioners' attention and begun to conduct extensive research on it. The definition of SDL has also been evolved and adapted in recent decades with research (Brockett & Hiemstra, 2018).

Different educators use different terms to refer to it, such as self-learning, self-directed learning, independent learning, autonomous learning, self-education, self-study, self-planned learning, life-long learning etc. They all have a common feature that stresses self-responsibility. As the main educator in adult learning, Knowles believed that as people grow up, they want to be responsible for their own learnings and take responsibility for their actions by making their own decisions. He firstly gave SDL the most convincing definition that SDL as a process in which individuals actively diagnose their learning needs, formulate learning goals, determine human and material resources for learning, select and implement appropriate learning strategies, and evaluate learning outcomes with or without the help of others (Knowles, 1975).

The opposite of SDL is teacher-directed learning that usually termed as “pedagogy” and SDL as “andragogy” (Loeng, 2020). According to Knowles, teacher-directed learning and SDL are based on two different hypotheses that are pedagogical and andragogical. SDL learners have a self-concept of a non-dependent person. According to Knowles, pedagogy is traditionally regarded as the transmission of information, and external influences determine the outcome of learning (Knowles, 1975). The teacher’s role is only responsible for the occurrence of learning, while the role of the learner is dependence, and the experience is not important. But from an andragogical point of view, learners will gradually increase their self-direction as they are growing, and the role of teachers is to encourage learners to advance their self-direction. Meanwhile, the learner’s experience has subsequently become the source of enhancing learning.

Any SDL framework needs to consider all these dimensions in a structured way, according to Bouchard (2009), there are four dimensions of SDL, conative, algorithmic, semiotic, and economic.

The conative dimension, which involves psychological issues such as drive, motivation, initiative, and confidence. In this dimension, Bouchard emphasizes the various aspects of background and transformation and how these aspects affect

learners' impulse to learn, as well as social networks that participate in and serve as emotional support and resources. He pointed out that the learner's past learning experience may influence the SDL strategy.

Algorithmic dimension involves teaching issues, such as ordering in learning, pace and goal setting, progress evaluation, and preparation for final evaluation and verification. These are obviously tasks completed by educators in the past, but in the SDL learning environment, they are problems that learners must solve by themselves.

The third dimension is semiotics, which is related to the mode of transmission of resources or information and can be understood as materials for learners. In recent years, this model has changed dramatically, from using resources such as books and paper to electronic text and multimedia, which may be stored in searchable databases that can be linked via hyperlinks. It can also include contributions from blogs, wikis, and synchronous and asynchronous communications. Information is obtained through social networks, and learners need to be able to evaluate and browse this new information landscape.

In terms of importance, the economic dimension is considered to be the fourth category, namely the perceived and actual value of learning, the choice of learning for personal benefit (such as future employment), and the possible costs of other learning choices.

To sum up, it can be seen from the above four dimensions that the other three items are objective factors that affect learners from the outside, rather than they can control. Only the conative dimension that starts directly from learners' hearts and can truly be fully controlled by them, which directly determines whether their SDL activities can be carried out smoothly or whether it is carried out in accordance with their expected effects.

2.1.2 Theoretical Framework

Self-direction is the most obvious feature of SDL, and the research of self-direction does not have a consistent theoretical point of view. It is obviously based on humanistic assumptions. Humanistic philosophy inspired adult educators to find alternatives to the traditional pedagogy, and influenced the conceptualization of adult education (Draper, 1998). Humanistic theory believes that everyone is unique, and this uniqueness requires the use of personalized learning methods. It regards self-direction as the process of learning and the final product of learning.

The purpose of humanistic theory is to cultivate individuals with self-realization potential, self-direction, and intrinsic motivation (Taylor & Hamdy, 2013). Self-actualization is about fulfilling the learner's potential and it is the highest state of human growth. From this perspective, individuals are regarded as the best judges of whether their learning meets their own needs and interests. Arsic (2014) discussed three educational theorists related to SDL. He also discussed two psychological theories related to SDL. The first is Piaget's cognitive development theory, and the other is Vygotsky's sociocultural cognitive development theory. Piaget believes that curiosity is the key to acquiring knowledge and learning new things in a meaningful way. According to Kuhn and Ho (1980), Piaget's constructivist development theory believes that higher-level cognitive forms are constructed by individuals through the process of "self-directed" or "self-regulated" activities. Referring to the concepts of Vygotsky and scaffolding, Arsic (2014) emphasized the role of teachers in promoting an environment conducive to SDL. In sociology, Arsic specifically calls for attention to critical pedagogy, focusing on self-awareness and autonomy. A key aspect of self-direction is the critical consciousness of meaning and self-awareness. A critical and self-reflection attitude is the basic element of self-direction, and this attitude is necessary when it comes to taking personal responsibility for one's own opinions and actions.

There are five learning theories: behaviorism, cognitivism, humanism, constructivism, and social constructivism, Merriam & Baumgartner (2020) stressed

SDL related to cognitivism and constructivism. Based on the cognitive approach, learners have four basic abilities: including self-awareness, self-monitoring, critical and creative thinking, and improving learning methods. In the constructivist approach, one of the important characteristics of adult learners is self-directed learning. According to some previous scientific studies, the main characteristic suitable for SDL learners is that they are independent, able to apply knowledge in real life, and responsible for their learning quality and experience (Loeng, 2020). In accordance with Wu (2004), one of the characteristics of lifelong learners is self-directed learning, which means that people who present themselves as SDL learners can become lifelong learners.

2.1.3 The Advantages of Self-Directed Learning

SDL expresses a view of learning that is opposed to the traditional content-centered practice. In this practice, teachers are the bearers of knowledge, and students are the main body of learning who act as passive receivers of knowledge, which ignores the cultivation of students' critical thinking and creativity in this context. For students that rely on the teacher's guidance will form a kind of dependence, once they leave the school environment, they do not know how to learn, and what to learn. In addition, due to individual differences, traditional teaching methods can easily ignore students' feelings which would make some students feel frustrated in learning and finally may abandon learning. However, most of the talents cultivated in this teaching mode are knowledge-based and speculative talents, rather than creative and applied talents. Such talents are often not compatible with the real needs of society and the market. With the development of society, the requirements for the comprehensive quality of learners are getting higher and higher, which may be the main reason for the emergence of SDL.

Considering that SDL is learner-centered and completely controlled by learners, it has many benefits. In SDL, learners are the masters of their own learning, they can decide what to learn, when to learn, how much, and whether to learn well enough (Brookfield, 2013). Although SDL allows learners to collaborate with others,

the tasks of setting learning goals, selecting learning materials, performing, and monitoring learning, and evaluating learning are mostly done by themselves. Which can say that SDL is a learning method that learners are responsible owners and managers of their own learning process (Khodabandehlou, Jahandar & Seyedi, 2012), in other words to say that SDL mostly not rely on others but learning by oneself. So, a successful SDL learner must have the ability to learn independently. Learners will learn more efficiently in a stress-free situation, and their interest in learning will increase accordingly. In other words, learners can also improve their independent learning ability and interest in learning through SDL.

Although SDL emphasizes learners' independence, it does not mean learners are isolated from others, instead they can learn from anyone, or anything is helpful to them. The digital revolution has brought SDL to the foreground, and its background has changed with the emergence of technology in current learning pathways (Li, Majumdar & Chen, 2021). Online environment has greatly extended SDL opportunities which enabling all learners to connect via the Internet (Bonk & Lee, 2017). With the popularity of the Internet, SDL learners can find many like-minded learning partners and even learning groups through the Internet, which will undoubtedly increase the learners' interests. The reality is now more and more learners use the Internet for SDL. Research has shown that online students have a better understanding of learning and information processing strategies than schoolmates, and information resource management is an important part of SDL skills (Barak, Hussein-Farraj & Dori, 2016).

The flexibility of learning time and location is one of the most typical advantages of SDL, which promotes independent and accountable learning, as well as dialogue and collaboration in the learning community (Platt, Amber & Yu, 2014). According to Karatas (2021), SDL is a flexible learning method in which learners can use any method at any time and under any circumstances to increase their knowledge, skills or pursue achievements through their efforts according to their own needs. This greatly facilitates the learners' learnings, thereby improving the learners' enthusiasm for learnings.

In SDL, learners enjoy more freedom. In SDL, due to the absence of teacher supervision and competition among classmates, students can arrange their studies at their own pace, thereby reducing study pressure. Nowadays, many learning resources can be easily obtained for free, which creates more learning opportunities for the learners. Learners in such stress-free learning context, makes them better control and perform their learnings, which naturally could enhance their learning initiative, and further their learning independence(Zhu, 2021).

In SDL, any achievement is based on the combination of learners' willingness, self-directions, talents, responsibilities and attitudes (Du Toit-Brits, 2018). Autonomy is one of the most important qualities that SDL learners need which is considered the essential characteristics of SDL learners (Amri & Fikri, 2019). Learners' autonomy has been described as the capacity for learners to take charge their own learnings (Holec, 1981). Yet, independence is a behavior that exists in people whose learning is from internal encouragement, not from external influences (Nurbaiti, Mustajib & Maizarah, 2021). It can say that learners' autonomy determines the degree of learners' independence, and subsequently the SDL. Thus, autonomy is very important in SDL. It offers a motivational foundation for their behavioral commitment as the choice of making decisions for partaking in their SDL learning activities (Skinner, Furrer & Marchand, 2008). When learners feel motivated for their learning, the learning efficiency and effects would consequently be high.

Research shows that there is a strong correlation between the SDL, motivation, and academic performance of students from different disciplines (Mega, Ronconi & De Beni, 2014). SDL can bring many abilities that support learning, such as improved memory, greater interest in continuing learning, greater interest in subjects, more positive attitudes toward teachers, and enhanced self-concepts (Brockett & Hiemstra, 2018). Besides, students with SDL skills are capable of diagnosing, inferring and understanding the issues that arise so they can solve problems and be innovative about the change of society (Johansson & Svensson,2019). Hence, SDL can develop learners' thinking skills, such as creativity, problem solution

and critical thinking (Tekkol & Demirel, 2018).

SDL is not only limited in-classroom learning, but also applied to outside the formal classroom settings (Du Toit-Brits, 2015). It is an important skill that when individuals have to acclimate to new environments or situations in order to acquire resources and learn quickly to overcome problems they face (Tejada Reyes, 2019). It is also an effective way of obtaining new information, concepts, skills, and experiences for adult learners (Daar & Jemadi, 2020), especially for continuing adult learners who leave campus (Brockett & Hiemstra, 2018). Therefore, SDL is a precondition for lifelong learning and turn individuals into lifelong learners (Laine, Myllymäki & Hakala, 2021).

Since SDL is related to lifelong learning skills, it is becoming important for employees in the workplace. With the rapid development of science and technology, many employees relying on the knowledge they learn on campus are far from meeting their professional needs. Especially for who want to gain a higher status on the socio-economic ladder, raise political awareness and promote social actions. Because of the convenience of SDL, employees can choose to further study anytime and anywhere. Due to the popularization of the Internet, more and more staff choose SDL as their learning tool for continuing education.

To sum up, SDL as a learning method, it is really helpful for adult learners, and it can also improve learners' comprehensive abilities in all aspects. But at the same time, SDL has relatively high requirements for learners' personal qualities, so it will inevitably face many difficulties in actual implementation.

2.1.4 Factors Affecting Self-Directed Learning

The most prominent two features of SDL are the learners' autonomy and subjective initiative. The characteristics of SDL learners determine that the whole process of SDL learning is filled with students' personality, individual demand, and subjective initiative. The students' learning ways and learning strategies are restrained

or affected due to different personalities. Besides, different students have different personalities, learning backgrounds and accumulated knowledge, and their SDL learning abilities are also different. As a result, there would be different learning effects from different students who have different SDL learning abilities. A lot of factors can affect learners' SDL learning ability, but they can be summarized as two kinds—internal and external factors.

2.1.4.1 Internal Factor

Learning motivation affects SDL a lot, as it reflects learners' truly desire for learning. Learning is not just a cognitive working process, the success of learning activities also depends to some extent on learners' thoughts towards the world, their self-awareness and desire to learn. Without motivation students would be drab and dull (Iftikhar, 2014). The positive motivations can boost students to learn actively, set their own learning goals, and make learning activities develop for achieving the goals. At the same time, this kind of students can adjust their learning behaviors with the change of their learning tasks.

The psychological emotion factors are also very important for the development of SDL. The emotional experience is positive or negative can affect students learning effect directly. If learners have the aspiring emotion, they will have the positive motivations and interest in their learning process. If the emotional experience is negative, students will have no interest to learn, and their initiative will be limited. In addition, metacognitive ability will be diverse for different learners. As a result, students' self-awareness to learn in cognitive activities will be different.

2.1.4.2 External Factors

Whether materials are interesting and useful helps to maintain the interest of learners in learning. In contrast, if the learner chooses the wrong learning material, it will not only reduce the learner's confidence in learning, but also eventually give up SDL because of the boring or inappropriate learning materials. Good learning

materials for SDL learners should be both affective and increasing motivation in learning, encouraging the learners, and making learning more enjoyable and cognitive, providing comprehensible input, giving instructions for tasks, suggesting systematic learning routes, and providing learners with information and mechanisms for independent learnings.

Learning environment is a vital component that determines which learning methods the students will adopt to achieve their objectives and how they will learn. Studies have shown that creating a well-lit, quiet, and comfortable learning environment will make learning more efficient.

Some research reflects that parents' educational level does not necessarily have effect on SDL. It depends on parents' way of instructing their children and learning environment they provide. In other words, it depends on whether parents have awareness of SDL and whether they create a supporting learning environment at home for them to study.

To sum up, because SDL requires high personal qualities of learners, it is helpful to help learners to better carry out SDL activities by understanding the factors that affect SDL. Although there are individual differences in many influencing factors, these factors are more or less that every learner will encounter in his own way of SDL. The external factors can be improved through learners' preferences and habits, but the internal factors may require a certain amount of time and energy to improve. But many studies have proved that professional training can help learners achieve them faster.

2.1.5 The Disadvantages of Self-Directed Learning

As the term definition above that SDL is a learning method that learners are responsible and manage their own learnings. Therefore, SDL has relatively high requirements on the autonomy of learners.

As the term definition above that SDL is a learning method that learners are

responsible and manage their own learnings. Therefore, most of this learning is carried out under the initiative of learners. Learners who lack learning initiative tend to be lazy in SDL due to lack of supervision. For example, they may waste a lot of time because they like watching TV shows or playing games. Moreover, such learners, due to poor self-control, often lead to disorder of work and rest time in SDL. In real life, many learners may only shout slogans without practice, or have procrastination, which makes it difficult for such learners to perform SDL.

SDL generally occurs outside schools, if students lacking autonomy, it would be difficult for them to keep commitment in SDL activities without the supervision of teachers. Nowadays, many students grow up under the teacher-center education, and these learners often lack the independence of learning. Especially in SDL learning, most of the learning needs to be completed by the learner themselves, which itself is a big challenge for learners who lack independence. Yet, in the SDL process, there will inevitably be many difficulties, though learners can use the Internet to find various answers, since there is no professional teacher's guidance in the process of SDL, learners who encounter difficulties often spend more energy and time in learning than students at schools. Moreover, students who are accustomed to learning with the teacher's guidance do not know how to study once they are separated from the teacher's guidance in SDL.

SDL cannot replace formal classroom learning. Although SDL is a very flexible and effective learning tool, it can allow learners to learn some knowledge that cannot be learned in the formal classroom. However, due to various limitations, SDL can only help learners to learn some specific knowledge, and cannot achieve the comprehensiveness of school education. Therefore, learners usually use SDL to assist to learn their own ideals, because the formal classroom settings cannot meet their ideal expectations. In general, learners who undertake SDL must have a certain knowledge reserve of the major they are studying in order to ensure the smooth progress of the entire SDL process. Therefore, it is difficult for some beginners to perform SDL, and the combination of SDL and formal classroom learning can achieve better results.

Nowadays, it is an era of information explosion, and there is too much information everywhere, including a lot of low-quality materials. Although in SDL, learners can find learning materials that suit them without spending a penny, but many learners do not understand their own needs and do not know which learning materials are suitable for them, and are easily confused by this dazzling information. This could lead to confusion and fear that can cause many learners to give up before SDL starts. Also, some learners do not know what method to use, or if they choose the wrong one would not only waste their precious time and energy, but may feel frustrated and eventually give up learnings.

SDL is also a severe test for learners' patience. SDL is different from school study, and it often takes a long time to see the effect of it. Therefore, impatient learners are likely to give up halfway without seeing results in SDL for a period of time. Meanwhile, it also requires learners to have a certain perseverance to keep it going when they encounter difficulties in SDL.

SDL requires additional time investment. SDL is mostly done by learners in their spare time in the place of study and work. Today's society is full of competition, in addition to engage in their own study and work, many school students and office staff are participating in other fields of study or work, so their time is very limited. If they take extra time for SDL, it is likely to affect their life and work, so it is difficult for them to engage in SDL.

In addition, SDL lacks face-to-face interaction with others which could cause learners to feel lonely. Learning in school is not only about knowledge, but also about the ability to communicate with people, the ability to communicate in groups; it's a social process where friendship, perseverance, self-esteem, and self-confidence are fostered. Yet, in SDL, due to the lack of school atmosphere, learners tend to be withdrawn, introverted, and do not communicate with people. While learners in SDL often encounter more difficulties, this means that SDL learners face greater learning pressure than learners in school. In a relatively isolated environment, if learners do not have a way to release the pressure, accumulation over time which eventually may

affect learners' mental health.

In conclusion, although SDL is recognized as a great help for learners, it also has many limitations. Only learners fully understand their own weaknesses and overcome them, choose suitable learning materials according to their own needs, set learning goals according to their acceptable learning speeds, complete them patiently step by step, and finally assess learning outcomes. Only with these can learners enjoy the true value of SDL could bring to them.

2.1.6 The Application of Self-Directed Learning

There are three key components in SDL learning process (Khiat, 2017): 1) Learning ownership is its responsibility in identifying learning gaps and setting learning goals, 2) Self-management and self-supervision is the constant process of managing tasks, time and resources to make enhancements in taking action to meet learning goals, c) Extension of learning is making connections between scientific disciplines, relationships between formal and informal learnings and interests in and out of classes.

According to Moradi (2018), SDL skills can be divided in two major areas which embracing general skills (cognitive and information processing skills) and personal characteristics. In order to support students to achieve their SDL paths there are certain steps as follows:

1) Assessing readiness to learn. SDL readiness is defined as the learner's readiness to learn independently (Lasfeto, 2020). It is regarded as the ability of learners to effectively undertake SDL (Hussain, Sabar & Jabeen, 2019).

2) Setting learning goals-self-planning. This is the process of making an action plan based on awareness, values, reflection, goal setting and planning for personal development within the context of a career, education, relationship or for self-improvement. In the process of SDL, learners have to combine what they want to

learn and the expected results to set up a learning plan and guide themselves to learn accordingly.

3) Engaging in the learning course. In order to attain learning goals, there are some key terms have to be followed in application of this stage:

3.1) Self-monitoring: engages learners in the learning process by providing a locus of control over their work. Self-monitoring motivates and encourages learners' active participation in language learning. It stimulates more directed and effective learning, while encouraging a more autonomous approach can increase learners' autonomy.

3.2) Self-reflection: also called introspection, it is a process by which people observing and analyzing their strength and weakness, in ways of understanding and makes themselves better. Yet, In the process of SDL, self-reflection as a characteristic of SDL is a key part of lifelong learning and leads to a better understanding of one's own strengths and weaknesses, talents and limits (Edwards, 2015).

4) Evaluate learning. Self-evaluation, in language learning, is approach to assessment which involves learners in making judgments about their own levels and/or progresses. Self-evaluation contains learners taking responsibility for supervising and making judgments about different aspects of their own learnings. Self-evaluation is to give the learner the information on strength or weakness. It should provide sufficient diagnostic details and appraise learner's ability with sufficient reliability.

To sum up, knowing how to effectively use SDL learning could help learners to better pick up this learning method to assist their learnings, and in the actual learnings could according to their own preferences and learning habits, flexible adjustments to achieve better learning results.

2.2 THEORIES ON READING SKILLS

2.2.1 The Definition of Reading Skill

Reading is considered to be one of the most important ways to acquire knowledge and one of the most effective methods for foreign language learning. Durkin (1993) terms reading as readers getting meaning from contextual resources according to their needs. It is a complex cognitive information processing process which combines the skills of identification and interpretation (Alyousef, 2006). In the reading process, readers need to blend their own background knowledge and information from a text to build meaning and aim to understand the meaning of the text (Nunan, 2003). Therefore, the level of reading skills is generally related to learners' academic performance (Dawkins, 2017). While learners who are proficient in reading usually succeed in almost all subjects, learners who read very little seem to be unable to acquire reading comprehension skills (Gilakjani & Sabouri, 2016).

Reading skill is an integral skill that is necessary for English L2 language learners, as well as any other foreign languages. Reading involves coordinating readers' linguistic knowledge and conceptual processing to help readers establish understanding and conceptual meaning of the text (Horiba & Fukaya, 2015). Word recognition and semantic contents knowledge are the most important two parts in reading (Taladngoen et al., 2020). These two parts obtained through reading will cultivate the learner's language proficiency (Mart, 2012). L2 English learners through reading extensively and critically will gain knowledge and language structural awareness which will help their speaking, listening, and writing performance. Therefore, learners should continuously improve their reading ability by acquiring knowledge and information through online and offline resources (Chavangklang, 2017). For L2 English learners, reading is the most important skill, because it provides them more opportunities to access English written materials, this would help them to overcome the lack of opportunity to use English in reality, which makes learning easier (Akopyan & Saks, 2022). It can be seen that reading is an important way to

increase the language ability of L2 English learners.

Knowing how to read efficiently and effectively is a key skill for a successful life (Nordin, Rashid & Zubir, 2013). Yet, in the educational context, students with good reading skills will help them to pursue a higher level of academic achievements (Suraprajit, 2019). This is because reading supports the development of overall abilities and provides access to key information as students learn further, especially at the university levels. Also, English reading skill is very important skill to university students (Semtin & Maniam, 2015). Because most university students acquire knowledge or learn English mostly through reading, especially for L2 English learners (Yukselir, 2014), an excellent reading skill can help them reduce more obstacles when read massive English literatures, and also help them obtain knowledge in all subjects (Shehadeh, 2016).

There are three points that university students should master English reading skills (Pardede, 2008). First, university students with good English reading skills can fairly accurately understand English written materials that they cannot conduct oral or written discussions with the same accuracy or thoroughness, which will undoubtedly enhance their motivation and confidence in English learning. Secondly, reading is different from speaking, which requires interactive practice with a partner, or writing requires a lot of guidance and time to practice while reading only requires texts. Thirdly, reading is a service skill, once students have mastered how to read effectively, they will be able to learn effectively through reading infinitely.

To sum up, reading skill is the most basic pathway to acquire all knowledge, especially for tertiary level students. Reading plays a very important role for tertiary level students, whether from general academic learnings or language learnings. Having good reading skills will not only help their general academic studies, but also help them improve the other three skills of English (listening, speaking, writing). Tertiary level students need to read massive English materials in their academic learning processes. In order to increase their reading efficiency, they need to use appropriate reading strategies to assist them read faster and effectively.

2.2.2 Reading Strategy

Reading strategy is defined as a specific method to solve a problem or task, an operation mode to achieve a specific purpose, and a plan design to control and manipulate certain information (Brown, 2007). The use of reading strategies can help learners become vigorous readers, and also can manage their reading comprehension (Lai, 2013). As Ahmadi (2017) mentioned that good readers can use their previous knowledge and skills to help them fathom what they are reading, so that they can use this knowledge to establish connections. Struggling readers often browse the text directly without stopping to consider whether it makes sense to understand the text based on their background knowledge, or whether they can use their knowledge to assist them grasping puzzling or challenging materials.

Some scholars divide reading strategies into two categories. The first group is a bottom-up or partial strategy related to letters, words, and text information, and a top-down or global strategy related to background knowledge, text essentials, and text organization. The other group consists of cognitive strategies or strategies related to the target language and metacognitive strategies focusing on self-management and self-regulation. Suraprajit (2019) summarized the latter two categories as:

Cognitive strategies are useful for dealing with the target language correctly. The strategies under this type are skimming, using other clues, reasoning deductively, summarizing, scanning, analyzing, expressions, elaborating, using imagery, guessing the meaning of new words from context, highlighting/underling, rereading, taking notes (predict/infer), translating, and resourcing. Metacognitive strategies are employed to support learners by thinking about what has been known about the topic, identifying a purpose for reading, paying attention, and self-evaluating (p. 85).

To English L2 learners, in the process of reading English texts will inevitably encounter some difficulties due to the interference of the first language, and it is particularly important to use appropriate reading strategies to assist them better

comprehend the English text they are reading (Swatevacharkul, 2017). Teaching students with various strategies can effectively cultivate understanding and promote comprehension monitoring. Especially for university students by teaching them proper reading strategies will help their English academic reading more effectively. Also help students learn better and become successful learners (Sitthhiprom, 2012).

To sum up, reading strategy is an effective auxiliary reading tool for L2 (second language acquisition) English learners, and students using reading strategies in English reading are according to their own reading tasks. Good readers know how to use them efficiently, as poor readers are the opposite, and teachers should also pay attention to the teaching of reading strategy for students in English class. Thus, using the appropriate reading strategy can not only help tertiary level students overcome the difficulties in the reading process, but also help them improve their English reading efficiency and learn English better.

2.2.3 Four Types of Reading Techniques

There are four techniques in reading, skimming, scanning, intensive reading, and extensive reading, learners choose suitable reading techniques according to their own reading purposes.

2.2.3.1 Skimming and Scanning

Skimming and scanning techniques are supposed to help students overcome reading difficulties and improve reading comprehension skills (Susanti, Sutarsyah & Kadaryanto, 2013). They both are important reading techniques and highlight those certain types of exercises seem can help students read more efficiently and effectively.

Skimming is defined as a reading technique that is three to four times faster than normal reading, and when readers have a lot of materials to read in a limited time, they usually skim (Q. Yusuf, Y. Q. Yusuf & B. Yusuf, 2017). Learners use skimming to selectively read to gain a general understanding of the content of the article, while

browsing means fast reading to find and locate specific information - words, facts, or statistics in printed materials (McWhorter, 2002).

Yet, scanning is different from skimming because the reader is not concerned with the general information of the text but the details. In this technique, readers normally use it to quickly find specific information, such as date, year, name, page, etc. (Yusuf et al., 2017). This skill means that learners do not have to read every word and every line, instead, it prevents them from scanning successfully (Harmer, 2007).

It can be seen that skimming and scanning are both quick reading techniques that readers do not need to read the full text, just browse the text quickly to find the main ideas or specific information of the text disregard comprehending the meanings, so that they will not waste time to finish reading the whole text. In general, these two techniques are mostly used by students for reading comprehension during exams, which can save time in other items of the exam.

2.2.3.2 Intensive Reading and Extensive Reading

Intensive reading as a reading technique in which learners focus on the semantic or linguistic details of a paragraph, which arouses learners' attention to the discourse markers, grammatical structures, and other contextual details in order to understand the meaning of the text and rhetorical relationships and so on (Brown, 2007). It is a way to read short texts through every word from beginning to end very thoroughly and deeply with clear goals (Mart, 2015). It is usually used for dealing challenging texts with various unknown words; it is the fastest way to obtain and learn new vocabularies and help learners better understand sentence structures (Scrivener, 2005). Yet, intensive reading requires more mental energy and focus while reading, learners who engage in intensive reading have to carefully follow specific guidelines, in order to risk boredom and burnout (Lampariello, 2017). Therefore, it is classroom-oriented, particularly used for learners to increase reading skills (Numan Khazaal, 2019).

Although intensive reading is mostly used to cope with a new language with the aim to help learners to gain knowledge such as grammar and vocabulary, but if the selected reading paragraph is full of low-frequency words, the effort the students make to understand it will not yield much (Miller, 2013). Then, it may need other reading technique such as extensive reading, which is opposite to intensive reading, and it is a supplement to intensive reading, but used for different purpose.

Extensive reading is defined as learners reading a lot in order to get a general understanding what they are reading (Richards & Schmid, 2011). It is used for learners to deal with long text such as essay, book, long article etc. to gain general understanding from them (Brown, 2007). In his opinion, in addition to casual reading, extensive reading can also be used in technical, scientific, and professional reading in some special cases. The purpose of reading is to seek overall or general meaning from long articles. Extensive reading refers to rapid reading, general understanding, and not focusing on every detail of the text, but for the purpose of enjoying the text. He also believes that extensive reading is usually used to read longer texts for pleasure, and there is not always follow-up discussion or work in extensive reading classes, as Neil Anderson describes, extensive reading means reading many books (or longer texts) without focusing on classroom exercises that test comprehension (Nunan, 2003). It can be seen that extensive reading is focusing on fluency rather than accuracy and detailed understanding of each word or syntactic structure. Extensive reading is more autonomous than the teacher-centered intensive reading which gives students the responsibility to monitor their progress and strive to become lifelong L2 readers.

Extensive reading allowing students to read widely is the easiest and most effective way to enhance their reading ability (Nuttall, 2000). The more students are exposed to English through reading, the more likely they are to improve their overall English language ability, and extensive reading also increases the opportunities of students' exposure to English (Anderson, 2003). There are many benefits of extensive reading, such as helping learners build vocabulary and structure awareness, develop automation, enhance background knowledge, advance comprehension, and boost confidence and motivation (Grabe, 1991). It is also the key to students' progresses in

reading agility, language ability, vocabulary, spelling, and writing (Brown, 2007). Therefore, it can be considered one of the most effective ways to expand English language skills.

ESL (English as a second language) teaching methodology specialist Harmer (2007) pointed out that in order to get the most benefit from reading, students need to participate in both extensive and intensive reading. This is because the learners through extensive reading tend to miss many details in text, especially for learning a new language. The text is often full of unrecognized words or sentence structures that could affect readers' understanding and thus also will cause the readers are unable to carry out the reading activities. At this time, intensive reading may be the best way to learn the knowledge of the language. When the learners have mastered a certain language foundation, they can use extensive reading to read more and further increase their language skills. Therefore, the best way to increase L2 English skills is combining the extensive and intensive reading techniques together (Brown, 2007).

To sum up, these four reading techniques are suitable for tertiary level students according to their reading purpose and language ability. The first two are mostly used in English exams, so they can save more time to focus on some difficult items. Yet, this article aims to enhance tertiary level students' English reading skills, thus the researcher advocates combining intensive and extensive reading techniques and combines appropriate reading strategies to help them increasing their English reading skills.

2.2.4 Factors Affecting L2 Learners' English Reading Skills

L2 (second language acquisition) refers to learners to learn a second language after their mother tongues are established or the first language are acquired (Hoque, 2017). While comparing with the L1 (first language or mother tongue) reading, L2 English learners reading suggests some linguistic problems, such as the disparity between the writing system and voice, or the insufficiency of background knowledge and ability in foreign languages. Especially for adult L2 English learners, they often

face more challenges in English readings. The reading factors that affect L2 English learners are divided into internal and external factors, both play an integral role in impeding L2 learners' reading skills (Taladngoan et al., 2020).

The first internal factor is learners' linguistic knowledge of English, such as grammatical and vocabulary knowledge. The basic components of English are words and grammars, students with big rang of vocabulary assists them clarify meaning or read paragraphs faster than those who guess the meaning of unknown words based on contextual clues. On the contrary, in the learners' English reading process, they will encounter a lot of inconveniences which directly affect the efficiency of their English reading. And if do not have enough grammar knowledge even if they mastery more vocabulary, it will not help them to understand the whole sentences correctly.

Lacking background knowledge also has a significant influence on English readings. Because English articles not only involve a large number of English-speaking countries' cultures, histories, customs, politics, economy, and other background knowledge, but also involve professional knowledge of science and technologies. Therefore, if learners do not have enough such knowledge will inevitably cause cultural interference to students and will inevitably affect the understanding of sentence paragraphs and even misunderstandings.

Compared with readers without decoding problems, readers have problems with identifying words and decoding have slower reading speed and have difficulty understanding the meaning of paragraphs. This is because readers use decoding skills to get the pronunciation and meaning of words they have never seen before.

Another internal influencing factor is learners' perceptions of themselves and other surrounding components, such as learners' interests, boredoms, anxieties.

In a real learning environment, exams, classwork, or homework may all put a lot of pressure on readers' readings. Some learners react positively to exams, while others are under pressure to perform reading activities. This pressure creates a sense of

anxiety. Learners who experience anxieties may not fully comprehend the instructions, which may lead to bewilderment and insufficient understanding of the reading tasks. Learners' motivation and interests also play a very important role in cultivating reading comprehension ability. If readers find the reading materials to be boring, they will encounter many problems in concentrating on understanding. If the reading resources are interesting for learners, they can easily grasp and remember them clearly.

The presence or absence of a positive or negative individual's perception of self and surrounding environment will promote or hinder reading skill (Habibian, Roslan & Idris, 2015).

The first external factor is related to environmental conditions. Gilakjani and Sabouri (2016) mentioned in their study that reading under a supportive environment with enough light, mild temperature, and calmness, learners will be able to concentrate more on their reading tasks. Also, when there is noise such as TV or radio, readers will lose their focus on text understanding.

Another external factor is family influence. This impact involves help, encouragement, and support from family members (Phothongsunan, 2015). Family participation in reading activities (such as providing English writing books and helping with reading-related homework or homework) can indirectly affect learners' enthusiasm for English readings (Dawkins, 2017).

In conclusion, understanding the factors affecting English L2 readings helps learners eliminate problems, such as low English reading efficiency or poor English reading skills caused by these factors, so as to encourage them to actively find solutions to improve their English reading skills.

2.3 SELF-DIRECTED LEARNING FOR ENGLISH READING SKILLS

In the field of education, there is a general agreement that SDL has a great impact on foreign language learning (Tejada Reyes, 2019). Likewise, it supports tertiary level students' English reading skills in many aspects.

As SDL enables individuals pursue further education even out-class without limitation, tertiary level students can use SDL to read English anytime and anywhere according to their own needs thus to improve their English reading skills. It can also effectively link English learning in class and out of class. For example, some students encounter some knowledge points in class and do not understand them, they can use SDL to help them to understand the knowledge points by consulting materials or asking teachers or peers in their free time after class.

SDL also allows tertiary level students to choose any reading materials and employ any reading strategy to assist their English learnings during SDL processes. With the continuous development of smart technology, some tertiary level students do not only have laptops as learning tools, but also have a variety of Tablets, Notebooks, and smart phones, which greatly facilitate the convenience of SDL. Tertiary level students can choose the appropriate learning device according to their needs, and nowadays also there are a lot of free English original reading materials on the Internet can be easily retrieved, such as various type of novels, news etc., and also with many different of reading levels, students can according to their interests and English levels to choose reading materials freely. If any language problems barrier their readings during the learning processes, they can also easily find the answers from the Internet.

SDL could increase learners' English reading comprehension. By using SDL ensures that learners can read English according to their interests anytime, anywhere, and improve their vocabulary, learn new sentence structure, and background knowledge. And all this will be later transformed into the improvement of learners'

English reading comprehension ability. Due to the impact of English reading skills on other English skills, which includes listening, speaking, and writing skills will also improve.

SDL can boost students' interests in English readings. Different from campus study, SDL is completely controlled by the learners. Some students prefer to read slowly, while others prefer to browse quickly. Tertiary level students can enjoy the happiness of reading even after they have left the shackles of schools, so as to cultivate interests in readings, and interests are the key to learning English well. Students who are interested in English readings will inevitably read a lot of English-related materials to lay a solid foundation for cultivating English thinking.

SDL could strengthen learners' knowledge comprehension. It is difficult for regular classroom teachers to take care of the individual differences of each student. Some students are quick to accept knowledge, while others are slow. For students with a slow acceptance rate, it is suitable to strengthen their learning through SDL after class. In SDL, learners have complete control over their own learning, and there is no teacher supervision or competition among classmates, which reduces the learning pressure. Learners can arrange learning at a fast or slow pace according to their own need. When encountering difficulties, they can ask teachers or classmates to strengthen their understanding of knowledge at their own pace.

SDL enhances readers' thinking and problem-solving skills. Since most of SDL is completed by the learners themselves, they will encounter many difficulties and problems in the reading process. How to overcome these problems is what the learners need to think and do. Under such conditions, the learners' critical thinking and problem-solving ability will inevitably be improved for a long time.

SDL could broaden readers' horizons. A lot of knowledge is gained through reading. SDL ensures that learners can read a lot of material that they are interested in without constraints, which not only increases the knowledge reserves of learners, but also enriches the experience of readers. Many famous books in the world are written in

English. By reading English books, learners can not only improve their English reading skills, but also learn Western culture and knowledge. So that L2 learners can understand the development of the West without leaving home, and cultivate their sentiments.

For L2 English learners, reading is the best tool to learn English. The more time learners spend on reading, the more improvements of their English reading skills would be. SDL and reading both are lifelong learning skills and can not only help tertiary level students enhance their English reading skills, but also ensure them to learn English after they leave campus in the future. Furthermore, long-term adherence to English reading in the form of SDL can not only increase learners' reserve of English knowledge, but also improve their learning independence, overall learning confidence and self-responsibility.

In conclusion, the application of SDL to English reading skills has achieved positive results in many studies. The current social competition is extremely fierce, many jobs require English skills. In non-English speaking countries, the best way to improve English skills is to accumulate English knowledge through readings. SDL enables learners to read in English without restriction at anytime, anywhere.

2.4 PREVIOUS RELATED RESEARCH

Ministry of Education (2008) states that students at all levels should be aiming to be lifelong learners and develop thirst for knowledge in order to receive support to be capable of self-development and be able to take charge of their own learnings. The mandatory subject of English as the first foreign language is highly valued in Thai education. Considering the importance of reading for the enhancement of overall English skills, some Thai researchers and scholars from abroad began to apply SDL to English reading skills and finally proved that SDL has an effect impact on tertiary level students' English reading skills.

The purpose of the study was to investigate the impacts of SDL approach to

Bangkok University students' English reading comprehension and self-directed learning ability as well as their opinion towards it. According to Wichadee (2011), the study adopted 120 samples from the School of Communication Arts in the first-year students enrolling in Fundamental English I course in the first semester of 2010 academic year with both control and experimental groups, in which the experimental group taught with SDL approach, while the control group was taught in traditional method. After 12 weeks, the experimental group's English reading skills were significantly improved compared with the control group, so was the SDL ability. Students' opinions toward SDL were highly positive. This indicated that SDL was not only an effective way to increase students' language skills, also to improve their SDL ability.

The study was conducted in Assumption University, Thailand. It was to investigate the effects of SDL on the English reading comprehension ability of MBA students as well as their opinions toward SDL. 33 MBA students were randomly chosen as sample. The instruments were pre-test and post-test, learning summary and teacher's reflections. The t-test suggested that after experiment, the participants' post-test mean scores were 1.03 higher than pre-post, which indicated that students' English reading comprehension had been significantly improved through SDL. SDL also increased their awareness of reading strategies use. This was because MBA students were mostly working employees, SDL makes it easier for them to balance their work and learning time, which made them feel more freedom (Swatevacharkul, 2017).

The aim of another study was to investigate the students' opinions about their self-directed learning experience on English learning at King Mongkut's University of Technology Thonburi (KMUTT), Thailand. The participants are eight first-year undergraduate students. The instrument was structured interview with the aim to investigate students' attitudes toward SDL as well as the problems they encountered during their SDL. The result of the study showed that more than half of the students hold positive attitudes toward SDL approach, while the rest had negative attitudes for it. There were four points they gave for explaining their positive attitudes towards

SDL: the love of learning English, have background knowledge of English, the importance of learning English, the flexible learning style. The views of students with negative attitudes towards SDL were just the opposite of the positive ones. They thought that English was too difficult for them to learn independently due to their poor English background knowledge, so they preferred a conventional classroom with the assistance from teachers. Which indicated that students who had an awareness of their own learning needs or learning goals that align with the SDL module and who had a good background in English could engage in SDL with a positive attitude. On the contrary, poor English made it impossible to learn independently without the guidance of the teacher, and naturally did not feel the fun of SDL (Jenwitthayayot & Tepsuriwong, 2016).

A study to investigate the impact of self-directed learning strategies on reading comprehension was conducted by (Khodabandehlou et al., 2012). There were 92 upper-intermediate and advanced female Iranians were randomly selected in the study. The instrument was using an IELTS English reading test. By comparing the data from experimental group (participants applied SDL method) and control group (teacher-directed learning) showed that SDL group had better performance than TDL group, which proved that SDL was more effective than teacher-directed learning.

For investigating the effect of SDL on reading comprehension, Meshkat and Hassanzade (2013) adopted 60 Iranian high school students as samples, which consisted of 30 students for both experimental and controlling groups. During the 16-week research period, SDL instruction was applied to experimental group and traditional instruction was applied to control group. Finally, by comparing the post-test results of the two groups, there was no difference, this might indicate that SDL was not compatible with Iran's education of system.

In Kin's research which aimed to investigate whether the use of SDL program in online teaching was effective in improving the English reading comprehension of undergraduates, and to evaluate students' satisfactions with web-based instruction using SDL. This study was conducted in Royal University of Phnom Penh, Cambodia.

The sample was 30 first-year undergraduates studying in 2019 academic year. It adopted three instruments which were web-based instruction lesson on English reading comprehension, the achievement tests, the satisfaction questionnaire. The findings showed that students' post-test scores were higher than pre-tests, as well as their satisfactions towards this program. This was because in the SDL environment, by adopting web-based course could ensure them to access courses anytime, anywhere according to their own pace, and adjusted learning speeds in accordance with their learning ability (Kin, 2019).

A study conducted in Jordan aimed to investigate the effectiveness of SDL on improving EFL (English as a foreign language) students' English reading skills. To achieve the purpose of the study, the researcher adopted pre-test and post-test as instrument, took 86 students from both seventh and eighth grades, among them 41 males and 45 females. The findings indicated that students' English comprehension had been significantly improved, but there was no difference between genders, which indicated that differences in students' English reading ability performance were attributed to the use of SDL strategies, and students were more engaged in learning when they were taught by a modern approach than taught by well-trained teachers. It also showed that SDL was not only effective for adult learners, but also effective for young age learners (Al Masri & Najjar, 2015).

In order to study the views of community college students on SDL learning projects, Du (2013) adopted a qualitative method and collected data through focus group interviews. The results confirmed the practicality of SDL as an effective learning strategy for foreign language students because this form could improve knowledge domain, metacognitive skills, and motivation. In addition, the survey results required consideration of individual differences in SDL program design, which indicated that whether the outcome of SDL brought good or bad was closely related to the learning type students chose and their SDL ability.

To sum up, from the findings of above researchers can be seen that SDL not only has a very significant impact on increasing EFL students' English reading skills,

but also can enhance students' knowledge domain, metacognitive skills, and motivation, so most students have positive attitude towards it. Therefore, this study absorbs some experiences from the previous studies and conducts an in-depth study focus on a different group with different samples to measure the effect of SDL on enhancing the English reading skills of Thai tertiary level students.

2.5 CONCLUSION

In conclusion, through the review of SDL and English reading skills related literatures found that SDL as a flexible and learner-centered learning method which is not only helpful to English learnings, but also beneficial to the developments of learners' overall abilities. Yet, due to the lack of professional teachers' guidance and supervision in the SDL process, learners will inevitably face many challenges. How to overcome these challenges is the process of learners' self-challenge. Because reading plays a very important role in English learning, especially for tertiary level students, having good reading skills not only contribute to their English knowledge learning, but is also conducive to the development of overall knowledge. SDL is in favor of tertiary level students combining learning in and out of class, and to ensure students choose any reading materials according to their own interests and use any learning device for learning at anytime and anywhere without limitations. SDL and reading skills both as lifelong learning skills, tertiary level students can still adopt them to assist their English learning after they leave the campus to work. This study took Rangsit University first-year English majored undergraduates studying in 2021 academic year as sample, study the scope of SDL enhancing tertiary level students' English reading skills and their perceptions toward it. The next chapter is the explanation for the methodology of the research has been designed.

CHAPTER 3

METHODOLOGY

This chapter explains the details of the methodology applied to this study. This research employs mixed methods combining quantitative and qualitative designs with the aim to measure the enhancements of SDL on Thai Tertiary level students' English reading skills and their perceptions toward it. The contents of structure includes study design, research setting, ethical clearance, population and sample, instruments, validity and reliability, procedure of data collection, methods of data analysis, and followed by a conclusion at the end.

3.1 RESEARCH DESIGN

This research was designed as mixed methods with a variant of the embedded experimental model (Ray, 2007). The priority of the model was determined by the quantitative experimental method, while the qualitative data was set as supplementary role in order to assist quantitative method to collect more detailed data in depth. The primary purpose of this study was to investigate the extents of enhancements of SDL on English reading skills. Quantitative research was used to collect and analyze numerical data with aim to test hypotheses. Thus, the data quantitatively gathered used an English reading examination to test the hypothesis that the tertiary level students' English reading skills (the first-year English majored undergraduates) would be significantly enhanced after using SDL outside of classroom. The second purpose was to explore the participants' perceptions and opinions toward SDL which used a questionnaire combining both quantitative and qualitative data.

The study was conducted in Rangsit University, Thailand. The population for the study was 278 first-year undergraduate level students enrolling in RELI, the course

of ENL126, the first semester of 2021 academic year from College of Liberal Arts. 38 samples were drawn using random sample technique. The duration of the study was six weeks. The instruments in addition to the two mentioned above, to ensure that more in-depth data is collected; the researcher also adopted other two instruments, participants' reading exercises and journals. The former was mainly used to ensure that participants completed their assignment outside of class. The latter was used by researcher to record the problems and strategies encountered by participants in the process of SDL. The quantitative data were analyzed using SPSS, the qualitative were analyzed using thematic content analysis.

3.2 RESEARCH SETTING

This study was conducted in Rangsit University, in Thailand. This is a private comprehensive university which is in the center of Pathumthani province south of Bangkok. It provides 138 programs with different levels include undergraduate, graduate, and doctoral studies. It has been consecutively ranked as the best private university for five years (Thailand Ranking Web of University-Webometrics, 2022).

The university has always been aiming to establish high-standard universities of international standards, and has established long-term disciplinary cooperation, teacher, and student exchange relationships with internationally renowned universities in many countries, including Switzerland, the United States, the Netherlands, and China. Therefore, the school has always attached importance to the teaching of English as the medium and has also set up multiple and different levels of majors for international students to be taught in English.

Rangsit English Language Institute (RELI) is the center for providing English education to students. In order to meet the regulations of the Education Bureau of Thailand, all undergraduate students need to take English courses regardless of their majors.

3.3 ETHICAL CLEARANCE

The study does not involve the exposure of private information of any participant. The students' private information used throughout the research process, such as name, phone number, and email address, would not be disclosed. All the data collected in the research would be used only for academic research and would not be used in any matters unrelated to the research. After the research, the researcher would destroy the private information related to the participants, and only retain the data information related to the research, and the data would be destroyed within two years of the research.

3.4 POPULATION AND SAMPLE

The population of this study was 278 first-year English majored Thai undergraduates enrolling in RELI, a compulsory English course of ENL126, the first semester of 2021 academic year from College of Liberal Arts. Researcher picked up one group with 38 students randomly as the sample. Among them, 31 female and seven male, age ranges from 17 to 21. The reason for choosing this sample was that English majors need to read more English literatures than students in other majors to meet the requirements of their professional skills; second, considering that first-year students are in the transition period from high school to university, many students have not adapted to the university's English teaching methods and their English scores are not satisfactory, so they may need to make time to study after class.

3.5 INSTRUMENTS

Research instruments are tools designed to collect data according to the research objectives. At the beginning of the study, the researcher gave all the participants a Pre-test to evaluate their English reading skills. Then during the six-week study, the researcher gave them ten English articles with 50 reading comprehension questions to help them understand the articles they read. In the process,

the participants were also required to record the difficulties encountered and corresponding reading strategies they used to overcome them. In the last week, the participants took the Post-test to check their English reading skills after the treatment, as well as to fill out the questionnaire to express their opinions based on their experiences.

In addition to using English reading test (pre-test and post-test) and opinion questionnaire as instruments to answer the two research questions and hypotheses, participants' reading exercises and journals to ensure that participants earnestly completed the learning tasks assigned by the researcher in the performance of SDL without any monitoring, and to get more in-depth data. The details are explained as below.

3.5.1 English Reading Test

It was used as pre-test and post-test to measure the extent of enhancements of the participants' English reading skills by using SDL. The test materials were the reading comprehension part of previous Chinese official college English CET4 exam. A total of twenty questions were included in four reading passages, with multiple choice and each one with one correct answer out of four options. Two points for each answer, for a total of forty points. The test time was forty-five minutes. The difficulty of the test was a little more than the textbook that the participants were currently studying. Considering that some students may have higher English proficiency than the textbook they were studying, thus the test was appropriate.

3.5.2 Student's Reading Exercise

This instrument was used to ensure each participant to complete their reading task through outside classroom SDL without monitoring, also to help researcher better understood their learning progress. The reading materials provided to the participants covered the same subjects as the English tests, but with different content. There were corresponding reading comprehension exercises at the end of each article for them to

read. The participants had to read the article first and then do the comprehension exercises to help them better grasp the article they were reading. Each article contained five questions, and the participants read two articles each week, so every participant submitted ten questions weekly. Each answer counted as two points, so ten questions with a total twenty points every time. It belongs to academic English which was also helpful for the participants in their future English learnings. The researcher encouraged each participant to do the exercises based on understanding the meaning of the entire article, instead of just doing the questions blindly.

3.5.3 Student's Journal

This instrument was used by participants on the fifth week to record their readings through SDL. Its purpose was to help the researcher better understanding how participants use reading strategies in SDL context to help them read. They were required to write down the difficulties they encountered and the strategies they used for solving them in their fifth-week SDL reading process.

3.5.4 Opinion Questionnaire

It was used to collect participants' perceptions and opinions toward SDL after the treatment. It was in the form of an electronic file made by Google Form. There were three parts in the questionnaire with twenty questions. The first part with three demographic questions which was to collect the basic information of each subject. The second part was a five-point of Likert scale (1932) with fifteen close-ended questions that was used to collect participants' perceptions toward SDL. The last part was two open-ended questions that used to collect the participants' opinions for SDL that based on their learning experiences through this study.

3.6 VALIDITY AND RELIABILITY

3.6.1 Validity

The opinion questionnaire was formulated by researcher, it is necessary to ensure the content validity. The content validity refers to the degree to which a measure represents all aspects of a given structure (Bhattacharya, S. Kaur & R. Kaur, 2017). Therefore, the questionnaire was sent to three experts in English teaching field to check the congruence between the research questions. In this way, Index-Objective Congruence (IOC) was used to evaluate questionnaire items based on a range of scores from -1 to +1 (Incongruent = -1, Questionable = 0, Congruent = +1). A formula for calculating IOC index was adopted from Rovinelli and Hambleton (1977), $1-0 = \frac{\sum R}{N}$, where $\sum R$ equals total scores from three experts, N was number. Thus, according to this formula, the results of IOC was 0.83. The accepted value should be between 0.5 and 1.0, so all questions for this instrument in this study were accepted.

3.6.2 Reliability

The questionnaire consisted of fifteen five-point of Likert scale close-ended questions. In order to examine the reliability for them, the researcher adopted Cronbach's Coefficient Alpha to calculate it. According to the description of internal consistency of Cronbach's Alpha, $\alpha \geq 0.9$ means internal consistency is excellent; $0.7 \leq \alpha < 0.9$ means good; $0.6 \leq \alpha < 0.7$ means acceptable; $0.5 \leq \alpha < 0.6$ means poor; $\alpha < 0.5$ means unacceptable. Thus, the value of 0.84 the internal consistency was good, which means that all fifteen close-ended questions were reliable in this study.

3.7 DATA COLLECTION

In the data collection process, the role of the researcher was not only to ensure that the participants completed the entire research process correctly according to the scheduled research process, but also needed to ensure the reliability and validity of the data collection and analysis. Due to Covid-19 teaching and learning policy, all the work had been done through online.

Week 1: Before conducting the research, with the assistance of participants'

English lecturer, the researcher explained to the participants about the purpose of the research, the ethical clearance, the steps of research procedures, reading resources, and their roles in the study, making sure they understood the experimental process clearly. Also, the researcher reminded all participants that the results of the study would not affect their school grades or any other projects. They would only be used for educational purposes. Later, the participants took a pre-test, the time was forty-five minutes.

After the test, the researcher gave the participants some English reading strategies coaching, such as guessing the unknown word contextually; by searching the subject, verb, and object, and then look for the branches one by one for analyzing long difficult sentence; recommended them to write down unknown words and use the English-English dictionary to look up the meaning of each word while reading; the researcher recommended the participants with poor English proficiency to adopt intensive reading strategy, trying to understand every word and sentence structure of the article to improve their amount of words and grammar knowledge; for participants who had better English proficiency and felt the reading materials were easy to them, the researcher recommended them to use extensive reading to improve their reading speed, so as to increase their sense of language and acquire more background knowledge during reading. They could read aloud or silently in any way they feel comfortable, and in whatever form they thought would help them understand the text, such as ask the teacher, look up dictionary and the Internet, etc.

After receiving a positive answer from consulting the participants' English lecturer about whether the amount of reading two articles in English a week was suitable for them in advance, the researcher finally set this study goal. The researcher had no restrictions on the participants' SDL. The participants were free to arrange reading according to their own time, as long as they submitted to the researcher on time. But the researcher encouraged them to do the reading exercises based on their understanding of the full texts. As well as chose a well-lit and quiet place, or any place that made them comfortable but helped them focus on their studies.

Finally, the researcher joined the LINE group of classes which included their English lecturer, the researcher, and all participants. The researcher distributed the reading materials with the reading exercises in Microsoft WORD format file through LINE group to all participants and urged them to do their homework with diligence. All this work the participants would be done using Microsoft WORD, which the researcher sent to them. This allowed the facilitation of the workload of the participants, but also helped the researcher's data collation. The participants would send their completed work every early Monday. They were also required to mark his/her name when handing in the work to the researcher, which was convenient for the researcher to organize the data.

Weeks 2-5: Every Monday morning, the researcher sent two new English articles through LINE group for the participants to read, and wrote down the researcher's email address which they had to hand their work in and deadline they needed to submit (the deadline was 12:00 am every Sunday), and asked them to write their students ID and names when handed in. The researcher occasionally sent some messages through LINE group to remind them about doing their assignments and submitting them in a timely manner. To further ensure that participants could hand in their homework on time, their English lecturer also reminded them in every Friday's English lesson for them. On the fifth week, in addition to completing reading tasks, the participants were also required to record their journals according to their fifth-week reading experiences and submitted them together to the researcher's email.

Week 6: in the last week of the study, participants passed a post-test. The time was forty-five minutes, too. The scope of the test covered the treatment. At last, all the participants based on their SDL experiences to fill the opinion questionnaire.

3.8 DATA ANALYSIS

The data analysis involved both quantitative and qualitative data, the details of the data analysis procedures are provided in the sections below.

3.8.1 English Reading Test

The data of pre-test and post-test were analyzed using SPSS. First to calculate their scores by SPSS and got the t-test, mean, and standard deviation, then compared the mean of Pre-test with Post-test. The results obtained were used to answer the first research question.

3.8.2 Student's Reading Exercise

Each correct answer counted as two points, calculated how many points each participant scored per week, then calculated the total weekly score of all participants, and finally the weekly average score and compared them.

3.8.3 Student's Journal

First divided them into difficulties encountered and strategies used these two categories, then read the original information line by line and marked each key word or sentence and classified them separately into the categories above, and put the same themes under the two categories together and summarized them separately. Finally, descriptive statistics was used to calculate the frequency and percentage on the items of each category. If a student wrote two different issues or strategies, they were divided into two separate categories. Thus, the total numbers of problems or strategies were different from the total number of participants.

3.8.4 Opinion Questionnaire

The demographic information and close-ended questions were analyzed using SPSS. They were used a simple statistic calculation to get frequency and percentage of each item to analyze the data. The results of this data were used to test the second hypothesis.

The open-ended questions were used thematic content analysis. First, read the original information line by line and drew the central sentences or key words, then grouped the ones with the same meaning into one category and summarized the central meaning of each category, and finally the theme was extracted according to the central idea of each category. The results obtained from this data were used to answer the second research question. Then the frequently occurring words were counted and coded, and then the percentage or frequency of descriptive statistic was used for further analysis. The data for this one was the same as student's journal that the total numbers of responses from students were not equal the total number of respondents.

3.9 CONCLUSION

This chapter only gives an overall picture of the research by explaining in detail the method, implementation process and data processing used by the researcher. The next chapter 4 will specifically demonstrate and explain how to obtain and analyze these data in the application of practical research process.



CHAPTER 4

DATA ANALYSIS

The purpose of this chapter is to present the data collected from 38 first-year English-majored undergraduates from Rangsit University to answer the research questions after using SDL method to what extents their English reading skills have been enhanced as well as their opinions toward it.

The pre/post-test were used to answer the first research question, while the opinion questionnaire was for the second research question; the student's reading exercise was a treatment instrument, which used to measure their enhancements of English reading skills weekly; student's journal was to explore how they used SDL to help them with their English readings. The findings of the data analysis are shown below:

4.1 THE ANALYSIS OF PRE-TEST AND POST-TEST RESULTS

The first objective of the study is to examine the enhancements students' English reading skills after using SDL. Therefore, pre/post-test was designed to compare the results of English reading skills before and after the research. The pre-test was administered at the very beginning of the study before giving any treatment with the purpose was to collect students' English reading skills without adopting SDL. While the post-test was administered at the end of the study with the purpose to determine if there were any differences in learning achievements as well as the extents of the enhancements after the treatment. A paired T-test was used to analyze the pre-test and post-test scores.

4.1.1 Paired T-test

Score results entered into SPSS for analysis are displayed in two related tables. Table 4.1 presents some basic statistics of student performance before and after the experiment. Table 4.2 illustrates the results of the statistical tests.

Table 4.1 Paired Samples Statistics

| | Mean | N | Std. Deviation | Std. Error Mean |
|-----------------|-------|----|----------------|-----------------|
| Pair 1 Pre-test | 22.11 | 38 | 5.34 | 0.87 |
| Post-test | 32.16 | 38 | 5.17 | 0.84 |

Table 4.2 Paired Samples Test

| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | t | df | Sig. (2-tailed) |
|-------------------------|-------|----------------|-----------------|---|-------|-------|----|-----------------|
| | | | | Lower | Upper | | | |
| Pair 1 Pretest Posttest | 10.05 | 2.57 | 0.42 | 10.90 | 9.21 | 24.14 | 37 | 0.001 |

The table 4.1 presents that the mean of the pre-test is 22.11, while the mean of post-test is 32.16 ($32.16 > 22.11$), and the mean in table 4.2 shows that the t-test is 10.05, which indicates the post-test score was 10.05 higher than that of the pre-test.

From the table 4.1 to see that the S.D in the pre-test is 5.34, but the post-test is 5.17, this means that not only students' scores were higher on the post-test, but the gap between students narrowed after the study as well.

The table 4.2 shows that the value of Sig. is $P=0.00 < 0.05$, which suggests that there is a significantly difference between before and after the research.

4.2 THE ANALYSIS OF STUDENT'S READING EXERCISE

This is a treatment instrument to assist participants in understanding the articles they read each week. Two articles per week, five multiple-choice reading comprehension questions after each article, two articles equal ten reading comprehension questions per week. The researcher obtained the results by calculating the mean scores per week for all participants and then comparing them over five weeks. The following is the result of the data display:

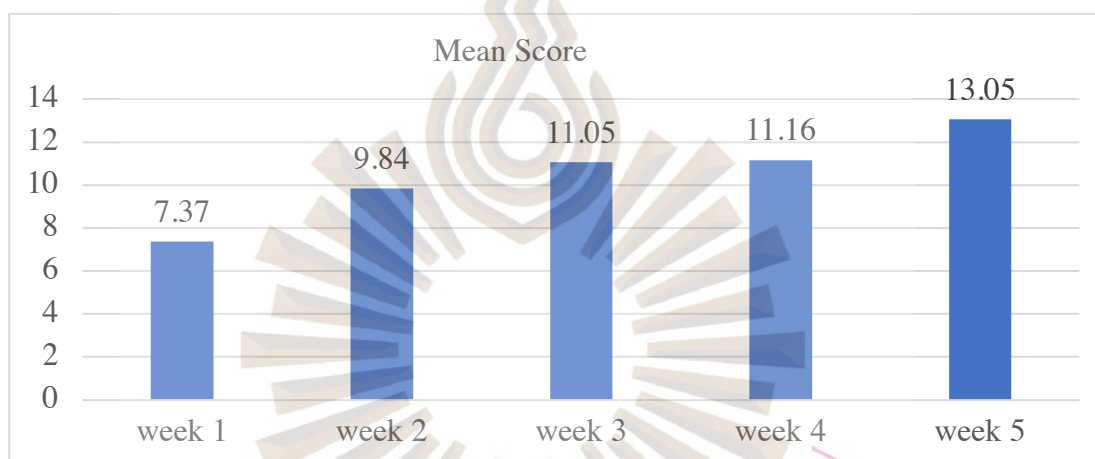


Figure 4.1 Students' Reading Exercises

From Figure 4.1 can see that participants' mean scores was increasing every week. Week 1 was only 7.37, but the score in the second week increased to 9.84, the third week was 11.05, but the fourth week was not obvious with only 11.16, and the last week raised to 13.05. From this it is clear that the participants enhanced their English reading skills weekly through SDL.

4.3 THE ANNALYSIS OF STUDENT'S JOURNAL

This instrument was designed to collect data of how these participants used SDL in this experiment to enhance their English reading skills. However, this instrument was mainly used by participants to record their problems encountered and how they overcame them during this experiment.

The following were summaries of the problems encountered by each participant during their SDL and the reading strategies used to unravel them.

Table 4.3 The Findings of Students' Journals

| Students | Difficulties Encountered | Strategies Used |
|----------|---|---|
| 1 | <ul style="list-style-type: none"> Unfamiliar vocabulary | <ul style="list-style-type: none"> Google translation |
| 2 | <ul style="list-style-type: none"> Unfamiliar vocabulary | <ul style="list-style-type: none"> Google translation |
| 3 | <ul style="list-style-type: none"> Unfamiliar vocabulary Unfamiliar grammar | <ul style="list-style-type: none"> Google translation Search on Internet |
| 4 | <ul style="list-style-type: none"> Unfamiliar vocabulary | <ul style="list-style-type: none"> Take a guess |
| 5 | <ul style="list-style-type: none"> Unfamiliar vocabulary Unfamiliar grammar | <ul style="list-style-type: none"> Look up dictionary Search on the Internet |
| 6 | <ul style="list-style-type: none"> Can't find answers | <ul style="list-style-type: none"> Read questions first Reread the articles and answers |
| 7 | <ul style="list-style-type: none"> Unfamiliar vocabulary | <ul style="list-style-type: none"> Find keywords from sentences. |
| 8 | <ul style="list-style-type: none"> Unfamiliar vocabulary Unfamiliar grammar | <ul style="list-style-type: none"> Look up dictionary Search on the Internet |
| 9 | <ul style="list-style-type: none"> Unfamiliar vocabulary, such as CO₂. | <ul style="list-style-type: none"> Google translation Read science book |
| 10 | <ul style="list-style-type: none"> Unknown vocabulary | <ul style="list-style-type: none"> Look up dictionary |
| 11 | <ul style="list-style-type: none"> Unfamiliar article structures | <ul style="list-style-type: none"> Concentrate on the article Search on the internet |
| 12 | <ul style="list-style-type: none"> Unfamiliar vocabulary | <ul style="list-style-type: none"> Visualize information based on read |
| 13 | <ul style="list-style-type: none"> Unfamiliar vocabulary | <ul style="list-style-type: none"> Look up dictionary |

Table 4.3 The Findings of Students' Journals (Cont.)

| Students | Difficulties Encountered | Strategies Used |
|----------|---|--|
| 14 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Skip words • Read slowly • Takes time and be patient • Learnt tips from "Solutions for Common Reading Problems" |
| 15 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Look up dictionary • Search on the internet |
| 16 | <ul style="list-style-type: none"> • Unfamiliar phrase words | <ul style="list-style-type: none"> • Read slowly • Identifying the structure of sentences first, then their meanings |
| 17 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Read the article roughly first • Then the questions and answers, • Finally read the article again. |
| 18 | <ul style="list-style-type: none"> • Unfamiliar vocabular • Unfamiliar grammar | <ul style="list-style-type: none"> • Look up dictionary • Search on the internet |
| 19 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Guess the meanings • Look up dictionary |
| 20 | <ul style="list-style-type: none"> • Unfamiliar vocabulary • Unfamiliar grammar | <ul style="list-style-type: none"> • Guessing the meanings • Find keywords |
| 21 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Read the questions first • High concentration |
| 22 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Read whole article first, then questions. • If still don't understand, read it again. • Critical thinking |

Table 4.3 The Findings of Students' Journals (Cont.)

| Students | Difficulties Encountered | Strategies Used |
|----------|---|--|
| 23 | <ul style="list-style-type: none"> • Unfamiliar writing style • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Analyzing the grammar structure • Piecing the meanings together. • Google translation |
| 24 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Predict and guessing words meanings contextually |
| 25 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Google translation • Guessing meanings contextually |
| 26 | <ul style="list-style-type: none"> • Unfamiliar vocabulary • Unfamiliar tense | <ul style="list-style-type: none"> • Look up dictionary • Search on the internet |
| 27 | <ul style="list-style-type: none"> • Unfamiliar technical vocabulary | <ul style="list-style-type: none"> • Search on the internet • Guess from context |
| 28 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Briefly read the article first and spotted all unfamiliar vocabulary. • Then look up dictionary according to the context. • Finally read those sentences containing those words again. |
| 29 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Asking Singaporean cousin who is good at English |
| 30 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Look up dictionary • Search on the internet |
| 31 | <ul style="list-style-type: none"> • Unfamiliar vocabulary | <ul style="list-style-type: none"> • Go through the title and main subject first • Then read the options • Finally go into specific texts |

Table 4.3 The Findings of Students' Journals (Cont.)

| Students | Difficulties Encountered | Strategies Used |
|----------|---|---|
| 32 | <ul style="list-style-type: none"> Unfamiliar vocabulary | <ul style="list-style-type: none"> Look up dictionary Search on the internet |
| 33 | <ul style="list-style-type: none"> Unfamiliar vocabulary | <ul style="list-style-type: none"> Look up dictionary Skip words |
| 34 | <ul style="list-style-type: none"> Unfamiliar vocabulary Unfamiliar grammar | <ul style="list-style-type: none"> Look up dictionary Search on the internet |
| 35 | <ul style="list-style-type: none"> Unfamiliar vocabulary | <ul style="list-style-type: none"> Google translation |
| 36 | <ul style="list-style-type: none"> Unfamiliar vocabulary | <ul style="list-style-type: none"> Look up dictionary Ask teacher |
| 37 | <ul style="list-style-type: none"> Unfamiliar vocabulary Unfamiliar article structure | <ul style="list-style-type: none"> Look up dictionary Reread the text |
| 38 | <ul style="list-style-type: none"> Unfamiliar vocabulary Unfamiliar grammar | <ul style="list-style-type: none"> Look up dictionary Read it silently, then loudly |

Table 4.3 showed that the most challenging problems for the participants were unfamiliar vocabulary (73 percent), unfamiliar grammar (17 percent), unfamiliar article structure (6 percent), and cannot find answers and unfamiliar phrase words (2 percent) respectively.

Based on the information from the journal, the reading strategies used by the majority of the participants were look up dictionary (34 percent), search on the Internet (18 percent), read the article first, then questions and answers, finally reread the article (10 percent), guessing meanings contextually (8 percent), read slow and asking people with equal (5 percent), concentration, read the question first then article and critical thinking (3 percent) respectively, find keywords from sentences, skip words, analyze sentences and read it silently first, then loudly (2 percent) individually.

The following were some examples of the journal recorded by participants during their reading process through this experiment.

1) Unfamiliar Vocabulary and Phrase Words

“I found some vocabulary that I can't read and understand. So, I used Google translation to know what the meaning of words is and how to read it.” (Jen, personal communication, November 28, 2021).

“When I was reading, I always can encounter some words that I don't know their meanings, but I can understand it by find the keyword in every sentences.” (Mike, personal communication, November 28, 2021).

“I'd say that I was confused about some words like CO₂. So, I have to search on google and then I'll know what it means and it's very nice meaning. Sometimes I see this word a lot when I read the science book and that all what I don't understand about vocabulary.” (Lucy, personal communication, November 28, 2021).

“The problem for me is that there are too many words that I don't know. My reading strategy is that I visualize information based on what I read.” (Yang, personal communication, November 28, 2021).

“The problems I encountered while reading was many unfamiliar vocabularies. Too often, I skip words or read slowly. When I was sounding out a word, take my time and be patient. Remember that the SAT is not a race. See the " Solutions for Common Reading Problems" above. This section has lots of valuable tips that can help me tremendously while I'm trying to grasp the meaning of a particular passage.” (Lee, personal communication, November 28, 2021).

“The first problem for me is not knowing the meaning of words and being unable to spell certain words. For the strategy used is read the questions and answers first, then go read the article, but read roughly 1 time before.” (Kim, personal communication, November 28, 2021).

“I don’t know some words and phrases, so I search google for their meanings and try to understand in each paragraph. I also use context to guess their meanings.” (Wang, personal communication, November 28, 2021).

2) Unfamiliar Grammar

This is the second biggest problem for participants, generally coexisting with unfamiliar vocabulary.

“Some words I don’t know and grammar. I went to translate and searched on google.” (Lily, personal communication, November 28, 2021).

“The problem that I encountered was vocabulary and grammar, but I can figure out from internet or dictionary.” (Nancy, personal communication, November 28, 2021).

“There are some words that I don't know, like all this words: = Psychologist, considering, compensation, or about some grammar that I'm still can't get it So sometimes I try to search on the internet.” (Bill, personal communication, November 28, 2021).

“I don’t know a lot of vocabulary and grammar. I look up dictionary and search on the internet.” (Kin, personal communication, November 28, 2021).

“There were many vocabulary and sentence structures that I don't know. I'm guessing for some words and understand the importance of the content of the story. Read the whole article, then find the keywords of the story, and then compiled in accordance with the content of the story.” (Wendy, personal communication, November 28, 2021).

3) Unfamiliar Article Structure

“I had some trouble of understanding the meanings because of the writing style. It's more advanced than what I have read in the past, but I got through it by analyzing the grammar structure and piecing the meaning together. I also struggled with some words like " vast", " compensation", " contrasts" and "range". But after googling the meaning, I had no more problems.” (Jacky, personal communication, November 28, 2021).

“Problem: unknown vocabulary and the article structure. Strategy: Look up a dictionary and reread the text again to have a better understanding of it.” (Grace, personal communication, November 28, 2021).

“Problem: I found it difficult to understand the structures of some articles. Strategies: I tried to concentrate on the article and search on the internet.” (Cathy, personal communication, November 28, 2021).

4) Cannot Find Answers

“Problem: I need to read the passage a couple of times to understand. Reading strategy: I would read the questions before the article so that I could save time by narrowing where I would have to read. 2.I understand the question, the choices and where to find the answer, but it was difficult to connect the passage with the choices. So, I reread the articles and answers which I thought were the closest possible answer.” (Jason, personal communication, November 28, 2021).

In conclusion, the journal reflects the specifics of participants reading in the experiment. Participants did not encounter many problems in the process of reading English, but they would actively adopt reading strategies that were suitable for themselves to help them read when facing difficulties hindering them reading in SDL.

4.4 THE ANALYSIS OF OPINION QUESTIONNAIRE

To investigate the students' opinions toward SDL after the study is the second objective. Thus, a twenty-itemed questionnaire was designed for the participants. Among them, the 5-point Likert scale was adopted for the close-ended questions, which used to test the second assumption; two open-ended questions at the end were to answer the second research question. The participants were asked to tick the answer to each question on a scale of one to five based on their own experiences. One meant strongly disagree, two meant disagree, three meant neutral, four meant agree, five meant strongly agree.

The questionnaire was divided into three parts: general information, close-ended questions, and open-ended questions. The frequency was used for the results of general information and close-ended questions, a thematic content analysis for the result of open-ended questions.

The following of Table 4.4, 4.5 and 4.6 show the results of general information of participants; table 4.7 displays the findings of close-ended questions; Table 4.8, 4.9 and 4.10 are the results of open-ended questions.

Table 4.4 Participants' Gender Ratio

| 1. Your gender | Frequency | Percentage |
|----------------|-----------|------------|
| Female | 31 | 81.6% |
| Male | 7 | 18.4% |
| Total | 38 | 100% |

The total number of 38 participants in the experiment responded to the questionnaire. As Table 4.4 shows that 31 were female and 7 were male.

Table 4.5 Participants' Age Ratio

| 2. What is your age? | Frequency | Percentage |
|----------------------|-----------|------------|
| 17 | 1 | 2.6% |
| 18 | 12 | 31.6% |
| 19 | 17 | 44.7% |
| 20 | 4 | 10.5% |
| 21 | 4 | 10.5% |
| Total | 38 | 100% |

From Table 4.5 can be seen that the largest number of the participants were 19 years and 18 years, with 17 and 12 people individually (44.7 percent and 31.6 percent respectively). At age 20 and 21 there were an equal number of 4 participants (10.5 percent for both) and only 1 participant was 17 years old (2.6 percent).

Table 4.6 The Number of Years of English Study of Participants

| 3. Up to now, how many years have you studied English? | Frequency | Percentage |
|--|-----------|------------|
| Less than 12 years | 7 | 18.4% |
| 12 years | 8 | 21.1% |
| More than 12 years | 23 | 60.5% |
| Total | 38 | 100% |

As Table 4.6 shown that the total number of 38 participants, 23 (60.5 percent) had studied English over 12 years, 8 (21.1 percent) had studied English for exactly 12 years, and 7 (18.4 percent) for less than 12 years.

Table 4.7 The Findings of Close-Ended Questions

| ITEMS | 5 | 4 | 3 | 2 | 1 |
|---|-------------|-------------|-------------|-----------|-----------|
| 4. I have found that self-directed learning is very helpful to enhance my English reading skills. | 9 23.7% | 22 57.9% | 7 18.4% | | |
| 5. I would use self-directed learning to further enhance my English reading skill. | 7 18.4% | 21 55.3% | 10 26.3% | | |
| 6. I think self-directed learning is very useful learning method for English learning. | 15 39.5% | 16 42.1% | 6 15.8% | 1 2.6% | |
| 7. I have found that I learnt things through self-directed learning which couldn't be learnt from formal class. | 6 15.8% | 14 36.8% | 15 39.5% | 3 7.9% | |
| 8. I would recommend self-directed learning to my friends or other classmates. | 9 23.7% | 19 50% | 7 18.4% | 2 5.3% | 1 2.6% |
| 9. I think self-directed learning is a very flexible learning method that anyone can adopt it to assist their learning. | 14 36.8% | 19 50% | 5 13.2% | | |
| 10. I think self-directed learning is one of the most important learning methods for tertiary level students. | 14 36.8% | 20 52.6% | 4 10.5% | | |
| 11. Self-directed learning can systematically connect in-class and off-class learning together (i.e., any unclear knowledge in class can be enhanced by self-directed learning after class). | 15 39.5% | 20 52.6% | 3 7.9% | | |
| 12. Self-directed learning allows students to arrange learning according to their own needs (i.e., make up for where they are not good enough, freely choose their own learning methods or learning materials, etc.). | 12 31.6% | 22 57.9% | 4 10.5% | | |

Table 4.7 The Findings of Close-Ended Questions (Cont.)

| ITEMS | 5 | 4 | 3 | 2 | 1 |
|--|-------------|-------------|------------|-----------|---|
| 13. Self-directed learning is a flexible learning method that allows students to arrange their learning according to their own time and choose anywhere to learn without limitation. | 8 21.1% | 25 65.8% | 5 13.2% | | |
| 14. Self-directed learning can be used not only for English learning, but also for learning any other subject. | 17 44.7% | 17 44.7% | 4 10.5% | | |
| 15. Self-directed learning is different from traditional classroom learning, allowing learners to have more freedom, so it can improve students' learning interest. | 12 31.6% | 19 50% | 7 18.4% | | |
| 16. Since self-directed learning requires learners to be responsible for their own learning, it can not only improve students' learning independence, but also make them active learners. | 11 28.9% | 19 50% | 7 18.4% | 1 2.6% | |
| 17. Students need to think independently and find answers to many questions in the learning process, so self-directed learning can improve students' problem solution and critical thinking. | 9 23.7% | 21 55.3% | 8 21.1% | | |
| 18. Self-directed learning can turn learners to lifelong learners, which enables learners to pursue further education without limitation in both formally and informally education. | 6 15.8% | 25 65.8% | 6 15.8% | 1 2.6% | |

Above Table 4.7 shows that score 4 which represents agree had the most frequency. Among them, item18 and item13 both have 65.8 percent responses. Items of 4 and 12 have the same 57.9 percent. Item 5 and item 17 both have 55.3 percent.

Items of 10 and 11 have 52.6 percent respectively. Items of 9, 15 and 16 have 50 percent individually. The score of 4 and 5 for item 14 both are equal to 44.7 percent. Although item 8 has 50 percent for score 4, there is 2.6 percent for score 1, this is the only item has score of 1. Item 7, its highest rating is score 3, with percentage of 39.5, which is higher than score 4 with 36.8 percent. From this, it is not only seen that the participants had a positive attitude towards SDL enhancing English reading skills, but also agreed that SDL could give learners more learning freedoms, which could improve learners' learning interests, learning enthusiasms, thinking abilities, and become life-long learners. Yet, they also thought there were some limitations in SDL, like they did not agree that SDL could ensure learners to learn more than formal classes, as well as anyone can adopt SDL to assist their learnings.

The following are the findings of open-ended questions, which were participants expressed why and how SDL enhanced their English reading skills in this experiment.



Table 4.8 The Findings of Open-Ended Questions for Q19

| Q19 : Can you briefly explain why and why not self-directed learning help you in enhancing your English reading skills during this experiment? | |
|---|--|
| Categories | Themes |
| <ul style="list-style-type: none"> • Easy to manage learning time • No time limitation • Freedom in SDL • Learn at own pace • Allows self-control learning • Reduces learning pressure • No place restriction • Goes beyond classroom learning • Easily find free learning resources • Can start learning immediately • Focus on weakness Learning according to interest • Focus on needed subjects • Self-determined learnings • Self-evaluating learnings | <p>Gives learners freedom</p> <p>23</p> <p>59%</p> |
| <ul style="list-style-type: none"> • Fostering learning initiative • Improve learning interest | <p>Build SDL awareness</p> <p>6</p> <p>15%</p> |
| <ul style="list-style-type: none"> • Increase self-responsibility • Improve learning independence | <p>Promotes personal growth</p> <p>2</p> <p>5%</p> |

Table 4.8 The Findings of Open-Ended Questions for Q19 (Cont.)

| Categories | Themes |
|--|--|
| <ul style="list-style-type: none"> Increase thinking ability | Enhanced thinking ability 1 3% |
| <ul style="list-style-type: none"> Supports continuous learning | Applied to life-long learning 1 3% |
| <ul style="list-style-type: none"> Without teacher's guidance or class explanation is difficult | Without guidance is difficult 3 8% |
| <ul style="list-style-type: none"> Some lessons unsuitable for SDL | Has course limitation 1 3% |
| <ul style="list-style-type: none"> No time for SDL | Required time investment 1 3% |
| <ul style="list-style-type: none"> Helped a little | Little use 1 3% |

From Table 4.8, 84% participants gave positive responses, while 13% gave negative answers, other 3% was neutral. Among the negative responses, 8% stated that SDL without teacher's guidance was difficult. Some lessons were not suitable for SDL, had no time for SDL, and SDL helped little for learning were 3% respectively. Of those who responded positively, 59% considered that SDL was a flexible learning method that allow learners easily manage their learning time, learn at their own paces, self-control own learnings, reduces learning pressures, focus on needed subjects, learning according to own interests, self-determined learnings, self-evaluating learnings, easily find free learning resources, that goes beyond classroom and no place restrictions. 15% participants answered that SDL could foster learning initiatives and improve their learning interests. 5% asserted that SDL could improve their learning

independences and self-responsibilities. 3% stated that SDL could enhance their critical thinking. The other 3% responded that SDL supports continuous learnings.

Table 4.9 The Findings of Open-Ended Question for Q20

| Q20: If you think self-directed learning helped enhancing your English reading skill in this experiment, can you briefly explain how it helped you? | |
|---|--|
| Categories | Themes |
| <ul style="list-style-type: none"> Increased vocabulary, reading strategies, and grammars | English reading skills enhancements 17 47% |
| <ul style="list-style-type: none"> Enhanced English reading (learning) habit, interest, initiative | English learning enthusiasm enhancement 11 31% |
| <ul style="list-style-type: none"> Enhanced learning confidence, responsibility, and independence | Personal enhancement 4 11% |
| <ul style="list-style-type: none"> Strengthen knowledge understanding | Knowledge reinforcement 3 8% |
| <ul style="list-style-type: none"> Increase critical thinking and creativity. | Thinking ability enhancement 1 3% |

Since the answer to question 20 was based on question 19, question 20 received 33 answers from participants. From Table 4.9, 47% participants responded that in this experiment, SDL helped them learn more vocabularies, various sentence structures, enhanced comprehensions, as well as strategies. 31% stated that SDL enhanced their English reading (learning) habits, interests, initiatives. 11% stated that SDL increased their learning confidences, responsibilities, and independences. SDL

helped them to strengthen knowledge understandings and improved their critical thinking and creativities were 3% respectively.

In conclusion, combined both results of close-ended and open-ended questions can see that the participants not only agreed with SDL's help in their English learnings, but also expressed some positive views about SDL. From this, it can be clearly seen that SDL can indeed enhance the English reading skills of Thai tertiary level students, it is also a very useful learning method for them.

4.5 CONCLUSION

All data presented in this chapter answered the objectives and confirmed the research assumptions in this study effectively. Regarding the enhancements of participants' English reading skills, by comparing the data taken from the Pre-test and Post-test can see that the participants' total scores were much higher in the Post-test, so it is evident that participants performed better after the study. Participants made a big progress in the final test, which means SDL is very useful for participants' English reading skills enhancements; the data of the students' reading exercises clearly demonstrated that the participants' English reading skills improved each week through SDL from the beginning to the end of the experiment; participants' journals showed the problems they encountered in English reading and the reading strategies they used, as well as their frequency; the questionnaire clearly presented that the participants not only had a positive attitude towards SDL, but also expressed many positive opinions of themselves. Therefore, all these results illustrate that SDL is beneficial for enhancing the English reading skills of Thai tertiary level students. Finally, all the results were helpful for the utilization of the data analysis in the next chapter.

CHAPTER 5

CONCLUSIONS, DISCUSSIONS, RECOMMENDATIONS, AND IMPLICATIONS

This chapter contains four sections. The first is conclusion of the findings from all the data in this study. The second part is to discuss the findings of this study on the basis of other related studies to illustrate the similarities and differences to the theories. The third segment is to make recommendations for the use of the findings and directions for future research and to end with the implications of this study on education.

5.1 CONCLUSIONS

This study was to investigate the enhancements of SDL on the English reading skills of the first-year English majored undergraduates from College of Liberal Arts, Rangsit University, Pathumthani, Thailand. The researcher used four instruments in this study, the Pre/Post-test, reading exercises, student's journal, and opinion questionnaire to discover the enhancements of these participants' English reading skills after adopting SDL and their opinions toward it. Quantitative data were collected from 38 participants who were randomly selected from the population of 278 undergraduates enrolling in ENL 126 English compulsory course. The data were statistically analyzed using SPSS. Qualitative data used thematic content analysis.

Two research questions in this study are:

- 1) What are the extents of the enhancements of the tertiary level students' English reading skills by using self-directed learning in this study?
- 2) What are the opinions of the tertiary level students toward self-directed learning for enhancing their English reading skills in this study?

The findings are summarized according to answer each research question as follows:

5.1.1 Research Question 1

What are the extents of the enhancements of the tertiary level students' English reading skills by using self-directed learning in this study?

The comparison of the results of the Pre-test and the Post-test evidently presented that the mean score of the Post-test was 10.05 greater than the Pre-test. The paired t-test showed a significant difference of 0.0, which means that participants could enhance their English reading skills by using SDL, also accepted the researcher's hypothesis 1 (H1) (the English reading skills of these tertiary level students participating in this six-week self-directed learning experiment will significantly enhance in the post-test comparing the pre-test in this study). In the final test, the mean of the Post-test was 32.16 while the Pre-test was 22.11, it is obvious that the Post-test was 10.05 points higher than the Pre-test, which suggested that participants gained higher scores after the research. The S.D (5.34) in the Pre-test was bigger than the S.D (5.17) in the Post-test, this indicated that participants' scores were closer to the mean than those in the Pre-test. However, the effect size was calculated based on these two mean scores, and the result was 1.91, which meant that that the enhancements of these participants' English reading skills were large after using SDL learning method in this experiment.

Furthermore, participants' reading exercises showed that the mean scores of the first week from them was 7.37, the second was 9.84, the third was 11.05, the fourth was 11.16, the last week was 13.05. These numbers are clearly showed that participants' reading skills were improving every week. By comparing the final week's mean score with the first week, the final week was 5.68 higher than the first, so it can be concluded that participants improved their English reading skills with SDL from the beginning till the end of the experiment, which also proves the first hypothesis (H1) is accepted.

In conclusion, SDL is beneficial to enhance Thai tertiary level students' English reading skills.

5.1.2 Research Question 2

What are the opinions of the tertiary level students toward self-directed learning for enhancing their English reading skills in this study?

The data for answering this research question was the answers from the questionnaire. The data was divided into two parts, close-ended and open-ended questions. Blending the findings of them together was presented as follows:

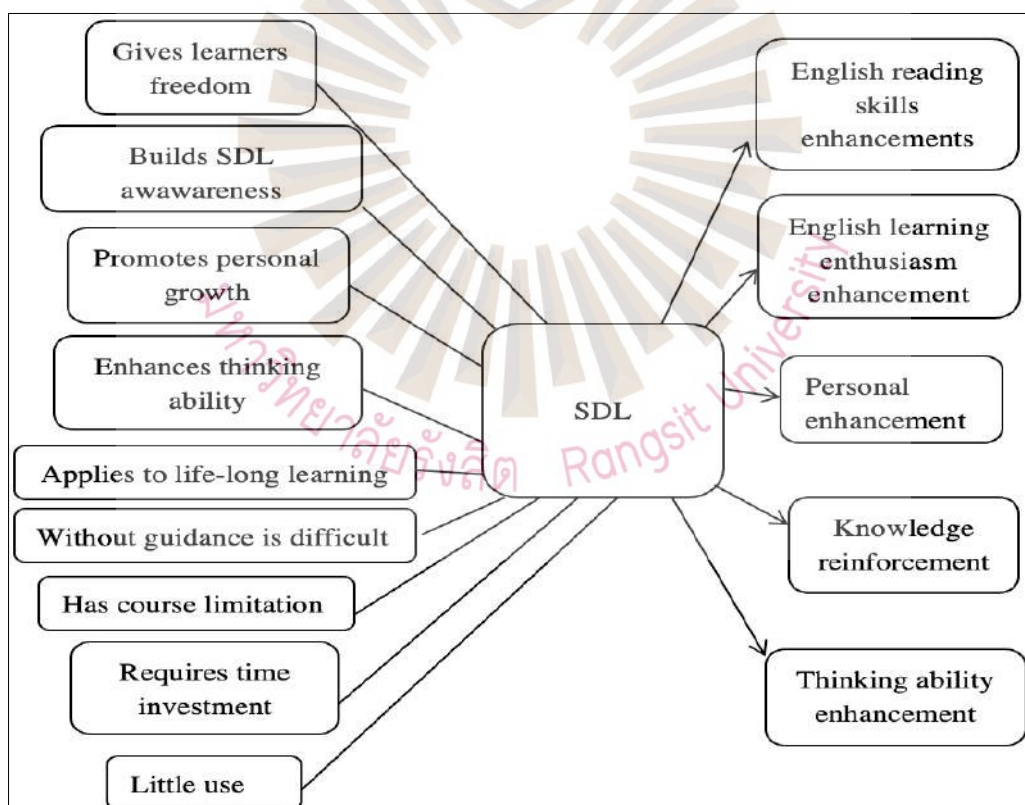


Figure 5.1 Blended Findings of Opinion Questionnaire

The combination of the results of close-ended questions and open-ended questions can be seen that SDL gives learners more freedom, allows learners to

become the masters of their own learnings, they could arrange learnings according to their needs without restriction, easily find various free learning materials based on their interests, which could build learners' SDL awareness, promote their personal growth, enhance their thinking ability, also could apply to their life-long learning, which all the benefits of SDL produced let the participants in this study not only enhanced their English reading skills and learning enthusiasm for English, but enhanced their thinking ability, and promoted personal enhancement and knowledge reinforcement.

Although most participants expressed positive opinions toward SDL, some of them also gave negative ones. From the results of close-ended questions can be seen that, the participants did not agree that SDL could ensure learners to learn more than formal classes, as well as it was useful to everyone. The possible reasons they expressed in open-ended questions were that they thought that some courses may not suit SDL as they strongly require teacher's guidance and class explanations. Besides, the lack of teacher guidance was also difficult for learners who lack learning independence and initiative, so SDL was of limited help to them. Meanwhile, SDL requires learners invest more of their time to engage, for learners who could not do that, or lack of time management may not be suitable for them.

In conclusion, the results of the questionnaire showed that all participants not only affirmed that SDL enhanced their English reading skills and were willing to recommend it to their friends, but also considered it to be an important learning method for college students, this proves that the hypothesis 2 (H2) (after the six-week self-directed learning experiment, the perceptions of these tertiary level students participating in the research toward self-directed learning are positive in this study) is accepted. They also expressed various positive views on SDL, although a few participants uttered negative opinions, most participants were positive for SDL.

5.1.3 Student's Journal

This instrument was intended to use as an aid to understand participants'

English reading details. The findings showed that most common problems the participants encountered in readings were unfamiliar vocabulary, and the strategy used to overcome this was to look up dictionary. A few chose the strategy of guessing the meaning from the context. The second big problem was unfamiliarity of grammar, for the strategy most participants chose was to search on the Internet instead of analyzing the sentence structures. Few of the participants adopted the strategies coached by the researcher, which suggested that the most participants may lack the practice of using proper English reading strategies to assist their readings. Although both strategies are direct and effective methods for English learning, it is easy to distract the reader and loses interest in reading. For the pragmatic reading strategies which the researcher coached them will not only help the readers to strengthen their English knowledge, but also intensify the readers' interests in English readings. Learning English with interest is the best way after all.

The findings also reflect that SDL is different from the traditional classroom, it is learner-centered, learners feel that there is no sense of constraint in SDL, so they can choose any reading strategy that suits them. Therefore, it can be concluded that SDL is one of the best ways to improve learners' English reading skills.

5.2 DISCUSSIONS

In this section, the researcher would discuss the conclusions based on the major findings and compare them with other previous studies in the literature review.

5.2.1 The Enhancements of English Reading Skills

This study is related to the studies of Khodabandehlou et al., (2012), Hamed et al., (2015), and Kin (2019) that SDL not only enhanced students' English reading skills, students' perspectives toward it were positive, but the enhancement size was different from the study of Wichadee (2011) and Swatevacharkul (2017), that may because participants in this study were English majors, their English foundations were better so their progresses may be faster, and the reading materials provided by the

researcher were more targeted, as well as the reading questions may help them better understood the articles.

5.2.2 The Findings of Opinion Questionnaire

Based on the findings of the questionnaire, participants expressed positive attitudes for SDL helping their English learnings, which confirms the findings of (Du, 2013; Jenwitthayayot & Tepsuriwong, 2016). From the open perspectives they explained why and how SDL enhanced their English reading skills in this study, the most frequent theme they mentioned was SDL gives learners freedom, which was proved in the study of Swatevacharkul (2017), and the results clearly explained the reasons. SDL is a flexible learning method, there is no time constraint and location restriction, students could start learning at any time according to their own schedule and learn at their own paces; with the popularity of online teaching, students can find a variety of free learning materials from the network, without incurring additional cost; SDL mostly occurs in extracurricular learning activities, which is learning beyond the classroom, this allows students to bring their questions in the classroom to be solved by looking up materials or asking teachers about them outside of class. Therefore, SDL can help students to combine classroom and extracurricular learning to further strengthen their understanding of knowledge. Also, SDL allows students to focus on their weaknesses, thereby avoiding wasting time and energy in some unnecessary subjects, this could improve their learning effects and efficiencies. In this study, students were allowed to adopt any reading strategy, either cooperate with others or by oneself, according to their own time and learning rhythm, let them fully control their learnings, so that the students' English reading skills could be enhanced.

About learning enthusiasm enhancement, it is likely that the freedom enjoyed by learners in SDL allows students to choose their own interested learning materials, appropriate learning methods and learning difficulties that according to their own needs. There is no direct teacher supervision and student competition in SDL. The learning pressure is greatly reduced, which will naturally stimulate students' learning initiatives. In the traditional English classroom teaching, students are the object of

education, the teacher mainly focuses on the language itself and ignores students' performances and feelings, and the students' learning is passive. SDL is different from traditional classroom teaching and is fully learner-centered, students can choose learning contents, learning styles, learning goals according to their own needs, and self-monitoring and evaluation of their own learnings, which let students truly master their own learnings. When everything is under their control, they feel motivated and willing to put in the effort for learnings (Swatevacharkul, 2017). When students feel motivated with their learnings, they will take the initiative and be willing to put in the effort to devote themselves spontaneously and consciously to learning, and take responsibility for themselves, which will improve students' learning independence, self-responsibility and learning confidence. Willingness is an internal factor, which enables learners to take charge their own learnings and gain better results (Hsieh, 2012). As students take the initiative to engage in SDL, they can be motivated to develop good learning habits that once developed, they can benefit students immensely. In SDL process, students need to adjust their knowledge structure, way of thinking and learning style from time to time according to their learning goals and learning situation, which invisibly exercises students' willpower, this would enhance their critical thinking as well as creativity. And SDL support continuous learning which is the best to apply to life-long learning.

Yet, there are also some limitations in SDL. As the results showed that some participants did not agree that SDL can ensure learners learning more than the formal classroom. This may because, to date, SDL has mostly been used by learners as a tool to aid classroom learning. Generally, it has been used by learners who have knowledge deficiencies in a certain major or some questions from class, or learners who leave the campus for re-education to assist their learning in their spare time to achieve the desired learning effect. It can only help learners to learn at a certain knowledge point and cannot reach the range of knowledge covered by formal education.

Regarding the other negative response that not everyone suits SDL. Participants gave some explanations for it. The most frequent theme they mentioned was that it is difficult without teacher's guidance in SDL, which is consistent with the

study of (Wichadee, 2011). This may be because that although SDL allows students to cooperate with others, it is often done by the students themselves, and most of them occur after class. When encountering difficulties in SDL, it is often difficult for students who lack critical thinking to make choices in the face of a vast range of answers, especially for young students; In Thailand, although many universities have adopted student-centered teaching methods, many students grown up in teacher-centered teaching methods. These students often lack independence and initiative in learning. They are used to learning under the guidance of teachers. Once they are out of this environment, these students do not know how to learn. While SDL is learner-centered, the learner is responsible for planning, implementing, supervising, and evaluating their own learnings, so for students who lack these skills may be more suitable for formal classroom learning; in the process of SDL, it mainly relies on the initiative of the learner to implement, so SDL may not be suitable for students who lack learning initiative and self-control, too. After all, not every learner is automatically self-directed, but with proper guidance from teachers, they may become self-directed people (Cordie, M. M. Witte & J. E. Witte, 2018).

In terms of course limitation, SDL may be more suitable for the study of text-based and theoretical-based courses, especially suitable for language learning. This is because language learning is an accumulation of time, the longer time the learner invests in, the stronger his language ability will be. SDL's no time limit ensures learners to do so. In addition, many questions in language learning can be easily answered in SDL by looking up the Internet. It may also be suitable for the study of subjects such as mathematics and physics. Some previous related studies have confirmed that SDL was helpful. SDL may not be suitable for disciplines with high practical requirements, such as medicine, engineering. Because without the guidance of teachers and the practice of students, students can only learn theoretical knowledge. And these disciplines relying on theory without practice is equivalent to not learning.

Modern society is a race against time, many college students in addition to the courses of their own major classes, may also participate in other courses or training outside of the university curriculum, so there is less time for them. Yet, SDL is

generally done by students looking for time outside of class, which means that they may need to sacrifice some of their rest or entertaining time to engage in SDL. For students who do not have time or are unwilling to do so, SDL may not be suitable for them. Moreover, using SDL to assist learning generally takes longer time and effort than formal classroom learning to see the obvious results. Therefore, it may be also difficult for learners who lack perseverance or patience to perform SDL.

Regarding helped a little, in addition to the many possibilities mentioned above, there may also be some students who are not very enthusiastic about learning. They may even not be serious about regular classroom learning, let alone sacrificing rest time to SDL. There is another kind of student who is very smart, they may think the general in-classroom learning is enough to master knowledge, so it is no necessary to SDL.

5.2.3 The Findings of Student's Journal

It can be seen from the students' journals, the strategies that students mostly used were look up dictionary and the Internet, only few of them adopted the reading strategies coached by the researcher, this is most likely the reading materials the researcher provided were higher than their actual English proficiencies, so most participants may find it difficult to read. Meanwhile, the English reading strategies the researcher coached were generally suitable for students with a decent English proficiency or the reading materials are compatible with the actual English level of the readers. When participants faced with the reading passages that full of many unrecognized words or sentence structures, even those who had the skills to use the reading strategies taught by the researcher did not have the opportunity to use them.

Also, without the supervision of the teacher in the SDL, students tended to choose the most effective and direct strategies to assist them read, which also shows that the SDL gives students more freedom to learn. Since the reading materials were attached with comprehension questions, as long as the articles they submitted with correct answers, even they did not read the articles the researcher would not know. Th

article carefully. Instead, they might just look at a particular paragraph or sentence roughly to find the answer, but usually the sentence with the answer was not too easy, so the participants could only choose to look up a dictionary or the Internet to help them. It is also possible that some participants may have other studies or work needed to be juggling and did not have time read it seriously, this way would save their time. Some participants may just write casually to cope with the assignment, but they may not actually use them while reading.

Furthermore, in Thailand, the current English education still focuses more on the teaching of vocabulary and grammar, and lacks the teaching of reading strategies. Thus, many Thai college students may not know how to properly use English strategies to help them to read.

Some external and emotional factors may also cause participants to be unable to do assignments seriously and chose shortcuts (look up dictionary or the Internet) to help themselves. For example, some participants may not have a good reading environment, or during the covid period, people's activities had been greatly restricted, which would greatly affect the mood of the participants. When they were depressed, they would not be willing to invest more energy or time to study.

In conclusion, looking up dictionary and the Internet are strategies that may be used for intensive reading, but may not be appropriate in extensive reading, because extensive reading emphasizes a lot of continuous reading, frequently looking up dictionaries or the Internet during reading will wastes readers' time and distract their attention without being able to read a lot.

5.2.4 The Limitation of the Study

Due to Covid, the entire data collection process was done online. Considering the limitations of online and the entire experimental process was performed by the participants themselves without supervision, it was inevitable that they would copy each other when they did the assignments, which may cause some errors in the data of

students' reading exercise. Also, the student's journal neglected to collect data on how participants used SDL to help them improve their English reading, and the application in this article was a bit off the research objectives. The selection of samples did not consider the allocation ratio of gender. There were more females than males in this study. Many studies have confirmed that genders have differences in language learning, so this might affect the results of the data.

5.3 RECOMMENDATIONS

This section provides recommendations for using the findings and future studies. For the first part, recommendations are made for college students or learners who are preparing to improve their English learning with SDL, the second part is for teaching English, and the third part makes suggestions for possible future research.

5.3.1 Recommendations for the Use of the Findings

To solve the challenge encountered of not having a teacher's guidance in SDL, teachers should strengthen the guidance of students' SDL ability in their daily teachings, create more activities for students to practice SDL in the classroom context and leave certain assignments and let students further exercise their SDL ability independently after class.

To unravel the problem that students were only accustomed to looking up dictionaries and the Internet, English teachers should incorporate some explanations of English reading strategies into their daily English teachings to help students better read English and further increase their English skills. Also, teachers should use English in their daily teaching practice, especially when teaching new words, so as to cultivate students' English language sense. In addition, teachers can assign more English reading homework to students after class, such as asking students to write a review of a certain text or a summary of the theme of the text, so as to promote students' English reading skills. With the increase of students' reading volume, the English reading strategies acquired in the classroom will be applied more frequently, and the English

reading skills will improve accordingly.

Considering the various benefits of SDL, students should actively adopt SDL to assist their English learning. It is not only beneficial for English learning, but also favorable to cultivating students' independent learnings and problem-solving abilities to promote their SDL abilities and further become life-long learners.

Students who want to improve their English reading skills through readings can combine intensive reading and extensive reading. Intensive reading can be used for textbook learning, students could utilize dictionaries and the Internet for better understanding; for extensive reading, students could have more choices. Any sort of reading material that appeal to them could be added in their reading lists. But, the difficulty levels should not exceed the reader's English level too much, and it is advisable not to exceed five unknown words in one page. In the reading process, guessing the meaning of the word in context could be used to improve reading efficiency.

5.3.2 Recommendations for Future Research

The future research may adopt a similar subject group but with a balanced gender ratio, or a different subject's group with a longer period of study time, which could further confirm SDL effects on English reading skills. The reading material had better be verified by a pilot study with a moderate difficulty level, and there should be a teacher who could help them when they encounter learning difficulties in SDL. The same instrument of reading exercise can be used, but make sure that it is performed under supervised conditions. Also, future researchers could adopt interview or journal as instrument, but focus on collecting in-depth data of how subjects use SDL to help them learn.

5.4 IMPLICATIONS OF THIS STUDY ON EDUCATION

5.4.1 Integrate SDL into Teaching Practice

Considering the many benefits of SDL, educational policy makers, curriculum planners and teachers should actively introduce SDL into teaching practice and focus on the development of students' relevant skills in teaching.

Based on the findings of this study, it encourages the educational policy makers and curriculum planners to integrate SDL with appropriate guidelines into teaching practice and implement student-centered pedagogic instructions. Firstly, education policymakers should encourage and promote lifelong learning in SDL for all; secondly, due to the impact of Covid-19, online teaching has become more popular as one of the mainstream teaching modes, which is a great test for students' SDL ability. Therefore, in the process of teaching online, teachers should record the whole lesson while teaching, in order to help some students to review after class because of bad network or other issues missed some knowledge.

Due to the limitation of online teaching, teachers are more likely to ignore the feelings of students. Thus, teachers should actively maintain interaction with students. Teachers could actively engage students in the form of fun quizzes to ensure students keep up with their teaching rhythm. In face-to-face classroom teachings, teachers should adopt more student-participated teaching methods, with the aim of cultivating students' critical thinking and learning initiative and using modern technology in teaching to increase students' learning interests. Besides, teachers should also strengthen their professional skills in modern technology, especially computer skills. After class, teachers should assign some homework to further develop students' critical thinking and creativity to promote students' independent learning abilities.

Moreover, teachers should listen more to students' voices, and actively collect students' feedbacks on teachings, so as to better design teaching methods suitable for students to further enhance students' enthusiasm for learnings; finally, curriculum designers should design more curricula that are conducive to cultivating students' SDL abilities. Schools should also carry out a variety of SDL activities suitable for students' interests to attract them to actively participate in SDL. When students have good SDL

ability and are exposed to a strong SDL atmosphere, they will naturally take the initiatives to carry out SDL, gradually form the habit of SDL, further promote the development of various abilities, and eventually become a qualified life - long learner.

5.4.2 Connect In-class and Out-of-class Education

SDL is indeed a very effective learning method to help learners learn, but some of its limitations do bring inconvenience to learners. To overcome these challenges and make SDL truly at the service of learners, there is a need to connect learning in and out of the classroom. Considering the rapid development of online teaching in recent years, out of class education should focus on creating online education system.

Education policy makers should encourage schools to combine online and offline education, that is, the combination of SDL and formal classroom learning. Every school should establish their own online course systems and classify different majors and grades in detail. This should be managed by the network administrator who is responsible for curricula management, so as to upload and update the course in time. All students at the school should have a username so that they can log in and study anytime, anywhere, and truly realize the combination of online and offline courses.

Teachers could strengthen their connections by forming online study groups with their students. It can be managed by a designated student or teacher assistant, or by the teacher. Encourage students to actively speak out in the group regarding learning issues. For instance, if a student has any blind spot in the professional knowledge and asks a question in the study group, any student who has an answer to this can actively reply, and the teacher can correct or summarize the incorrect reply. This not only increases students' motivation to study, but also develops their SDL skills. Teachers can refer to the problems that cannot be solved in the group and explain them in the classroom, so as to truly combine the learning in class with the learning after class.

For learners who want to do SDL but with limit time, they can first evaluate their activities and time, and then analyze which activities must be done and which ones can be ignored but will not affect their normal work or study. Then analyze learning tasks and the time saved to find the most suitable schedule and daily learning volume. When goals are set, choose an appropriate learning method, and monitor and evaluate learning during SDL.



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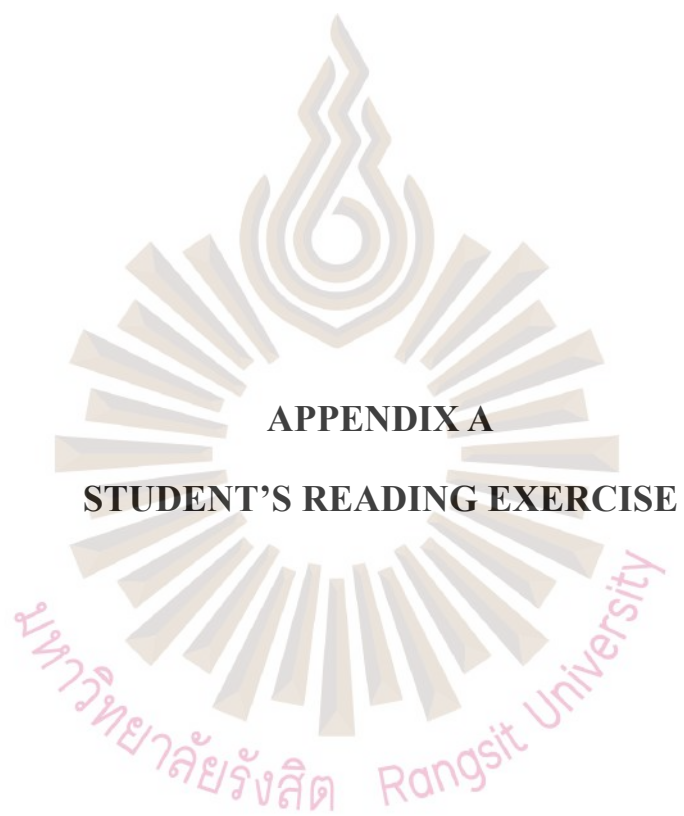
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Week1

Article 1

When we think of animals and plants, we have a pretty good way of dividing them into two distinct groups: one converts sunlight into energy and the other has to eat food to make its energy. Well, those dividing lines come crashing down with the discovery of a sea slug that's truly half animal and half plant. It's pretty incredible how it has managed to hijack the genes of the algae on which it feeds.

The slugs can manufacture chlorophyll, the green pigment in plants that captures energy from sunlight, and hold these genes within their body. The term kleptoplasty is used to describe the practice of using hijacked genes to create nutrients from sunlight. And so far, this green sea slug is the only known animal that can be truly considered solar-powered, although some animals do exhibit some plant-like behaviors. Many scientists have studied the green sea slugs to confirm that they are actually able to create energy from sunlight.

In fact, the slugs use the genetic material so well that they pass it on to their future generations. Their babies retain the ability to produce their own chlorophyll, though they can't generate energy from sunlight until they've eaten enough algae to steal the necessary genes, which they can't yet produce on their own.

"There's no way on earth that genes from an alga should work inside an animal cell," says Sidney Pierce from the University of South Florida. "And yet here, they do. They allow the animal to rely on sunshine for its nutrition. So if something happens to their food source, they have a way of not starving to death until they find more algae to eat."

The sea slugs are so good at gathering energy from the sun that they can live up to nine months without having to eat any food. They get all their nutritional needs met by the genes that they've hijacked from the algae.

1. What is the distinctive feature of a sea slug?
 - A) It looks like both a plant and animal.
 - B) It lives half on animals and half on plants.
 - C) It converts some sea animals into plants.
 - D) It gets energy from both food and sunlight.

2. What enables the sea slug to live like a plant?
- A) The genes it captures from the sea plant algae.
 - B) The nutrients it hijacks from other species.
 - C) The mechanism by which it conserves energy.
 - D) The green pigment it inherits from its ancestors.
3. What does the author say about baby sea slugs?
- A) They can live without sunlight for a long time.
 - B) They can absorb sunlight right after their birth.
 - C) They can survive without algae for quite some time.
 - D) They can produce chlorophyll on their own.
4. What does Sidney Pierce say about genes from an alga?
- A) They are stolen from animals like the sea slug.
 - B) They can't function unless exposed to sunlight.
 - C) They don't usually function inside animal cells.
 - D) They can readily be converted to sea slug genes.
5. What do we learn about sea slugs from the passage?
- A) They behave the way most plant species do.
 - B) They can survive for months without eating.
 - C) They will turn into plants when they mature.
 - D) They will starve to death without sunlight.

Article 2

Americans spend billions of dollars each year trying to change our weight with diets, gym memberships and plastic surgery.

Trying to live up to the images of “perfect” models and movie heroes has a dark side: anxiety and depression, as well as unhealthy strategies for weight loss or muscle gain. It also has a financial cost. Having an eating disorder boosts annual health care costs by nearly US\$2,000 per person.

Why is there both external and internal pressure to look “perfect”? One reason is that society rewards people who are thin and healthy looking. Researchers have shown that body mass index is related to wages and income. Especially for women, there is a clear penalty at work for being overweight or obese. Some studies have also found an impact for men, though a less noticeable one.

While the research literature is clear that labor market success is partly based on how employers and customers perceive your body image, no one had explored the other side of question. Does a person's own perception of body image matter to earnings and other indicators of success in the workplace?

Our recently published study answered this question by tracking a large national random sample of Americans over a critical time period when bodies change from teenage shape into adult form and when people build their identities.

As in other research, women in our sample tend to over-perceive their weight—they think they're heavier than they are—while men tend to under-perceive theirs.

We found no relationship between the average person's self-perception of weight and labor market outcomes, although self-perceived weight can influence self-esteem, mental health and health behaviors.

While the continued gender penalty in the labor market is frustrating, our finding that misperceived weight does not harm workers is more heartening.

Since employers' perception of weight is what matters in the labor market, changing discrimination laws to include body type as a category would also help. Michigan is the only state that prohibits discrimination on the basis of weight and height. We believe expanding such protections would make the labor market more fair and efficient.

1. What does the author say may have an adverse impact on people?

- A) Undergoing plastic surgeries in pursuit of beauty.
- B) Imitating the lifestyles of heroes and role models.
- C) Striving to achieve perfection regardless of financial cost.
- D) Attempting to meet society's expectation of appearance.

2. What have researchers found out about people's earnings?

- A) They are closely related to people's social status.
- B) They have to do with people's body weight and shape.
- C) They seem to matter much less to men than to women.
- D) They may not be equal to people's contributions.

3. What does the author's recent study focus on?

- A) Previous literature on indicators of competitiveness in the workplace.
- B) Traits that matter most in one's pursuit of success in the labor market.
- C) Whether self-perception of body image impacts one's workplace success.
- D) How bosses' perception of body image impacts employees' advancement.

4. What is the finding of the author's recent research?

- A) Being overweight actually does not do much harm to the overall well-being of employees.
- B) People are not adversely affected in the workplace by false self-perception of body weight.
- C) Self-esteem helps to combat gender inequality in the workplace.
- D) Gender inequality continues to frustrate a lot of female employees.

5. What does the author think would help improve the condition in the labor market?

- A) Banning discrimination on the basis of employees' body image.
- B) Expanding protection of women against gender discrimination.
- C) Helping employees change their own perception of beauty.
- D) Excluding body shape as a category in the labor contract.

Week 2

Article 1

The work-life balance is dead. By this, I'm not advocating that you should give up your pursuit of having a fulfilling career and a thriving personal life, and I'm definitely not saying that you have to give up one to have the other. I also acknowledge that we have a work-life problem, but I'm arguing that the concept of balance has never been helpful, because it's too limiting. You see, our language makes a difference, and how we refer to things matters because it affects our thinking and therefore our actions.

At the minimum, most of us work because we want to be able to support ourselves, our families, and the people around us. In the ideal world, we're all doing work that we're proud of and that provides meaning and purpose to us. But even if your job doesn't give you shivers of joy each new day, working is a part of what each of us does and the contribution we make to society. When you separate work and life, it's a little bit harder to make that connection. But when you think of work as part of a full life and a complete experience, it becomes easier to see that success in one aspect often supports another.

Losing your balance and falling isn't pleasant. A goal to balance suggests that things could quickly get off the balance, and that causes terrible outcomes. It's more constructive to think of solutions that continue to evolve over shifts in life and work. Rather than falling or failing, you may have good days or better days or not-so-good days. These variations are normal, and it's more useful to think of life as something that is ever evolving and changing, rather than a high-risk enterprise where things could go wrong with one misstep.

How we talk to ourselves matters, and how we talk about issues makes a difference. Let's bury "work-life balance" and think bigger and better about work-life fulfillment to do a little less balancing and a lot more living.

1. What does the author suggest by saying "The work-life balance is dead"?

- A) The hope of achieving a thriving life is impossible to realize.
- B) The pursuit of a fulfilling career involves personal sacrifice.

- C) The imbalance between work and life simply doesn't exist anymore
- D) The concept of work-life balance contributes little to a fulfilling life.

2. What does the author say about our use of language?

- A) It impacts how we think and behave.
- B) It changes with the passage of time.
- C) It reflects how we communicate.
- D) It differs from person to person.

3. What does the author say we do in an ideal world?

- A) We do work that betters the lives of our families and friends.
- B) We do work that gives us bursts of joy each new day.
- C) We do meaningful work that contributes to society.
- D) We do demanding work that brings our capacity into full play.

4. What does the author say about life?

- A) It is cyclical.
- B) It is dynamic.
- C) It is fulfilling.
- D) It is risky.

5. What does the author advise us to do?

- A) Make life as simple as possible.
- B) Talk about balance in simpler terms.
- C) Balance life and work in a new way.
- D) Strive for a more filling life.

Article 2

When is cleaning was a crime? When you're doing it to create art, obviously. A number of street artists around the world have started expressing themselves through a practice known as reverse graffiti. They find dirty surfaces and paint them with images or messages using cleaning brushes or pressure hoses. Either way, it's the same

principle: the image is made by cleaning away the dirt. Each artist has their own individual style but all artists share a common aim: to draw attention to the pollution in our cities. The UK's Paul Curtis, better known as Moose, operates around Leeds and London and has been commissioned by a number of companies to make reverse graffiti advertisements.

Brazilian artist, Alexandre Orion, turned one of Sao Paulo's transport tunnels into an amazing wall painting in 2006 by getting rid of the dirt. Made up of a series of white skulls, the painting reminds drivers of the effect their pollution is having on the planet. "Every motorist sits in the comfort of their car, but they don't give any consideration to the price their comfort has for the environment and consequently for themselves," says Orion.

The anti-pollution message of the reverse graffiti artists confuses city authorities since the main argument against graffiti is that it spoils the appearance of both types of property: public and private. This was what Leeds City Council said about Moose's work: "Leeds residents want to live in clean and attractive neighborhoods. We view this kind of advertising as environmental damage and will take strong action against it." Moose was ordered to "clean up his act." How was he supposed to do this: by making all property he had cleaned dirty again?

As for the Brazilian artist's work, the authorities were annoyed but could find nothing to charge him with. They had no other option but to clean the tunnel—but only the parts Alexandre had already cleaned. The artist merely continued his campaign on the other side. The city officials then decided to take drastic action. They not only cleaned the whole tunnel but every tunnel in Sao Paulo.

1. What do we learn from the passage about reverse graffiti?

- A) It uses paint to create anti-pollution images.
- B) It creates a lot of trouble for local residents.
- C) It causes lots of distraction to drivers.
- D) It turns dirty walls into artistic works.

2. What do reverse graffiti artists try to do?

- A) Publicise their artistic pursuit.

- B) Beautify the city environment.
- C) Raise public awareness of environmental pollution.
- D) Express their dissatisfaction with local governments.

3. What do we learn about Brazilian artist Alexandre Orion?

- A) He was good at painting white skulls.
- B) He chose tunnels to do his graffiti art.
- C) He suggested banning all polluting cars.
- D) He was fond of doing creative artworks.

4. What does the author imply about Leeds City Council's decision?

- A) It is simply absurd.
- B) It is well-informed.
- C) It is rather unexpected.
- D) It is quite sensible.

5. How did Sao Paulo city officials handle Alexandre Orion's reverse graffiti?

- A) They made him clean all the tunnels in Sao Paulo.
- B) They took drastic action to ban all reverse graffiti.
- C) They charged him with polluting tunnels in the city.
- D) They made it impossible for him to practice his art.

Week 3

Article 1

The practice of paying children an allowance became popular in America about 100 years ago. Nowadays, American kids on average receive about \$800 per year in allowance. But the vast majority of American parents who pay allowance tie it to the completion of housework. Although many parents believe that paying an allowance for completing chores benefits their children, a range of experts expressed concern that tying allowance very closely to chores may not be ideal. In fact, the way chores work in many households worldwide points to another way.

Suniya Luthar, a psychologist, is against paying kids for chores. Luthar is not opposed to giving allowances, but she thinks it's important to establish that chores are done not because they will lead to payment, but because they keep the household running. Luthar's suggested approach to allowance is compatible with that of writer Ron Lieber, who advises that allowances be used as a means of showing children how to save, give, and spend on things they care about. Kids should do chores, he writes, "for the same reason adults do, because the chores need to be done, and not with the expectation of compensation."

This argument has its critics, but considering the way chores are undertaken around the world may change people's thinking. Professor David Lancy of Utah State University has studied how families around the world handle chores. At about 18 months of age, Lancy says, most children become eager to help their parents, and in many cultures, they begin helping with housework at that age. They begin with very simple tasks, but their responsibilities gradually increase. And they do these tasks without payment. Lancy contrasts this with what happens in America. "We deny our children's bids to help until they are 6 or 7 years old," Lancy says, "when many have lost the desire to help and then try to motivate them with payment. The solution to this problem is not to try to use money as an incentive to do housework, but to get children involved in housework much earlier, when they actually want to do it."

1. What do some experts think about paying children for doing chores?

A) It may benefit children in more ways than one.

- B) It may help children learn the worth of labor.
- C) It may not turn out to be the best thing to do.
- D) It may not be accepted by low-income parents.

2. According to Suniya Luthar, doing chores will help children learn to ____.

- A) share family responsibilities
- B) appreciate the value of work
- C) cultivate the spirit of independence
- D) manage domestic affairs themselves

3. What does Ron Lieber think should be the goal of giving children allowances?

- A) To help to strengthen family ties.
- B) To teach them how to manage money.
- C) To motivate them to do more housework.
- D) To show parents' appreciation of their help.

4. What does David Lancy say about 18-month-olds?

- A) They have a natural instinct to help around the house.
- B) They are too young to request money for what they do.
- C) They should learn to understand family responsibilities.
- D) They need a little incentive to get involved in housework.

5. What does David Lancy advise American parents to do?

- A) Set a good example for children in doing housework.
- B) Make children do housework without compensation.
- C) Teach children how to do housework.
- D) Accept children's early bids to help.

Article 2

Professor Ashok Goel of Georgia Tech developed an artificially intelligent teaching assistant to help handle the enormous number of student questions in the online class, Knowledge-Based Artificial Intelligence. This online course is a core

requirement of Georgia Tech's online Master of Science in Computer Science program Professor Goel already had eight teaching assistants, but that wasn't enough to deal with the overwhelming number of daily questions from students.

Many students drop out of online courses because of the lack of teaching support. When students feel isolated or confused and reach out with questions that go unanswered, their motivation to continue begins to fade. Professor Goel decided to do something to remedy this situation and his solution was to create a virtual assistant named Jill Watson, which is based on the IBM Watson platform.

Goel and his team developed several versions of Jill Watson before releasing her to the online forums. At first, the virtual assistant wasn't too great. But Goel and his team sourced the online discussion forum to find all 40,000 questions that had ever been asked since the class was launched. Then they began to feed Jill with the questions and answers. After some adjustments, and sufficient time, Jill was able to answer the students' questions correctly 97% of the time. The virtual assistant became so advanced and realistic that the students didn't know she was a computer. The students, who were studying artificial intelligence, were interacting with the virtual assistant and couldn't tell it apart from a real human being. Goel didn't inform them about Jill's true identity until April 26. The students were actually very positive about the experience.

The goal of Professor Goel's virtual assistant next year is to take over answering 40% of all the questions posed by students on the online forum. The name Jill Watson will, of course, change to something else next semester. Professor Goel has a much rosier outlook on the future of artificial intelligence than, say, Elon Musk, Stephen Hawking, Bill Gates or Steve Wozniak.

1. What do we learn about Knowledge-Based Artificial Intelligence?

- A) It is a robot that can answer students' questions.
- B) It is a course designed for students to learn online.
- C) It is a high-tech device that revolutionizes teaching.
- D) It is a computer program that aids student learning.

2. What problem did Professor Goel meet with?

- A) His students were unsatisfied with the assistants.
- B) His course was too difficult for the students.
- C) Students' questions were too many to handle.
- D) Too many students dropped out of his course.

3. What do we learn about Jill Watson?

- A) She turned out to be a great success.
- B) She got along pretty well with students.
- C) She was unwelcome to students at first.
- D) She was released online as an experiment.

4. How did the students feel about Jill Watson?

- A) They thought she was a bit too artificial.
- B) They found her not as capable as expected.
- C) They could not but admire her knowledge.
- D) They could not tell her from a real person.

5. What does Professor Goel plan to do next with Jill Watson?

- A) Launch different versions of her online.
- B) Feed her with new questions and answers.
- C) Assign her to answer more of students' questions.
- D) Encourage students to interact with her more freely.

Week 4

Article 1

Thinking small, being engaging, and having a sense of humor don't hurt. Those are a few of the traits of successful science crowdfunding efforts that emerge from a recent study that examined nearly 400 campaigns. But having a large network and some promotional skills may be more crucial.

Crowdfunding, raising money for a project through online appeals, has taken off in recent years for everything from making movies to producing water-saving gadgets. Scientists have tried to tap Internet donors, too, with mixed success. Some raised more than twice their goals, but others have fallen short of reaching even modest targets.

To determine what separates science crowdfunding triumphs from failures, a team led by science communications scholar Mike Schafer of the University of Zurich examined the content of the webpages for 371 recent campaigns.

Four traits stood out for those that achieved their goals, the researchers report in *Public Understanding of Science*. For one, they use a crowdfunding platform that specializes in raising money for science, and not just any kind of project. Although sites like Kickstarter take all comers, platforms such as Experiment.com and Petridish.org only present scientific projects. For another, they present the project with a funny video because good visuals and a sense of humor improved success. Most of them engage with potential donors, since projects that answered questions from interested donors fared better. And they target a small amount of money. The projects included in the study raised \$4000 on average, with 30% receiving less than \$1000. The more money a project sought, the lower the chance it reached its goal, the researchers found.

Other factors may also significantly influence a project's success, most notably, the size of a scientist's personal and professional networks, and how much a researcher promotes a project on their own. Those two factors are by far more critical than the content on the page. Crowdfunding can be part of researchers' efforts to reach the public, and people give because "they feel a connection to the person" who is doing the fundraising—not necessarily to the science.

1. What do we learn about the scientists trying to raise money online for their projects?

- A) They did not raise much due to modest targets.
- B) They made use of mixed fundraising strategies.
- C) Not all of them achieved their anticipated goals.
- D) Most of them put movies online for the purpose.

2. What is the purpose of Mike Schafer's research of recent crowdfunding campaigns?

- A) To create attractive content for science websites.
- B) To identify reasons for their different outcomes.
- C) To help scientists to launch innovative projects.
- D) To separate science projects from general ones.

3. What trait contributes to the success of a crowdfunding campaign?

- A) The potential benefit to future generations.
- B) Its interaction with prospective donors.
- C) Its originality in addressing financial issues.
- D) The value of the proposed project.

4. What did the researchers think of the financial targets of crowdfunding projects?

- A) They should be small to be successful.
- B) They should be based on actual needs.
- C) They should be assessed with great care.
- D) They should be ambitious to gain notice.

5. What motivates people to donate in a crowdfunding campaign?

- A) The ease of access to the content of the webpage.
- B) Their desire to contribute to the cause of science.
- C) The significance and influence of the project itself.
- D) Their feeling of connection to the scientists themselves.

Article 2

Textbooks represent an 11 billion dollar industry, up from \$8 billion in 2014. Textbook publisher Pearson is the largest publisher—of any kind—in the world.

It costs about \$1 million to create a new textbook. A freshman textbook will have dozens of contributors, from subject-matter experts through graphic and layout artists to expert reviewers and classroom testers. Textbook publishers connect professors, instructors and students in ways that alternatives, such as open e-textbooks and open educational resources, simply do not. This connection happens not only by means of collaborative development, review and testing, but also at conferences where faculty regularly decide on their textbooks and curricula for the coming year.

It is true that textbook publishers have recently reported losses, largely due to students renting or buying used print textbooks. But this can be chalked up to the excessively high cost of their books—which has increased over 1,000 percent since 1977. A restructuring of the textbook industry may well be in order. But this does not mean the end of the textbook itself.

While they may not be as dynamic as an iPad, textbooks are not passive or lifeless. For example, over the centuries, they have simulated dialogues in a number of ways. From 1800 to the present day, textbooks have done this by posing questions for students to answer inductively. That means students are asked to use their individual experience to come up with answers to general questions. Today's psychology texts, for example, ask: "How much of your personality do you think you inherited?" while ones in physics say: "How can you predict where the ball you tossed will land?"

Experts observe that "textbooks come in layers, something like an onion". For an active learner, engaging with a textbook can be an interactive experience: Readers proceed at their own pace. They "customize" their books by engaging with different layers and linkages. Highlighting, Post-It notes, dog-ears and other techniques allow for further customization that students value in print books over digital forms of books.

1. What does the passage say about open educational resources?
 - A) They contribute to teaching as much as to learning.
 - B) They don't profit as much as traditional textbooks do.
 - C) They can't connect professors and students as textbooks do.
 - D) They compete fiercely for customers with textbook producers.

2. What is the main cause of the publishers' losses?

- A) Failure to meet student need.
- B) Industry restructuring.
- C) Emergence of e-books.
- D) Falling sales.

3. What does the textbook industry need to do?

- A) Reform its structures.
- B) Cut its retail prices.
- C) Find replacements for printed textbooks.
- D) Change its business strategy periodically.

4. What are students expected to do in the learning process?

- A) Think carefully before answering each question.
- B) Ask questions based on their own understanding.
- C) Answer questions using their personal experience.
- D) Give answers showing their respective personality.

5. What do experts say about students using textbooks?

- A) They can digitalize the prints easily.
- B) They can learn in an interactive way.
- C) They can purchase customized versions.
- D) They can adapt the material themselves.

Week 5

Article 1

The fifth largest city in the US passed a significant soda tax proposal that will levy 1.5 cents per liquid ounce on distributors.

Philadelphia's new measure was approved by a 13 to 4 city council vote. It sets a new bar for similar initiatives across the country. It is proof that taxes on sugary drinks can win substantial support outside super-liberal areas. Until now, the only city to successfully pass and implement a soda tax was Berkeley, California, in 2014.

The tax will apply to regular and diet sodas, as well as other drinks with added sugar, such as Gatorade and iced teas. It's expected to raise \$410 million over the next five years, most of which will go toward funding a universal prekindergarten program for the city.

While the city council vote was met with applause inside the council room, opponents to the measure, including soda lobbyists, made sharp criticisms and a promise to challenge the tax in court.

"The tax passed today unfairly singles out beverages—including low-and no-calorie choices," said Lauren Kane, spokeswoman for the American Beverage Association. "But most importantly, it is against the law. So we will side with the majority of the people of Philadelphia who oppose this tax and take legal action to stop it."

An industry-backed anti-tax campaign has spent at least \$4 million on advertisements. The ads criticized the measure, characterizing it as a "grocery tax."

Public health groups applauded the approved tax as a step toward fixing certain lasting health issues that plague Americans. "The move to recapture a small part of the profits from an industry that pushes a product that contributes to diabetes, obesity and heart disease in poorer communities in order to reinvest in those communities will sure be inspirational to many other places," said Jim Krieger, executive director of Healthy Food America. "Indeed, we are already hearing from some of them. It's not 'just Berkeley' anymore."

Similar measures in California's Albany, Oakland, San Francisco and Colorado's Boulder are becoming hot button issues. Health advocacy groups have hinted that even

more might be coming.

1. What does the passage say about the newly-approved soda tax in Philadelphia?

- A) It will change the lifestyle of many consumers.
- B) It may encourage other US cities to follow suit.
- C) It will cut soda consumption among low-income communities.
- D) It may influence the marketing strategies of the soda business.

2. What will the opponents probably do to respond to the soda tax proposal?

- A) Bargain with the city council.
- B) Refuse to pay additional tax.
- C) Take legal action against it.
- D) Try to win public support.

3. What did the industry-backed anti-tax campaign do about the soda tax proposal?

- A) It tried to arouse hostile feelings among consumers.
- B) It tried to win grocers' support against the measure.
- C) It kept sending letters of protest to the media.
- D) It criticized the measure through advertising.

4. What did public health groups think the soda tax would do?

- A) Alert people to the risk of sugar induced diseases.
- B) Help people to fix certain long-time health issues.
- C) Add to the fund for their research on diseases.
- D) Benefit low-income people across the country.

5. What do we learn about similar measures concerning the soda tax in some other cities?

- A) They are becoming rather sensitive issues.
- B) They are spreading panic in the soda industry.
- C) They are reducing the incidence of sugar-induced diseases.
- D) They are taking away a lot of profit from the soda industry.

Article 2

Popping food into the microwave for a couple of minutes may seem utterly harmless, but Europe's stock of these quick-cooking ovens emit as much carbon as nearly 7 million cars, a new study has found. And the problem is growing. With costs falling and kitchen appliances becoming "status" items, owners are throwing away microwaves after an average of eight years. This is pushing sales of new microwaves which are expected to reach 135 million annually in the EU by the end of the decade.

A study by the University of Manchester calculated the emissions of CO₂—the main greenhouse gas responsible for climate change—at every stage of microwaves, from manufacture to waste disposal. "It is electricity consumption by microwaves that has the biggest impact on the environment," say the authors. The authors also calculate that the emissions from using 19 microwaves over a year are the same as those from using a car. According to the same study, efforts to reduce consumption should focus on improving consumer awareness and behaviour. For example, consumers could use appliances in a more efficient way by adjusting the time of cooking to the type of food.

However, David Reay, professor of carbon management, argues that, although microwaves use a great deal of energy, their emissions are minor compared to those from cars. In the UK alone, there are around 30 million cars. These cars emit more than all the microwaves in the EU. Backing this up, recent data show that passenger cars in the UK emitted 69 million tons of CO₂ in 2015. This is 10 times the amount this new microwave oven study estimates for annual emissions for all the microwave ovens in the EU. Further, the energy used by microwaves is lower than any other form of cooking. Among common kitchen appliances used for cooking, microwaves are the most energy efficient, followed by a stove and finally a standard oven. Thus, rising microwave sales could be seen as a positive thing.

1. What is the finding of the new study?

- A) Quick-cooking microwave ovens have become more popular.
- B) The frequent use of microwaves may do harm to our health.
- C) CO₂ emissions constitute a major threat to the environment.
- D) The use of microwaves emits more CO₂ than people think.

2. Why are the sales of microwaves expected to rise?
- A) They are becoming more affordable.
 - B) They have a shorter life cycle than other appliances.
 - C) They are getting much easier to operate.
 - D) They take less time to cook than other appliances.
3. What recommendation does the study by the University of Manchester make?
- A) Cooking food of different varieties.
 - B) Improving microwave users' habits.
 - C) Eating less to cut energy consumption.
 - D) Using microwave ovens less frequently.
4. What does Professor David Reay try to argue?
- A) There are far more emissions from cars than from microwaves.
 - B) People should be persuaded into using passenger cars less often.
 - C) The UK produces less CO₂ than many other countries in the EU.
 - D) More data are needed to show whether microwaves are harmful.
5. What does Professor David Reay think of the use of microwaves?
- A) It will become less popular in the coming decades.
 - B) It makes everyday cooking much more convenient.
 - C) It plays a positive role in environmental protection.
 - D) It consumes more power than conventional cooking.

The logo of Rangsit University is a circular emblem. At the top is a stylized flame or sunburst. Below it, a series of radiating lines form a circle. The text 'มหาวิทยาลัยรังสิต Rangsit University' is written in a pinkish-red color along the bottom curve of the emblem.

APPENDIX B
PRE-TEST AND POST-TEST

มหาวิทยาลัยรังสิต Rangsit University

Pre-Test

Total items: 20

Time: 45 minutes

Each item: 2 points

TEXT A

Inundated by more information than we can possibly hold in our heads, we're increasingly handing off the job of remembering to search engines and smart phones. Google is even reportedly working on eyeglasses that could one day recognize faces and supply details about whoever you're looking at. But new research shows that outsourcing our memory — and expecting that information will be continually and instantaneously available — is changing our *cognitive habits*.

Research conducted by Betsy Sparrow, an assistant professor of psychology at Columbia University, has identified three new realities about how we process information in the Internet age. First, her experiments showed that when we don't know the answer to a question, we now think about where we can find the nearest Web connection instead of the subject of the question itself. A second revelation is that when we expect to be able to find information again later on, we don't remember it as well as when we think it might become unavailable. And then there is the researchers' final observation: the expectation that we'll be able to locate information down the line leads us to form a memory not of the fact itself but of where we'll be able to find it.

But this handoff comes with a downside. Skills like critical thinking and analysis must develop in the context of facts: we need something to think and reason about, after all. And these facts can't be Googled as we go; they need to be stored in the original hard drive, our long-term memory. Especially in the case of children, "factual knowledge must precede skill," says Daniel Willingham, a professor of psychology, at the University of Virginia — meaning that the days of drilling the multiplication table and memorizing the names of the Presidents aren't over quite yet. Adults, too, need to recruit a supply of stored knowledge in order to situate and evaluate new information they encounter. You can't Google *context*.

Last, there's the possibility, increasingly terrifying to contemplate, that our

machines will fail us. As Sparrow puts it, "The experience of losing our Internet connection becomes more and more like losing a friend." If you're going to keep your memory on your smart phone, better make sure it's fully charged.

1. Google's eyeglasses are supposed to ____
 - A. improve our memory
 - B. function like memory
 - C. help us see faces better
 - D. work like smart phones

2. According to the passage, "cognitive habits" refers to _
 - A. how we deal with information
 - B. functions of human memory
 - C. the amount of information
 - D. the availability of information

3. Which of the following statements about Sparrow's research is CORRECT?
 - A. We remember people and things as much as before.
 - B. We remember more Internet connections than before.
 - C. We pay equal attention to location and content of information.
 - D. We tend to remember location rather than the core of facts.

4. What does the author mean by "context"?
 - A. It refers to long-term memory.
 - B. It refers to a new situation.
 - C. It refers to a store of knowledge.
 - D. It refers to the search engine.

5. What is the implied message of the author?

- A. Web connections aid our memory.
- B. People differ in what to remember.
- C. People need to exercise their memory.
- D. People keep memory on smart phones.

TEXT B

I was a second-year medical student at the university, and was on my second day of rounds at a nearby hospital. My university's philosophy was to get students seeing patients early in their education. Nice idea, but it overlooked one detail: second-year students know next to nothing about medicine.

Assigned to my team that day was an attending — a senior faculty member who was there mostly to make patients feel they weren't in the hands of amateurs. Many attendings were researchers who didn't have much recent hospital experience. Mine was actually an arthritis specialist. Also along was a resident (the real boss, with a staggering mastery of medicine, at least to a rookie like myself). In addition, there were two interns. These guys were just as green as I was, but in a scarier way: they had recently graduated from the medical school, so they were technically MDs.

I began the day at 6:30am. An intern and I did a quick check of our eight patients; later, we were to present our findings to the resident and then to the attending. I had three patients and the intern had the other five — piece of cake.

But when I arrived in the room of 71-year-old Mr. Adams, he was sitting up in bed, sweating heavily and panting. He'd just had a hip operation and looked terrible. I listened to his lungs with my stethoscope, but they sounded clear. Next I checked the log of his vital signs and saw that his respiration and heart rate had been climbing, **but** his temperature was steady. It didn't seem like heart failure, nor did it appear to be pneumonia. So I asked Mr. Adams what he thought was going on.

"It's really hot in here, Doc," he replied.

So I attributed his condition to the stuffy room and told him the rest of the team would return in a few hours. He smiled and feebly waved goodbye.

At 8:40 am., during our team meeting, "Code Blue Room 307!" blared from the

loudspeaker.

I froze.

That was Mr. Adams's room.

When we arrived, he was motionless.

The autopsy later found Mr. Adams had suffered a massive pulmonary embolism. A blood clot had formed in his leg, worked its way to his lungs, and cut his breathing capacity in half. ***His symptoms had been textbook:*** heavy perspiration and shortness of breath despite clear lungs. The only thing was: I hadn't read that chapter in the textbook yet. And I was too scared, insecure, and proud to ask a real doctor for help.

This mistake has haunted me for nearly 30 years, but what's particularly frustrating is that the same medical education system persists. Who knows how many people have died or suffered harm at the hands of students as naïve as I, and how many more will?

6. Why was the author doing rounds in a hospital?

- A. He himself wanted to have practice.
- B. Students of all majors had to do so.
- C. It was part of his medical training.
- D. He was on a research team.

7. We learn that the author's team members had__

- A. some professional deficiency
- B. much practical experience
- C. adequate knowledge
- D. long been working there

8. While the author was examining Mr. Adams, all the following symptoms caught his attention EXCEPT _____.

- A. steady temperature

- B. faster heart rate
- C. breathing problem
- D. moving difficulty

9. "His symptoms had been textbook" means that his symptoms were.

- A. part of the textbook
- B. explained in the textbook
- C. no longer in the textbook
- D. recently included in the textbook

10. At the end of the passage, the author expresses _____ about the medical education system.

- A. optimism
- B. hesitation
- C. support
- D. concern

TEXT C

The war on smoking, now five decades old and *counting*, is one of the nation's greatest public health success stories — but not for everyone.

As a whole, the country has made amazing progress. In 1964, four in ten adults in the US smoked; today fewer than two in ten do. But some states — Kentucky, South Dakota and Alabama, to name just a few — seem to have missed the message that smoking is deadly.

Their failure is the greatest disappointment in an effort to save lives that was started on Jan. 11, 1964, by the first Surgeon General's Report on Smoking and Health. Its finding that smoking is a cause of lung cancer and other diseases was major news then. The hazards of smoking were just starting to emerge.

The report led to cigarette warning labels, a ban on TV ads and eventually an anti-smoking movement that shifted the nation's attitude on smoking. Then, smokers

were cool. Today, many are outcasts, rejected by restaurants, bars, public buildings and even their own workplaces. Millions of lives have been saved.

The formula for success is no longer guesswork: Adopt tough warning labels, air public service ads, fund smoking cessation programs and impose smoke-free laws. But the surest way to prevent smoking, particularly among price-sensitive teens, is to raise taxes. If you can stop them from smoking, you've won the war. Few people start smoking after turning 19.

The real-life evidence of taxing power is powerful. The 10 states with the lowest adult smoking rates slap an average tax of \$2.42 on every pack — three times the average tax in the states with the highest smoking rates.

New York has the highest cigarette tax in the country, at \$4.35 per pack, and just 12 percent of teens smoke — far below the national average of 18 percent. Compare that with Kentucky, where taxes are low (60 cents), smoking restrictions are weak and the teen smoking rate is double New York's. Other low-tax states have similarly dismal records.

Enemies of high tobacco taxes cling to the tired argument that they fall disproportionately on the poor. True, but so do the deadly effects of smoking — far worse than a tax. The effect of the taxes is amplified further when the revenue is used to fund initiatives that help smokers quit or persuade teens not to start.

Anti-smoking forces have plenty to celebrate this week, having helped avoid 8 million premature deaths in the past 50 years. But as long as 3,000 adolescents and teens take their first puff each day, the war is not won.

11. What does "counting" mean in the context?

- A. Including.
- B. Calculating.
- C. Relying on.
- D. Continuing.

12. According to the context, "Their failure" refers to _ .

- A. those adults who continue to smoke

- B. those states that missed the message
- C. findings of the report
- D. hazards of smoking

13. The following are all efforts that led to the change of attitude on smoking EXCEPT _____ .

- A. cigarette warning labels
- B. rejection by the public
- C. anti-smoking campaigns
- D. anti-smoking legislation

14. According to the author, raising tax on cigarettes .

- A. is unfair to the poor
- B. is an effective measure
- C. increases public revenue
- D. fails to solve the problem

15. What is the passage mainly about?

- A. How to stage anti-smoking campaigns.
- B. The effects of the report on smoking and health.
- C. The efforts to cut down on teenage smoking.
- D. Tax as the surest path to cut smoking.

TEXT D

Attachment Parenting is not Indulgent Parenting. Attachment parents do not "spoil" their children. Spoiling is done when a child is given everything that they want regardless of what they need and regardless of what is practical. Indulgent parents give toys for tantrums, ice cream for breakfast. Attachment parents don't give their children everything that they want, they give their children everything that they need.

Attachment parents believe that love and comfort are free and necessary. Not sweets or toys.

Attachment Parenting is not "afraid of tears" parenting. Our kids cry. The difference is that we understand that tantrums and tears come from emotions and not manipulation. And our children understand this too. They cry and have tantrums sometimes, of course. But they do this because their emotions are so overwhelming that they need to get it out. They do not expect to be "rewarded" for their strong negative emotions; they simply expect that we will listen. We pick up our babies when they cry, and we respond to the tears of our older children because we believe firmly that comfort is free, love is free, and that when a child has need for comfort and love, it is our job to provide those things. We are not afraid of tears. We don't avoid them. We hold our children through them and teach them that when they are hurt or frustrated we are here to comfort them and help them work through their emotions.

Attachment Parenting is not Clingy Parenting. I do not cling to my children. In fact, I'm pretty *free-range*. As soon as they can move they usually move away from me and let me set up a chase as they crawl, run, skip and hop on their merry way to explore the world. Sure, I carry them and hug them and chase them and kiss them and rock them and sleep with them. But this is not me following them everywhere and pulling them back to me. This is me being a home base. The "attachment" comes from their being allowed to attach to us, not from us attaching to them like parental leeches.

Attachment Parenting is not Selfish Parenting. It is also not selfless parenting. We are not doing it for us, and we are not doing it to torment ourselves.

Attachment parenting is not Helicopter Parenting. I don't hover. I supervise. I follow, I teach, I demonstrate, I explain. I don't slap curious hands away. I show how to do things safely. I let my child do the things that my child wishes to do, first with help and then with supervision and finally with trust. I don't insist that my 23-month-old hold my hand when we walk on the sidewalk because I know that I can recall him with my voice because he trusts me to allow him to explore and he trusts me to explain when something is dangerous and to help him satisfy his curiosities safely.

Most of the negative things that I hear about "attachment parents" are completely off-base and describe something that is entirely unlike Attachment Parenting.

Attachment Parenting is child-centric and focuses on the needs of the child. Children need structure, rules, and boundaries. Attachment Parents simply believe that the child and the parent are allies, not adversaries. And that children are taught, not trained.

16. What makes attachment parents different from indulgent parents is that they

- A. show more love to their children
- B. think love is more important
- C. prefer both love and toys in parenting
- D. dislike ice cream or sweets

17. According to the author, what should parents do when their kids cry?

- A. Rewarding kids with toys.
- B. Trying to stop kids crying.
- C. Holding them till they stop.
- D. Providing comfort and love.

18. What does "free-range" mean according to the passage?

- A. Willing to give kids freedom of movement.
- B. Ready to play games with my kids.
- C. Curious to watch what games they play.
- D. Fond of providing a home base.

19. Which of the following is NOT attachment parenting?

- A. Fostering their curiosity.
- B. Helping them do the right thing.
- C. Showing them how things are done.
- D. Standing by and protecting.

20. What does the passage mainly discuss?

- A. How to foster love in children.
- B. Different types of parenting.
- C. How to build child confidence.
- D. Parent-child relationships.



Post-Test

Total items: 20

Time: 45 minutes

Each item: 2 points

TEXT A

Boredom has, paradoxically, become quite interesting to academics lately. In early May, London's Boring Conference celebrated seven years of delighting in dullness. At this event, people flocked to talks about weather, traffic jams and vending-machine sounds, among other sleep-inducing topics.

What, exactly, is everybody studying? One widely accepted psychological definition of boredom is "the distasteful experience of wanting, but being unable, to engage in satisfying activity." But how can you quantify a person's boredom level and compare it with someone else's? In 1986, psychologists introduced the Boredom Proneness Scale, designed to measure an individual's overall tendency to feel bored. By contrast, the Multidimensional State Boredom Scale, developed in 2008, measures a person's feelings of boredom in a given situation.

Boredom has been linked to behavior issues including inattentive driving, mindless snacking, excessive drinking, and addictive gambling. In fact, many of us would choose pain over boredom. One team of psychologists discovered that two-thirds of men and a quarter of women would rather self-administer electric shocks than sit alone with their thoughts for 15 minutes. Researching this phenomenon, another team asked volunteers to watch boring, sad, or neutral films, during which they could self-administer electric shocks. The bored volunteers shocked themselves more and harder than the sad or neutral ones did.

But boredom isn't all bad. By encouraging self-reflection and daydreaming, it can spur creativity. An early study gave participants abundant time to complete problem-solving and word-association exercises. Once all the obvious answers were exhausted, participants gave more and more inventive answers to combat boredom. A British study took these findings one step further, asking subjects to complete a creative challenge (coming up with a list of alternative uses for a household item). One group of subjects did a boring activity first, while the others went straight to the

creative task. Those whose boredom pumps had been primed were more productive.

In our always-connected world, boredom may be a hard-to-define state, but it is a fertile one. Watch paint dry or water boil, or at least put away your smartphone for a while, and you might unlock your next big idea.

1. When are people likely to experience boredom, according to an accepted psychological definition?

- A) When they don't have the chance to do what they want.
- B) When they don't enjoy the materials they are studying.
- C) When they experience something unpleasant.
- D) When they engage in some routine activities.

2. What does the author say boredom can lead to?

- A) Determination.
- B) Concentration.
- C) Mental deterioration.
- D) Harmful conduct.

3. What is the finding of one team of psychologists in their experiment?

- A) Volunteers prefer watching a boring movie to sitting alone deliberating.
- B) Many volunteers choose to hurt themselves rather than endure boredom.
- C) Male volunteers are more immune to the effects of boredom than females.
- D) Many volunteers are unable to resist boredom longer than fifteen minutes.

4. Why does the author say boredom isn't all bad?

- A) It stimulates memorization.
- B) It allows time for relaxation.
- C) It may promote creative thinking.
- D) It may facilitate independent learning.

5. What does the author suggest one do when faced with a challenging problem?

- A) Stop idling and think big.

- B) Unlock one's smartphone.
- C) Look around oneself for stimulation.
- D) Allow oneself some time to be bored.

TEXT B

Forests in countries like Brazil and the Congo get a lot of attention from environmentalists, and it is easy to see why. South America and sub-Saharan Africa are experiencing deforestation on an enormous scale: every year almost 5 million hectares are lost. But forests are also changing in rich Western countries. They are growing larger, both in the sense that they occupy more land and that the trees in them are bigger. What is going on?

Forests are spreading in almost all Western countries, with the fastest growth in places that historically had rather few trees. In 1990 28% of Spain was forested; now the proportion is 37%. In both Greece and Italy, the growth was from 26% to 32% over the same period. Forests are gradually taking more land in America and Australia. Perhaps most astonishing is the trend in Ireland. Roughly 1% of that country was forested when it became independent in 1922. Now forests cover 11% of the land, and the government wants to push the proportion to 18% by the 2040s.

Two things are fertilizing this growth. The first is the abandonment of farmland, especially in high, dry places where nothing grows terribly well. When farmers give up trying to earn a living from farming or herding, trees simply move in. The second is government policy and subsidy. Throughout history, governments have protected and promoted forests for diverse reasons, ranging from the need for wooden warships to a desire to promote suburban house-building. Nowadays forests are increasingly welcome because they suck in carbon pollution from the air. The justifications change, the desire for more trees remains constant.

The greening of the West does not delight everyone. Farmers complain that land is being taken out of use by generously subsidized tree plantations. Parts of Spain and Portugal suffer from terrible forest fires. Others simply dislike the appearance of forests planted in neat rows. They will have to get used to the trees, however. The growth of Western forests seems almost as unstoppable as deforestation elsewhere.

6. What is catching environmentalists' attention nowadays?

- A) Rich countries are stripping poor ones of their resources.
- B) Forests are fast shrinking in many developing countries.
- C) Forests are eating away the fertile farmland worldwide.
- D) Rich countries are doing little to address deforestation.

7. Which countries have the fastest forest growth?

- A) Those that have newly achieved independence.
- B) Those that have the greatest demand for timber.
- C) Those that used to have the lowest forest coverage.
- D) Those that provide enormous government subsidies.

8. What has encouraged forest growth historically?

- A) The government's advocacy.
- B) The use of wood for fuel.
- C) The favorable climate.
- D) The green movement.

9. What accounts for our increasing desire for forests?

- A) Their unique scenic beauty.
- B) Their use as fruit plantations.
- C) Their capability of improving air quality.
- D) Their stable supply of building materials.

10. What does the author conclude about the prospects of forestation?

- A) Deserts in sub-Saharan Africa will diminish gradually.
- B) It will play a more and more important role in people's lives.
- C) Forest destruction in the developing world will quickly slow down.
- D) Developed and developing countries are moving in opposite directions.

TEXT C

The terms “global warming” and “climate change” are used by many, seemingly interchangeably. But do they really mean the same thing?

Scientists shaped the history of the terms while attempting to accurately describe how humans continue to alter the planet. Later, political strategists adopted the terms to influence public opinion.

In 1975, geochemist Wallace Broecker introduced the term “climate change” in an article published by *Science*. In 1979, a National Academy of Sciences report used the term “global warming” to define increases in the Earth’s average surface temperature, while “climate change” more broadly referred to the numerous effects of this increase, such as sea-level rise and ocean *acidification*.

During the following decades, some industrialists and politicians launched a campaign to sow doubt in the minds of the American public about the ability of fossil-fuel use, deforestation and other human activities to influence the planet’s climate.

Word use played a critical role in developing that doubt. For example, the language and polls expert Frank Luntz wrote a memo encouraging the use of “climate change” because the phrase sounded less scary than “global warming,” reported the *Guardian*.

However, Luntz’s recommendation wasn’t necessary. A Google Ngram Viewer chart shows that by 1993 climate change was already more commonly used in books than global warming. By the end of the next decade both words were used more frequently, and climate change was used nearly twice as often as global warming.

NASA used the term “climate change” because it more accurately reflects the wide range of changes to the planet caused by increasing amounts of greenhouse gases in the atmosphere.

The debate isn’t new. A century ago, chemist Svante Arrhenius started one of the first debates over the potential for humans to influence the planet’s climate. Arrhenius calculated the capability of carbon dioxide to trap heat in the Earth’s atmosphere, but other chemists disagreed. Some argued that humans weren’t producing enough greenhouse gases, while others claimed the effects would be tiny. Now, of course, we know that whatever you call it, human behavior is warming the planet, with grave

consequences ahead.

11. Why did politicians use the two terms “global warming” and “climate change”?

- A) To sway public opinion of the impact of human activities on Earth.
- B) To more accurately describe the consequences of human activities.
- C) To win more popular votes in their campaign activities.
- D) To assure the public of the safety of existing industries.

12. As used in a National Academy of Sciences report, the term “climate change” differs from “global warming” in that ____.

- A) it sounds less vague
- B) it looks more scientific
- C) it covers more phenomena
- D) it is much closer to reality

13. What did industrialists of the late 20th century resort to in order to mislead Americans?

- A) Made-up survey results.
- B) Hired climate experts.
- C) False research findings.
- D) Deliberate choice of words.

14. Why did NASA choose the term “climate change”?

- A) To obtain more funds.
- B) For greater precision.
- C) For political needs.
- D) To avoid debate.

15. What is the author’s final conclusion?

- A) Global warming is the more accurate term.
- B) Accuracy of terminology matters in science.
- C) Human activities have serious effects on Earth.

D) Politics interferes with serious scientific debate.

TEXT D

Picture this: You're at a movie theater food stand loading up on snacks. You have a choice of a small, medium or large soda. The small is \$3.50 and the large is \$5.50. It's a tough decision: The small size may not last you through the whole movie, but \$5.50 for some sugary drink seems ridiculous. But there's a third option, a medium soda for \$5.25. Medium may be the perfect amount of soda for you, but the large is only a quarter more. If you're like most people, you end up buying the large (and taking a bathroom break mid-show).

If you're wondering who would buy the medium soda, the answer is almost no one. In fact, there's a good chance the marketing department purposely priced the medium soda as a decoy, making you more likely to buy the large soda rather than the small.

I have written about this peculiarity in human nature before with my friend Dan Ariely, who studied this phenomenon extensively after noticing pricing for subscriptions to *The Economist*. The digital subscription was \$59, the print subscription was \$125, and the print plus digital subscription was also \$125. No one in their right mind would buy the print subscription when you could get digital as well for the same price, so why was it even an option? Ariely ran an experiment and found that when only the two "real" choices were offered, more people chose the less-expensive digital subscription. But the addition of the bad option made people much more likely to choose the more expensive print plus digital option.

Brain scientists call this effect "asymmetric dominance", and it means that people gravitate toward the choice nearest a clearly inferior option. Marketing professors call it the decoy effect, which is certainly easier to remember. Lucky for consumers, almost no one in the business community understands it.

The decoy effect works because of the way our brains assign value when making choices. Value is almost never absolute; rather, we decide an object's value relative to our other choices. If more options are introduced, the value equation changes.

16. Why does the author ask us to imagine buying food in the movie theater?

- A) To illustrate people's peculiar shopping behavior.
- B) To illustrate the increasing variety of snacks there.
- C) To show how hard it can be to choose a drink there.
- D) To show how popular snacks are among movie fans.

17. Why is the medium soda priced the way it is?

- A) To attract more customers to buy it.
- B) To show the price matches the amount.
- C) To ensure customers drink the right amount of soda.
- D) To make customers believe they are getting a bargain.

18. What do we learn from Dan Ariely's experiment?

- A) Lower-priced goods attract more customers.
- B) The Economist's promotional strategy works.
- C) The Economist's print edition turns out to sell the best.
- D) More readers choose the digital over the print edition.

19. For what purpose is "the bad option" (Line 7, Para.3) added?

- A) To cater to the peculiar needs of some customers.
- B) To help customers to make more rational choices.
- C) To trap customers into buying the more pricey item.
- D) To provide customers with a greater variety of goods.

20. How do we assess the value of a commodity, according to the passage?

- A) By considering its usefulness.
- B) By comparing it with other choices.
- C) By taking its quality into account.
- D) By examining its value equation.

The image features a large, faint watermark of the Rangsit University logo in the background. The logo consists of a stylized flame or sunburst shape at the top, with a circular base containing the university's name in Thai and English. The text is centered over the logo.

APPENDIX C
ANSWERS FOR STUDENT'S READING EXERCISE AND
PRE-TEST AND POST-TEST

มหาวิทยาลัยรังสิต Rangsit University

Answers for Students' Reading Exercises

| | | | | | | |
|---------------|------------------|----------|----------|----------|----------|----------|
| Week 1 | Article 1 | 1 | 2 | 3 | 4 | 5 |
| | | D | A | D | C | B |
| | Article 2 | D | B | C | B | A |
| Week 2 | Article 1 | D | A | C | B | D |
| | Article 2 | D | C | B | A | D |
| Week 3 | Article 1 | C | A | B | A | D |
| | Article 2 | B | C | A | D | C |
| Week 4 | Article 1 | C | B | B | A | D |
| | Article 2 | C | D | A | C | B |
| Week 5 | Article 1 | B | C | D | B | A |
| | Article 2 | D | A | B | A | C |



Answers for Pre-test and Pre-test

| Item No. | Pre-Test Answers | Post-Test Answers |
|----------|------------------|-------------------|
| 1 | B | A |
| 2 | A | D |
| 3 | D | B |
| 4 | C | C |
| 5 | C | D |
| 6 | C | B |
| 7 | A | C |
| 8 | D | A |
| 9 | B | C |
| 10 | D | D |
| 11 | D | A |
| 12 | B | C |
| 13 | D | D |
| 14 | B | B |
| 15 | B | C |
| 16 | B | A |
| 17 | D | D |
| 18 | A | B |
| 19 | D | C |
| 20 | B | B |

The logo of Rangsit University is a stylized emblem. It features a central flame-like shape at the top, composed of several curved, overlapping lines. Below this, there is a semi-circular arrangement of radiating lines, resembling a sunburst or a fan. The entire logo is rendered in a light beige or tan color.

APPENDIX D

**SCORES OF STUDENT'S READING EXERCISE AND PRE-TEST
AND POST-TEST**

มหาวิทยาลัยรังสิต Rangsit University

Scores of Students' Reading Exercises

| Students | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 |
|----------|--------|--------|--------|--------|--------|
| 1 | 8 | 10 | 12 | 8 | 14 |
| 2 | 6 | 10 | 12 | 4 | 12 |
| 3 | 10 | 6 | 8 | 12 | 16 |
| 4 | 4 | 10 | 4 | 6 | 12 |
| 5 | 4 | 8 | 6 | 6 | 8 |
| 6 | 8 | 16 | 16 | 20 | 16 |
| 7 | 10 | 14 | 10 | 8 | 14 |
| 8 | 8 | 10 | 10 | 2 | 10 |
| 9 | 8 | 12 | 8 | 14 | 10 |
| 10 | 10 | 2 | 10 | 4 | 14 |
| 11 | 6 | 4 | 8 | 8 | 14 |
| 12 | 2 | 6 | 6 | 8 | 12 |
| 13 | 10 | 10 | 18 | 20 | 20 |
| 14 | 10 | 12 | 14 | 18 | 18 |
| 15 | 10 | 12 | 18 | 20 | 20 |
| 16 | 6 | 12 | 16 | 18 | 20 |
| 17 | 4 | 10 | 12 | 4 | 10 |
| 18 | 10 | 12 | 16 | 20 | 20 |
| 19 | 4 | 6 | 10 | 12 | 12 |
| 20 | 10 | 18 | 18 | 20 | 20 |
| 21 | 8 | 6 | 10 | 8 | 10 |
| 22 | 4 | 10 | 12 | 10 | 14 |
| 23 | 8 | 10 | 12 | 18 | 16 |
| 24 | 10 | 14 | 12 | 4 | 10 |
| 25 | 8 | 10 | 12 | 14 | 10 |
| 26 | 10 | 16 | 12 | 12 | 14 |
| 27 | 6 | 8 | 8 | 6 | 8 |
| 28 | 4 | 12 | 12 | 4 | 10 |

| | | | | | |
|----------------|------|------|-------|-------|-------|
| 29 | 8 | 10 | 6 | 6 | 10 |
| 30 | 10 | 6 | 12 | 12 | 4 |
| 31 | 6 | 8 | 8 | 4 | 12 |
| 32 | 10 | 12 | 10 | 20 | 16 |
| 33 | 8 | 6 | 4 | 8 | 10 |
| 34 | 10 | 10 | 12 | 10 | 6 |
| 35 | 4 | 10 | 14 | 20 | 16 |
| 36 | 4 | 6 | 6 | 8 | 10 |
| 37 | 0 | 4 | 8 | 8 | 8 |
| 38 | 14 | 16 | 18 | 20 | 20 |
| Total | 280 | 374 | 420 | 424 | 496 |
| Average | 7.37 | 9.84 | 11.05 | 11.16 | 13.05 |



Scores of Pre-Test and Post-Test

| Students No. | Scores of Pre-tests | Scores of Post-tests |
|--------------|---------------------|----------------------|
| 1 | 24 | 32 |
| 2 | 16 | 24 |
| 3 | 24 | 32 |
| 4 | 20 | 30 |
| 5 | 16 | 26 |
| 6 | 22 | 34 |
| 7 | 32 | 40 |
| 8 | 24 | 32 |
| 9 | 18 | 28 |
| 10 | 26 | 38 |
| 11 | 30 | 36 |
| 12 | 14 | 26 |
| 13 | 32 | 38 |
| 14 | 34 | 40 |
| 15 | 16 | 24 |
| 16 | 18 | 30 |
| 17 | 22 | 40 |
| 18 | 26 | 34 |
| 19 | 20 | 30 |
| 20 | 22 | 32 |
| 21 | 28 | 38 |
| 22 | 20 | 28 |
| 23 | 24 | 32 |
| 24 | 22 | 30 |
| 25 | 12 | 22 |
| 26 | 22 | 34 |
| 27 | 22 | 36 |
| 28 | 14 | 26 |

| | | |
|----------------|-------|-------|
| 29 | 16 | 28 |
| 30 | 24 | 38 |
| 31 | 22 | 32 |
| 32 | 30 | 38 |
| 33 | 24 | 38 |
| 34 | 24 | 36 |
| 35 | 16 | 24 |
| 36 | 26 | 38 |
| 37 | 20 | 30 |
| 38 | 18 | 28 |
| Total | 840 | 1222 |
| Average | 22.11 | 32.16 |



The logo of Rangsit University, featuring a stylized flame or sunburst design in the center, surrounded by a circular arrangement of radiating lines. The text "มหาวิทยาลัยรังสิต" and "Rangsit University" is written in a semi-circle below the logo.

APPENDIX E
STUDENT'S JOURNALS

มหาวิทยาลัยรังสิต Rangsit University

| Students No. | Record Details |
|-----------------|--|
| 1 | I found some vocabulary that I can't read and understand. So, I used to google translate to know what the meaning of words is and how to read it. |
| 2 | While I read a passage, I don't know a lot of vocabulary and I have to use a google to find a words. |
| 3 | Some words I don't know and grammar. I went to translate and searched on google. |
| 4 | The problem with reading it, maybe we can spell it or not understand what it means. Sometimes it takes a guess or reading a word we know and then it's written in a sentence. |
| 5 | The problem that I encountered was vocabulary and grammar, but I can figure out from internet or dictionary. |
| 6 | <p>Problem: I need to read the passage a couple of times to understand.</p> <p>Reading strategy: I would read the questions before the article so that I could save time by narrowing where I would have to read.</p> <p>Problem 2.I understand the question, the choices and where to find the answer, but it was difficult to connect the passage with the choices. So I reread the articles and answers which I thought were the closest possible answer.</p> |
| 7 | When I was reading, I always can encounter some words that I don't know their meanings, but I can understand it by find the keyword in every sentences. |
| 8 | There are some words that I don't know, like all this words: = Psychologist, considering, compensation, or about some grammar that I'm still can't get it So sometimes I try to search on the internet. |
| 9 | <p>Question1: I didn't have some trouble while reading these articles, except for some words that I didn't know the meaning and some parts that I couldn't interpret well.</p> <p>Question 2: I 'd say that I was confused about some words like CO2. So,</p> |

| | |
|-----------|---|
| | I have to search on google and then I'll know what it means and it's very nice meaning. Sometimes I see this word a lot when I read the science book and that all what I don't understand about vocabulary. |
| 10 | The problems such as unknown vocabulary. The strategies I used for helping to understand the article like look up dictionary. |
| 11 | Problem: I found it difficult to understand the structures of some articles. Strategies: I tried to concentrate on the article and search on the internet. |
| 12 | The problem for me is that there are too many words that I don't know. My reading strategy is that I visualize information based on what I read. |
| 13 | The main problem I encountered while reading this article is that there are so many new vocabularies that I didn't know what it means such as murky, salvage, and pillaging. Therefore, for my reading strategy, I used dictionary application to look up the meaning of each word while reading the article so I can understand the article better. |
| 14 | The problems I encountered while reading was many unfamiliar vocabularies. too often, I skip words or read slowly. When I am sounding out a word, take my time and be patient. Remember that the SAT is not a race. See the " Solutions for Common Reading Problems" above. This section has lots of valuable tips that can help me tremendously while I'm trying to grasp the meaning of a particular passage. |
| 15 | The problems: unknown vocabulary. The strategies: used dictionary, internet. |
| 16 | I had a bit of trouble understanding terms " child's play" and " striking it lucky", because I haven't heard of them before. The reading strategy I used was reading slowly and identifying the structure of the sentences and then it's meaning. |
| 17 | The first problem for me is not knowing the meaning of words and being unable to spell certain words For the strategy used is Read the questions and answers first, then go read the article, but read roughly 1 |

| | |
|-----------|--|
| | time before. |
| 18 | I don't know a lot of vocabulary and grammar. I look up dictionary and search on the internet. |
| 19 | Problem: The problem is I don't know the meaning of some vocabulary Strategies: Because I don't know some of the vocabulary, so I try to guess the meanings in the context and look up dictionary. |
| 20 | There were many vocabularies and sentence structures that I don't know. I'm guessing for some words and understand the importance of the content of the story. Read the whole article, then find the keywords of the story, and then compiled in accordance with the content of the story. |
| 21 | Problem: I don't understand the meaning of some words. Strategy: And I've decided to start with reading the questions and use high concentration. |
| 22 | My big problem is I don't know much vocab, so I think this reason make things hard, but my technically is read all of paragraph in this article and then read the question down below and if I still don't understand I will read it again and use critical thinking, trying to focus what the question wants me to ask. |
| 23 | I had some trouble of understanding the meanings because of the writing style. It's more advanced than what I have read in the past, but I got through it by analyzing the grammar structure and piecing the meaning together. I also struggled with some words like " vast", " compensation", " contrasts" and "range". But after googling the meaning, I had no more problems. |
| 24 | There are some words that I can't translate. Predict some words look at the overall sentence and guess the word. |
| 25 | I don't know some words and phrases, so I search google for their meanings and try to understand in each paragraph. I also use context to guess their meanings. |
| 26 | Sometime when reading, I often don't know some words and get |

| | |
|-----------|--|
| | <p>confused with tense. Making it unable to recognize sentences quickly and makes it difficult to understand in the context of the article. my strategies are to look up words in the dictionary and search on the internet. In order to help increase the vocabulary in my knowledge.</p> |
| 27 | <p>The problem I encountered is unknown technical vocabularies, such as emission, waste disposal, and energy efficient. The strategy I used to better understand this article is looking up the word on the internet whenever I found any unfamiliar words or guess from context.</p> |
| 28 | <p>Well, unknowing the meaning of the words they employ, as well as using a dictionary, are sufficient tactics for understanding this content. I briefly read through the article once in order to understand the overall context and spotted all the unknown vocabulary. After that, I looked up for the definition of each word according with the context of the article, then specifically read through those sentences containing the looked-up words.</p> |
| 29 | <p>When I was reading the passages, I encountered problems such as not understanding some words in the passage that ultimately makes me confused while I was reading it, but when I encountered this problem, I solved it by asking my cousin from Singapore that is very good at English. he helped me by explaining the words that I don't understand. now with the help of my cousin, I can read the passage without getting confused with the words that were confusing me before.</p> |
| 30 | <p>The problems are unknown vocabulary. I used dictionary and internet for helping to understand the article.</p> |
| 31 | <p>The first problem was that I didn't know some of the words, words I had never encountered before, and it was difficult to translate my articles. Strategies: my strategy is to go through the title and the main subject first, then come back and read the options and the like, and then go into the specifics of the text you want to find.</p> |
| 32 | <p>The problem is vocabulary, because some words have never been met and never learned. The strategies I used are look up dictionary and</p> |

| | |
|-----------|---|
| | google. |
| 33 | There are some words that I don't understand it's really hard to me and sometimes when I read the passage it's make me confusing, but it's useful for me to check the dictionary or skip them in order to improve my reading skills getting better. |
| 34 | The problem that I encountered was vocabulary and grammar, but I can figure out from internet or dictionary. |
| 35 | My problem is I don't know many vocabularies. I used Google dictionary to help me understand them. |
| 36 | The problem is there's some words that I don't understand. And for strategies I used are look up dictionary and ask my teacher. |
| 37 | Problem: Unknown vocabulary and the article structure. Strategy: Look up a dictionary and reread the text again to have a better understanding of it. |
| 38 | I had some trouble with vocabulary so I had to check the dictionary few times; I read it silently and then loudly so I could hear myself and interpret better what's written. |



Part 1

Demographic Information

| | | | | | |
|--|--------------------|----|----------|--------------------|----|
| 1. Your gender | Female | | Male | | |
| 2. What is your age? | 17 | 18 | 19 | 20 | 21 |
| 3. Up to now, how many years have you studied English? | Less than 12 years | | 12 years | More than 12 years | |

Part 2

Closed-Ended Questions Participants' Attitudes Toward SDL

| ITEMS | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 4. I have found that self-directed learning is very helpful to enhance my English reading skills. | | | | | |
| 5. I would use self-directed learning to further enhance my English reading skill. | | | | | |
| 6. I think self-directed learning is very useful learning method for English learning. | | | | | |
| 7. I have found that I learnt things through self-directed learning which couldn't be learnt from formal class. | | | | | |
| 8. I would recommend self-directed learning to my friends or other classmates. | | | | | |
| 9. I think self-directed learning is a very flexible learning method that anyone can adopt it to assist their learning. | | | | | |
| 10. I think self-directed learning is one of the most important learning methods for tertiary level students. | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| 11. Self-directed learning can systematically connect in-class and off-class learning together (i.e., any unclear knowledge in class can be enhanced by self-directed learning after class). | | | | | |
| 12. Self-directed learning allows students to arrange learning according to their own needs (i.e., make up for where they are not good enough, freely choose their own learning methods or learning materials, etc.). | | | | | |
| 13. Self-directed learning is a flexible learning method that allows students to arrange their learning according to their own time and choose anywhere to learn without limitation. | | | | | |
| 14. Self-directed learning can be used not only for English learning, but also for learning any other subject. | | | | | |
| 15. Self-directed learning is different from traditional classroom learning, allowing learners to have more freedom, so it can improve students' learning interest. | | | | | |
| 16. Since self-directed learning requires learners to be responsible for their own learning, it can not only improve students' learning independence, but also make them active learners. | | | | | |
| 17. Students need to think independently and find answers to many questions in the | | | | | |

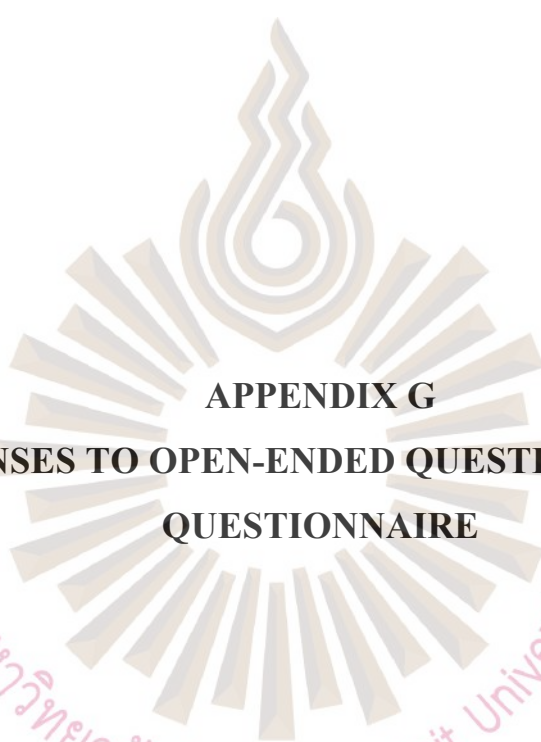
| | | | | | |
|---|--|--|--|--|--|
| learning process, so self-directed learning can improve students' problem solution and critical thinking. | | | | | |
| 18. Self-directed learning can turn learners to lifelong learners, which enables learners to pursue further education without limitation in both formally and informally education. | | | | | |

Part 3

Open-Ended Questions : Participants' Perspectives for SDL

Q19 : Can you briefly explain why and why not self-directed learning help you in enhancing your English reading skills during this experiment?

Q20: If you think self-directed learning helped enhancing your English reading skill in this experiment, can you briefly explain how it helped you?

The logo of Rangsit University, featuring a stylized flame or sunburst design in the center, surrounded by a circular arrangement of rays. The text "มหาวิทยาลัยรังสิต" and "Rangsit University" is written in a semi-circle below the logo.

APPENDIX G
RESPONSES TO OPEN-ENDED QUESTIONS OF OPINION
QUESTIONNAIRE

มหาวิทยาลัยรังสิต Rangsit University

Responses to Open-ended Questions of Questionnaire

| Student No. | 19. Can you briefly explain why and why not self-directed learning help you in enhancing your English reading skills during this experiment? | 20. If you think self-directed learning helped enhancing your English reading skill in this experiment, can you briefly explain how it helped you? |
|-------------|---|--|
| 1 | I think self-directed learning allows me to arrange reading according to my own time and need. | I feel reading more and learning more English vocabulary and grammars in self-directed learning. |
| 2 | I have met many difficulties in my self-directed learning which I don't know how to overcome without teacher's guidance. | |
| 3 | Self-directed learning is a study that goes beyond classroom learning. You can sit back and review the lessons later and enhance your reading skills. | This experiment helped me to learn some words that I didn't know before, which greatly improved my vocabulary. |
| 4 | Self-directed learning is a flexible learning method and allowing learners to have more freedom. | Self-directed learning makes me to develop a good habit of reading in English and improve my vocabulary in reading. |
| 5 | Self-directed learning allows us to learn things around us, if our hearts want to learn, it is better than forcing. | help to read more and gradually memorized more words |
| 6 | It allows me to focus on my weaknesses and learn systematically based on my own interests. | Through self-directed learning I learned many vocabularies which I never seen them and learned many reading strategies I don't know. |
| 7 | It makes me need to be an active | When I encounter unfamiliar words |

| | | |
|-----------|--|---|
| | learner, because some of the knowledge couldn't get from the class | or sentences, I actively look for the answer and study until I understand them. |
| 8 | It only helped me a little bit. | |
| 9 | This learning can be applied in real life. This will allow us to have the skills in hand and ready to use at all times. | Self-directed learning can improve my English reading skills; talking with foreign friends more fluently; gain knowledge and many new words. |
| 10 | During self-directed learning, I can examine where I am lacking. For example, through this experience, I found that my vocabulary is not enough, so I put more effort to work toward it. | Through this experiment, I found that my vocabulary is not enough, so every time I encounter a word that I don't know, I will write it down and recite and review it. |
| 11 | There is no need to pay extra tuition to go to cram schools, and you can find many free learning resources on the Internet through self-directed learning. | It stimulates me to find more free and interesting English learning materials from the Internet which would enhance my English. |
| 12 | In self-directed learning, I can go slowly, not afraid that I won't be in time. | I learn English form Movie, Music, Series and the other it can help me and make me enjoy with it |
| 13 | I think self-directed learning can improve my interest in learning. | It promotes me to read more and learn more vocabulary through reading. |
| 14 | I think some lessons are too hard to learn by ourselves | |
| 15 | Self-directed gives me more freedom to learning. | It promotes me to read more and learn more vocabulary through reading. |

| | | |
|-----------|---|--|
| 16 | Self-directed learning is hard for me as I don't have so much time to self-learning. | |
| 17 | Self-directed learning without the supervision of teachers reduces the pressure of learning. | In self-directed learning, I can learn slowly and there is no time limit, so my grasp of knowledge will be firmer. |
| 18 | The self-directed learning time is very flexible, and I can manage and arrange my studies by myself. | Made me learn many more words and practice reading more fluently. |
| 19 | self-directed learning allows me fully to control my learning. | It gives me more responsibility and trains you learn independently |
| 20 | When I wonder about somethings, I can research through self-directed learning immediately. | I don't have to worry about making mistakes in self-directed learning, it can enhance my confidence and improve my interest in learning |
| 21 | In my opinion I think self-directed learning can help me because I can manage my schedule and make free time if it's too much | It helps to enhance reading and understanding skills in reading more articles. |
| 22 | I think self-directed learning is the one of the best learning methods as it gives learners more freedom. | I try to read English books or magazines regularly and if a word doesn't translate, I will use a translator to help read which would help me better understanding. |
| 23 | Self-study helped me find things I wasn't good at, but some things that are not understood even have self-directed learning still need explanations in the class. | Makes me know what I'm not good at, and makes me know more vocabulary. |
| 24 | Self-directed learning can exercise | I don't have to worry about the limits |

| | | |
|-----------|--|---|
| | one's self-reliance ability, which is very helpful for future life. | of time and not too stressful. It can make me learn and understand quickly according to my interests. I believe that if you do what you like, you can do things quickly and get good results. |
| 25 | It's a very convenient way of learning, as long as there is an Internet, I can learn anywhere. | Self - directed learning help me to discover more and more knowledge, such as vocabulary or reading techniques. |
| 26 | have more freedom to study and have enthusiasm all the time | self-directed learning makes me learn more vocabulary and understand them better. |
| 27 | Let your mind get more exercise and enhance the thinking ability. | It helped my comprehension skill, with having to read, understand and summarize the texts in order to answer the questions given. |
| 28 | Can avoid some ineffective practice and be highly targeted on the subject what I need to learn | I have learnt a lot vocabulary that can't learn from the class. |
| 29 | Free learning content and schedule | I have learnt more reading strategies through this experiment. |
| 30 | It helped me knew about my knowledge and review the things I don't know | Helps to practice reading comprehension and improve reading skills as well as independent thinking ability. |
| 31 | It helps. Because self-directed learning made me want to do more because I can do whenever i am free | It triggered me to read more and learn what i don't know, because reading is a good way to improve English skills. |
| 32 | Because for me, English is a matter | |

| | | |
|-----------|--|---|
| | that requires a lot of understanding. Sometimes I need someone who can explain and answer my questions at immediately, but it's hard to do it by self-directed learning. | |
| 33 | Self-directed gives me the freedom to research and practice as much as I want. | Self-directed learning increased my critical thinking and creativity. |
| 34 | I think self -directed learning is very helpful for everyone because everyone can balance the time by themselves. | I think some words that I don't know what it is I can find on internet by myself, which increase my learning independent skill. |
| 35 | The learning content and the difficulty level can be determined by myself, so that the knowledge can be better understood. | Self-directed learning helps me understand the structure of the text, the variation of sentences, and learn more usage of each word in specific situations. |
| 36 | To train us to read and learn more. | Helped me learn more English words or sentences structures as well. |
| 37 | It motivated me more and actively learn | It helped me with expanding my vocabulary by having words that I didn't know the meanings. |
| 38 | It could improve my learning independence and improve my reading skills. | When I found out the meaning of word by myself, I thought this may help me remember word better. |



The Item Objective Congruence (IOC) Form for Opinion Questionnaire by Experts

“THE ENHANCEMENTS OF SELF-DIRECTED LEARNING ON TERTIARY LEVEL STUDENTS’ ENGLISH READING SKILLS: A THAI PRIVATE UNIVERSITY CONTEXT”

Questionnaire: the questionnaire consists of three parts related to the research objectives.

- Part 1 contains demographic information questions.
- Part 2 is in Likert’s five-rating scales format with close-ended questions.
- Part 3 contains two open-ended questions.

The expert is kindly requested to check and mark a choice on each question. Thank you.

(Agree = +1, Neutral = 0, Disagree = -1)

Questionnaire:

Part 1: Demographic information.

| Items | Agree | Neutral | Disagree | Remarks |
|--|-------|---------|----------|---------|
| 1. Gender (Female, Male) | | | | |
| 2. Age (17, 18, 19, 20, 21) | | | | |
| 3. Up to now, how many years have you studied English? (Less than 12 years, 12 years, more than 12 years). | | | | |

Questionnaire:**Part 2: Close-ended questions: participants' perceptions toward self-directed learning.**

| Items | Agree | Neutral | Disagree | Remarks |
|--|-------|---------|----------|---------|
| 4. I have found that self-directed learning is very helpful to enhance my English reading skills. | | | | |
| 5. I would use self-directed learning to further enhance my English reading skill. | | | | |
| 6. I think self-directed learning is a very useful learning method for English learning. | | | | |
| 7. I have found that I learnt things through self-directed learning which couldn't be learnt from formal class. | | | | |
| 8. I would recommend self-directed learning to my friends or other classmates. | | | | |
| 9. I think self-directed learning is a very flexible learning method that anyone can adopt it to assist their learning. | | | | |
| 10. I think self-directed learning is one of the most important learning methods for tertiary level students. | | | | |
| 11. Self-directed learning can systematically connect in-class and off-class learning together (i.e. any unclear knowledge in class can be enhanced by self-directed learning after class). | | | | |
| 12. Self-directed learning allows students to arrange learning according to their own needs (i.e. make up for where they are not good enough, freely choose their own learning methods or learning materials, etc.). | | | | |

| Items | Agree | Neutral | Disagree | Remarks |
|--|-------|---------|----------|---------|
| 13. Self-directed learning is a flexible learning method that allows students to arrange their learning according to their own time and choose anywhere to learn without limitation. | | | | |
| 14. Self-directed learning can be used not only for English learning, but also for learning any other subject. | | | | |
| 15. Self-directed learning is different from traditional classroom learning, allowing learners to have more learning autonomy, so it can also improve students' autonomy. | | | | |
| 16. Since self-directed learning requires learners to be responsible for their own learning, it can not only improve students' learning independence, but also make them active learners. | | | | |
| 17. Students need to think independently and find answers to many questions in the learning process, so self-directed learning can improve students' problem solution and critical thinking. | | | | |
| 18. Self-directed learning can turn learners to lifelong learners, which enables learners to pursue further education without limitation in both formally and informally education. | | | | |

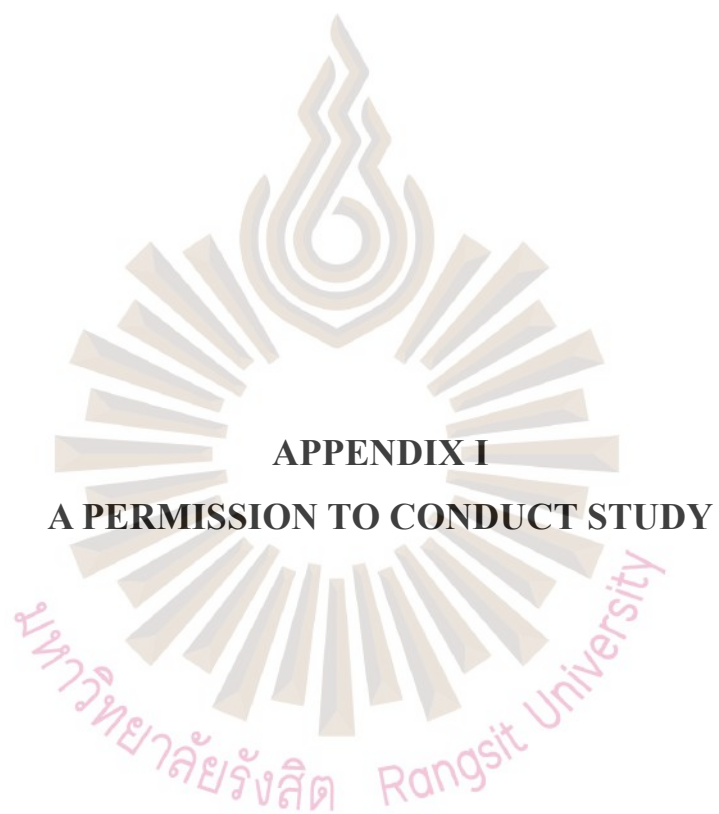
Questionnaire:**Part 3: Open-ended questions : participants' opinions for self-directed learning.**

| Item | Agree | Neutral | Disagree | Remarks |
|--|--------------|----------------|-----------------|----------------|
| 19. Can you briefly explain why and why not self-directed learning help you in enhancing your English reading skills during this experiment? | | | | |
| 20. If you think self-directed learning helped enhancing your English reading skill in this experiment, can you briefly explain how did it help you? | | | | |



IOC Result of Opinion Questionnaire

| Question No. | Rating by Experts | | | IOC Average | Remarks |
|--------------|-------------------|----------|----------|-------------|------------|
| | Expert 1 | Expert 2 | Expert 3 | | |
| 1 | +1 | +1 | +1 | 1 | Accepted |
| 2 | +1 | +1 | 0 | 0.67 | Accepted |
| 3 | +1 | +1 | +1 | 1 | Accepted |
| 4 | 0 | +1 | +1 | 0.67 | Accepted |
| 5 | 0 | +1 | +1 | 0.67 | Accepted |
| 6 | 0 | +1 | +1 | 0.67 | Accepted |
| 7 | +1 | +1 | +1 | 1 | Accepted |
| 8 | +1 | +1 | +1 | 1 | Accepted |
| 9 | +1 | +1 | +1 | 1 | Accepted |
| 10 | +1 | +1 | 0 | 0.67 | Accepted |
| 11 | +1 | +1 | 0 | 0.67 | Accepted |
| 12 | +1 | +1 | +1 | 1 | Accepted |
| 13 | +1 | +1 | +1 | 1 | Accepted |
| 14 | +1 | +1 | +1 | 1 | Accepted |
| 15 | +1 | 0 | 0 | 0.33 | Unaccepted |
| 16 | +1 | +1 | +1 | 1 | Accepted |
| 17 | +1 | 0 | +1 | 0.67 | Accepted |
| 18 | +1 | +1 | 0 | 0.67 | Accepted |
| 19 | +1 | +1 | +1 | 1 | Accepted |
| 20 | +1 | +1 | +1 | 1 | Accepted |
| IOC | | | | 0.83 | |





Memorandum

College: Suryadhep Teachers College

Ref. No: STC 4800/1423

Date: 16 September 2021

Subject: Request for Permission to Collect Data for a Master in Education (Bilingual Education) Research at Department of English, College of Liberal Arts

Dear Asst. Prof. Dr. Piyasuda Mawai,
Dean of College of Liberal Arts,

Miss Wen Zhao, Student ID: 6204734 is now studying in the Master in Education (Bilingual Education) at Suryadhep Teachers College. She is now planning to collect the data with four types of instruments for her thesis entitled **"The Enhancements of Self-Directed Learning on Tertiary Level Students' English Reading Skills: A Thai Private University Context"**.

The objectives of the research are:

1. To investigate the enhancements of self-directed learning on tertiary level students' English reading skills in a Thai private university context.
2. To investigate the perceptions of the tertiary level students toward self-directed learning for enhancing their English reading skills in a Thai private university context.

After completion, this study will be taken as partial fulfillment of the requirements for the Degree of Master of Education in Bilingual Education. It is hoped that the research findings will be useful for all the parties concerned to use for their benefits. Thus, I would like to seek for your kind permission for the student, Miss Wen Zhao, Student ID: 6204734 to collect the data in the Department of English, College of Liberal Arts.

On behalf of Suryadhep Teachers College, I truly appreciate all the help and support you can give in Miss Wen Zhao's thesis endeavor.

Yours sincerely,

Malivan Praditteera, Ed.D.

Dean
Suryadhep Teachers College



APPENDIX J

INVITATIONS FOR IOC EXPERTS



Memorandum

STC/4800/1262

8 July 2021

Ref: Invitation for you to be our IOC (Item Objective Congruence) expert

Dear Dr. Juladis Khantap

Suryadhep Teachers College, Rangsit University

Our student, Miss Wen Zhao 6204734, who is studying in the second year of Bilingual Education, has now completed her Thesis Proposal Defense on 16 March 2021. The research title is "The Enhancement of Self-Directed Learning on Tertiary Level Students' English Reading Skills: A Thai Private University Context". Currently, she is in the middle of the instrument design phase and has come up with the instrument for her study.

Thus, I would like to invite you to be our IOC (Item-Objective Congruence) expert in assessing the validity of the instruments. The package has been attached herewith.

I truly appreciate your kind support in this matter and hope that you will accept my invitation.

Sincerely yours,


 (Dr. Malivan Praditteera)
 Dean
 Suryadhep Teachers College
 Rangsit University

มหาวิทยาลัยรังสิต

Rangsit University



Memorandum

STC/4800/1261

8 July 2021

Ref: Invitation for you to be our IOC (Item Objective Congruence) expert

Dear Dr. Chatchaya Perathoranich


Suryadhep Teachers College, Rangsit University

Our student, Miss Wen Zhao 6204734, who is studying in the second year of Bilingual Education, has now completed her Thesis Proposal Defense on 16 March 2021. The research title is "The Enhancement of Self-Directed Learning on Tertiary Level Students' English Reading Skills: A Thai Private University Context". Currently, she is in the middle of the instrument design phase and has come up with the instrument for her study.

Thus, I would like to invite you to be our IOC (Item-Objective Congruence) expert in assessing the validity of the instruments. The package has been attached herewith.

I truly appreciate your kind support in this matter and hope that you will accept my invitation.

Sincerely yours,


 (Dr. Malivan Praditteera)
 Dean
 Suryadhep Teachers College
 Rangsit University

มหาวิทยาลัยรังสิต

Rangsit University



Memorandum

STC/4800/1289

22 July 2021

Ref: Invitation for you to be our IOC (Item Objective Congruence) expert

Dear Assoc. Prof. Dr. Usaporn Swekwi

Suryadhep Teachers College, Rangsit University

Our student, Miss Wen Zhao 6204734, who is studying in the second year of Bilingual Education, has now completed her Thesis Proposal Defense on 16 March 2021. The research title is "The Enhancement of Self-Directed Learning on Tertiary Level Students' English Reading Skills: A Thai Private University Context". Currently, she is in the middle of the instrument design phase and has come up with the instrument for her study.

Thus, I would like to invite you to be our IOC (Item-Objective Congruence) expert in assessing the validity of the instruments. The package has been attached herewith.

I truly appreciate your kind support in this matter and hope that you will accept my invitation.

Sincerely yours,

(Dr. Malivan Praditteera)
Dean
Suryadhep Teachers College
Rangsit University

มหาวิทยาลัยรังสิต Rangsit University

BIOGRAPHY

| | |
|----------------------|---|
| Name | Wen Zhao |
| Date of Birth | April 14, 1984 |
| Place of Birth | Shandong, China |
| Institution Attended | Henan Normal University, China Bachelor of Management in Event Management, 2019 Rangsit University, Thailand Master of Education in Bilingual Education, 2022 |
| Address | Shandong, China |
| Email | Qdbortome8818@gmail.com |

