TEACHING DIGITAL LITERACY TO ENHANCE READING COMPREHENSION FOR EFL STUDENTS

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การสอนการรู้ดิจิทัลเพื่อส่งเสริมการอ่านเพื่อความเข้าใจของนักเรียนที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ

น.ส.ธัญชนก โรจนประภายน

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ธัญชนก โรจนประภายน : การสอนการรู้ดิจิทัลเพื่อส่งเสริมการอ่านเพื่อความเข้าใจของนักเรียนที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ. (TEACHING DIGITAL LITERACY TO ENHANCE READING COMPREHENSION FOR EFL STUDENTS) อ.ที่ปรึกษาหลัก : อาภัสรา ชินวรรโณ

การสอนการรู้ดิจิทัลเป็นหนึ่งในรูปแบบการจัดการเรียนการสอนเพื่อส่งเสริมการอ่านเพื่อความเข้าใจของนักเรียนที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ โดยมีนักเรียนชาวไทยจำนวน 30 คนเข้าร่วมในงานวิจัยแบบผสมผสานนี้เป็นระยะเวลาทั้งสิ้น 10 สัปดาห์ งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาผลกระทบของการรู้ดิจิทัลในการส่งเสริมการอ่านเพื่อความเข้าใจและเพื่อสำรวจการประยุกต์ใช้ขอบเขตการรู้ดิจิทัลเพื่อพัฒนาการอ่านนอกห้องเรียนของนักเรียนที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ ข้อมูลเชิงปริมาณถูกนำมาวิเคราะห์โดยใช้ Wilcoxon signed-rank test ในการวิเคราะห์ผลการสอบก่อนเรียนและหลังเรียน ผลการวิเคราะห์พบว่าการรู้ดิจิทัลพัฒนาความเข้าใจในการอ่านของนักเรียน โดยเฉพาะการอ่านเพื่อประเมินข้อมูลจากเนื้อหา ยิ่งไปกว่านั้น ข้อมูลเชิงคุณภาพและปริมาณจากแบบสอบถามและสัมภาษณ์ถูกนำมาวิเคราะห์โดยใช้สถิติพรรณนา ผลการวิเคราะห์พบว่านักเรียนมีประยุกต์ใช้การรู้ดิจิทัลโดยใช้เพื่อเข้าถึงและวิเคราะห์ข้อมูลเป็นหลัก

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Digital literacy has become an essential tool for authentic communication, information accessibility, and reading development. To enhance reading comprehension among English as a foreign language (EFL) students, an effective reading instruction that integrated technology into language teaching should incorporate digital literacy. This mixed-method study aimed to examine how digital literacy enhanced EFL students' reading comprehension and what focus areas of the digital literacy they employed within and beyond the classroom. Thirty Thai high school students from the convenience sampling method participated in this digital literacy instruction for ten weeks. The quantitative data findings from the Wilcoxon signed-rank test on the reading comprehension test revealed that the digital literacy enhanced EFL students' reading comprehension, particularly reading and evaluating information from texts. Moreover, the quantitative and qualitative data from the questionnaire and semi-structure interviews revealed that EFL students tended to access and process information through the focus area of communicating and information in digital literacy for better comprehension beyond the classroom.

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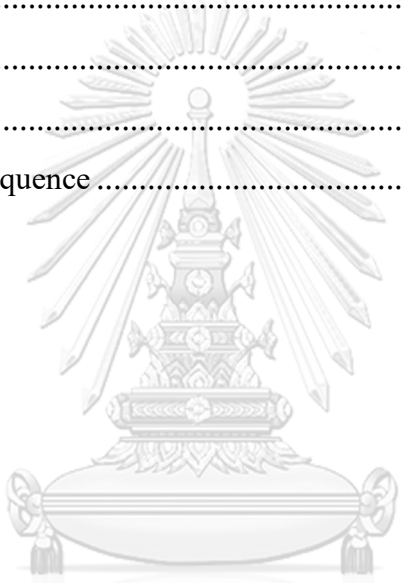

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CHAPTER I
INTRODUCTION

1.1 Background of the Study

Reading is widely recognized as a vital aspect of language acquisition and has been regarded as a significant focus in English language teaching programs (Richards, 2015). Moreover, people of different languages and cultures can also communicate through reading for a variety of purposes, including sharing ideas and learning new things (Hudson, 2007). In Thailand, to evaluate EFL students' reading comprehension in the English language, many students were required to participate in an assessment called PISA, or the Program for International Student Assessment. Additionally, this assessment's primary goal is to evaluate an individual's ability to comprehend and analyze a text for a particular goal, such as a life purpose. Every three years, the PISA exam is administered, and the findings indicate that many English as a Foreign Language (EFL) students in Thailand have had low reading scores, ranging from 441 in 2012 (OECD, 2012) to 409 in 2015 (OECD, 2015) to 393 in 2018 (OECD, 2018). These results suggest that many EFL students in Thailand have long-standing difficulties with reading comprehension, and this could also apply to the EFL students in the province of Pathum Thani demonstration schools. As a result, Thai English teachers should develop a method of instruction or framework that would enable students to read effectively.

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In the 21st century, mobile devices and other forms of technology have become increasingly vital in human life since they serve as books or gates for information access, communication, and cultural and geographical connections (Pegrum, 2014). From an educational perspective, the integration of technology can offer unparalleled flexibility for students, including English as a Foreign Language (EFL) students in Thailand. It allows them to tailor their learning pathways according to their needs, providing more opportunities for authentic sources, and also offering a new method to assess their own abilities (Dudeney & Hockly, 2007). Technology enables EFL students to learn the language both within and outside of the traditional classroom setting, utilizing a variety of tools such as mobile phones and tablets. Additionally, students can communicate with teachers and peers through several digital platforms, including

Microsoft Teams, Google Classroom, YouTube, and Instagram, among others. At the heart of enhancing reading comprehension for EFL students lies the effective integration of technology. By leveraging digital tools, students are empowered to access and analyze a wide range of texts at their convenience and from virtually any location. In addition, students can leverage technology to seek out supplementary resources and engage with individuals from diverse backgrounds, thereby enriching their understanding of the text and strengthening their overall reading comprehension skills. Teachers could, for instance, employ digital text to help students become better readers by giving them reading material in PDF format, which allows them to adjust the font size to their preferred level of comfort, or by having students copy words they are unsure of and use text-to-speech to assist them in reading (Harrison, Dwyer, & Castek, 2014). For this reason, adopting a digital literacy framework in language instruction could represent an additional way to maximize the advantages of technology in reading comprehension education.

The digital literacy framework seeks to enhance the teaching and learning processes through targeted interventions that aim to improve reading comprehension among EFL students using technology as a core component of the lesson. By emphasizing the development of digital competencies alongside reading skills, teachers can effectively prepare EFL students for the demands of the digital age while also strengthening their ability to comprehend complex texts in English. As stated by , Pegrum et al. (2022) "Digital literacies: the individual and social skills needed to effectively manage meaning in an era of digitally networked, often blended, communication." (p.5). Further details regarding media and digital literacy as a social learning and communication process were provided by Hobbs and Moore (2013). Therefore, embracing digital literacy as a framework for teaching reading comprehension can offer EFL teachers and students opportunities to use technology to manage meaning in reading as well as in communicating with others. For instance, students can expand their learning environment by accessing specific topics on social media platforms such as Facebook, supplementing their knowledge through books, or engaging with community members to seek additional information. To implement this digital literacy framework effectively, teachers must consider the students' levels of digital proficiency and provide additional devices or printed texts if required.

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In this study, digital literacy refers to the five teaching processes (access, analyze and evaluate, create, reflect, and act) adapted from Hobbs and Coiro (2018) within the four focus areas (communicating, informing, collaborating, and (re)designing) adapted from Pegrum et al. (2022). With the use of this framework, EFL students would enhance their reading comprehension through the following four objectives: 1) the ability to search for information; 2) the ability to synthesize information; 3) the ability to evaluate information; and 4) the ability to read for general comprehension (Grabe & Yamashita, 2022). Furthermore, digital literacy holds the potential to foster innovation in learning and entertainment and enable a seamless transition between face-to-face and online modes of communication, both in the classroom and beyond (Pegrum, 2019). This framework would be suitable for EFL students at Pathum Thani province demonstration schools since they have access to sufficient tools and facilities, making them ideal candidates for learning with this approach. By employing digital literacy, EFL students can develop their reading comprehension skills while also honing their digital competencies, preparing them for success in the 21st century.

1.2 Statement of the Problem

Reading comprehension appears to be a challenge for Thai students learning English as a foreign language, based on the PISA scores from 2012 to 2018. Similarly, EFL students from a Pathum Thani demonstration school have been indicated to have inferior reading scores, which suggests poor comprehension; therefore, some frameworks used to teach and learn to read in a foreign language may be connected to this challenge. For example, the use of dull materials or themes by teachers may discourage some Thai students from learning to read. Furthermore, students may lack the knowledge and skills necessary to modify everyday technology to expand the area of learning outside of the classroom. Participating in social environments such as book discussions, author reviews, and social interactions can enhance reading comprehension (Alghonaim, 2020). Therefore, students will have the ability to engage with the language in various environments to enhance their comprehension abilities. In light of this, students benefit from getting acquainted with real-world English language

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resources and practice opportunities, such as those found on online social media platforms like Facebook and YouTube.

Additionally, there are instances where EFL students in urban areas, such as those attending the aforementioned demonstration school in Pathum Thani, may struggle with reading comprehension due to a lack of knowledge when it comes to accessing reliable sources to expand their understanding. To address this issue, the Department of English at the demonstration school has included a digital literacy framework in the high school reading course since it links technology with reading comprehension. Consequently, the digital literacy framework drawn from two current frameworks, that is, Hobbs and Coiro (2018) and Pegrum et al. (2022), was employed in this study.

1.3 Research Questions

The thesis aimed to address two specific research questions:

1. How does digital literacy enhance reading comprehension for EFL students?
2. How do EFL students use digital literacy outside the classroom?

1.4 Research Objectives

1) To investigate how digital literacy enhances reading comprehension for EFL students.

2) To explore EFL students' use of digital literacy outside the classroom.

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1.5 Scope of the Study

1. A total of thirty high school EFL students in grades 11 and 12 from a demonstration school in the Thai area of Pathum Thani participated in this study. They were mixed-ability students who chose this reading course as their concentration subject. Digital tools such as mobile phones and tablets were required for this course since the students would use them for learning reading comprehension, such as reading text online.
2. The variables in the study were as follows:
    - The independent variable (IV) was digital literacy.

- The dependent variable (DV) was EFL students' reading comprehension.

1.6 Significance of the Study

This study presents a framework using digital literacy to enhance EFL students' reading comprehension. The framework places a strong emphasis on how to use technology to assist EFL students in learning and practicing reading comprehension both within and outside of the classroom. It also gives students additional chances to integrate the language into their everyday lives. In addition, EFL students may employ different digital tools, such as mobile phones, to learn more about other cultures while engaging in literature. By implementing collaborative digital platforms such as Padlet, teachers and students can exchange knowledge and acquire valuable reading practice. This can make the classroom more dynamic and engaging for both sides. In conclusion, EFL teachers and students can use the findings of this study to improve lessons and practices for enhancing reading comprehension.

1.7 Definition of Terms

Digital Literacy in this study refers to a framework composed of two components: teaching processes and focus areas. The processes of instruction are divided into five procedures, which were initially created by Hobbs and Coiro (2018): access, analyze and evaluate, create, reflect, and act. The second component pertains to the focus areas of digital literacy, which were derived from Pegrum et al. (2022). The four areas of focus are communicating, informing, collaborating, and (re)designing. This framework emphasizes the use of technology to enhance reading comprehension for EFL students.

Reading Comprehension in this study is used to describe the reading abilities of EFL high school students. The four academic purposes of reading—the capacity to search for information, the capacity to synthesize information, the capacity to evaluate information, and the capacity to read for general comprehension—were extracted from Grabe and Yamashita (2022).

EFL Students generally refer to students who learn English as a foreign language; it is part of the school curriculum (Bono & Melo-Pfeifer, 2020). Thirty high

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school students who learn English as part of the core curriculum in Thailand (OBEC, 2008) are referred to in this study as EFL students. The students have mixed abilities ranging from A2 to B1 CEFR level and are in years 11–12.

1.8 Overview of the Study

The purpose of this study was to investigate how digital literacy enhances EFL students' reading comprehension and how they use it outside of the classroom. Therefore, this study includes five chapters.

Chapter I is an introduction to the study. The problem, research questions, objectives, scope, and significance of the study are all represented in this chapter.

Chapter II presents the theoretical frameworks and a summary of the current study. Reading comprehension and digital literacy are the particular topics of this study's literature review.

Chapter III covers the research strategy, context, populations, instruments, and procedures in detail, along with other research methodological specifics.

Chapter IV addresses the study questions and objectives, and presents the findings from the research instruments.

Chapter V includes a summary of the study, a discussion, pedagogical implications, limits, and recommendations for additional study.

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CHAPTER II
LITERATURE REVIEW

The chapter reviews the literature relevant to digital literacy and reading comprehension. This chapter will provide information on the following topics: digital literacy, reading comprehension, and reading assessment.

2.1 Digital Literacy

2.1.1 The Definition of Digital Literacy

Digital literacy is the set of skills used to decode and create meaning on a digital network (Pegrum et al., 2022). Additionally, Hobbs and Coiro (2018) offered more information about digital literacy as "an expanded conceptualization of literacy that is responsive to the ongoing changes in information and communication technologies that are part of everyday life." (p.402). Therefore, the digital literacy framework in this study is divided into two components, which are the teaching process and focus areas.

Teaching Processes

The first component is from Hobbs and Coiro (2018), who designed an approach named the personal digital inquiry model of digital literacy to represent the teaching and learning processes. Hobbs (2011) offered the following additional context-specific details on these five teaching processes:

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Access: the ability to obtain and search for information using digital technologies is the main emphasis of this process.

Analyze and Evaluate: this process emphasizes the ability to analyze and evaluate information.

Create: the ability to recognize and create information (self-expression) is the main focus of this process.

Reflect: this process is all about considering the results of the task or action, including whether it was appropriate and successful.

Act: this process focuses on the practice of delivering information effectively and being responsible learners by respecting the law and others.

Focus Areas

Pegrum et al. (2022) established another framework representing four focus areas for integrating technology in teaching and learning languages. The goal of this framework is to assist language teachers in designing classes that are appropriate to the students' needs in the 21st century. Below is a description of these four focus areas in more detail:

Communicating: the first area is concerned with the capacity to transmit or receive meaning through language via a channel or platform. Eight categories could be applied to this area, as listed below:

1) Print literacy: the capacity to comprehend offline texts as well as interact through them.

2) Texting literacy: the capacity to convey ideas and deduce meaning from text messages employing acronyms and emojis.

3) Hypertext literacy: the capacity to sort data using hyperlinks while being aware of their system and function.

4) Multimodal literacy: the capacity to use multiple text types and channels simultaneously for communication and generating meaning.

5) Immersive literacy: the capacity to properly understand and employ the virtual environment for communication and constructing meaning.

6) Spatial literacy: the ability to understand and arrange meaning from a digital environment, such as 2D and 3D.

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7) Mobile literacy: the capacity for information generation, exchange, and communication via mobile devices.

8) Code literacy: the ability to critique and understand technological processes and computer code.

In this study, some of the eight categories of communicating —mobile, print, and multimodal literacy—were used in the digital literacy framework.

Informing: this area focuses on information retrieval, evaluation, and filtering skills, including tagging literacy (using tags to find more information). Four categories could be applied to this area:

1) Tagging literacy: the aptitude for searching and sorting content using hashtags and tags.

2) Search literacy: the ability to find and filter information utilizing a variety of search engines and services.

3) Filter literacy: the ability to lessen information overload on social media or other networks.

4) Information literacy: the capacity to assess the credibility of the information and analyze it.

Collaborating: this area focuses on the capacity to engage in social interactions with people from diverse cultural backgrounds and within a network by utilizing tools. Five categories could be used to describe this area:

1) Personal literacy: the capacity to communicate and express oneself digitally with others.

2) Network literacy: the capacity to cooperate and interact with people on offline and online platforms.

3) Participatory literacy: the capacity to communicate as well as collaborate with people who share the same goals.

4) Intercultural literacy: the capacity for cross-cultural interaction, communication, and understanding.

5) Ethical literacy: the capacity for courteous communication and understanding of various points of view.

In this study, the digital literacy framework was limited to using personal literacy and participatory literacy from the informing area.

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(Re)designing: the capacity to conceptualize and reimagine texts and media is the main emphasis of this area. Three categories—attention, critical, and remix literacy—could be applied to this field; hence, this study only used the last literacy type. More information is provided as follows:

1) Attention literacy: the skills of grabbing one's attention toward the texts.

2) Critical literacy: the skills of applying critical focus to digital technologies.

3) Remix literacy: the skills of redesigning and modifying information.

Therefore, the digital literacy framework drawn from these two current frameworks was employed in this study. The framework consists of teaching processes

within four focus areas of digital literacy. It aims to enhance and provide ways for EFL students to improve their reading comprehension using technology in their daily lives.

2.1.2 Research related to Digital Literacy

Digital literacy was characterized as "information, media, and technology skills" by Hockly (2012) (p. 108). One of the nations that incorporates digital literacy into its curriculum is Norway (Kelentrić, Helland, & Arstorp, 2017). It is similar to media literacy in England (Department for Digital, 2021). Still, it is used to integrate everyday digital technology into the classroom so that students can adjust to online environments for better learning outcomes. Coiro and Hobbs (2017) created an extensive program to help educators—teachers and librarians in particular—apply digital literacy in educational environments. The outcome illustrates that media, technology, and education are intertwined. Teachers would have more resources to plan lessons and assess students, while students would have more flexibility to employ pleasant tools to support their learning. The use of digital literacy to enhance language competency in various ways. For example, Yowaboot and Sukying (2022) studied the application of digital flashcards to improve vocabulary. They created the lesson for sixth-grade students using the word-knowledge framework. With the use of the digital flashcards, students were able to refresh their recollection of word meanings. The findings demonstrated that as digital flashcards help students recognize and remember the meaning of the words, they can improve students' vocabulary knowledge.

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Furthermore, Turner, Hicks, and Zucker (2020) conducted further research on digital literacy, focusing on technology-assisted reading. The purpose of the study was to investigate how students in grades 7 through 12 employ digital reading practices. It was carried out using the connected reading framework. The findings showed that young people used digital tools and platforms, like online books and search engines, to encounter and practice reading throughout their lives. The Jerasa and Boffone (2021) report, which addressed the application of digital literacy and Booktok to reading practice outside of the classroom, was related to this outcome. With the support of Booktok, students have access to online communities that are relevant to their interests as well as spaces for reading, reviewing, and interacting with others. Students' social, digital, and reading skills were all enhanced by this digital literacy.

Digital literacy is a big, comprehensive framework that may be applied and designed in a variety of ways, according to the studies mentioned above. Additionally, digital literacy emphasizes the use of digital reading for certain goals and settings (Coiro, 2021). As a result, this study also used the digital literacy frameworks developed by Hobbs and Coiro (2018) and Pegrum et al. (2022). Its goal was to improve reading comprehension among Thailand's EFL students.

2.2 Reading Comprehension

2.2.1 The Definition of Reading Comprehension

To understand reading comprehension, we should first understand what we are reading. Grabe and Yamashita (2022) once stated that "reading is centrally a comprehension process." Therefore, readers read texts to identify and understand the writer's intention. Moreover, Mikulecky (2011) mentioned that reading is a set of processes and strategies for interpreting writers' intentions in texts. This is comparable to the definition of reading provided by Grabe and Stoller (2013). They gave more definitions of reading, such as "a way to draw information from a text and to form an interpretation of that information", so the definition of reading would be clearer when it came to the specific purpose of reading.

According to the definitions above, reading can be identified as readers' ability to apply their background knowledge to make connections and identify more relevant meaning from the text, as well as to use different reading processes to evaluate, combine, and interpret information. More details about reading ability were provided by Grabe (2017), who classified it into two categories: lower-level processing and higher-level processing. To be more precise, the lower-level process concentrates on readers' comprehension of word meanings, word recognition, grammatical structures, and word form-sound connections. While reading a text, the processes displayed at this level are automatically operating in working memory. Increasing one's vocabulary can raise one's level of reading comprehension ability. Conversely, for the higher-level process to take place, reader awareness is most likely required. Readers at this level should combine, apply, interpret, and draw from prior knowledge in order to comprehend texts.

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The information above indicates that reading comprehension occurs at both levels, but it is primarily present in higher-level processes. Reading comprehension necessitates that the readers use the text's content and their prior knowledge to decode the meaning. Furthermore, the readers choose what to read for a variety of reasons, and each reason employs a unique method to understand the text's meaning. Readers who are studying a second language typically do so for pleasure, business, or language acquisition. Grabe and Yamashita (2022) categorized reading for six main reasons, as follows:

1) Reading to search for information in the text
2) Reading for a quick understanding of all the information in the text
3) Reading to learn from texts
4) Reading to synthesize information from the text
5) Reading to evaluate, critique, review, and apply information from a text
6) Reading for general comprehension

Therefore, the digital literacy used in this study aims to increase reading comprehension for four specific purposes: searching, synthesizing, evaluating texts, and reading for general comprehension. Since the aims of the participants' schools aligned, these four purposes were selected. The first aim, or searching, is the ability to scan text for specific information. Second, combining textual material with the reader's existing knowledge is the act of synthesizing. Third, evaluating is the ability to comprehend written material. The final step in reading for general comprehension is to comprehend the writer's intention and the main idea. Additionally, the four stages of Bloom's taxonomy, as defined by Lynne (2023), are related to the academic goal of reading by Grabe and Yamashita (2022). The ability to locate specific information is known as remembering, and it means searching for information in the first stage. The second level is comprehension, which involves reading for general comprehension with the capacity to summarize and comprehend information. The third step integrates the three reading objectives of generating, assessing, and analyzing data. It is equivalent to reading to synthesize and evaluate information because it denotes the capacity to draw conclusions from context and analyze data. As a result, teaching digital literacy for these four purposes would lead EFL students in this study to improve their reading comprehension at a higher level.

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2.2.2 Research Related to Reading Comprehension

Vocabulary and grammar proficiency are associated with reading comprehension (Oranpattanahai, 2023). This relates to the reading comprehension research by Srisang and Everatt (2021). The researchers' goal was to determine the connection between reading and comprehension levels so that teachers may provide their students with specialized education. The findings indicated that reading was associated with both lower-level and higher-level comprehension; the lower-level would enhance vocabulary knowledge, while the higher-level would assist the lower-level in understanding the texts. Further studies on reading comprehension by Daley, Xu, Proctor, Rappolt-Schlichtmann, and Goldowsky (2020) used the Universal Design for Learning (UDL) as a framework to demonstrate the connection between literacy activities and difficulties with comprehension. The findings showed that reading combined with digital literacy exercises could enhance students' comprehension of the materials they read, especially text-to-speech technology, which helped students with lower reading ability practice reading. Moreover, Jang, Seo, and Brutt-Griffler (2023) conducted research on reading comprehension and digital reading practice using the reading engagement model. The findings indicated a connection between the two, as digital reading practice can boost reading motivation, which in turn improves reading comprehension in students. Ultimately, reading motivation and reading practice are interconnected. More research on the topic of reading comprehension and digital tools was conducted by Salmerón, Vargas, Delgado, and Baron (2023). Their study identified the strategies used by teachers to increase reading comprehension. Their results showed that students' reading comprehension could be enhanced through the use of digital technology.

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The correlation between digital technology and reading comprehension is demonstrated by these data, indicating that incorporating technology into the classroom offers students more chances to improve their social and reading comprehension skills. Therefore, EFL students will be able to improve their reading comprehension by implementing reading frameworks or methods into practice as well as establishing reading goals such as reading to assess material.

2.3 Reading Assessment

2.3.1 The Definition of Reading Assessment

As stated by Grabe and Yamashita (2022) on page 461, "Reading assessments are meant to provide feedback on the skills, processes, and knowledge resources that represent reading abilities." Consequently, Farrall (2012) offered some advice on how teachers should assess reading comprehension. Teachers should be aware of their students, use multiple reading comprehension assessment methods, choose tests that correspond to their students' skill levels, and record their responses. More precisely, Richards (2015) stated that there are six different types of items utilized in reading assessments. The first type is multiple-choice; the student is required to select one option as the response. For the second type, students have to select solely between true and false. The third type is the short answer, where students will write their responses. The fourth type is fill-in tasks, where students select a suitable response from the writer to address the prompt. The fifth type is labeling, where students have to finish the text's label or the graphic. The final type is the cloze task, where students have to finish the text by writing one word.

To be more explicit and accurate when assessing reading comprehension, teachers should specify the goal of their assessment. Based on Grabe and Yamashita (2022), the reading assessment serves the following five purposes, each of which will be explained in greater detail below:

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2.3.1 Reading Proficiency Assessment: This refers to exams that are standardized, such as the CEFR.

2.3.2 Assessment of Classroom Learning: This is the measurement of the reading abilities acquired during classroom instruction.

2.3.3 Assessment for Learning: This assessment attempts to determine where students need to improve and pinpoint areas where they are performing poorly.

2.3.4 Placement and Diagnostic Assessment: This purpose determines a student's appropriate course or level.

2.3.5 Assessment for Research Purposes: This aims to guarantee that the test utilized in a research study is suitable.

In this study, students' reading comprehension while using the digital literacy framework was measured through classroom assessments. The purpose of the reading

assessment in this study was to examine the level of reading comprehension that the students had acquired in the classroom. Throughout the process, the exercise to assess students' comprehension in the classroom employed all six categories. However, only multiple-choice questions were utilized for the reading comprehension exam during the first and last weeks of the course because it is the official sort of items used in the participants' school and courses.

2.3.2 Research Related to the Reading Assessment

To assess students' reading abilities, teachers need to designate precise goals and resources for their students. Furthermore, the assessment should include pertinent and helpful information to support students in developing their reading skills (Afflerbach, 2016). According to studies on reading assessments, Viengsang and Wasanasomsithi (2022) found that students can use the assessment to identify their own areas of weakness so they can work on improving those areas later. Reading assessment can happen while learning as a formative assessment such as a question-answer in the classroom, then again at the end of the course as a summative assessment. Research by Ismail, Rahul, Patra, and Rezvani (2022) confirmed that formative assessment can provide more opportunities for students to improve themselves while learning. Therefore, digital technology could offer an alternative way to assess students' reading comprehension. For example, teachers can use digital platforms, such as Kahoot or Padlet, to assess students' understanding while learning in the classroom. The use of m-learning tools for evaluation with a survey as the instrument is supported by Chen's (2022) research. The outcome showed that mobile learning platforms, such Kahoot and Padlet, can improve classroom dynamics and boost student motivation because they offer engaging features like game modes.

Chapter Summary

The literature review on digital literacy, reading comprehension, and reading assessment is given in Chapter II. Consequently, the digital literacy framework in this study sought to improve EFL students' reading comprehension for the four academic reading goals (search, synthesize, evaluate, and general understanding) listed by Grabe

and Yamashita (2022). The two primary parts of the framework were the teaching process from Hobbs and Coiro (2018) and the focus areas of digital literacy from Pegrum et al. (2022). The reading comprehension skills of the students were assessed throughout the semester using the classroom assessment.

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CHAPTER III
RESEARCH METHODOLOGY

This chapter provides an overview of the research methodology and procedures used to investigate how digital literacy enhances reading comprehension for EFL students as well as students' use of digital literacy. The information presented in this chapter aims to provide a comprehensive understanding of the research process and contextualize the study within the broader literature on digital literacy and language learning.

3.1 Research Design

In this study, the impact of digital literacy on the reading comprehension of thirty EFL students in grades 11–12 was investigated using a mixed-methods approach. Convenience sampling was used to select participants who enrolled in a ten-week reading course to earn concentration credit. Data were collected using three instruments: a reading comprehension test, a questionnaire, and an interview. In phase 1, a pilot study was conducted to assess the effectiveness of the digital literacy framework. In phase 2, the quantitative data from the median scores were collected before and after implementing digital literacy in the reading course. Qualitative data were collected through the questionnaire and interviews to understand how EFL students used digital literacy outside the classroom. The study independent variable (IV) is digital literacy, while the dependent variable (DV) is EFL students' reading comprehension.

3.2 Context of the Study

The context of the study was a demonstration school in Pathum Thani, Thailand. This reading course was one of the English concentration subject during the first semester of the academic year 2023. EFL students who enrolled in this course was mixed abilities; they learned to read with a digital literacy framework for ten weeks, ninety minutes per class. There was one non-native speaker taught in this course, and the teacher used English as the medium of instruction. EFL students were instructed to

prepare for their own learning devices, such as mobile phones and tablets. The reading texts in this course were authentic texts from different credible sources.

3.3 Population and Participants

3.3.1 Population

The population of this study was mixed-abilities students from grades 11–12, also mixed genders, from the demonstration school in Pathum Thani. The CEFR level of these high school students was at least at the A2 level. They were able to learn and communicate using English in the classroom. Students who enrolled in this course shall have their own technological device, such as a smartphone, to learn reading.

3.3.2 Participants

The participants of this study consisted of thirty high school students who enrolled in the reading courses to earn three credits for concentration subjects. The research used a convenience sampling method to gain participants; therefore, the students were informed to prepare their learning devices, such as mobile phones and tablets, in advance. In contrast, the teacher also provided additional tools and devices, such as computers, for those who needed them. All EFL students were required to use English to communicate with teachers and students; Thai translation was offered depending on the situation. For instance, the teacher must translate for the students when they are unable to understand technical phrases related to Thai culture in English.

3.4 Research Instruments

Three main research instruments were used to collect the data: 1) a reading comprehension test, 2) a questionnaire, and 3) an interview.

3.4.1 Reading Comprehension Test

The purpose of this reading comprehension test was to investigate the impact of digital literacy on enhancing reading comprehension for EFL students. The reading comprehension test was used during the first class before learning reading with digital literacy, and then it was used again at the end of the course. The reading comprehension test contained 30 questions; the same test was used for both the pretest and the posttest.

The texts used in the test were authentic texts; the level of the texts was in the range of A2-B1 CEFR level. The level of the texts was evaluated using GSE Text Analyzer, which was designed by Pearson Language Learning. The EFL students had sixty minutes to finish the test on paper. The questions were focused on four reading purposes from Grabe and Yamashita (2022) described the following: 1) searching for information; 2) synthesizing information; 3) evaluating information; and 4) reading for general comprehension. Each question was categorized as follows:

Reading Purpose	Items
Searching for information	4, 8, 9, 11, 12, 15, 20, 27
Synthesizing information	2, 13, 16, 17, 19, 26, 30
Evaluating information	3, 6, 7, 14, 21, 23, 29
General comprehension	1, 5, 10, 18, 22, 24, 25, 28

All the questions were evaluated by three experts in the field of education. The experts determined the validity through the construction and content of the reading test.

Validation of the Reading Comprehension Test

The experts used the Item-Objective Congruence (IOC), a three-point grading scale, to assess the validity of the reading comprehension exam. The content and construct validity of this reading comprehension test were divided into two parts as follows:

1) The appropriateness of questions and choices: to evaluate the appropriateness of the language used in the questions and choices along with the consistency of word counting

2) The relevance of purpose and question: to assess the consistency of the reading purpose with the question

Therefore, the items with a score of less than 0.50 were revised. The results showed that the reading comprehension test was suitable for this research. According to the IOC result, items 2, 6, and 17 received a mean score lower than 0.5, therefore, they must be revised on the suggestion from the experts as shown in table 1.

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Table 1 The Revised Version of the Reading Comprehension Test

Item	Suggestion	Original Version	Revised Version
2	Expert B said that the answer is too obvious, moreover, and the word count is not appropriate.	**What makes a place a reservoir?** A. It is a natural flow of water that connects water in a long line across the land to the sea. B. It is an artificial lake that stores water before transporting it to other places. C. It is a channel of water artificially made for boats to travel through.	**What makes a place a reservoir?** A. If it stores water before it is transported to other places. B. If it connects water in a long line across the land to the sea. C. If it has a channel of water artificially made for boats to travel through.
6	All the experts agreed that item 6 cannot be accepted since the question and choices were ambiguous. Therefore, it cannot represent its specific purpose.	**What draws tourists to Doi Inthanon?** A. It is the best viewpoint for seeing wildlife animals. B. Its peak allows visitors to witness the whole forest. C. It is a home for various plants and animals.	**Which statement is true about Doi Inthanon?** A. It is the best place for spotting wildlife animals. B. Its peak allows visitors to witness the whole forest. C. It is home to a variety of domesticated plants and animals.
17	All the experts agreed that item 17 cannot be accepted since	**Which sentence uses the word "swarming" based on the context of the passage?**	**Which sentence uses the word "swarming" based on the context of the passage?**

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	part of speech of the word was wrong. Therefore, the choices were not correct.	A. People are swarming to the concert ground. B. The climbers swarm up the pole to reach the flag. C. The swarm of bees collect nectars from the flower field.	A. People are swarming to the concert ground. B. The bee was swarming around the flower field. C. The climbers were swarming up the pole to reach the flag.

Pilot Study

The students who participated in this pilot study were fifteen high school students from grades 11 -12 with mixed abilities. They volunteered to join this course, during the after-school period for ninety minutes. Students learned all three lessons in unit 1, Thailand's Landmark, for one week and then took the test at the end of the course for sixty minutes. All test items were analyzed for the difficulty and discrimination index of the test using the Kuder-Richardson 20 formula (reliability coefficient). Table 2 presents the difficulty and discrimination index.

Table 2 The Difficulty and Discrimination Index

Difficulty Index (p)		**Discrimination Index (r)**	
Value	**Interpretation**	**Value**	**Interpretation**
$p < 0.20$	difficult	$r = 0$	no discrimination
$p = 0.20 - 0.80$	good	$r \geq 0.19$	low discrimination
$p = 0.81 - 0.94$	easy	$r = 0.20 – 0.29$	fair discrimination
$p \geq 0.95$	very easy	$r = 0.30 – 0.39$	high discrimination
		$r \geq 0.4$	very high discrimination

The result for the difficulty index of the test was between 0.2 and 0.8, while the result from the discrimination index was between 0.2 and 0.4. This represents that the reading comprehension test is effective.

3.4.2 Questionnaire

The questionnaire aimed to explore EFL students' use of digital literacy; it was divided into two aspects, which were the teaching process and the focus areas of digital literacy. Thirty EFL students who enrolled in this reading course were required to answer 26 questions on the Likert scale, on week 10. Therefore, the language used in the questionnaire was Thai to decrease confusion. The quantitative data from the Likert scale represented the EFL students' most and least use of digital literacy aspects outside the classroom. The questionnaire employed a four-point Likert scale, where a score of 1 indicated never using digital literacy outside of the classroom, a score of 2 denoted sometimes usage, a score of 3 often use, and a score of 4 always use. More information on each question is presented below:

Table 3 The Questionnaire Index

Teaching Process	Explore and access information Analyze and evaluate information Crate content using language Reflect the effect of content Perform the activities	items: 1, 2, 3 items: 4, 5, 6 items: 7, 8, 9 items: 10, 11, 2 items: 13, 14, 15
Focus Areas	Using digital platforms to do activities Using digital tools to filter information Using digital tools to express and interact Using digital technology to represent information	items: 16, 17, 18 items: 19, 20, 21 items: 22, 23, 24 items: 25, 26

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Validation of the Questionnaire

The experts used the Item-Objective Congruence (IOC), a three-point grading scale, to assess the validity of the questionnaire. The content and construct validity of this questionnaire were focused as follows:

1) The appropriateness of the language used in each question: the original version of the questionnaire was written in the English language and then translated into the Thai language, therefore, the language used in this questionnaire should be as clear and relevant to the English version as much as possible.

2) The relevance of the teaching process, focus areas, and questions: the teaching process and focus areas were almost the same in some questions, therefore, the language used in this questionnaire must preserve the differentiation between those two aspects as much as possible.

In conclusion, the IOC results showed that the questionnaire was suitable for this research. According to the results, there was only item 3 that received a mean score lower than 0.5, therefore, it was not appropriate. The Thai translation used in item 3 was too aggressive, the meaning of it should provide instruction rather than ordering the students to do something. In addition, the revised version was changed on the basis of the suggestions from the experts as in Table 4. Additionally, the questionnaire's Spearman's rank correlation coefficient of 0.67 showed that the two dimensions were related to one another and would be portrayed similarly.

Table 4 The Revised Version of the Questionnaire

Item	Suggestion	Original Version	Revised Version
3	All three experts suggested that item 3 was not appropriate since it seemed to order the students rather than provided the instruction.	คำสั่ง : กรอกข้อมูลในตารางด้านล่าง โดยทำเครื่องหมาย (/) ในช่องที่ตรงกับระดับความถี่ในการทำกิจกรรมของท่าน	คำชี้แจง : กรอกข้อมูลในตารางด้านล่าง โดยทำเครื่องหมาย (/) ในช่องที่ตรงกับระดับความถี่ในการทำกิจกรรมของท่าน

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Pilot Study

All fifteen high school students from grades 11-12 participated in this session. The students were given thirty minutes at the end of the session to complete the 26-question questionnaire, which was prepared in Thai. The pilot student's response indicated that the students could understand the questionnaire's language. However, item 8 needed further explanation because the students were not fully grasping the concept of critical thinking. Consequently, the students were given a brief statement that summarized the concept of critical thinking.

Item 8 : ท่านวิเคราะห์ข้อมูลที่อ่านในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ด้วยทักษะการคิดเชิงวิพากษ์

I analyze messages using critical thinking when I read on social media or printed text.

Revised version: ท่านวิเคราะห์ข้อมูลที่อ่านในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ด้วยทักษะการคิดเชิงวิพากษ์ (การวิเคราะห์ข้อมูลอย่างเป็นระบบและมีเหตุผล)

3.4.3 Interview

The interview explored EFL students' use of digital literacy outside the classroom. Using a purposive sample method, the interview participants were chosen at random; five EFL students were selected in accordance with their CEFR levels. As a prerequisite for the course, all students enrolled in the reading program were required to submit their language proficiency from the Cambridge English exam, which they all took before starting high school. Thus, only five candidates were randomly selected to participate in the interview session after their abilities were ranked from poor to high.

The interview was conducted in Thai to avoid anxiety and confusion. The questions used in the interview aimed to explore how EFL students used some specific aspects of digital literacy outside the classroom, and to investigate the students' use of digital technology in reading English practice. The interview questions were evaluated by three experts in the field of education. Voiced records were required during the interview within 10–15 minutes per person. The qualitative data represented the use of digital literacy outside the classroom. More information for each interview question is presented below:

Table 5 The Interview Index

Teaching Process	1.1	Adapting technology to access and share information
	1.2	Adapting technology to analyze and evaluate information
	1.3	Adapting technology to generate content or work
	1.4	Adapting technology along with reconsidering its purpose and effect
	1.5	Adapting technology to produce or share knowledge with others

Focus Areas	4.1	Using digital website, platform, or application for English reading
	4.2	Using digital technology to categorize, filter or search for English reading
	4.3	Using digital tools to communicate with people to improve English reading
	4.4	Using digital technology to summarize or in the presence of an English passage

Validation of the Interview Question

The experts used the Item-Objective Congruence (IOC), a three-point grading scale, to evaluate the validity of the interview questions. The validation of the interview questions was focused on the consistency and appropriateness of the language used in each question, therefore, the language used in this interview should be in an affirmative sentence and should be relevant to the English version as much as possible. In conclusion, the IOC results from the three experts showed that every item in the interview question was appropriate, but there were some minor changes in item 3 as shown in Table 6.

Table 6 The Revised Version of the Interview Question

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Item	Suggestion	Original Version	Revised Version
3	The language used in this item was not authentic	Voiced records were required during the interview. ขอความอนุเคราะห์อัดเสียงบทสนทนาขณะสัมภาษณ์	Voiced records were required during the interview. ขออนุญาตบันทึกการสนทนาขณะมีการสัมภาษณ์

Pilot Study

Three high school students from grades 11-12 participated in this session, and they were selected on their CEFR level, A2-B1. It was evident from the results that the students could comprehend the questions. Nonetheless, the students did not respond to

items 3 and 6 because, when utilizing technology for the activities, they were not aware of the issue.

3.5 Research Procedures

The research methodologies were divided into two phases. The initial stage was the preparation of digital literacy (before establishing the framework), and the second phase was the implementation of digital literacy (after designing the course with digital literacy). Figure 1 presents a better picture of the procedures.

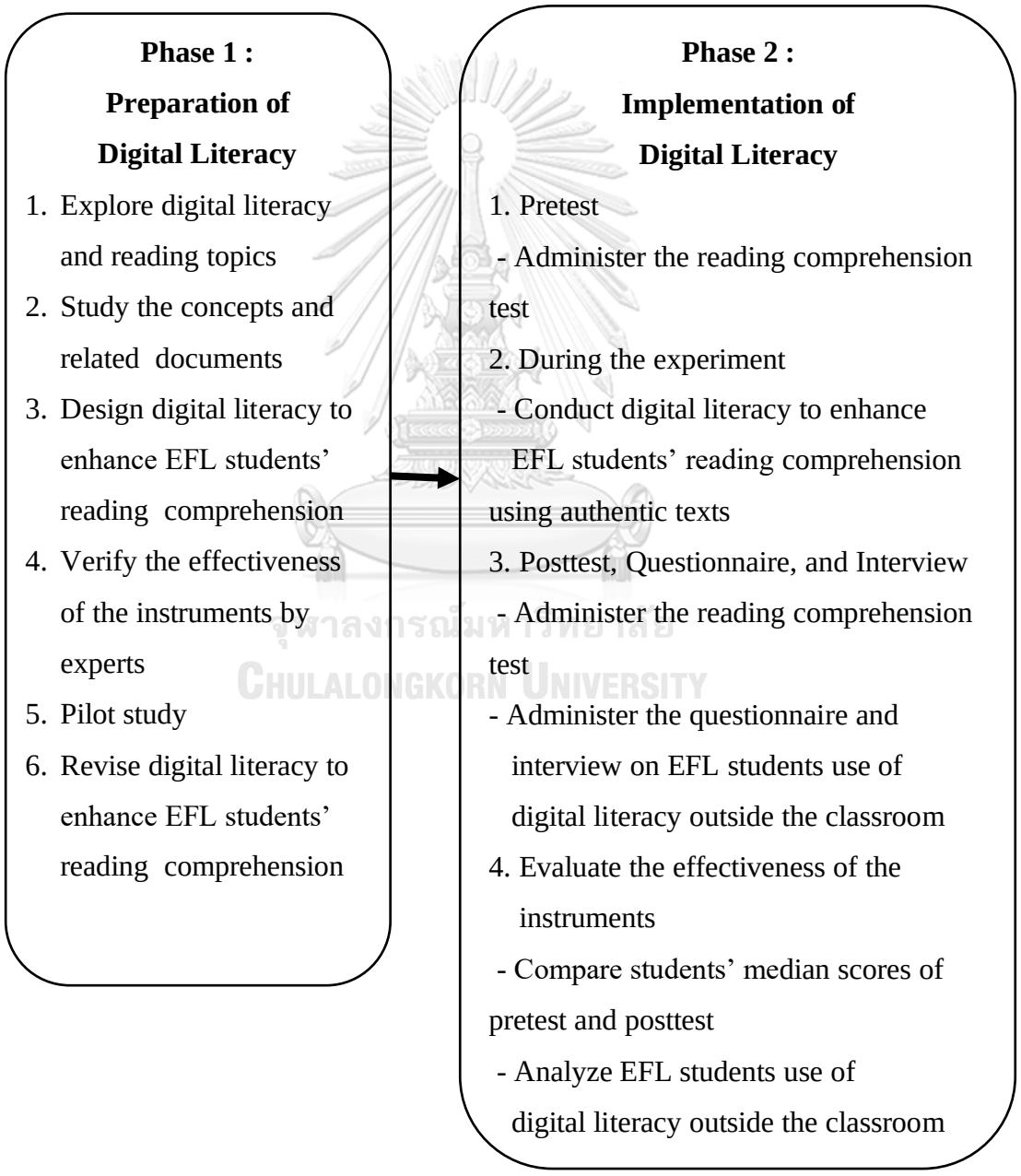

Figure 1 Research procedures

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Phase 1: Preparation of Digital Literacy

The preparation of digital literacy using in this study was carried out in seven stages.

Stage 1: Explore digital literacy and reading topics

After investigating the concept and construct of digital literacy, the researcher combined two frameworks from Hobbs and Coiro (2018) and Pegrum et al. (2022) to create a new framework that would improve reading comprehension for EFL students at a Thai demonstration school. To help the students make connections and apply the knowledge to their everyday lives, the researchers looked into reading subjects related to Thailand that were based on the CEFR, A2-B1 level.

Stage 2: Study the concepts and related documents

The basic concepts and related documents dealing with digital literacy and reading comprehension were explored.

Stage 3: Design digital literacy to enhance EFL students' reading comprehension

The digital literacy framework used in this study was adapted from Hobbs and Coiro (2018) and Pegrum et al. (2022). It was divided into two aspects as follows:

Teaching Processes

1) Access: to use technology in exploring and accessing information

2) Analyze and Evaluate: to analyze and evaluate information

3) Create: to identify and design information (self-expression)

4) Reflect: to reconsider the impact of information

5) Act: to deliver information in an effective and respectful

Focus Areas

1) Communicating: the ability to share and communicate through language

2) Informing: the skills of searching and evaluating information

` 3) Collaborating: the ability to interact with a network

4) (Re)designing: the skills of conceptualizing and reconceptualizing text

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Based on the information mentioned above, the conceptual framework of digital literacy used in this study is presented in Figure 2.

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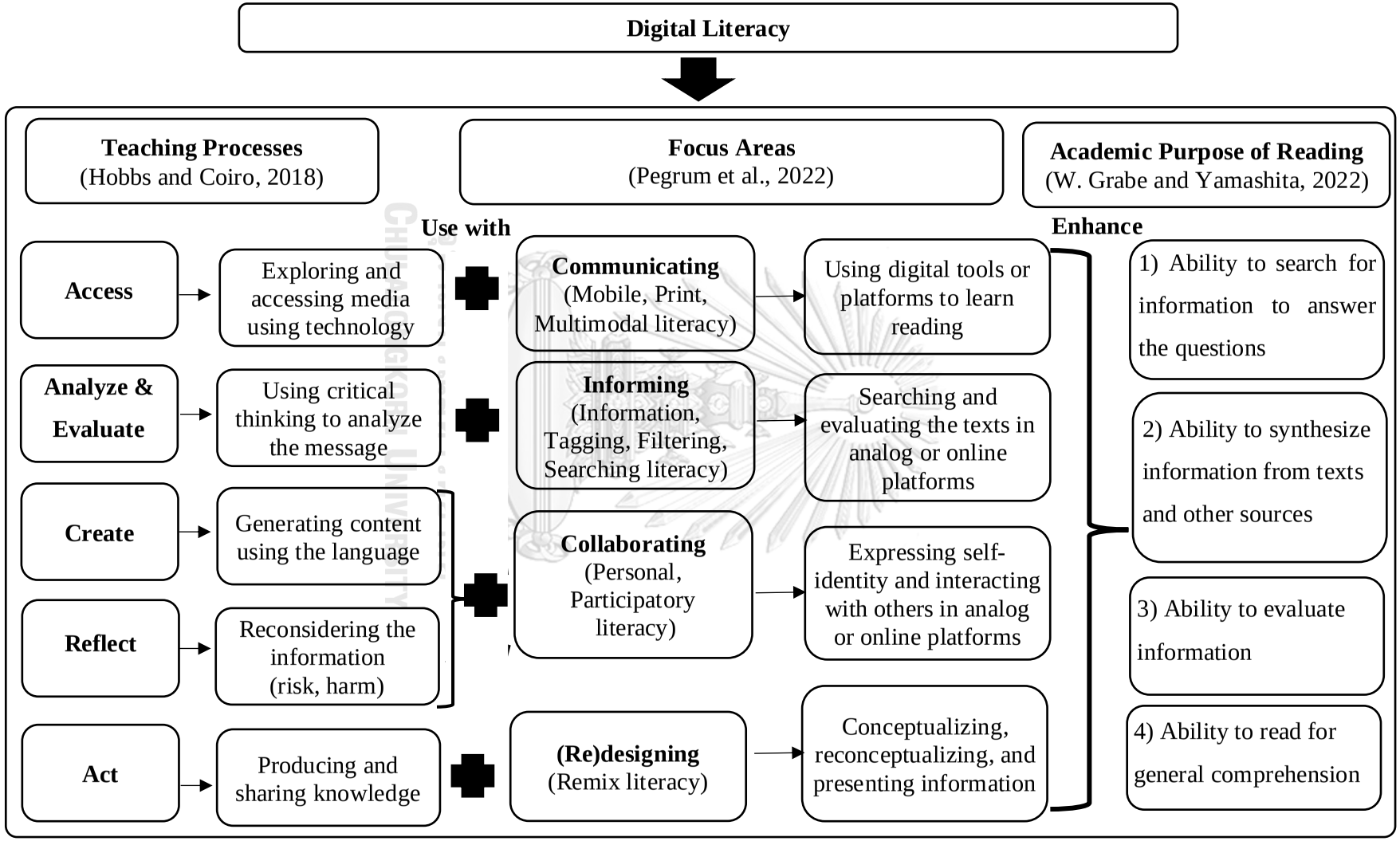

Figure 2 Digital Literacy Framework

Process 1: Access **Focus Area: Communicating**

The first process of digital literacy was to access the lesson. Firstly, EFL students use their mobile phones or tablets to read the reading text about Thailand's most iconic landmark in a PDF format. Secondly, the students expanded their vocabulary knowledge by finding a specific set of vocabulary related to the text and then writing the meaning the in Padlet platform. The **accessing** process was connected to the first focus area of digital literacy named **communicating** since it provided opportunities for students to use their digital technology to learn and do activities. Figure 3 presents the accessing process.

Figure 3 Access

Process 2: Analyze and Evaluate **Focus Area: Informing**

The second process was to analyze and evaluate the text. Firstly, EFL students read a set of comprehension questions related to the texts before reading on their own. The questions were in the worksheet. Secondly, students spent their time reading the text to find the answer to the comprehension questions. Lastly, students scan the same QR code, from the first process to access Padlet and then write down the answers. The **analyzing and evaluating** process was connected to the second focus area of digital literacy named **informing** since it provided opportunities for students to use their knowledge along with the information from the text to decode the meaning. Figure 4 represents the second process.

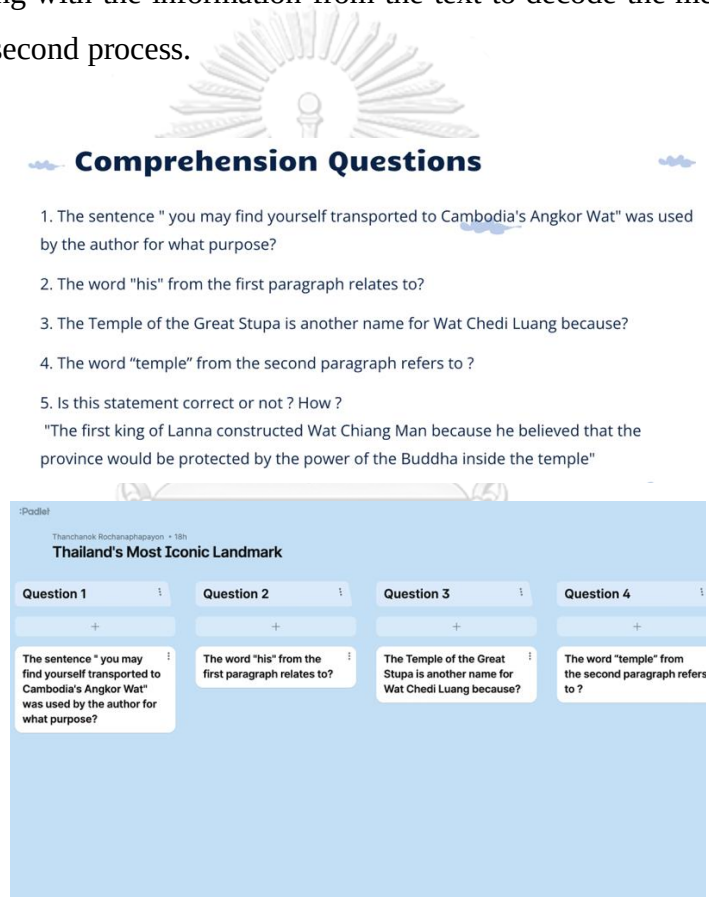

Figure 4 Analyze and Evaluate

Process 3: Create **Focus Area: Collaborating**

The third process was to create. After reading the text and answering the questions, EFL students worked together in a group of 4-5 to create a poster about Thailand's most iconic landmarks (Temple). The purpose of this poster was to invite people to visit the following places: Wat Chaiwatthanaram, Wat Chedi Luang, and Wat Chiang Man. Therefore, each group would choose 1 place that they liked and then use their digital technology to search for more information about it and create a poster. In the end, each group posted their work on Padlet using the hashtags: #readingcourse008 and #thelandmarktovisit. This third process, **create**, was connected to the third focus area of digital literacy named **collaborating** since it allowed students to share their knowledge gained from the text and brainstorm their idea to produce the work by using technology as a tool. Figure 5 presents the creating process.

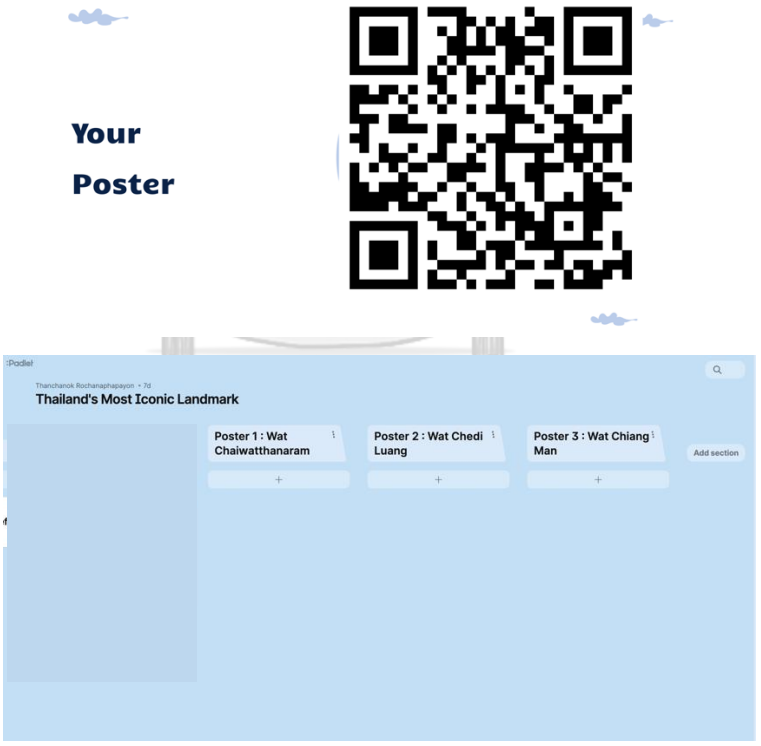

Figure 5 Create

Process 4: Reflect **Focus Area: Collaborating**

The fourth process was to reflect. Firstly, the teacher and students would work together to summarize the information from the text and find the correct answer to the comprehension questions on Padlet. Secondly, the teacher would provide the time for students to comment on their posters, focusing on their effectiveness. This fourth process, **reflect**, was connected to the third focus area of digital literacy named **collaborating** because it provided opportunities for everyone to work and review all the information together. Figure 6 represents the reflecting step.

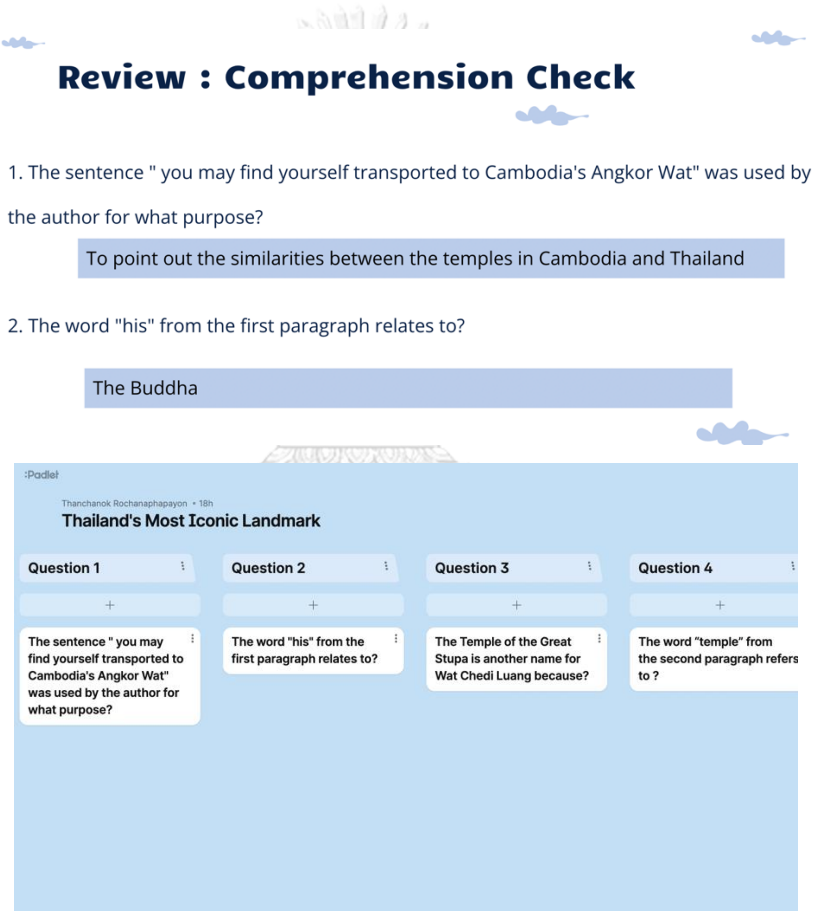

Figure 6 Reflect

Process 5: Act **Focus Area: (Rs)designing**

The last process was to act. During this process, each group would edit their poster based on the comments from their friends. Later, the teacher let students vote for the best poster and then post it on the classroom's Instagram using the hashtags: #readingcourse008 and #thelandmarktovisit. This last process, **act**, was connected to the fourth focus area of digital literacy named **(re)designing** since the students reconsidered the effect of their actions and works before sharing it. Figure 7 represents the acting step.

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Figure 7 Act

As a result, after the researchers explored and designed a digital literacy framework to use in this study, the lesson plans were developed. Figure 8 on the next page presents the scope and sequence of this reading course, digital literacy was used as the framework.

Figure 8 Scope and Sequence

Theme		Thailand			
Learning Outcomes		1. Be able to search for specific information from the texts. 2. Be able to synthesize information from the texts. 3. Be able to evaluate information from the texts. 4. Be able to read for general information from the texts.			
Digital Literacy	**Focus Areas** / **Teaching Processes**	**Communicating**	**Informing**	**Collaborating**	**(Re)designing**
Unit 1 **Thailand's Landmark**	**1. Access**	**Mobile literacy** **Activities :** - Students use mobile phones to learn and do activities in the classroom. - Texts : *1) Thailand's Most Iconic Landmarks (Temple)*			

		2) Thailand's Most Iconic Landmarks (Natural) *3) Tourist attraction in Thailand* - Students learn a specific set of vocabulary related to the topic.			
	2. Analyze & Evaluate		**Information literacy Activity:** - Students analyze information from the text to answer questions on online platforms.		
	3. Create			**Participatory literacy Activity:** - Students share their	

				knowledge gained from the text and brainstorm their ideas to produce the work on online platforms. - Students use hashtag #readingcourse008 #thelandmarktovisit when posting their work on social media.	
	4. Reflect			**Participatory literacy Activity:** - The teacher and students work together to summarize the information and find the correct answer to comprehension questions.	

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				- Students reflect on their work.	
	5. Act				**Remix literacy Activity:** - Students edit their work and post it on social media.
Unit 2 **Thai Culture**	**1. Access**	**Print literacy Activity:** - Students share their knowledge about Thai culture. - Students read the texts in the paper. - Texts: *1) Core concept of Thai culture* *2) Thai traditions and cultural values*			

		3) Food culture in Thailand - Students learn a specific set of vocabulary related to the topic.			
	2. Analyze & Evaluate		**Information literacy Activity:** - Students analyze information from the text to answer questions in the paper.		
	3. Create			**Personal literacy Activity:** - Students write a short summary from the text. - Students use their account to share the	

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				information on online platforms. - Students use hashtag #readingcourse008 #thaicultureIknow when sharing the information.	
	4. Reflect		**Information literacy Activity:** - Students discuss about the texts and share the reason for having these cultures. **Filtering literacy Activity:** - Students find more information in online platforms and filter only credible sources.		

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	5. Act				**Remix literacy Activity:** - Students create Venn diagrams to compare Thai culture and another culture. - Students write these hashtag #readingcourse008 #thaicultureIknow in their work. - Students record their presentation and post in on IG.
Unit 3 **Technology in Thailand**	**1. Access**	**Multimodal literacy Activity:** - Students look at the pictures of technologies in			

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		Thailand on the slide and then match it with the correct texts (paper). - Texts: *1) Global digital revolution* *2) Technology trend* *3) Education and training technology* - Students can choose to read the text in paper, PDF, or website. - Students learn a specific set of vocabulary related to the topic.			

	2. Analyze & Evaluate		**Information literacy Activity:** - Students analyze information from the text to answer questions. **Tagging literacy Activity:** - Students use # with the name of technology to explore for more information on social media.		
	3. Create			**Participatory literacy Activity:** - Students work in groups and discuss the advantages and	

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				disadvantages of specific technology. - Students share their thoughts on an online platform.	
	4. Reflect		**Search literacy Activity:** - Students search for more information about the effect of each technology using credible sources. - Students comment on their friends' works.		
	5. Act				**Remix literacy Activity:** - Students create a mind map to represent the advantages and

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					disadvantages of specific technology. - Students present their work in front of the classroom. - Students take pictures of their work and post them on IG with hashtag #readingcourse008 #newtechnology

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Stage 4: Design the questionnaire and interview questions to explore EFL students' use of digital literacy

The questionnaire focused on two aspects of the digital literacy framework, teaching processes and the focus areas. The questionnaire and interview were conducted in Thai to decrease confusion.

Stage 5: Verify the effectiveness of the instruments by experts

Six experts evaluated the digital literacy used in this study. The evaluation examined the framework, materials, and procedures of teaching and learning. Furthermore, the experts elevated the questions used for the questionnaire, and interviews to explore EFL students' use of digital literacy outside the classroom.

Stage 6: Pilot study

To examine the effectiveness of digital literacy, a pilot study was conducted with EFL students in grades 11-12 who volunteered to participate in the after-school course. The pilot study was in the first semester of the academic year 2023. The duration of this pilot study was one week.

Stage 7: Revise digital literacy to enhance EFL students' reading comprehension

Digital literacy was revised to design an appropriate framework to enhance reading comprehension for EFL students.

Phase 2 : Implementation of Digital Literacy

Stage 1: Pretest

EFL students who participated in the reading course were required to finish the reading comprehension, pretest for 30 questions. It aimed to evaluate the student's ability before implementing digital literacy as the framework for learning.

Stage 2: During the experiment

For ten weeks, EFL students in this reading course learned with digital literacy to enhance their reading comprehension.

Stage 3: Posttest, Questionnaire, and Interview

During the last week of the course, week 10, all EFL students were required to finish the reading comprehension, posttest (the same question as in the pretest). This study investigated how digital literacy enhances reading comprehension. Later, all EFL students were required to answer the questionnaire to explore the use of digital literacy

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outside the classroom. Finally, five EFL students were randomly selected to participate in the interview session to explore more about the use of digital literacy.

Stage 4: Data analysis of the instruments

The median scores from the pretest and posttest were collected and evaluated to present the effectiveness of the digital literacy instruments. Content analysis from the questionnaire and interview was collected and analyzed to represent EFL students' use of digital literacy outside the classroom.

3.6 Data Collection

The data collection was carried out in two phases which were 1) before implementing digital literacy, and 2) after implementing digital literacy. The duration of the experiment was ten weeks, within 90 minutes per lesson. All EFL students took the pretest in the first class (week 1) after they received the course overview and rubric of the course. Later, in week 10, the same EFL students again performed the posttest to investigate how digital literacy enhances their reading comprehension. In addition, the students were required to answer the questionnaire to explore the use of digital literacy outside the classroom. Finally, in the last week, five EFL students were randomly selected to participate in an interview session to explore the use of digital literacy outside the classroom.

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3.7 Data Analysis

Data analysis for the first research question

The first research question investigated how digital literacy enhances EFL students' reading comprehension. The researcher used the same reading comprehension test for the pretest and posttest to collect the data and used a median score to represent the effectiveness of the framework. The quantitative data from this research tool were examined using the Wilcoxon signed-rank test, which is effective with small samples and does not assume anything about the distribution of the populations (Riina, Stambaugh, Stambaugh, & Huber, 2023).

Data analysis for the second research question

The second research question explored EFL students' use of digital literacy outside the classroom, therefore, a questionnaire and interview were used to collect the data. In week 10, the last week of the course, all EFL students were required to answer a questionnaire to explore the use of digital literacy outside the classroom. Additionally, all students were ranked from A2 to B1, and only five were selected randomly to provide additional information regarding their usage of digital literacy. To participate part in the interview, they were chosen at random using the purposive sampling method. The language used in the questionnaire was in Thai to reduce uncertainty on questions. The interview was conducted in the Thai language and voice recording was required during the interview. After the interview, the data was converted to English. The accuracy of the translation was evaluated by a native speaker who is multilingual in Thai and English and is in the educational field. The content analysis would be used to evaluate the data and represent specific parts of digital literacy that EFL students use outside the classroom.

Chapter Summary

The research methodology for collecting the data on the Digital Literacy Framework to enhance the reading comprehension of EFL learners and students using digital literacy outside their classroom is presented in this chapter. In this study, three research instruments were used: a reading comprehension test, a questionnaire, and an interview. To establish how digital literacy enhances reading comprehension for English language learners, the first instrument was used. Moreover, to study the use of digital literacy by EFL students outside school hours, second and third research instruments have been used. This chapter also gives an example of the lessons, scope and sequence which will give more detailed information on this framework. In addition, analyses of these data were carried out by means of the Wilcoxon signed-rank test and a descriptive statistic.

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CHAPTER IV

RESULTS

This chapter focuses on the findings of a study that investigated the impact of digital literacy on reading comprehension in EFL students and how they utilize digital literacy outside the classroom through a one-group pretest-posttest, questionnaire, and interview. The test and questionnaire provided the quantitative data, whereas the interview provided the qualitative data. All the data were analyzed and presented based on two research questions.

4.1 Result of the First Research Question

- Research Question 1: How does digital literacy enhance reading comprehension for EFL students?

This question aimed to explore how digital literacy improves reading comprehension in EFL students. To find the answer, the research designed a reading comprehension test containing 30 questions in multiple choice. The reading comprehension test focused on four reading purposes from Grabe and Yamashita (2022) as follows: 1) searching for information; 2) synthesizing information; 3) evaluating information; and 4) reading for general comprehension.

The reading comprehension test was administered as a pretest on week 1 and as a posttest on week 10. The impact of digital literacy on reading comprehension in EFL students was shown using the median score, therefore, the Wilcoxon signed-rank test was used to determine the significant difference between the pretest and posttest median scores as in Table 7.

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Table 7 The Result of the Wilcoxon Signed Ranks Test of the Pre- and Post-tests

Reading Comprehension Test	Groups	N	Mean Rank	Sum of Rank	z	p
Posttest-Pretest	Negative Rank	6	8.00	48.00	-2.94	.003*
	Positive Rank	18	14.00	252.00		
	Ties	6				
	Total	30				

*p < 0.05

Based on Table 7, it is evident that digital literacy has the potential to improve reading comprehension for EFL students, as seen by the statistically significant disparity (z = -2.94, p =.003) between tests. Furthermore, the posttest's median score of 19.50 exceeded the pretest's score of 18.00. It was determined that the reading comprehension in EFL students improved after they commonly employed a digital literacy framework. Furthermore, each reading purpose's post-test score has been analyzed and displayed from high to low significance in Table 8.

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Table 8 : The Result of the Wilcoxon Signed Ranks Test of the Pre- and Post-tests (Focusing on each purpose)

Reading Comprehension Test (Purpose)	Groups	N	Mean Rank	Sum of Rank	z	p
Posttest-Pretest (Evaluating information)	Negative Rank	4	9.13	36.50	-2.00	.045*
	Positive Rank	13	8.96	116.50		
	Ties	13				
	Total	30				
Posttest-Pretest (General comprehension)	Negative Rank	6	14.08	84.50	-1.99	.046*
	Positive Rank	18	11.97	215.50		
	Ties	11				
	Total	30				
Posttest-Pretest (Searching information)	Negative Rank	4	9.00	36.00	-1.97	.049*
	Positive Rank	13	9.00	117.00		
	Ties	13				
	Total	30				
Posttest-Pretest (Synthesize information)	Negative Rank	5	9.90	49.50	-1.95	.052
	Positive Rank	14	10.04	140.50		
	Ties	11				
	Total	30				

*p < 0.05

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According to Table 8, after using the digital literacy framework, the majority of EFL students had increased their reading comprehension. Reading to evaluate information from texts was the reading purpose in which students made the most improvement (z = -2.00, p =.045). Reading for general comprehension (z = -1.99, p = .046) and reading to search for specific information from texts (z = -1.97, p = .049) were next and third, respectively. However, reading to synthesize information from texts and other sources had not improved significantly in EFL students (z = -1.95, p = 0.052).

4.2 Result of the Second Research Question

- Research Question 2: How do EFL students use digital literacy outside the classroom?

This inquiry aimed to explore how EFL students use digital literacy outside the classroom, therefore, the researcher created a questionnaire and an interview to gather information for this query. Further information is provided as follows:

Questionnaire

There were 26 questions in the digital literacy questionnaire that examined how EFL students from grades 11-12 used digital literacy outside of the classroom. The teaching process and the digital literacy framework's focus areas comprised the two categories into which the questions were divided. As a result, EFL students were given the responsibility of answering the questionnaire on week 10 of the course. The results are as in Table 9.

Table 9 The Descriptive Statistics of Each Question in the Digital Literacy Questionnaire

The Aspects of Digital Literacy		N	Min	Max	M	SD	Meaning
Teaching Processes	Access	30	2.67	4	3.68	.42	often
	Analyze and Evaluate	30	2.00	4	3.47	.53	often
	Reflect	30	2.33	4	3.47	.47	often
	Act	30	2.33	4	3.31	.48	often
	Create	30	1.00	4	2.93	.72	sometimes
Focus Areas	Communicating	30	2.67	4	3.70	.39	often
	Collaborating	30	2.67	4	3.52	.37	often
	(Re)designing	30	2.50	4	3.40	.37	often
	Informing	30	1.67	4	3.06	.65	often

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The use of digital literacy to improve EFL students' reading comprehension outside of the classroom is represented by the mean score of each questionnaire item, as shown in Table 8. Two aspects were identified from the data, as follows:

Teaching process

Access: this was the step that EFL students utilized the most outside of the classroom (M = 3.68, SD =.42). The majority of the students primarily used media or other technology to research interesting topics on social media and then share it with friends or family.

Analyze and Evaluate: the students often applied this process while searching for articles to read (M = 3.47, SD =.53). Many students used mobile phones and tablets as tools to explore the information online and then analyzed information using critical thinking.

Create: students sometimes generated content using different types of sources or tools (M = 2.93, SD =.72). They composed messages on online platforms but with less awareness of purpose.

Reflect: students generally considered the purpose of the message they received. Moreover, they would reflect on their actions before launching them into public space (M = 3.47, SD =.47). Many students tried to respect others as well as express themselves on online platforms.

Act: students often worked with others, from the same and different cultures, to find and exchange information (M = 3.31, SD =.48). They mainly analyzed information on their own, and then used technology as a tool for communicating and sharing information with others.

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Interview

Students employed the main elements of digital literacy to enhance their comprehension of the content they consume, whereas they each had a unique method of utilizing technology for reading. The following illustrates in detail how students used digital literacy to enhance their reading comprehension. For further details, students No. 1-3 were in the A2 level while students No. 4-5 were in the B1 level.

Access: according to the interview, every student agreed that they used this process the most in their daily lives to read and discuss interesting topics

by using technology. Students often employed digital tools to explore interesting topics from news or status updates on social media.

Student 1: หนูมักใช้เทคโนโลยี เช่น มือถือ ในการหาข้อมูลหรือทำกิจกรรมต่างๆ ถ้าเจออันไหนที่ตลกหรือน่าสนใจ หนูก็จะส่งต่อให้เพื่อนๆ ส่วนมากจะส่งพวกมีมตลกๆ หรือสเตตัสที่คนอื่นเขียนเล่าเรื่องราวของพวกเขา ถ้ามีมมักจะเป็นภาษาอังกฤษแต่ถ้าสเตตัสก็มีทั้งภาษาไทยและอังกฤษ

I often use technology like my phone to look for information or do various activities. If I come across something funny or interesting, I'll share it with my friends. Most of the time, I share funny memes or stories that others have written about their experiences. Memes are usually in English, but the stories have both Thai and English.

Student 3: ผมชอบหาอ่านข้อความ โพสต์ หรือดูวิดีโอ บน Facebook กับ Instagram บางทีก็จากเว็บต่างๆ แล้วค่อยแชร์ให้เพื่อน โดยส่วนใหญ่แล้วจะแชร์ข่าวที่เกี่ยวข้องกับกลุ่มผมหรือดูน่าสนใจ ตลก พวกข้อความมักจะเป็นภาษาไทย แต่ถ้าวิดีโอจะเป็นภาษาอังกฤษ ในคลิปอย่างน้อยจะต้องคำแปลภาษาอังกฤษให้อ่านด้วย ถ้าไม่มีซับให้พวกผมจะไม่ค่อยดูเพราะว่าฟังไม่รู้เรื่อง

I enjoy reading posts, messages, or watching videos on Facebook and Instagram. Sometimes, I find them on various websites and then share them with my friends. Most of the time, I share news related to our group or things that seem interesting or funny. Texts are usually in Thai, but videos are in English. At least, there should be English subtitles for me to watch, as without them, I find it hard to understand.

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Analyze and Evaluate: based on the CEFR level that students summited before studying in high school, five students were divided in to two levels: A2 and B1. The students in A2 level would use technology to translate the information from English to Thai language. In contrast, the B1 level mainly used a dictionary along with their background knowledge to decode meaning from text.

Student 2: ผมใช้เทคโนโลยีในการหาข้อมูลที่สนใจ ส่วนมากจะข้อมูลเป็นงานศิลปะของต่างประเทศ ข้อความมันก็เป็นภาษาอังกฤษ ผมก็จะใช้พวกโปรแกรมแปลภาษา เช่น ilovetranslate มาช่วย ผมชอบโปรแกรมนี้เพราะเวลาแปลข้อความ มันจะมีตัวเลือกให้อ่านหลายอัน มีหลายบริบท

I use technology to find information that interests me, mostly regarding art from different countries. The text is usually in English, so I rely on translation programs like 'ilovetranslate' to assist me. I like this program because when translating text, it provides multiple options to read in various contexts.

Student 4: หนูชอบอ่านหนังสือออนไลน์จากในมือถือ ส่วนใหญ่แล้วจะเป็นนิยายภาษาอังกฤษ ถ้าเจอคำที่ไม่เข้าใจก็จะใช้ Dictionary ที่เป็นแบบออนไลน์ช่วย โดยจะใช้ของ Cambridge ไม่ก็ Oxford ถ้าไม่เข้าใจจริงๆ ก็ส่งลิ้งค์ให้เพื่อนที่เก่งภาษาอังกฤษช่วยแปลเป็นไทยให้

I enjoy reading online books on my phone, mostly English novels. If I come across words I don't understand, I use an online dictionary, either Cambridge or Oxford. If I truly don't understand, I'll send the link to a friend who's proficient in English to help translate it into Thai.

Create: all students in this interview normally update their status on social media and then share it with close friends or family. They sometimes quoted or retweeted information directly from the source since it easier than recreating the new one.

Student 3: ผมชอบหาอ่านโพสต์ หรือดูวิดีโอ บนสื่อต่างๆ โดยเฉพาะ Facebook Instagram แล้วก็ Twitter แล้วค่อยแชร์ให้เพื่อน ส่วนใหญ่จะแชร์ลิ้งค์ให้เลย แต่บางครั้งก็เอามาตัดต่อใส่ข้อความเพิ่มก่อน

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I enjoy finding and reading posts or watching videos on various social media platforms, especially Facebook, Instagram, and Twitter. I then share them with my friends, mostly by sharing the links directly. Sometimes, though, I edit and add extra text before sharing.

Student 5: หนูชอบเล่น Twitter มากๆ เพราะมันจำกัดการพิมพ์ต่อโพสต์ ดังนั้นเนื้อหาที่อ่านก็จะสั้น กระชับ ถ้าเจออันไหนที่น่าสนใจหรือตลก หนูก็จะรีทวีตเก็บไว้เผื่อมาอ่านทีหลัง ไม่ก็แท็กเพื่อนให้มาอ่านที่โพสต์เดียวกันเลย

I really enjoy using Twitter because it limits the text per post. So, the content I read tends to be short and concise. If I find something

interesting or funny, I'll retweet it to save for later reading. Otherwise, I'll tag friends to read the same post.

Reflect: students were concerned about the reliability of sources and information. They tended to believe the information from famous people or official websites. Moreover, they would alert their friends to the possibility of fraud or fake information.

Student 2: ผมใช้เทคโนโลยีในการหาข้อมูลเกี่ยวกับศิลปะ พอเจอสิ่งที่สนใจแล้วผมก็จะแชร์เก็บไว้ ไม่ก็ Bookmark เว็บไซต์นั้น บางครั้งผมก็แชร์ให้เพื่อนบ้าง แต่ส่วนใหญ่ไม่ค่อยแชร์เพราะโดนเพื่อนล้อ

I use technology to search for information about art. When I find something interesting, I either save it or bookmark the website. Sometimes I share it with friends, but mostly I don't share much because I'm afraid of being teased by them.

Student 5: หนูมักจะอ่านข้อมูลเกี่ยวกับวิธีการดูแลตนเอง โดยหนูจะเลือกอ่านจากแอคเค้าที่มีผู้ติดตามเยอะ หรือมีเว็บไซต์ ที่เป็นทางการ ซึ่งโดยส่วนมากจะเป็นข้อมูลจากชาวต่างชาติ ที่ใช้ภาษาอังกฤษในการเขียนเนื้อหา ถ้าไม่มั่นใจว่ามันเชื่อถือได้ไหม หนูจะถามคุณแม่ หรือให้คนอื่นช่วยตรวจสอบให้อีกที ถ้าหากไม่น่าเชื่อถือ หนูจะบอกเพื่อนๆให้ระวัง

I usually read self-care information from accounts with a large following or from official websites, mostly authored by international individuals who use English in their content. If I'm unsure about the credibility, I'll ask my mom or someone else to double-check. If it seems unreliable, I'll warn my friends to be cautious.

Act: students typically shared content with friends or family members. Most of the students would write a comment or insert a picture on the topic before sharing it with others. On an online platform, students would exchange information or interests but occasionally have in-person discussions in greater detail.

Student 2: เวลาเจอสิ่งที่สนใจแล้วผมก็จะแชร์เก็บไว้ ไม่ก็ Bookmark เว็บไซต์นั้น บางครั้งผมก็แชร์ให้เพื่อนบ้าง แต่ส่วนใหญ่ไม่ค่อยแชร์เพราะโดนเพื่อนล้อ

When I come across something interesting, I either save it or bookmark the website. Sometimes I share it with friends, but mostly I don't share much because I'm afraid of being teased by them.

Student 3: ผมมักจะแชร์หรือเล่าสิ่งต่างๆที่เกิดในชีวิตให้เพื่อนสนิทรู้ ยิ่งถ้าเจออะไรที่ตลกหรือน่าสนใจ ผมก็จะแชร์ลิ้งค์ให้เพื่อนเลย มีแค่บางครั้งที่เอามาตัดต่อใส่ข้อความเพิ่มก่อน เพื่อเน้นให้เพื่อนรู้ว่าผมจะสื่ออะไรแต่พอเจอกันหน้าจริงๆ ผมก็ลืมเรื่องที่แชร์ กลายเป็นมีประเด็นใหม่ๆมาให้คุยเรื่อยๆ

I often share or tell my close friends about various things happening in my life. Especially if I find something funny or interesting, I'll share the link with them. Sometimes, I add additional text to emphasize what I'm communicating. However, when we meet in person, I often forget what I shared and end up having new topics to discuss continuously.

Focus Areas

Communicating: it was the focus area that EFL students utilized the most; they frequently used their smartphones or other devices to engage in learning or activities outside of school, including reading activities (M = 3.70, SD =.39). Moreover, students often combined different types of digital displays to share or exchange information.

Informing: students often search for infesting or related topics online (M = 3.06, SD =.65). Most of the students used hashtag to search and filter information related to their interests, moreover, they applied a variety of search engines while performing the activities.

Collaborating: most of the students mainly used technology to contact others along with expressing self-identity on online platforms (M = 3.52, SD =.37). Moreover, they often applied digital resources to contribute to their learning and practicing language skills.

(Re)designing: students did compose content or work using background and additional information from other sources (M = 3.40, SD =.46). They

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mostly summarized information using digital technology then share it with friends.

According to the questionnaire's results, EFL students actively engage in employing digital literacy outside of the classroom to enhance their reading comprehension. EFL students generally utilized the access process and the communicating area to explore and exchange intriguing tasks or information among their friends.

Interview

Students were asked for more details regarding the areas of focus for digital literacy. Different English language proficiency levels among EFL students were applied in these areas in different ways. Consequently, further details are provided below.

Communicating: A2 EFL students use digital resources to improve their reading comprehension skills. Some practice reading on interest-only topics, and some learn from specialized websites like the British Council. In contrast, students at the B1 level would use digital technology for more targeted goals in order to advance their reading comprehension. Before starting to read, these students had clear reading goals in mind, such as improving their vocabulary in business-related resources or getting ready for the Scholastic Assessment Test (SAT).

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Student 1: หนูไม่ค่อยเก่งภาษาอังกฤษ เลยมักจะฝึกอ่านภาษาอังกฤษเพิ่มเติมแค่จากเว็บ British Council เพราะคุณครูแนะนำเว็บนี้ หนูชอบเว็บนี้เพราะมันอ่านง่าย มีแบบฝึกหัดให้ทำ แต่เพราะมันเป็นภาษาอังกฤษทั้งหมด บางครั้งเลยต้องเอาไปแปลในแอพแปลภาษาอยู่บ้าง

I'm not very good at English, so I often practice reading more English from the British Council website because my teacher recommended it. I like this website because it's easy to read and has exercises to do. But because it's all in English, sometimes I must use a translation app.

Student 4 : หนูชอบฝึกทำข้อสอบการอ่านภาษาอังกฤษในไอแพด โดยเฉพาะพวก TOEIC กับ TOEFL โดยหนูจะหาข้อสอบเก่าๆออนไลน์ โหลดลงเครื่อง แล้วก็มาฝึกทำกับเพื่อนๆ

เวลาทำแล้วไม่เข้าใจตรงไหนก็จะแชร์กันในกลุ่ม เผื่อมีใครที่สามารถอธิบายได้ แต่ถ้าไม่มีหนูก็ลองหาเฉลยแบบละเอียดจากเว็บไซต์ต่างๆอีกที หรือถ้ายังไม่เข้าใจอีก หนูก็จะถามคุณครูที่โรงเรียนทาง MS team

I enjoy practicing English reading exams on my iPad, especially TOEIC and TOEFL. I search for old practice exams online, download them, and then practice with friends. If there's something I don't understand while doing the exams, we share it in our group to see if anyone can explain. If not, I try to find detailed answers on various websites. If I still don't understand, I ask my schoolteacher via MS Teams.

Informing: EFL students occasionally struggled with unfamiliar vocabulary or unclear grammar; therefore, they would search for the meaning online. For the content that they didn't understand, they would access the digital resources that they preferred to translate or decode meaning. In contrast, students sometimes ignored the information if they remained unclear about it.

Student 2: ผมชอบอ่านบทความเกี่ยวกับศิลปะบนเว็บไซต์ต่างๆ ถ้าอ่านแล้วมันตรงกับความสนใจ ผมจะจดสรุปข้อมูลลงในสมุดของผมด้วย เวลาอ่านผมจะจดคำศัพท์เกี่ยวกับศิลปะที่ผมลงในสมุดไม่รู้ แล้วค่อยไปหาความหมายเพิ่มเติมจาก Dictionary แต่บางครั้งมันเป็นคำศัพท์เฉพาะทาง ผมก็จะใช้แอพแปลภาษาแทน ถ้ายังไม่เข้าใจอีก ผมก็ปล่อยมันไป

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I enjoy reading articles about art on various websites. If I find something that aligns with my interests, I jot down a summary in my notebook. While reading, I write down art-related vocabulary that I don't know in my notebook and later look up their meanings in the dictionary. Sometimes, if they are specialized terms, I use translation apps. If I still don't understand, I let it go.

Student 4 : หนูชอบฝึกทำข้อสอบการอ่านภาษาอังกฤษในไอแพด โดยเฉพาะพวก TOEIC กับ TOEFL โดยหนูจะหาข้อสอบเก่าๆออนไลน์ โหลดลงเครื่อง แล้วก็มาฝึกทำกับเพื่อนๆ เวลาทำแล้วไม่เข้าใจตรงไหนก็จะแชร์กันในกลุ่ม เผื่อมีใครที่สามารถอธิบายได้ แต่ถ้าไม่มีหนูก็ลองหาเฉลยแบบละเอียดจากเว็บไซต์ต่างๆอีกที หรือถ้ายังไม่เข้าใจอีก หนูก็จะถามคุณครูที่โรงเรียนทาง MS team

I enjoy practicing English reading exams on my iPad, especially TOEIC and TOEFL. I search for old practice exams online, download them, and practice with friends. If there's something I don't understand while doing the exams, we share it in our group hoping someone can explain. If not, I try to find detailed answers on various websites. If I still don't understand, I ask my schoolteacher via MS Teams.

Collaborating: all five students in the interview session shared contents, materials, or sources with others for many reasons, such as entertainment and comprehension. Even though they were aware that they might not always understand information fully, they still shared. To be more precise, the main reason students shared was to ensure that their community had an access to the same content for discussion or conversation. Students appeared to prefer sharing on digital platforms over printed materials.

Student 3: ผมใช้ไอแพดในการขายของในเกมส์ที่ผมเล่นออนไลน์ แต่ก่อนที่ผมจะขายแต่ละชิ้น ผมต้องไปหาข้อมูลก่อนว่าคนส่วนใหญ่ขายที่ราคาเท่าไหร่ แล้วค่อยตั้งราคาที่ผมต้องการ เกมส์ที่ผมเล่นมันค่อนข้างดังในประเทศด้วย ดังนั้นผมจะอ่านข้อมูลเป็นภาษาอังกฤษ และค่อยมาหาข้อมูลภาษาไทยเพิ่มเพื่อทวนว่าผมเข้าใจถูกต้องไหม ส่วนมากผมจะสอบถามข้อมูลกับเพื่อนทั้งในประเทศไทยและต่างประเทศอีกทีว่าราคาที่ผมตั้งมันรับได้ไหม

I use my iPad to sell items in the online game I play. Before selling each item, I research to find out the typical selling prices. Then I set my price accordingly. The game I play is quite popular in the country, so I often read information in English and cross-reference it with Thai to ensure I understand correctly. Most of the time, I ask friends both in Thailand and abroad if the prices I set are acceptable.

Student 5 : หนูกับเพื่อนชอบรวมกลุ่มกันติวสอบ SAT ก็จะเน้นวิชาภาษาอังกฤษและคณิตศาสตร์ ส่วนใหญ่แล้วจะยืมหนังสือจากห้องสมุดของโรงเรียน เพราะมีเฉลยที่ท้ายเล่มเลย เวลาทำก็จะถ่ายรูปข้อสอบลงในไอแพด แล้วฝึกทำไปด้วยกัน เฉลยพร้อมกันในห้อง

My friends and I like to form study groups to prepare for the SAT exam. We focus on English and mathematics. Usually, we borrow books

from the school library because they have answer keys at the end. When studying, we take pictures of the exam questions on the iPad and practice together. We check the answers simultaneously in the room.

(Re)designing: students tended to keep their privacy when regenerating content. A2 students occasionally reworked funny content before sharing it among close friends. In contrast, B1 students would share what they had learned with others after restructuring the content they had read, mostly regarding the exam.

Student 2: ถ้าเป็นเรื่องเรียน ผมจะจดคำศัพท์หรือข้อมูลใหม่ๆลงสมุด เพราะมันทำให้ผมจำได้ดีมากกว่าเดิม แต่ถ้าเป็นพวกเรื่องตลกๆหรือเกี่ยวข้องกับกลุ่มผม ผมจะเซฟรูปแล้วเอาไปคุยกับเพื่อนที่โรงเรียน

When it comes to studying, I prefer jotting down new vocabulary or information in my notebook because it helps me remember things better than before. But if it's something fun or related to my group, I save the picture and discuss it with my friends at school.

Student 5 : บางครั้งพวกหนูก็เรียนเสริมวิชาคณิตศาสตร์กับอาจารย์ข้างนอกทาง Zoom ครูจะสอนเป็นภาษาอังกฤษ โดยคุณครูจะสอนเทคนิคการทำก่อน จากนั้นให้ทำเอง แล้วครูจะให้แบบฝึกหัดไปทำเองด้วย แบบฝึกหัดที่ต้องทำเอง พวกหนูจะแยกไปทำ แล้วแชร์ลงในกลุ่ม Line เพื่อดูว่าทำเหมือนกันหรือไม่

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Me and my friends, we sometimes take extra math classes with an outside teacher via Zoom. The teacher instructs in English, first teaching us techniques and then letting us practice on our own. Afterward, the teacher gives us exercises to do independently. For these practice exercises, each of us works separately, then we share our solutions in our Line group to see if we did them similarly.

Chapter Summary

The results of three research instruments show that digital literacy has a positive effect on EFL students' reading comprehension. With a primary emphasis on reading, this framework emphasizes essential procedures and focus areas for teaching and learning language. For further explanation, reading for three purposes—general comprehension, information evaluation, and particular information search—is typically improved by the digital literacy framework used in this study. With regard to additional information relating to the way students used digital literacy, they improved their reading comprehension outside of the traditional school setting by primarily employing the access process together with communicating and informing from digital literacy focus areas. Table 10 will represent the summary of reach instruments and data analysis.

Table 10 The Summary of Research Instruments and Data Analysis

	Question 1	**Question 2**
	1. How does digital literacy enhance reading comprehension for EFL students?	2. How do EFL students use digital literacy outside the classroom?
Objectives	To investigate how digital literacy enhances reading comprehension for EFL students.	To explore EFL students' use of digital literacy outside the classroom.
Instruments	Reading comprehension test	Questionnaire and Interview
Data Analysis	Wilcoxon signed-rank test	Descriptive statistics
Results	The digital literacy in this study enhanced EFL students' reading comprehension for three academic purposes: reading to evaluate, general comprehension, and searching for information.	Outside of the classroom, EFL students engaged in activities like reading by utilizing both focus areas and processes corresponding to digital literacy.

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CHAPTER V
DISCUSSION AND CONCLUSION

This chapter is divided into five parts: a summary of the study, a discussion, a pedagogical implication, a limitation of the study, and recommendations for future studies.

5.1 Summary of The Study

This study aimed to investigate the effect of digital literacy on EFL students' reading comprehension and examine students' use of digital literacy. Therefore, the study design was a one-group pretest and post-test, thirty high school students who learned English as a Foreign Language participated in this study. To find the answers to the questions, three research instruments were created to collect the data. The first instrument was a reading comprehension test, it mainly utilized for finding the effect of digital literacy on reading comprehension. The second and third instruments were the questionnaire and interview, these were used to explore EFL students' use of digital literacy outside the classroom. The following data has been presented based on two research questions:

5.1.1 Research Questions 1: How does digital literacy enhance reading comprehension for EFL students?

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Reading Comprehension

Results from reading comprehension tests indicated that EFL students' reading comprehension was improved by the digital literacy framework. Once the digital literacy framework was used in the reading course, EFL students may practice reading comprehension with the aid of digital technology. Students were able to use digital technology, like tablets and online dictionaries, to enhance their learning over ten weeks of reading instruction. As a result, the technology was able to meet their demands. This outcome was related to Coiro and Hobbs (2017), whose methodology similarly made use of digital technologies to teach and learn languages. According to the findings, digital literacy allowed users to tailor their learning path to meet their individual needs. The implementation of the digital literacy framework thus improved the reading for the

following three academic objectives, as demonstrated by the statistically significant changes from the reading comprehension test: The greatest improvement in reading to evaluate information was seen in EFL students (z = -2.00 and p =.045). The second ability that students improved was reading for general comprehension (z = -1.99, p =.046), which was followed by reading to search for specific information from texts (z = -1.97, p =.049). The ability of students to synthesize knowledge from text or other sources, however, did not significantly improve (z = -1.95, p =.052). These median Wilcoxon signed-ranks results were associated with Turner et al. (2020) research on digital literacy and reading practice, wherein digital technology assisted students in honing their reading skills. More precisely, according to Hobbs and Coiro (2018), digital literacy in this study focused on the use of technology in five processes: access, analyze and evaluate, create, reflect, and act. These processes offered methods for utilizing digital technology for certain tasks, such as employing search engine filtering to find additional information. Furthermore, Pegrum et al. (2022) designed the digital literacy focus areas to make it clearer and simpler for students to use technology in their own ways while enhancing language and reading skills.

5.1.2 Research Questions 2: How do EFL students use digital literacy outside the classroom?

Questionnaire and Interview

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The questionnaire and interview results showed that EFL students often adapted the teaching process and focus areas of digital literacy outside the classroom. Further details will be presented as follows:

Teaching Process

The questionnaire's descriptive statistics and results from the interview, EFL students did use digital literacy for a variety of purposes outside of the classroom, one of which was to improve their reading skills. Hobbs (2011) once stated that "This five-part process is fundamental to how we learn and communicate today"; therefore, the students would also be able to apply these processes to improve reading comprehension on their own. According to Hobbs and Coiro (2018), who focused on the teaching process, the majority of the students used the access process outside of the classroom (M = 3.58, SD =.42). The usage of digital technology was tailored to each student's

unique needs, and the most popular tool for activities conducted outside of the classroom was the smartphone due to its quick and easy access to data. On the other hand, the create process saw the least amount of utilization outside of the classroom (M = 2.93, SD =.72). The EFL students mostly shared information or activities straight from the source; they were aware of the impact of the activities and information as well as the veracity of the data.

Focus Areas

Pegrum et al. (2022) designed four focus areas to integrate technology in teaching and learning language. As a result, EFL students were able to apply these focus areas of digital literacy outside the classroom to improve their reading comprehension. To increase their reading comprehension outside of the classroom, students most frequently used the communication area (M = 3.70, SD =.39). They practiced reading in English by using digital resources like websites. It appeared that the A2 and B2 were using digital technology in various ways. Since the students at the A2 level appeared to be less confident in their knowledge and skills, they used a few specialized platforms to get better at reading. On the other hand, B1 students would use technology to investigate more resources and platforms in order to further their own development. The information area, which contains digital resources tailored to EFL students to help with their reading practice, was the one that is used the least outside of the classroom (M = 3.06, SD =.65). Since the students tended to disregard it when the material was still confusing. A connection was made between Daley et al. (2020) and the way students used digital literacy. Since the students employed technology according to their requirements, digital literacy could improve reading comprehension for students at various grade levels.

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In summary, this study's digital literacy framework improved students' reading comprehension for three purposes: evaluating, discovering particular details, and assessing broad information. The only competency that remained unchanged was the capacity for information synthesis; more research on digital literacy can assist students in advancing in this area. This means that this framework can be used and adapted to suit individual interests, provided that educators and students follow the five procedures and emphasize areas of digital literacy when performing.

5.2 Discussion

The outcome of the findings can be grouped into two aspects which are 1) the effect of digital literacy on reading comprehension, and 2) the use of digital literacy outside the classroom.

5.2.1 The Effect of Digital Literacy on Reading Comprehension

The results of the reading comprehension test indicated that the digital literacy framework can improve the reading comprehension of EFL students. The outcome supported the research from Hockly (2022) that was previously mentioned, according to which utilizing digital technology in the classroom—such as mobile devices—would provide students with greater chances to use it at home for specialized learning goals, such as language acquisition. As previously indicated, the digital literacy frameworks adapted from Hobbs and Coiro (2018) and Pegrum et al. (2022) enhanced EFL students' reading comprehension for three reading objectives: evaluating, uncovering specific details, and assessing overall information. The only goal that remained unimproved, nevertheless, was synthesizing. Further explanation of the relationship between digital literacy and the academic purpose of reading will be presented in the next paragraph.

The four stages of Bloom's taxonomy, which Lynne (2023) outlines, are related to the academic objective of reading, according to Grabe and Yamashita (2022). Because of this, the design requirements for the activities in this classroom used the teaching processes from Hobbs and Coiro (2018) coupled with keywords from Bloom's taxonomy's verbs of measurement to make them more relevant to each purpose. Moreover, the focus areas of digital literacy by Pegrum et al. (2022) were also used to design the lessons. The capacity to skim and scan the material was the main emphasis of the initial goal, which was information searching. Digital literacy gave EFL students the chance to read a range of literature on printed and online media, strengthening this capacity. In multiple classes, students had to look up extra materials online in order to comprehend the assigned readings. Students' performance improved as a result ($z = -1.07$, $p = .049$). The capacity to create new information by fusing textual data with an individual's background was the second goal, or information synthesis. As a result, digital literacy in this study gave students the freedom to read a variety of texts and broaden their background knowledge. It also gave them access to digital resources like an online dictionary for information analysis. However, the reading comprehension test

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result did not show an improvement (z = -1.95, p = .052); as a result, more research should be done to support EFL students in developing this skill. The third goal was information evaluation, which involved analyzing and making connections between disparate pieces of data to determine their meaning. Consequently, every procedure and area of emphasis related to digital literacy in this research offered chances for students to hone and enhance this ability. EFL students were expected to match the content either word for word or sentence for sentence in order to appropriately assess the material throughout the course. Therefore, it was evident from the reading comprehension median score (z = -2.00, p =.045) that this skill had improved. The final reading goal was general comprehension, which concentrated on the student's capacity to decipher textual content and draw conclusions from disparate information. As with the third objective, every facet of the research's digital literacy framework could enhance this ability. Students could use a range of tools and techniques to interpret meaning under the framework's direction. In order to confirm that their understanding is correct, they might also talk about it with their classmates. Consequently, the reading comprehension test result showed improvement (z= 1.99, p =.046).

In conclusion, after employing the digital literacy framework from Hobbs and Coiro (2018) and Pegrum et al. (2022), EFL students in this study improved their reading comprehension. This was consistent with studies conducted by Salmerón et al. (2023) and Jang et al. (2023) that found that digital literacy—which includes experience with digital technology—can improve students' reading comprehension.

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5.2.2 The Use of Digital Literacy Outside Classroom

The second research question was designed to explore EFL students' use of digital literacy outside the classroom. The data was thus gathered through the use of the questionnaire and interview, both research instruments were divided into two aspects which were teaching processes (Hobbs & Coiro, 2018) and focus areas (Pegrum et al., 2022). The results showed how students customized the framework to meet their interests and daily schedules, applying and using both aspects outside of the classroom. These findings were consistent with studies by Pegrum (2014) and Dudeney and Hockly (2007), which found that students used technology as a part of daily life to accomplish a variety of tasks like engaging in activities, communicating, or honing their

language abilities in unique ways. The following details about the framework will be provided:

Access and Communicating

This study made the connection between these two elements to give EFL students the opportunity to use digital teaching for learning and reading-related tasks. Consequently, outside of the classroom, students used the communication area (M = 3.70, SD =.39) and the access procedure (M = 3.68, SD =.42) the most frequently. In this study, EFL students explored material through media or technology and shared it with friends.

Analyze & Evaluate, and Informing

This study integrated the informing area (M = 3.06, SD =.65) with the analyze and evaluate process (M = 3.47, SD =.53) to demonstrate the space for critical thinking and information analysis. As a result, when EFL students in this study encountered difficulties while learning or during activities outside the classroom, they turned to digital resources for individual evaluation of the content.

Create, Reflect, and Collaborating

These three aspects were combined to give EFL students more chances to express their identities, create content, and understand cause and effect. As a result, the study's participants shared content in their communities outside of the classroom using digital technology, which improved their ability to draw connections between disparate details for a deeper comprehension. The application of three aspects was shown by the descriptive statistics result as follows: create (M = 2.93, SD =.72), reflect (M = 3.47, SD =.53), and collaborate (M = 3.52, SD =.37).

Act and (Re)designing

To highlight language use and social abilities, the act process (M = 3.31, SD =.48) and the (re)designing area (M = 3.40, SD =.37) were merged. Descriptive statistics results showed that EFL students in this study used digital technology as a tool to communicate and exchange information with others outside of the classroom.

In conclusion, the results from the three research instruments in this study showed that the digital literacy framework, by providing particular areas and processes for teachers and students to follow, enhanced the reading comprehension of EFL

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students. Digital technology would enable teachers to instruct and evaluate students' abilities while creating a positive learning environment (Chen, 2022). In addition, outside of the classroom, EFL students could enhance their language and social skills by utilizing the digital literacy processes and focus areas.

5.3 Pedagogical Implication

The findings from this study provided pedagogical implications in two aspects: 1) the use of digital literacy on EFL students in Thailand, and 2) the integration of digital literacy in an English reading course.

5.3.1 The Use of Digital Literacy on EFL Students in Thailand

The first research question of this study investigated the effect of digital literacy on EFL students' reading comprehension in Thailand, the framework adapted from Hobbs and Coiro (2018) and Pegrum et al. (2022). The results presented that the digital literacy framework in this study enhanced EFL students' reading comprehension in Thailand. The framework consisted of two aspects which were processes and focus areas of digital literacy. Consequently, the processes can be applied to both teachers and students as procedures to advance language and social skills, the focus areas would customarily integrate digital technology to boost reading comprehension (Coiro, 2021; Coiro & Hobbs, 2017; Turner et al., 2020). Therefore, EFL students in this study were in Thailand, thirty of them had been learning with the digital literacy framework for ten weeks, during the lessons, they had opportunities to assimilate digital technology such as tablets and websites to enhance language abilities, especially on reading comprehension. Therefore, the effect of practicing in the classroom led students to be able to manage their learning pathways in daily life.

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5.3.2 The Integration of Digital Literacy in an English Reading

The digital literacy framework was integrated into the English reading course in Pathum Thani province, Thailand. Before implementing it in a reading course, teachers must understand the meaning of digital literacy. Digital literacy, as defined by Hobbs and Coiro (2018) and Pegrum et al. (2022), was the framework that placed special emphasis on the use of digital technology in language instruction. Coiro and Hobbs (2017), Turner et al. (2020), Jerasa and Boffone (2021) demonstrated the

relationship between digital literacy and reading comprehension. Digital literacy offered tools for reading comprehension practice, examinations, and lesson planning. Furthermore, the usage of a digital literacy framework should coincide with the goal of reading so that its processes and focus areas correspond to certain language-learning and teaching activities. The reading objectives in this study were from Grabe and Yamashita (2022).

5.4 Limitations of the Study

Despite the fact that this investigation was carried out satisfactorily, two limitations were also found. First of all, utilizing technology in the classroom sometimes made it challenging for students to focus on what they were doing at that moment. They occasionally strayed from what they were learning for other activities. Second, as the primary focus of this study was on the usage of digital technology outside of the classroom, a thorough examination of how these devices might promote reading habits outside of the classroom was not included. These limitations would point up a topic for possible further study to investigate the implementation of digital literacy in teaching and learning language.

5.5 Recommendations for Future Studies

1) Future studies should include a larger sample size and a two-group design to provide greater evidence of the impact of digital literacy on enhancing reading comprehension.

2) Future research should extend the course duration beyond ten weeks to investigate further the application of digital literacy to improve EFL students' reading comprehension

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REFERENCES

Afflerbach, P. (2016). Reading Assessment: Looking ahead. *The Reading Teacher, 69*(4), 413-419.

Alghonaim, A. S. (2020). Impact of Related Activities on Reading Comprehension of EFL Students. *English Language Teaching, 13*(4), 15-27.

Bono, M., & Melo-Pfeifer, S. (2020). English and Heritage Languages from a Multilingual Perspectives: Challenges and Possibilities for Integration. In F. Anastarriou & G. Andreou (Eds.), *English as a Foreign Language: Perspectives on Teaching, Multilingualism and Interculturalism* (pp. 1-19). Newcastle upon Tyne: Cambridge Scholars Publishing.

Chen, Y.-M. (2022). Understanding foreign language learners' perceptions of teachers' practice with educational technology with specific reference to Kahoot! and Padlet: A case from China. *Education and Information Technologies, 27*(2), 1439-1465.

Coiro, J. (2021). Toward a Multifaceted Heuristic of Digital Reading to Inform Assessment, Research, Practice, and Policy. *Reading Research Quarterly, 56*(1), 9-31.

Coiro, J., & Hobbs, R. (2017). *Digital literacy as collaborative, transdisciplinary, and applied.* Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.

Daley, S. G., Xu, Y., Proctor, C. P., Rappolt-Schlichtmann, G., & Goldowsky, B. (2020). Behavioral Engagement among Adolescents with Reading Difficulties: The Role of Active Involvement in a Universally Designed Digital Literacy Platform. *Reading & Writing Quarterly, 36*(3), 278-295.

Department for Digital, C., Media & Sport. (2021). Online Media Literacy Strategy.

Dudeney, G., & Hockly, N. (2007). *How to Teach English with Technology*: Pearson Education.

Farrall, M. L. (2012). *Reading Assessment: Linking Language, Literacy, and Cognition*: John Wiley & Sons.

Grabe, W. (2017). L2 reading comprehension and development. In E. Hinkel (Ed.), *Handbook of Research in Second Language Teaching and Learning* (Vol. 3, pp. 299-311): Taylor and Francis.

Grabe, W., & Stoller, F. (2013). *Teaching and researching: Reading (2nd ed.)*. London: Routledge.

Grabe, W., & Yamashita, J. (2022). *Reading in a Second Language: Moving from Theory to Practice* (2 ed.). Cambridge: Cambridge University Press.

Harrison, C., Dwyer, B., & Castek, J. (2014). *Using Technology to Improve Reading and Learning*: Teacher Created Materials.

Hobbs, R. (2011). *Digital and Media Literacy*: Corwin Press.

Hobbs, R., & Coiro, J. (2018). Design Features of a Professional Development Program in Digital Literacy. *Journal of Adolescent & Adult Literacy, 62*(4), 401-409.

Hobbs, R., & Moore, D. C. (2013). *Discovering Media Literacy: Teaching Digital Media and Popular Culture in Elementary School*: Corwin Press.

Hockly, N. (2012). Digital literacies. *ELT Journal, 66*, 108-112.

Hockly, N. (2022). *Nicky Hockly's 50 Essentials for Using Learning Technologies*. Cambridge: Cambridge University Press.

Hudson, T. (2007). *Teaching Second Language Reading*: Oxford University Press.
Ismail, S. M., Rahul, D. R., Patra, I., & Rezvani, E. (2022). Formative vs. summative assessment: impacts on academic motivation, attitude toward learning, test anxiety, and self-regulation skill. *Language Testing in Asia, 12*(1), 40.
Jang, E., Seo, Y. S., & Brutt-Griffler, J. (2023). Building Academic Resilience in Literacy: Digital Reading Practices and Motivational and Cognitive Engagement. *Reading Research Quarterly, 58*(1), 160-176.
Jerasa, S., & Boffone, T. (2021). BookTok 101: TikTok, Digital Literacies, and Out-of-School Reading Practices. *Journal of Adolescent & Adult Literacy, 65*(3), 219-226.
Kelentrić, M., Helland, K., & Arstorp, A.-T. (2017). *Professional Digital Competence Framework for Teachers in Norway*. Olso: The Norwegian Centre for ICT in Education.
Lynne, P. (2023). *Reading and Writing Successfully in College: A Guide for Students*: ROTEL.
Mikulecky, B. S. (2011). *A Short Course in Teaching Reading: Practical: Techniques for Building Reading Power*: Pearson Education.
OBEC. (2008). *Basic education core curriculum: B.E. 2551 (A.D. 2008)*. Bangkok: Ministry of Education Retrieved from https://unesdoc.unesco.org/notice?id=p::usmarcdef_0000188482
OECD. (2012). PISA 2012 Results in Focus. Retrieved https://www.oecd.org/pisa/aboutpisa/pisa-2012-results.htm
OECD. (2015). PISA 2015 Results in Focus. Retrieved https://www.oecd.org/pisa/keyfindings/
OECD. (2018). PISA 2018 Results Combined Executive Summaries Volume I, II & III. Retrieved https://www.oecd.org/pisa/Combined_Executive_Summaries_PISA_2018.pdf
Oranpattanahai, P. (2023). Relationship between the Reading Strategy, Reading Self-Efficacy, and Reading Comprehension of Thai EFL Students. *LEARN Journal: Language Education and Acquisition Research Network, 16*(1), 194-220.
Pegrum, M. (2014). *Mobile Learning: Languages, Literacies and Cultures*: Springer.
Pegrum, M. (2019). Digital literacies in language education: Janaina Cardoso interview Mark Pegrum. *MATRAGA - Journal published by the Graduate Program in Letters at Rio de Janeiro State University (UERJ), 26*(47), 462-469.
Pegrum, M., Hockly, N., & Dudeney, G. (2022). *Digital literacies*: Routledge.
Richards, J. C. (2015). *Key Issues in Language Teaching*: Cambridge University Press.
Riina, M. D., Stambaugh, C., Stambaugh, N., & Huber, K. E. (2023). Chapter 28 - Continuous variable analyses: t-test, Mann–Whitney, Wilcoxin rank. In A. E. M. Eltorai, J. A. Bakal, D. W. Kim, & D. E. Wazer (Eds.), *Translational Radiation Oncology* (pp. 153-163): Academic Press.
Salmerón, L., Vargas, C., Delgado, P., & Baron, N. (2023). Relation between digital tool practices in the language arts classroom and reading comprehension scores. *Reading and Writing, 36*(1), 175-194.
Srisang, P., & Everatt, J. (2021). Lower and Higher Level Comprehension Skills of Undergraduate EFL Learners and Their Reading Comprehension. *LEARN Journal: Language Education and Acquisition Research Network, 14*(1), 427-454.

Turner, K. H., Hicks, T., & Zucker, L. (2020). Connected Reading: A Framework for Understanding How Adolescents Encounter, Evaluate, and Engage With Texts in the Digital Age. *Reading Research Quarterly, 55*(2), 291-309.

Viengsang, R., & Wasanasomsithi, P. (2022). Effects of a Learning-oriented Reading Assessment Model on Thai Undergraduate Students' Reading Ability. *LEARN Journal: Language Education and Acquisition Research Network, 15*(1), 709-747.

Yowaboot, C., & Sukying, A. (2022). Using Digital Flashcards to Enhance Thai EFL Primary School Students' Vocabulary Knowledge. *English Language Teaching, 15*(7), 61-74.

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APPENDIX

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Appendix A Sample of Unit and Lesson Plans

Unit 1: Thailand's Landmark

CEFR Level (Text)	B1
Learning Outcomes	After the lesson, students will be able to: 1. Read to search for specific information from the texts. 2. Read to synthesize information from the texts. 3. Read to evaluate information from the texts. 4. Read for general information from the texts.
Language skills	1. Reading comprehension 2. Set of vocabulary related to Thailand's Landmarks
Digital Literacy Focus Areas	1. Communication :Mobile literacy 2. Informing : Information literacy 3. Collaborating :Participatory literacy 4. (Re)designing: Remix literacy
Technologies	1. Internet 2. Mobile phone and Tablet 3. Instagram 4. Credible websites 5. Online Dictionary 6. Search Engine 7. Padlet 8. Kahoot 9. Canva
Materials	1. PowerPoint slide of Thailand's Landmark with QR code leading to reading worksheets and Padlet. 2. Printed worksheet (providing at the end of the class) 3. Digital technology
Time	270 minutes (90 minutes per lesson)
Preparation	1. Prepare specific PowerPoint for each lesson (1-3)

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	2. Make list of credible sources for students to explore and search for more information related to the topics 3. Prepare additional technology tools 4. Prepare additional worksheets 5. Set up classroom environment
Evaluation	1. Students write the meaning of specific vocabulary related to the topic on Padlet. 2. Students answers comprehension questions related to the topic on Padlet. 3. Students create poster using Canva then post it on IG using the knowledge they have learnt from the class.

Lesson 1 :

Topic	Thailand's Most Iconic Landmarks (Temple)
Learning Outcomes	1. Students will be able to explore and identify specific information about Thailand's Most Iconic Landmarks (Temple)" 2. Students will be able to synthesize information from the texts. 3. Students will be able to interpret information from the texts 4. Students will be able to read for general information from the texts
Time	90 minutes
Procedure **1. Access : 15 minutes** Aim : Students use their digital technology to learn and do activities in the classroom.	
Focus Area **Communicating : Mobile literacy**	

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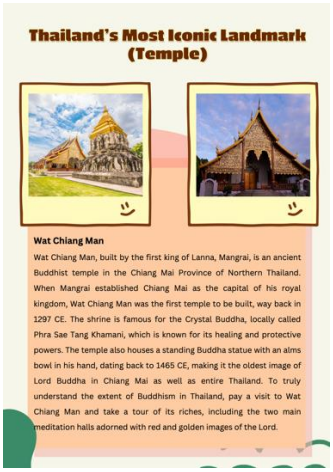
Aim : Students use their mobile phones or tablets to read the text and answer the questions online.

Activity 1 : Skimming and Scanning

1) Students use their mobiles or tablets to scan QR code that will provide them a worksheet about “Thailand’s Most Iconic Landmarks (Temple)” as in figure 1 and 2.

Figure 1 : QR Code for worksheet



Materials

1. PPT about Thailand’s Most Iconic Landmarks (Temple)
2. QR code
3. Padlet
4. Additional worksheet
5. Online dictionary

Figure 2 : Worksheet

Thailand's Most Iconic Landmark (Temple)

Wat Chaiwatthanaram

Stepping into this temple, you may find yourself transported to Cambodia's Angkor Wat, since the Khmer architecture of both places is very similar. Wat Chaiwatthanaram, however, actually stands on the banks of the Chao Phraya River in the historic city of Ayutthaya, and was once used by the Royal Family. The temple has a large central shrine, richly carved, which is surrounded by many smaller chedis. Galleries containing majestic images of the Buddha and walls narrating stories from ***his*** life decorated the temple grounds. Although most of it has weathered or was plundered during the war with Burma, Wat Chaiwatthanaram is one of the ruins in Thailand that is still magnanimous.

Wat Chedi Luang

Known as the Temple of the Great Stupa, Wat Chedi Luang is among the most famous temples in Chiang Mai. It is most symbolically identified by its incomplete pagoda, that was brought down from a lofty 85 metres to 60 metres after an earthquake in 1545, and now remains partly destroyed. Nevertheless, it is an enormous structure engraved with mythological motifs and enshrining several Buddha images. A replica of the revered Emerald Buddha of Wat Phra Kaew rests inside the ***temple***, and the compound also houses the sacred city pillar, making it a highly venerated religious site.

Wat Chiang Man

Wat Chiang Man, built by the first king of Lanna, Mangrai, is an ancient Buddhist temple in the Chiang Mai Province of Northern

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Thailand. When Mangrai established Chiang Mai as the capital of his royal kingdom, Wat Chiang Man was the first temple to be built, way back in 1297 CE. The shrine is famous for the Crystal Buddha, locally called Phra Sae Tang Khamani, which is known for its healing and protective powers. The temple also houses a standing Buddha statue with an alms bowl in his hand, dating back to 1465 CE, making it the oldest image of Lord Buddha in Chiang Mai as well as entire Thailand. To truly understand the extent of Buddhism in Thailand, pay a visit to Wat Chiang Man and take a tour of its riches, including the two main meditation halls adorned with red and golden images of the Lord.

_____(The End of Reading Passage)_____

2) Students read the text quickly for 5 minutes to gain general information from text.

3) Students scan the text for 5 minutes to find specific set of vocabulary about Thailand's Most Iconic Landmarks (Temple) as in figure 3.

4) Students use online dictionary to search for the meaning.

5) Students scan QR code that lead them to Padlet as in figure 4.

6) Students write down the meaning in Padlet as in figure 5.

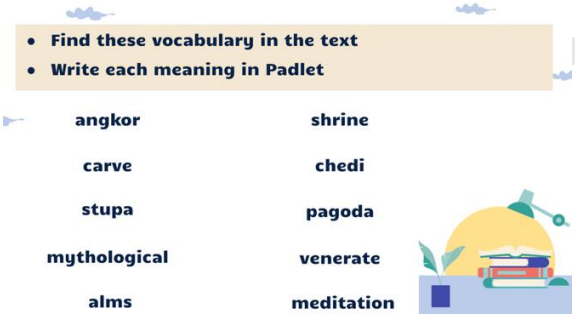

Figure 3 : Set of Vocabulary

<table>
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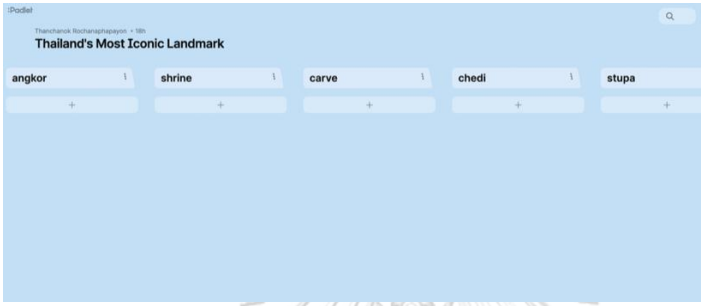
Figure 4 : QR Code for Padlet


Figure 5: Padlet for Vocabulary
NOTE : The teacher must provide reading passage on the screen so that the students would be able to read for information then write the answers on Padlet.
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<tr>
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Procedure
2. Analyze and Evaluate : 25 minutes
Aim : Students read and analyze information from the text.
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<tr>
<td colspan="2">
Focus Area
Informing : Information literacy
Aim : Students spend time reading the text in PDF version and answer the questions related to the text.
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Activity 2 : Checking for Understanding
1) Students read set of comprehension questions related to the texts before reading as in figure 6.
</td>
<td>
Materials
1. PPT about Thailand’s Most Iconic Landmarks (Temple)
2. QR code
</td>
</tr>
</table>

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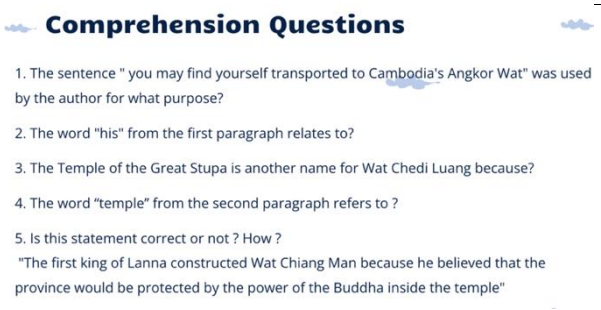

Figure 6 : Comprehension Questions

Set of Comprehension Questions

1. The sentence " you may find yourself transported to Cambodia's Angkor Wat" was used by the author for what purpose?

(To synthesize information from the texts)

2. The word "his" from the first paragraph relates to?

(To search for specific information from the texts)

3. The Temple of the Great Stupa is another name for Wat Chedi Luang because?

(To evaluate information from the texts)

4. The word "temple" from the second paragraph refers to ?

(To search for specific information from the texts)

5. Is this statement correct or not ? How ?

"The first king of Lanna constructed Wat Chiang Man because he believed that the province would be protected by the power of the Buddha inside the temple"

(To read for general comprehension)

_____ (The End)_ _____

2) Students spend their time for 15 minutes to read the text and find the answer for the comprehension questions.

3) Students scan the same QR code again to access Padlet.

4) Students write the answers in their worksheet then submit it on Padlet as in figure 7.

3. Padlet

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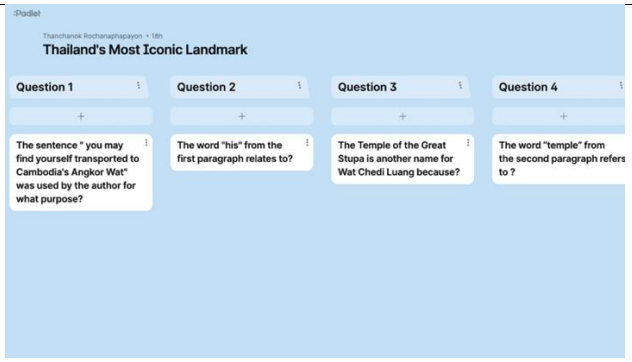

Figure 7 : Padlet for Reading Comprehension Questions

Procedure

3. Create : 20 minutes

Aim : Students brainstorm their idea together to create a poster related to the text.

Focus Area

Collaborating : Participatory literacy

Aim : Students share their knowledge gained from the text and brainstorm their idea to create a poster about Thailand's Most Iconic Landmarks (Temple).

Activity 3 : Together We're Stronger	**Materials**
1) Students get into a group of 4-5. (3 groups per one class) 2) Each group chooses 1 place that they like from the passage. (Wat Chaiwatthanaram , Wat Chedi Luang , Wat Chiang Man) 4) Each group search for more information about the place. 5) Each group use their digital technology such as Canva platform to create a poster to invite people to visit the place. (Adding more pictures or video in their work) 6) Each group post their work (the link for Canva) on Padlet, figure 8, using these hashtags #readingcourse008 and #thelandmarktovisit. After that the teacher would present their work on the screen.	1. PPT about Thailand's Most Iconic Landmarks (Temple) 2. QR code 3. Padlet 4. Online resource

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Figure 8 : Padlet for Poster

Procedure

4. Reflect : 20 minutes

Aim : Teacher and students work together to find the correct answer for comprehension questions and give feedback on the poster.

Focus Area

Collaborating : Participatory literacy

Aim : Teacher and students work together to summarize the information, find the correct answer for comprehension questions, and reflect on the effectiveness of the poster from each group.

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Activity 4 : Show Me What You Got	**Materials**
After the students spend time reading and searching for more information on their own. 1) Teacher asks for volunteers to answer the comprehension questions. 2) Teacher gives the correct answers to the students as in figure 9.	1. PPT about Thailand's Most Iconic Landmarks (Temple) 2. Mobile 3. Tablet 4. Padlet

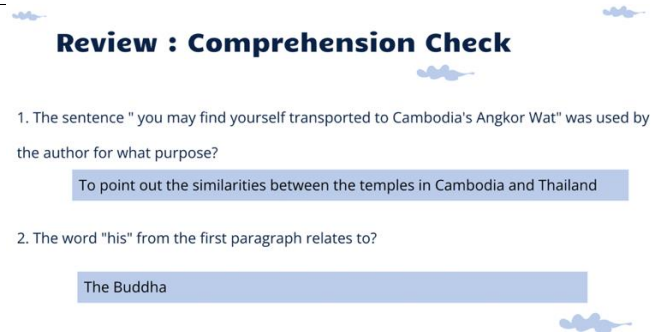

Figure 9 : Answer Key

Answer Key

1. The sentence " you may find yourself transported to Cambodia's Angkor Wat" was used by the author for what purpose?

***Answer** : To point out the similarities between the temples in Cambodia and Thailand*

2. The word "his" from the first paragraph relates to?

***Answer** : The Buddha*

3. The Temple of the Great Stupa is another name for Wat Chedi Luang because?

***Answer** : Because there is a massive, incomplete pagoda inside the temple. In addition, the words "chedi, stupa, and pagoda" all denote the same thing in Thai.*

4. The word “temple” from the second paragraph refers to ?

***Answer** : Wat Chedi Luang*

5. Is this statement correct or not ? How ?

"The first king of Lanna constructed Wat Chiang Man because he believed that the province would be protected by the power of the Buddha inside the temple"

***Answer** : This statement is correct. The monarch of Lanna created Wat Chiang Man as a location to revere the power of the Buddha so that the province and people would live happily, as may be inferred from the paragraph.*

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_____(The End)_____ 3) Students correct their answer on Padlet. After providing the correct answers for comprehension questions, the teacher leads students to reflect on their poster. 4) Each group gives the comment about the poster on Padlet. The comment should focus on the effectiveness of the poster. NOTE 1 : The Effectiveness of the poster - The language used in poster is appropriate and understandable. - The content provided in poster is credible, useful and attractive. NOTE 2: Group 1 gives the comment on group 2's work. Group 2 gives the comment on group 3's work. Group 3 gives the comment on group 2's work. 5) Each group edits their work using the comments from their friends.	
Procedure **5. Act : 10 minutes** Aim : Students edit their work and post it on social media.	
Focus Area **(Re)designing : Remix literacy** Aim : Students edit their poster before posting it on IG.	
Activity 5 : Share Me Please 1) Each group edits their poster using the comments they received from the previous activity. 2) Teacher lets students vote for the best poster. 3) Teacher lets the winner posts their poster on IG, figure 10, using these hashtags #readingcourse008 and #thelandmarktovisit. NOTE : The winner uses classroom account to post on IG.	**Materials** 1. PPT about Thailand's Most Iconic Landmarks (Temple) 2. Mobile 3. Tablet 4. Padlet

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 Figure 10 : Reading Course's Instagram	5. IG

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Appendix B Sample of Instructional Material

Unit 1 : Thailand's Landmark

Learning Outcomes :

1. Students will be able to search for specific information from text.
2. Students will be able to synthesize information from text.
3. Students will be able to evaluate information from text.
4. Students will be able to read for general information from the text.

Lesson 1:

Thailand's Most Iconic Landmarks (Temple)

Lesson 2:

Thailand's Most Iconic Landmarks (Natural)

Lesson 3:

Tourist Attractions in Thailand

Lesson 1
Thailand's Most Iconic Landmarks (Temple)

Learning Outcomes :

1. Students will be able to search for specific information from text.
2. Students will be able to synthesize information from text.
3. Students will be able to evaluate information from text.
4. Students will be able to read for general information from the text.

Teaching Procedures :

1. Access
2. Analyze
3. Create
4. Reflect
5. Act

Digital Literacy Focus Areas :

1. Communication	→	Mobile literacy
2. Informing	→	Information literacy
3. Collaborating	→	Participatory literacy
4. (Re)designing	→	Remix literacy

Access :	Using digital technology such as mobile phones to learn and do activities in the classroom
Communicating : (Mobile Literacy)	Using digital technology such as mobile phones to learn and do activities in the classroom

Activity 1 : Skimming and Scanning

Direction : Scan the QR code to read the text in PDF version and answer the following questions on Padlet.

QR code for the text

Thailand's Most Iconic Landmark (Temple)

Wat Chaiwatthanaram

Stepping into this temple, you may find yourself transported to Cambodia's Angkor Wat, since the Khmer architecture of both places is very similar. Wat Chaiwatthanaram, however, actually stands on the banks of the Chao Phraya River in the historic city of Ayutthaya, and was once used by the Royal Family. The temple has a large central shrine, richly carved, which is surrounded by many smaller chedis. Galleries containing majestic images of the Buddha and walls narrating stories from ***his*** life decorated the temple grounds. Although most of it has weathered or was plundered during the war with Burma, Wat Chaiwatthanaram is one of the ruins in Thailand that is still magnanimous.

Thailand's Most Iconic Landmark (Temple)

Wat Chedi Luang

Known as the Temple of the Great Stupa, Wat Chedi Luang is among the most famous temples in Chiang Mai. It is most symbolically identified by its incomplete pagoda, that was brought down from a lofty 85 metres to 60 metres after an earthquake in 1545, and now remains partly destroyed. Nevertheless, it is an enormous structure engraved with mythological motifs and enshrining several Buddha images. A replica of the revered Emerald Buddha of Wat Phra Kaew rests inside the ***temple***, and the compound also houses the sacred city pillar, making it a highly venerated religious site.

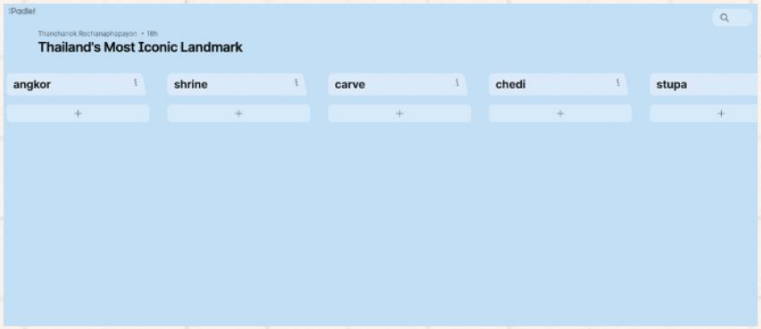
Thailand's Most Iconic Landmark (Temple)

Wat Chiang Man

Wat Chiang Man, built by the first king of Lanna, Mangrai, is an ancient Buddhist temple in the Chiang Mai Province of Northern Thailand. When Mangrai established Chiang Mai as the capital of his royal kingdom, Wat Chiang Man was the first temple to be built, way back in 1297 CE. The shrine is famous for the Crystal Buddha, locally called Phra Sae Tang Khamani, which is known for its healing and protective powers. The temple also houses a standing Buddha statue with an alms bowl in his hand, dating back to 1465 CE, making it the oldest image of Lord Buddha in Chiang Mai as well as entire Thailand. To truly understand the extent of Buddhism in Thailand, pay a visit to Wat Chiang Man and take a tour of its riches, including the two main meditation halls adorned with red and golden images of the Lord.

QR code for the Padlet

Padlet : Search for the meaning and write it down



Meaning

1.angkor	meaning "city" in in the Khmer language
2. shrine	a place where people come to worship
3. carve	to make something by cutting into especially wood or stone
4. chedi	a Thai Buddhist monument similar to a stupa
5. stupa	a building with a dome, that is a holy place for Buddhists
6. pagoda	a tall building that is used for religious worship in Asia
7. mythological	existing in or relating to ancient stories
8. venerate	to honour or very much respect a person or thing
9. alms	a round, oval-shaped eating vessel used by monastics
10. meditation	a religious activity or as a way of becoming calm and relaxed

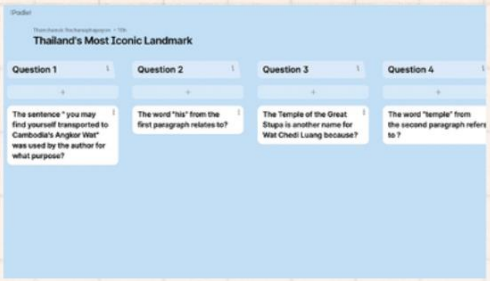
Analyze : Reading and analyzing information from the text

Informing : (Informing Literacy) Reading and answering the questions related to the text on an online platform

Activity 2 : Checking for Understanding

Direction : Read the text and answer the following questions on Padlet

Padlet : Answer the questions



Comprehension Questions

1. The sentence " you may find yourself transported to Cambodia's Angkor Wat" was used by the author for what purpose?

2. The word "his" from the first paragraph relates to?

3. The Temple of the Great Stupa is another name for Wat Chedi Luang because?

4. The word “temple” from the second paragraph refers to ?

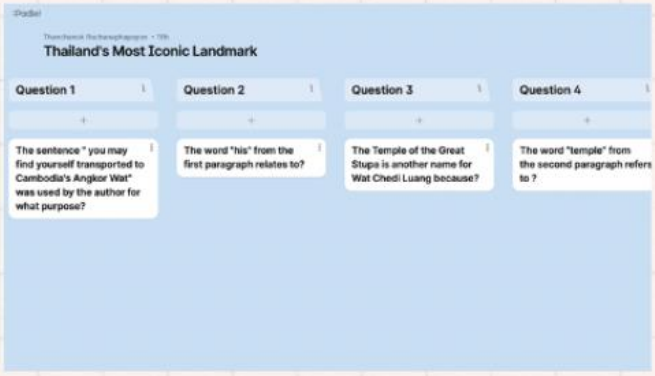
5. Is this statement correct or not ? How ?
"The first king of Lanna constructed Wat Chiang Man because he believed that the province would be protected by the power of the Buddha inside the temple"

Reflect :	Finding the answer for comprehension questions and reflecting on the effectiveness of the poster
Collaborating : (Participatory Literacy)	Working together to share the knowledge gained from the text and then commenting on a friend's work (focusing on the effectiveness)

Activity 4.1 : Show Me What You Got (Checking the answer)

Direction :

1. Answering the questions
2. Correcting the answers on Padlet



Activity 4.2 : Show Me What You Got (Reflecting on the post)

Direction : Comment on your friends' poster (focusing on the effectiveness)

NOTE : Group 1 gives a comment on group 2's work

Group 2 gives a comment on group 3's work

Group 3 gives a comment on group 1's work

Act :	Edit the work before posting it on social media
(Re)designing : (Remix Literacy)	Editing the post on the learning platform then posting it on social media

Activity 5 : Share Me Please

Direction :

1. Editing your post on Padlet
2. Voting for the best poster
3. Post the poster on IG using these hashtags on the poster
   #readingcourse008 and #thelandmarktovisit

Instagram : Posting a poster to invite people to travel at the temple

Appendix C IOC Result for Sample Unit and Lesson Plans

Assessment Issues	Experts			Mean Score	Result
	1	2	3		
Instructional Design					
1. The learning outcomes are relevant to activities and lessons.	1	1	1	1	Accepted
2. The time management in each procedure is proper.	1	1	1	1	Accepted
3. The digital technologies and materials are practical to students.	1	1	1	1	Accepted
4. The instruction is clear and straightforward.	1	1	1	1	Accepted
Teaching Process					
5. The first teaching procedure, access, provides the opportunity for students to explore and access information using technology.	1	1	1	1	Accepted
6. The second teaching procedure, analyze and evaluate, allows the students to think logically to decode meaning from the information.	1	1	1	1	Accepted
7. The third teaching process, create, provides opportunity for students to generate content or message.	1	1	1	1	Accepted
8. The fourth teaching process , reflect, provide opportunity for students to reconsider meaning, purpose, or effect of the information.	1	0	1	0.67	Accepted
9. The fifth teaching process, act, provides the opportunity for students to produce or share their knowledge.	1	0	1	0.67	Accepted

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Focus Areas					
10. The first focus area, communicating literacy, provides opportunities for students to use technology as part of their learning and doing activities.	1	1	1	1	Accepted
11. The second focus area, informing literacy, provides opportunity for students to discover and evaluate information using technology as part of it.	1	0	1	0.67	Accepted
12. The third focus area, collaborating literacy, allows students to express their thought, exchange knowledge, or communicate with each other using technology as part of it.	1	1	1	1	Accepted
13. The fourth focus area, (re)designing literacy, leads and provide opportunity for students to reconceptualize and represent the information using technology as part of it.	1	0	1	0.67	Accepted

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Appendix D Reading Comprehension Test

Reading 1

Title: _____

Khao Sok

This national park, covered by one of the oldest rainforests in Asia, is one of the natural jewels of southern Thailand. Conveniently, it lies along a well-used route between beach destinations like Phuket and Ko Samui. The park's centerpiece is a ***reservoir***, Ratchaphrapa or Chiew Lan, one of the most magnificent bodies of fresh water in Southeast Asia. The emerald water glistens between 1,000-metre high limestone mountains. You can take a boat tour lasting a few hours or a full day, or you can spend a night at one of 17 raft-house lodgings. They all come with kayaks. West of the reservoir are caves and waterfalls, and a trail guide is required to access most of ***them***. This area is also where you'll find the rafflesia kerrii, the fire-red, so-called dinosaur flower that smells rank and is one of the world's largest flowers when it blooms in the dry season. Though large mammals are rare, Khao Sok is full of birds and reptiles.

Doi Inthanon

A flower-draped viewpoint set in a cloud forest at the 2,565-metre summit of Doi Inthanon—the tallest point in Thailand—attracts large numbers of domestic tourists. The summit extends over a large area and the views are terrific when the sky is clear of smog (common in the dry season) and fog (common in the rainy season), but it gets crowded at weekends and holidays. On Doi Inthanon's slopes are well-maintained trails leading to waterfalls like Siriphum, which cascades over a 40-metre cliff. Elephants and large mammals are not common, but the park is home to some 385 species of birds. Bring binoculars and warm clothes (a must).

1. What is the best title for this passage?

A. Thailand's Best Viewpoint and Wildlife-Spotting

B. Thailand's Best National Parks and Wildlife-Spotting

C. Thailand's Best National Parks and Wildlife Viewpoint

2. What makes a place a reservoir?

A. If it stores water before it is transported to other places.

B. If it connects water in a long line across the land to the sea.

C. If it has a channel of water artificially made for boats to travel through.

3. Which statement is <u>incorrect</u>?

A. You can accommodate at Khao Sok.

B. You can paddle a kayak at Khao Sok.

C. You can encounter exotic animals at Khao Sok.

4. What does the word "<u>them</u>" in the first paragraph refer to?

A. west of the reservoir

B. limestone mountains

C. caves and waterfalls

5. What is the <u>main idea</u> of the second paragraph?

A. The visitors can partake in a variety of activities at Doi Inthanon.

B. The atmosphere at Doi Inthanon is suitable for traveling throughout the year.

C. The vistas at Doi Inthanon are awe-inspiring and abundant with natural beauty.

6. Which statement is true about Doi Inthanon?

A. It is the best place for spotting wildlife animals.

B. Its peak allows visitors to witness the whole forest.

C. It is home to a variety of domesticated plants and animals.

7. What could be the best summary from the second passage?

A. Doi Inthanon is rich in natural and wildlife resources.

B. Doi Inthanon restricts tourists to come during peak seasons.

C. Doi Inthanon is one best places for viewing naturally rich sceneries.

8. Which location forbids you from traveling alone?

A. Khao Sok

B. Doi Inthanon

C. Both place

9. Where is the best place to go birdwatching?

A. Khao Sok

B. Doi Inthanon

C. Both place

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Reading 2

Title: _____

Asia has become one of the biggest tourist destinations in the world, whether the continent is ready for ***it*** or not. Some countries were slow and more cautious to jump at the chance to please the herds of tourists flying in from Milan to Miami, however, Thailand saw its opportunity in the industry and tailored itself as such. Thus, the Land of Smiles was born.

The nickname was first ***dubbed*** in a promotional sense, hoping to lure visitors in with its promise of white sand beaches, affordable travel costs, and the extreme hospitality of the locals. This, in a sense, is all very realistic. The coastlines of Southern Thailand are some of the most stunning in the world. The cost of accommodation and food remains extremely low in comparison to Western countries and even those surrounding the Land of Smiles. Last but not least, the locals are, for the most part, helpful, courteous, and kind. It is this nickname that explains most of the country's brochures: a smiling local selling goods at a floating market or similar. That being said, this same market is likely ***swarming*** with tourists …though the photograph does not show it. Thailand welcomed some 32 million foreign tourists just last year, and the country's momentum in terms of visitors does not seem to be slowing down anytime soon.

10. What should be the best title for this passage?

A. Why was Thailand named the 'Land of Smiles'?

B. How has Thailand become the best tourist destination?

C. How does the term "Land of Smiles" influence Thailand?

11. What does "it" in the first paragraph mean?

A. The continent in Asia

B. The tourist attraction

C. The biggest tourist destinations

12. Which industry did Thailand consider as having the potential to participate in?

A. Airport industry

B. Tourism industry

C. Service industry

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13. Which meaning suggests the correct use of "dubbed" from the passage?

A. The students dub their speech with the music.

B. A person who lacks experience is a dub.

C. They dub me as a walking dictionary.

14. Why is Thailand known as the 'Land of Smiles'?

A. Because people promote hospitality and environmental care.

B. Because tourists get lured of Thailand's splendid nature.

C. Because Thailand has improved its tourism industry.

15. What is the characteristic of the locals?

A. Polite

B. Submissive

C. Ambivalent

16. How should Thailand manage the increasing influx of tourists in the country?

A. Thailand should consider limiting visa grant among tourists.

B. Thailand should hike the cost of commodities and other goods.

C. Thailand must provide more options on tourist sites and destinations.

17. Which sentence uses the word "swarming" based on the context of the passage?

A. People are swarming to the concert ground.

B. The climbers swarm up the pole to reach the flag.

C. The swarm of bees collects nectars from the flower field.

18. What is the author's purpose?

A. To persuade people to visit Thailand

B. To describe tourist attractions in Thailand

C. To explain the meaning behind another name for Thailand

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Appendix E IOC Result for Reading Comprehension Test

Question	Construct	Experts			Mean Score	Result
		1	2	3		
Reading 1						
1. What is the best title for this passage?	Appropriateness	1	1	1	1	Accepted
	Purpose	0	1	1	0.67	Accepted
2. What makes a place a reservoir?	Appropriateness	1	-1	1	0.33	**Revised**
	Purpose	1	1	0	0.67	Accepted
3. Which statement is **incorrect**?	Appropriateness	1	0	1	0.67	Accepted
	Purpose	1	1	1	1	Accepted
4. What does the word "**them**" in the first paragraph refer to?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	1	1	Accepted
5. What is the **main idea** of the second paragraph?	Appropriateness	0	1	1	0.67	Accepted
	Purpose	0	1	1	0.67	Accepted
6. Which statement is true about Doi Inthanon?	Appropriateness	0	0	0	0	**Revised**
	Purpose	0	0	0	0	**Revised**
7. What could the best summary from the second passage?	Appropriateness	1	1	0	0.67	Accepted
	Purpose	1	1	0	0.67	Accepted
8. Which location forbids you from traveling alone?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	0	0.67	Accepted
	Appropriateness	1	1	1	1	Accepted

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9. Where is the best place to go birdwatching?	Purpose	1	1	0	0.67	Accepted
Reading 2						
10. What should be the best title for this passage?	Appropriateness	1	1	1	1	Accepted
	Purpose	0	1	1	0.67	Accepted
11. What does "**it**" in the first paragraph mean?	Appropriateness	1	0	1	0.67	Accepted
	Purpose	1	1	1	1	Accepted
12. Which industry did Thailand consider as having the potential to participate in?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	1	1	Accepted
13. Which meaning suggests the correct use of "**dubbed**" from the passage?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	0	0.67	Accepted
14. Why is Thailand known as the 'Land of Smiles'?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	0	0.67	Accepted
15. What is the characteristic of the locals?	Appropriateness	1	0	1	0.67	Accepted
	Purpose	1	1	1	1	Accepted
16. How should Thailand manage the increasing influx of tourists in the country?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	0	0.67	Accepted
	Appropriateness	1	1	0	0.67	Accepted

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17. Which sentence uses the word "**swarming**" based on the context of the passage?	Purpose	1	1	0	0.67	Accepted
18. What is the author's purpose?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	0	0.67	Accepted
Reading 3						
19. Which sentence uses the word "**boasting**" based on the context of the passage?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	0	0.67	Accepted
20. The words "**this trend**" in the first paragraph refer to?	Appropriateness	1	0	1	0.67	Accepted
	Purpose	1	1	1	1	Accepted
21. Which statement is **incorrect**?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	1	1	Accepted
22. What should be the best name for the second category?	Appropriateness	1	1	1	1	Accepted
	Purpose	0	1	1	0.67	Accepted
23. How does Thailand healthcare management make a difference to the lives of the people?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	0	0.67	Accepted
	Appropriateness	1	1	1	1	Accepted

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24. What should be the best name for the third category?	Purpose	0	1	1	0.67	Accepted
Reading 4						
25. What is the most appropriate title for this passage?	Appropriateness	1	1	1	1	Accepted
	Purpose	0	1	1	0.67	Accepted
26. Which sentence uses the word "**enticing**" based on the context of the passage?	Appropriateness	1	1	0	0.67	Accepted
	Purpose	1	1	0	0.67	Accepted
27. What qualifies traditional Thai desserts as one of the most distinctive types of sweets?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	1	1	Accepted
28. What is the main idea of the first paragraph?	Appropriateness	1	1	1	1	Accepted
	Purpose	0	1	1	0.67	Accepted
29. Which statement is **correct**?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	1	1	Accepted
30. Why did the author mention "Maria Guyomer" in the second paragraph?	Appropriateness	1	1	1	1	Accepted
	Purpose	1	1	1	1	Accepted

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Appendix F IOC Result for The Questionnaire on Digital Literacy

Questions	Experts			Mean Score	Result
	1	2	3		
ข้อมูลส่วนตัว **Personal Information**					
1. ระดับชั้น Level	**1**	**1**	**1**	**1**	Accepted
2. เพศ Gender	**1**	**1**	**1**	**1**	Accepted
ข้อมูลการทำกิจกรรม **Activity Information**					
3. คำสั่ง Instruction	**0**	**0**	**0**	**0**	**Revised**
4. ระดับความถี่ Frequency	**1**	**1**	**1**	**1**	Accepted
การเข้าถึงและส่งต่อข้อมูล **Access**					
5. ท่านใช้สื่อหรือเทคโนโลยีเพื่อสืบค้นบทความในรูปแบบออนไลน์ I use media or other technologies to search for reading texts online.	1	1	1	1	Accepted
6. ท่านใช้สื่อหรือเทคโนโลยีเพื่อค้นคว้าประเด็นที่สนใจในสื่อสังคมออนไลน์ I use media or other technologies to explore interesting topics on social media.	1	1	1	1	Accepted
7. ท่านใช้สื่อหรือเทคโนโลยีเพื่อส่งต่อข้อมูลให้กับผู้อื่น I use media or other technologies to share information with others.	1	1	1	1	Accepted
การวิเคราะห์และประเมินข้อมูล **Analyse and Evaluate**					
8. ท่านวิเคราะห์ข้อมูลที่อ่านในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ด้วยทักษะการคิดเชิงวิพากษ์ (การวิเคราะห์ข้อมูลอย่างเป็นระบบและมีเหตุผล) I analyze message using critical thinking when I read on social media or printed text.	1	1	0	0.67	Accepted

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9. ท่านใช้พื้นความรู้เดิมเพื่อทำความเข้าใจข้อมูลที่อ่านในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ I comprehend message using background knowledge when I read on social media or printed text.	1	1	0	0.67	Accepted
10. ท่านประเมินความน่าเชื่อถือของแหล่งข้อมูลในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ I evaluate message from credible sources when I read on social media or printed text.	1	0	1	0.67	Accepted
การสร้างข้อมูลในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ **Create**					
11. ท่านสร้างสรรค์ข้อมูลที่มีเพียงเนื้อหาเพื่อแสดงความคิดเห็นในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ I compose message on social media or printed text to express my thought.	1	1	1	1	Accepted
12. ท่านสร้างข้อมูลที่มีทั้งเนื้อหาและรูปภาพเพื่อแสดงความคิดเห็นของท่านในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ I compose the message and picture together on social media or printed text to express my thought.	1	1	1	1	Accepted
13. ท่านสร้างเนื้อหาในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์โดยรู้ตัวว่ามีจุดประสงค์ใด I generate content on social media or printed text with awareness of purpose.	1	1	0	0.67	Accepted
การทบทวนจุดประสงค์และผลกระทบ **Reflect**					
14. ท่านคำนึงถึงจุดประสงค์ของเนื้อหาจากข้อมูลที่ท่านเลือกรับ I concern about the purpose of message I receive.	1	1	1	1	Accepted
15. ท่านพิจารณาผลกระทบของข้อมูลที่ท่านสร้างขึ้น I reflect on the message I produced.	1	1	1	1	Accepted
16. ท่านพยายามที่จะไม่ลดทอนคุณค่าด้านอัตลักษณ์ของผู้อื่น I try not to be disrespectful to other identity.	1	1	0	0.67	Accepted
การดำเนินกิจกรรม **Act**					
17. ท่านวิเคราะห์เนื้อหาด้วยตนเองโดยไม่ใช้เทคโนโลยี I work individually without technology to analyze texts.	1	1	1	1	Accepted

18. ท่านแลกเปลี่ยนข้อมูลกับผู้อื่นโดยใช้เทคโนโลยี I share knowledge with other using technology.	1	1	1	1	Accepted
19. ท่านทำงานร่วมกับผู้อื่นเพื่อแลกเปลี่ยนข้อมูลในสื่อออนไลน์และสื่อสิ่งพิมพ์ I work collaboratively with other to exchange information on social media and printed text.	1	1	1	1	Accepted
การใช้เทคโนโลยีดิจิทัลเพื่อเป็นเครื่องมือในการดำเนินกิจกรรม **Communicating**					
20. ท่านพิมพ์ข้อความผ่านสื่อดิจิทัลหลากหลายรูปแบบเพื่อส่งต่อและแลกเปลี่ยนข้อมูล I create different types of digital texts to share or exchange knowledge.	1	1	0	0.67	Accepted
21. ท่านนำข้อมูลจากสื่อหลากหลายประเภทมาประมวลผลเพื่อนำเสนอผลงาน I combine media into a digital display or presentation.	1	1	0	0.67	Accepted
22. ท่านใช้มือถือ แท็บเล็ต หรือเทคโนโลยีในการเรียนหรือทำกิจกรรม I use my mobile phone or technology for learning or doing activities.	1	1	1	1	Accepted
การใช้เทคโนโลยีดิจิทัลเพื่อค้นหาและวิเคราะห์ข้อมูล **Informing**					
23. ท่านใช้แฮชแท็กเพื่อค้นหาและแบ่งปันข้อมูลบนสื่อสังคมออนไลน์ I use hashtag to search and share information on social media.	1	1	1	1	Accepted
24. ท่านใช้โปรแกรมค้นหาข้อมูลอย่างหลากหลาย I use varieties of search engine.	1	1	1	1	Accepted
25. ท่านคัดกรองข้อมูลในสื่อออนไลน์เพื่อค้นหาข้อมูลที่มีประโยชน์และตรงกับความต้องการของตัวท่าน I filter information through my online network to find what is useful and relevant to me.	1	1	1	1	Accepted

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การใช้เทคโนโลยีดิจิทัลเพื่อสร้างเครือข่าย **Collaborating**					
26. ท่านใช้สื่อดิจิทัลเพื่อแสดงอัตลักษณ์ความเป็นตัวเอง พร้อมทั้งเคารพในตัวตนของผู้อื่น I express my self-identity and respect others on digital platform.	1	1	1	1	Accepted
27. ท่านติดต่อกับผู้อื่นผ่านช่องทางออนไลน์ I contact with other on online platform.	1	1	1	1	Accepted
28. ท่านสร้างสรรค์ข้อมูลและเก็บรวมรวบแหล่งข้อมูลดิจิทัลต่าง ๆ เพื่อใช้ในการเรียนรู้และทำกิจกรรมอื่น ๆ I create or collect digital resources to contribute to my learning and others.	1	1	1	1	Accepted
การใช้เทคโนโลยีดิจิทัลเพื่อสร้างและนำเสนอข้อมูล **(Re)designing**					
29. ท่านนำความรู้เดิมที่มีมาปรับใช้กับข้อมูลจากแหล่งต่าง ๆ ก่อนสร้างสรรค์ผลงาน I combined my background knowledge and information together before producing work.	1	1	1	1	Accepted
30. ท่านสร้างสรรค์ผลงานจากข้อมูลที่ท่านได้รับ ตลอดจนค้นหาข้อมูลเพิ่มเติมจากแหล่งต่าง ๆ I create work from the information I received along with additional source.	1	1	1	1	Accepted

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Appendix G The Descriptive Statistics of Teaching Processes in the Digital Literacy Questionnaire

Teaching Process	Questions	Min	Max	M	SD	Meaning
Access	1. ท่านใช้สื่อหรือเทคโนโลยีเพื่อสืบค้นบทความในรูปแบบออนไลน์ I use media or other technologies to search for reading texts online.	2.00	4.00	3.80	.49	often
	2. ท่านใช้สื่อหรือเทคโนโลยีเพื่อค้นคว้าประเด็นที่สนใจในสื่อสังคมออนไลน์ I use media or other technologies to explore interesting topics on social media.	3.00	4.00	3.86	.35	often
	3. ท่านใช้สื่อหรือเทคโนโลยีเพื่อส่งต่อข้อมูลให้กับผู้อื่น I use media or other technologies to share information with others.	2.00	4.00	3.48	.74	often
Analyze and Evaluate	4. ท่านวิเคราะห์ข้อมูลที่อ่านในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ด้วยทักษะการคิดเชิงวิพากษ์ (การวิเคราะห์ข้อมูลอย่างเป็นระบบและมีเหตุผล) I analyze message using critical thinking when I read on social media or printed text.	1.00	4.00	3.44	.73	often

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	5. ท่านใช้พื้นความรู้เดิมเพื่อทำความเข้าใจข้อมูลที่อ่านในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ I comprehend message using background knowledge when I read on social media or printed text.	2.00	4.00	3.55	.63	often
	6. ท่านประเมินความน่าเชื่อถือของแหล่งข้อมูลในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ I evaluate message from credible sources when I read on social media or printed text.	2.00	4.00	3.45	.69	often
Create	7. ท่านสร้างสรรค์ข้อมูลที่มีเพียงเนื้อหาเพื่อแสดงความคิดเห็นในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ I compose message on social media or printed text to express my thought.	1.00	4.00	2.70	1.05	sometimes
	8. ท่านสร้างข้อมูลที่มีทั้งเนื้อหาและรูปภาพเพื่อแสดงความคิดเห็นของท่านในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์ I compose the message and picture together on social media or printed text to express my thought.	1.00	4.00	2.70	1.06	sometimes
	9. ท่านสร้างเนื้อหาในสื่อสังคมออนไลน์หรือสื่อสิ่งพิมพ์โดยรู้ตัวว่ามีจุดประสงค์ใด	1.00	4.00	3.40	.72	often

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	I generate content on social media or printed text with awareness of purpose.					
Reflect	10. ท่านคำนึงถึงจุดประสงค์ของเนื้อหาจากข้อมูลที่ท่านเลือกรับ I concern about the purpose of message I receive.	2.00	4.00	3.37	.71	often
	11. ท่านพิจารณาผลกระทบของข้อมูลที่ท่านสร้างขึ้น I reflect on the message I produced.	2.00	4.00	3.33	.66	often
	12. ท่านพยายามที่จะไม่ลดทอนคุณค่าด้านอัตลักษณ์ของผู้อื่น I try not to be disrespectful to other identity.	2.00	4.00	3.70	.53	often
Act	13. ท่านวิเคราะห์เนื้อหาด้วยตนเองโดยไม่ใช้เทคโนโลยี I work individually without technology to analyze texts.	2.33	4	3.31	.48	often
	14. ท่านแลกเปลี่ยนข้อมูลกับผู้อื่นโดยใช้เทคโนโลยี I share knowledge with other using technology.	2.00	4	3.00	.83	often
	15. ท่านทำงานร่วมกับผู้อื่นเพื่อแลกเปลี่ยนข้อมูลในสื่อออนไลน์และสื่อสิ่งพิมพ์ I work collaboratively with other to exchange information on social media and printed text.	2.00	4	3.40	.77	often

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Appendix H IOC Result for The Interview Questions on Digital Literacy

Questions	Experts			Mean Score	Result
	1	2	3		
จุดประสงค์ **Purpose**					
1. เพื่อศึกษาพฤติกรรมการใช้เทคโนโลยีดิจิทัลภายนอกห้องเรียน To explore the students' use of digital literacy outside the classroom	**1**	**1**	**1**	**1**	Accept
2. เพื่อศึกษาพฤติกรรมการใช้เทคโนโลยีดิจิทัลในการอ่านภาษาอังกฤษ To examine the students' use of digital technology for English reading	**1**	**1**	**1**	**1**	Accept
เงื่อนไข **Condition**					
3. ขออนุญาตบันทึกการสนทนาขณะมีการสัมภาษณ์ Voiced records were required during the interview.	**0**	**1**	**1**	**0.67**	Accept
วิธีการใช้เทคโนโลยี **The use of technology**					
4. โปรดเลือกวิธีการใช้เทคโนโลยีที่ท่านใช้มากที่สุดในชีวิตประจำวันมา 3 วิธี Could you please list the top three steps in using technology to perform the actions in your daily life?	**0**	**1**	**1**	**0.67**	Accept
4.1 ท่านใช้เทคโนโลยีเพื่อเข้าถึงข้อมูลต่าง ๆ ตลอดจนเป็นผู้ส่งต่อข้อมูลเหล่านั้น Using technology to access and share information	**1**	**1**	**1**	**1**	Accept
4.2 ท่านใช้เทคโนโลยีเพื่อช่วยวิเคราะห์และประเมินค่าข้อมูล Using technology to analyze and evaluate information	**1**	**1**	**1**	**1**	Accept
4.3 ท่านใช้เทคโนโลยีเพื่อผลิตหรือสร้างสรรค์เนื้อหา Using technology to generate content or work	**1**	**1**	**1**	**1**	Accept
4.4 ท่านใช้เทคโนโลยีอย่างคิดใคร่ครวญและคำนึงถึงผลกระทบที่อาจเกิดขึ้น Using technology along with reconsidering the purpose and effect	**1**	**1**	**1**	**1**	Accept

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4.5 ท่านใช้เทคโนโลยีเพื่อเข้าร่วมกิจกรรมต่าง ๆ รวมถึงแลกเปลี่ยนความรู้กับผู้อื่น Using technology to produce or share knowledge with others	**1**	**1**	**1**	**1**	Accept
5. โปรดอธิบายเหตุผลที่ท่านใช้เทคโนโลยีในการทำกิจกรรมนั้น Could you explain why you used technology to do the activity?	**1**	**1**	**1**	**1**	Accept
6. โปรดระบุปัญหาเมื่อใช้เทคโนโลยีในการทำกิจกรรมนั้น (หากมี) Did you have any difficulty while using the technology to do the activity?	**1**	**1**	**1**	**1**	Accept
ขอบเขตของเทคโนโลยีดิจิทัล **The focus areas of digital technology**					
7. โปรดระบุขอบเขตของเทคโนโลยีดิจิทัลที่ท่านใช้มากที่สุดเมื่ออ่านบทความภาษาอังกฤษในชีวิตประจำวันจำนวน 3 ขอบเขต Could you please list the top three areas of using digital technology for English reading in daily life?	**1**	**1**	**0**	**0.67**	Accept
7.1 ท่านใช้เทคโนโลยีดิจิทัล เช่น เว็บไซต์ โปรแกรม สำหรับอ่านภาษาอังกฤษ Using digital website, platform, or application for English reading	**1**	**1**	**1**	**1**	Accept
7.2 ท่านใช้เทคโนโลยีดิจิทัลในการจัดประเภท คัดสรร หรือค้นหาบทความภาษาอังกฤษ Using digital technology to categorize, filter or search for English reading	**1**	**1**	**0**	**0.67**	Accept
7.3 ท่านใช้เทคโนโลยีดิจิทัลในการสื่อสารกับผู้อื่นเพื่อพัฒนาทักษะการอ่านภาษาอังกฤษ Using digital tools to communicate with people to improve English reading	**1**	**1**	**0**	**0.67**	Accept
7.4 ท่านใช้เทคโนโลยีดิจิทัลเพื่อสรุปข้อมูลหรือบรรยายเนื้อหาจากบทความภาษาอังกฤษ Using digital technology to summarize or present an English passage	**1**	**1**	**1**	**1**	Accept
8. โปรดอธิบายเหตุผลที่ท่านใช้ขอบเขตของเทคโนโลยีดิจิทัลดังกล่าวในการอ่านภาษาอังกฤษในชีวิตประจำวัน	**1**	**1**	**1**	**1**	Accept

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Could you explain why you used the specific focus area of digital technology for English reading?					
9. โปรดระบุปัญหาเมื่อใช้เทคโนโลยีดิจิทัลสำหรับการอ่านภาษาอังกฤษ (หากมี) Did you have any difficulty while using digital technology for English reading?	**1**	**1**	**1**	**1**	Accept

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Appendix I The Descriptive Statistics of Focus Areas in the Digital Literacy Questionnaire

Focus Areas	Questions	Min	Max	M	SD	Meaning
Communicating	16. ท่านพิมพ์ข้อความผ่านสื่อดิจิทัลหลากหลายรูปแบบเพื่อส่งต่อและแลกเปลี่ยนข้อมูล I create different types of digital texts to share or exchange knowledge.	2.00	4.00	3.73	.52	often
	17. ท่านนำข้อมูลจากสื่อหลากหลายประเภทมาประมวลผลเพื่อนำเสนอผลงาน I combine media into a digital display or presentation.	2.00	4.00	3.53	.68	often
	18. ท่านใช้มือถือ แท็บเล็ต หรือเทคโนโลยีในการเรียนหรือทำกิจกรรม I use my mobile phone or technology for learning or doing activities.	3.00	4.00	3.83	.37	often
Informing	19. ท่านใช้แฮชแท็กเพื่อค้นหาและแบ่งปันข้อมูลบนสื่อสังคมออนไลน์ I use hashtag to search and share information on social media.	1.00	4.00	2.50	1.04	sometimes

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	20. ท่านใช้โปรแกรมค้นหาข้อมูลอย่างหลากหลาย I use varieties of search engine.	1.00	4.00	3.20	.85	often
	21. ท่านคัดกรองข้อมูลในสื่อออนไลน์เพื่อค้นหาข้อมูลที่มีประโยชน์และตรงกับความต้องการของตัวท่าน I filter information through my online network to find what is useful and relevant to me.	2.00	4.00	3.47	.57	often
Collaborating	22. ท่านใช้สื่อดิจิทัลเพื่อแสดงอัตลักษณ์ความเป็นตัวเอง พร้อมทั้งเคารพในตัวตนของผู้อื่น I express my self-identity and respect others on digital platform.	2.00	4.00	3.50	.68	often
	23. ท่านติดต่อกับผู้อื่นผ่านช่องทางออนไลน์ I contact with other on online platform.	3.00	4.00	3.57	.50	often
	24. ท่านสร้างสรรค์ข้อมูลและเก็บรวมรวบแหล่งข้อมูลดิจิทัลต่าง ๆ เพื่อใช้ในการเรียนรู้และทำกิจกรรมอื่น ๆ	2.00	4.00	3.50	.57	often

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	I create or collect digital resources to contribute to my learning and others.					
(Re)desinging	25. ท่านนำความรู้เดิมที่มีมาปรับใช้กับข้อมูลจากแหล่งต่าง ๆ ก่อนสร้างสรรค์ผลงาน I combined my background knowledge and information together before producing work.	3.00	4.00	3.53	.51	often
	26. ท่านสร้างสรรค์ผลงานจากข้อมูลที่ท่านได้รับ ตลอดจนค้นหาข้อมูลเพิ่มเติมจากแหล่งต่าง ๆ I create work from the information I received along with additional source.	2.00	4.00	3.27	.74	often

Note. N = 30, Never (M = 0-1.99), sometimes (M = 2.00-2.99) , often(M = 3.00-3.99), always (M = 4.00)

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Appendix J Item Analysis of the English Reading Comprehension Test

Item No.	Difficulty Index (p)	Discrimination Index (r)
1	0.6	0.2
2	0.4	0.4
3	0.6	0.2
4	0.7	0.2
5	0.7	0.2
6	0.5	0.3
7	0.7	0.2
8	0.4	0.4
9	0.8	0.2
10	0.7	0.2
11	0.7	0.4
12	0.7	0.3
13	0.5	0.3
14	0.4	0.2
15	0.8	0.2
16	0.7	0.3
17	0.7	0.2
18	0.7	0.4
19	0.7	0.2
21	0.4	0.2
22	0.3	0.3
23	0.7	0.2
24	0.5	0.3
25	0.4	0.3
26	0.8	0.3
27	0.2	0.2
28	0.7	0.2
29	0.8	0.2
30	0.8	0.2

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