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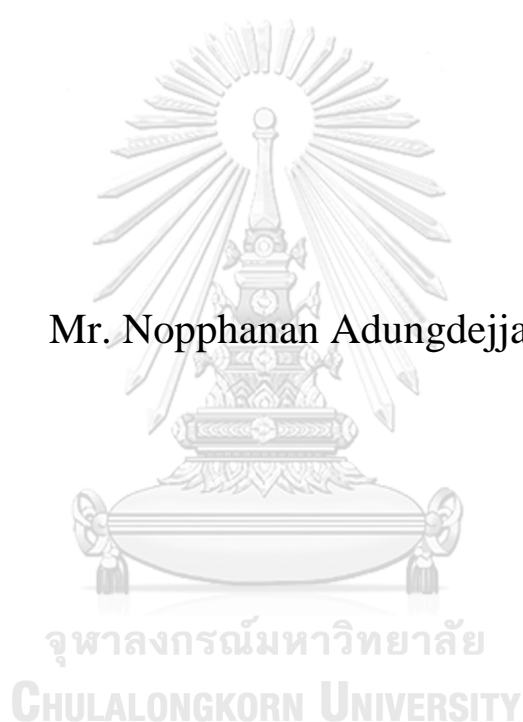
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DIGITAL READING ON EIL MATERIALS FOR THAI UNDERGRADUATE STUDENTS

Mr. Nopphanan Adungdejjaroon



A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Arts in English as an International Language
Inter-Department of English as an International Language
GRADUATE SCHOOL
Chulalongkorn University
Academic Year 2022
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การอ่านสื่อดิจิทัลภาษาอังกฤษเป็นภาษานานาชาติสำหรับนักศึกษาปริญญาตรี



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต
สาขาวิชาภาษาอังกฤษเป็นภาษานานาชาติ สหสาขาวิชาภาษาอังกฤษเป็นภาษานานาชาติ

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Field of Study	English as an International Language
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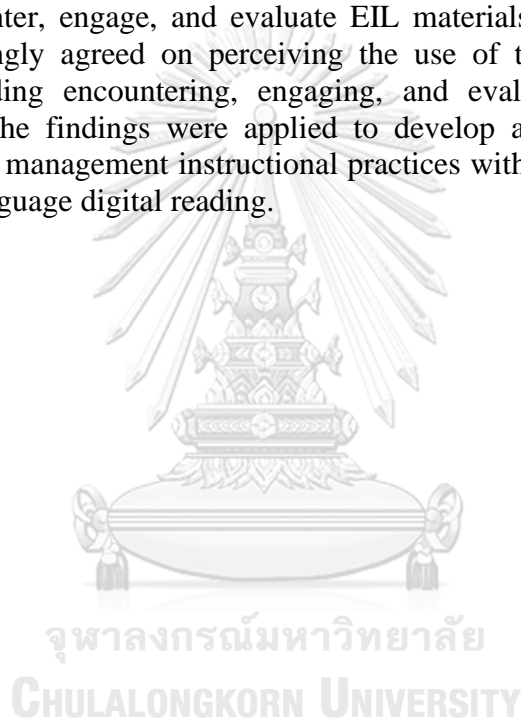
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This exploratory study had two research objectives. First, it aimed to investigate digital reading on EIL materials for Thai undergraduate students and, second, explore students' perceptions towards digital reading on EIL materials. The study involved two hundred and ninety-nine undergraduate students enrolled in an aviation business management program. The EIL Digital Reading Questionnaire is to collect quantitative data, while the semi-structured interview is to collect qualitative data. The result from descriptive statistics of the questionnaire and thematic analysis of the semi-interview reported that Thai undergraduate students tended to encounter, engage, and evaluate EIL materials frequently. Most of the participants strongly agreed on perceiving the use of these EIL digital reading strategies, including encountering, engaging, and evaluating. Furthermore, the implications of the findings were applied to develop and suggest materials for aviation business management instructional practices with a focus on English as an International Language digital reading.



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งานวิจัยแบบสำรวจนี้มีสองวัตถุประสงค์เพื่อ 1) สำรวจการอ่านสื่อดิจิทัลภาษาอังกฤษเป็นภาษานานาชาติสำหรับ นักศึกษาปริญญาตรี 2) สำรวจการรับรู้ของนักศึกษาต่อการอ่านสื่อดิจิทัลภาษาอังกฤษเป็นภาษานานาชาติ โดยกลุ่มตัวอย่างที่ได้ เข้าร่วมการวิจัยนี้ได้แก่นักศึกษาระดับปริญญาตรีหลักสูตรการจัดการธุรกิจการบิน จำนวน 299 คน แบบสอบถามการอ่านสื่อ ดิจิทัลภาษาอังกฤษเป็นภาษานานาชาติมีไว้เพื่อเก็บข้อมูลเชิงปริมาณและการสัมภาษณ์แบบกึ่งโครงสร้างสำหรับเก็บข้อมูลเชิง คุณภาพ ผลการวิเคราะห์ทางสถิติเชิงลึกของแบบสอบถามและการวิเคราะห์แก่นสาระของการสัมภาษณ์แบบกึ่งโครงสร้าง รายงานว่านักศึกษามีแนวโน้มที่ พบ (encounter) มีส่วนร่วม (engage) ประเมิน (evaluate) หลายหลายสื่อดิจิทัล ภาษาอังกฤษเป็นภาษานานาชาติบ่อย นอกจากนี้ศึกษาส่วนมากเห็นด้วยอย่างมากในการรับรู้การใช้กลยุทธ์การอ่านสื่อดิจิทัล ภาษาอังกฤษเป็นภาษานานาชาติ ซึ่งรวมถึงการพบเจอ การมีส่วนร่วม และการประเมิน นอกจากนี้ผลของการวิจัยนี้สามารถ นำไปสู่การวางแผนและการพัฒนาสื่อสำหรับการเรียนการสอนของหลักสูตรการจัดการธุรกิจการบิน โดยเน้นการอ่านดิจิทัล ภาษาอังกฤษเป็นภาษานานาชาติ



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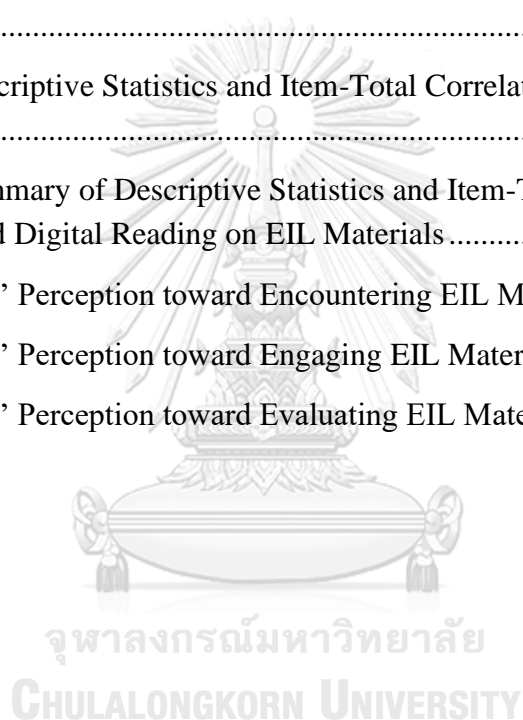
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CHAPTER I

INTRODUCTION

Background of the Study

The proliferation of modern technologies is undeniable. It helps readers reach their desired texts digitally. Technologies play a crucial role in students' technology integration, particularly regarding their workplace readiness and knowledge acquisition (Techataweewan & Prasertsin, 2018). In the 21st century, various reading platforms such as the internet or websites offer different ways of interaction through digital texts. The internet and smartphones are capable of facilitating students' interaction, which could create new opportunities for an authentic reading environment for meaningful learning experiences (Oh et al., 2022). At the same time, people were surrounded by change and disruption in a world that was uncertain and unpredictable (Levy, 2019). According to Taylor (2023), more than 6.80 billion people will own a smartphone in the present world. However, most of the studies had limited perspectives on digital reading and did not investigate the reading practices of readers even when students used digital devices to seek many types of texts with purposes. In that case, understanding and training students in higher education to be digitally literate or connected readers is a vital university responsibility. To achieve effective implementation of student training in using digital technology and know how often readers perform digital reading in authentic situations, it is essential to investigate the frequency of target students' digital reading in a local context to improve their literacy skills further (Coiro, 2011, 2021). As Son et al. (2017) stated, survey-based studies could reveal a level of students' expectations and needs for digital literacy skills. Therefore, acknowledging the extent to which students interact with the digital text is imperative to reframe how they are taught inclusively.

Digital reading is located in the broader framework of reading as literacy conceptualized by digital literacy, which entails an integration and production process inside social and cultural activities. A digital literacy framework highlights that digital reading unfolds in particular contexts. Digital reading may play out differently based

on the sorts of activities that readers participate in and the academic setting (Jang et al., 2022). However, there was a tendency among students who read digital texts briefly without critically evaluating them (Brandmo & Bråten, 2021). Due to the intricacy of digital texts, including hypermedia and hyperlinks, readers must be more skilled and strategic than when reading printed materials. Digital reading requires several skills, including accessing, interpreting, and evaluating information, as well as self-regulation and self-organization via non-linear information from many digital sources (Coiro, 2021; Li, 2020). Not only did students become more aware of metacognitive strategies and reading motivation, which boosted reading achievement, but they also became more competent readers through digital reading (Jang et al., 2022). Becoming fully literate in the 21st century, many people believe that students should be able to curate, evaluate, and employ appropriate digital resources to solve problems and make decisions (Gilbert, 2017). Therefore, it is essential to acknowledge that certain practices under digital reading are being implemented frequently and others less frequently, whether in or outside school.

While many EFL students were used to advancing communication technology, they were gradually exposed to a wider range of English speakers from different cultural backgrounds (Friedrich, 2020; Rose et al., 2021). Concurrently, the *text* is defined as a multimodal or incorporation of language, images, audio, and other media to communicate and teach (the International Literacy Association, n.d.). In other words, multimodal information is a combination of written and spoken language as a prominent feature of 21st-century modern technologies (Utami et al., 2020). It made English more widely recognized and used as an international language by its users of cultural diversity (Matsuda, 2017). With the growing demand for English and technologies, many teachers employ different types of digital resources to implement English as an international language (EIL) pedagogy (Lee & Dressman, 2018). Instructional materials become useful for intercultural education in boosting children's cross-cultural awareness (Tomé-Fernández et al., 2019). Digital materials with the involvement of pictures, audio, reading-guide, audio-visuals, and relevant instruction are helpful for language acquisition (Zhou et al., 2021) as a means for increasing students' understanding of the English language, diverse cultural

perspectives and the meaning of being a multilingual English user (Hu & McKay, 2014). For example, YouTube videos include authentic situations between people from different cultures interacting via chatting apps (J. S. Lee et al., 2021), or short videos released on TikTok can reflect the local culture of one country (Kaye et al., 2020). The internet can be regarded as a critical component for students' participation in target and native language cultures (Gilbert, 2017). However, Anderson and Jiang (2018) stated that there had no clear consensus across the students effecting of the digital materials from the survey. When looking into specific field, understanding how non-native speakers use or perform English is essential in aviation (Doty, 2021). This study emphasizes EIL materials since English as a Foreign Language (EFL) and English as a Second Language (ESL) are dramatically superseded by EIL, which takes non-native speakers' cultural backgrounds into account (Farzaneh et al., 2014). The digital materials are significant educational and cultural resources that may influence students' interactions and beliefs. Exploring students' perceptions of EIL materials is a step toward awareness of a variety of Englishes, whether they have drawn digital reading upon them or not. Kerkhoff and Makubuya (2022) pointed out that the exploratory studies of participants' perceptions aided in revealing students' needs and deficiencies as evidence to be overcome in the future.

In the Thai context, Thailand is one of the monolingual countries where English is used as a lingua franca or as a foreign language. This country is classified as an expanding circle country because the English language is not used officially in the context rather than for business and educational purposes (Kachru, 1986). It is undeniable that Thailand has shifted into a digital society for a prosperous digital community, which positively enhances Thai people's life quality. The number of internet users in Thailand is 54.6 million, which will rise to 60 million by 2026 (IH Admin, 2022). Thai students believe that they could find digital materials to improve their English language proficiency (Sasum & Weeks, 2018). It could be seen that they might have and need different digital skills at particular levels for seamless connectivity through internet technology (Temdee, 2021). Instead of preference a local variety of English materials, Thai students preferred standard English of American English and British for speaking and writing texts (Tarrayo et al., 2021).

Moreover, Thai teachers who teach English lessons rely too much on commercial English textbooks, which might not be appropriate in the Thai context (Foley, 2021). Consequently, Thai English teachers might not be aware of EIL because teachers with positive perceptions toward EIL tend to include EIL in the classroom (J. S. Lee et al., 2021). However, among English language teachers who were not native speakers, they attempted to include ICT and interactive activities as exciting materials to promote a variety of language teaching practices to overcome the problematic understanding and lack of confidence of Thai students (Ulla, 2018). Recent research revealed that students were increasingly encountering cultural diversity in the digital context (Godwin-Jones, 2021; Lee, 2020; Lee et al., 2019). Because of the increasing reading via digital technologies, introduced new challenges and influenced the reading practices of the students such as more scanning, but less in-depth reading (Liu & Huang, 2016). Investigating students' frequency levels in self-report questionnaires related to using technology and EIL materials could explicitly suggest how to teach students in a particular context (Rose et al., 2021). Likewise, according to Bates et al. (2017) and Pavsek and Vaughan (2023), considering students' reading behaviors or strategies is meaningful for instructional practices because students interact with digital materials differently. Frequent use of various types of digital reading could reflect students' familiarity (Ng, 2012) and encourage positive perceptions toward learning English (Wongsa & Son, 2020). Therefore, digital reading on EIL materials is worth to be investigated. In other words, the study of digital reading helps to reveal students' reading practices on EIL materials which are essential for teachers to incorporate into the classroom.

Statement of Problem

Much reading research concerning print-based practices has proven what readers do and how students are taught to become reading experts (Beers & Probst, 2012; Fisher & Frey, 2013; Harvey & Goudvis, 2017; Keene & Zimmermann, 2007). With globalization, according to Pew Research Center (2019) and Taylor (2023), the number of adults and teenagers owning digital devices rapidly rose, and they intend to

use them for internet access. Digital devices were able to change how students read and interact with digital materials, and those needed to be addressed (Ding et al., 2021).

Many studies compared on-screen text to print material regarding reading strategies and comprehension abilities. However, digital reading has received less attention than printed reading, and little is known about how students interact with EIL materials. As Y. Lee et al. (2021) and OECD (2021) stated, it had inadequate attention and discussion on the students' digital reading. Much recent research focused on digital technologies on EIL materials of EFL teachers instead of students (J. S. Lee et al., 2021; Lee et al., 2019). Also, the growing trend of digital reading has been confirmed that it involves complicated and overlapping comprehension processes (e.g., evaluation and navigation process) influenced by the competence and motivation of individuals as well as pedagogical tasks and purposes (Coiro, 2021). An individual should be able to access and evaluate with the use of digital resources to solve problems and make logical decisions since the global employment market demands people who have critical thinking skills but are also digitally literate and technologically competent. However, most students could not construct much knowledge from a large amount of nonlinear information, and hyperlinks and texts usually diverted them from their reading purposes due to their incapacity to use a broad range of web resources (Gilbert, 2017).

Therefore, this study applied the Connected Reading framework and materials with EIL principles to understand and acknowledge students' levels of frequency and perceptions of digital reading on EIL materials.

Research Questions

1. To what extent do Thai undergraduate students use digital reading on EIL materials?
2. What are the perceptions of Thai undergraduate students toward digital reading on EIL materials?

Objectives of the Study

1. To investigate the digital reading on EIL materials for Thai undergraduate students
2. To explore Thai undergraduate students' perceptions toward the digital reading on EIL materials

Scope of the Study

This study explored the digital reading on EIL materials for Thai undergraduate students conducted at an autonomous university in the northern region of Thailand. The participants of this study were all 4 years of Thai undergraduate students in the Aviation Business Management program at the university in Chiang Rai, Thailand. This program is an international program in which English is used as a medium of instruction throughout every subject except Thai language class. The two main instruments for collecting data were EIL digital reading questionnaire and the semi-structured interview. Both instruments were based on three components of the EIL digital reading materials framework: encountering, engagement, and evaluation, a non-linear recursive model. Students could enter into a recursive cycle of evaluating and engaging processes at particular moments of encountering. Once they actively sought or passively received the materials, they could begin with either engaging or evaluating within the cycle. The findings of this study were shown through both numerical and descriptive data. In the last section, the discussions and recommendations were provided regarding the findings of this study to suggest effective implementation for future research.

Significance of the Study

Due to the most under-researched topic concerning digital reading on English as an International Language (EIL) materials in Thailand, the EIL digital reading materials framework effectively describes students' digital reading or what they did in the digital age. This study aimed to investigate digital reading on EIL materials for

Thai undergraduate students and explore their perception toward digital reading on EIL materials. Its primary concern is the digital reading on EIL materials to recognize how often students interact with EIL materials—studying the level of frequency indicated if students were active strategy users who use different types of digital reading while reading EIL materials digitally. If there were infrequent practices, it was straightforward to determine if students required further digital reading. Theoretically, this study helped construct a tool for exploring digital reading on EIL materials. The tool benefited other educators and researchers in analyzing digital reading on particular teaching and learning materials. It described how students connect with the digital space, whether searching, deciding when to read, sharing EIL materials, and what components were used and lacking. The findings helped expand suitable aviation business management instructional practices to prepare students for their academic purpose and careers in the future. It could raise awareness of digital reading among educators to provide better instruction for students to become more strategic readers. In addition, another advantage of this study when exploring students' perceptions helped to identify the norms of digital reading on EIL materials.

Definitions of Terms

Digital Reading refers to reading practices that conceptualize interactions of readers with digital materials when they read via digital devices such as smartphones or laptops. Encountering (the way readers seek or receive digital texts), evaluating (the way readers make judgments on how the usefulness of digital texts), and engaging (the way readers decide and share digital text) are three main components of the digital reading framework (Turner et al., 2020).

EIL materials refer to a variety of digital texts (e.g., webpages, multimedia, e-books, and social media) as general materials that can facilitate students to learn English as an International Language (EIL) in their own time outside of the classroom, such as a short video with English description or subtitle about Thai cabin crew dealing with Singaporean passengers' complaints released on social media feed (Turner et al., 2020; Tomlinson, 2016; Son, 2017; Lee et al., 2021; Wongsas and Son,

2022). The significant principles of EIL within digital texts are a variety of English, students' L1, intercultural communication, and culturally neutral, reflecting the current use of English (Mckay, 2018; Xu, 2017a). It involves both written and spoken texts produced by non-native speakers of English. In addition, the digital texts are also authentic, which increases pragmatic awareness (Tomlinson, 2016; Li & Zhou, 2018).

Thai Undergraduate Students refer to Thai undergraduate students in the bachelor's degree of Aviation Business Management program, where all subjects use English as a medium of instruction except Thai language class; the university is located in the northern part of Thailand.



CHAPTER II

LITERATURE REVIEW

This chapter presents essential information about digital reading on English as an International Language (EIL) materials. The study mainly aims to explore digital reading on EIL materials for Thai undergraduate students. Digital Reading and its framework are defined and clarified along with the previous studies. In addition, the definitions of EIL materials are explained and include relevant research relating to EIL materials and perceptions.

Digital Reading

Digital Reading Definition

Due to the consequences of a rapidly changing world, new literacies and ways of thinking need to be described to boost the improvement of pedagogy (Kerkhoff & Makubuya, 2022). Since technologies have shifted the landscape of reading, *digital literacy* is being used to conceptualize digital reading within the broader scope of reading as literacy, which comprises an integration and construction process located in cultural and social practices (Frankel et al., 2016). In addition to digital literacy, it is abilities to consume and create digital texts through the use of appropriate digital platforms to its affordance (Coiro, 2021; Leu et al., 2019). The ability to use digital technology for specific purposes is fundamental for digital literacy (Son, 2015). At the same time, *digital reading* has oversimplified the definition in some studies as an ability to read a text through a screen analogously.

The term “digital reading” is the expanded definition of reading that includes digital elements in using appropriate text, purpose, and situation (National Assessment Governing Board, 2017). According to Coiro (2021), *digital reading* is defined as a variety of experiences in which readers interact or engage with different texts for specific objectives situated in a wide range of contexts. Each experience can be outlined more precisely to describe how one digital reading experience is similar to and distinct from another. It can be characterized systematically and is part of a

multifaceted heuristic centered on the reading community's collective knowledge that understanding in whatever form involves diverse texts, activities, and readers of the particular context and purposes. Wolf (2018) defined the term as *biliteracy*, which refers to the ability to shift between reading for information (e.g., browsing, linking, and scanning) and reflective or thoughtful reading that requires sustained concentration for thinking critically. Thus, digital reading is not only defined as a reading process through texts, videos, and animation in digital space (National Center for Education Statistics, 2019) but also involves the ability to navigate, evaluate, integrate, and use and produce media influenced by a person's competence and motivation (Cho et al., 2017; Kiili & Leu, 2019; Salmerón et al., 2018).

In the EFL context, there are only a few studies on digital reading; Kirin et al. (2012) defined *digital reading* as the ability to read text from the screen of smart devices such as smartphones or computers whether online or offline. It could be considered a powerful tool in learning a language because of the wide range of exposure to pleasure reading. Moreover, some reading strategies, such as superficial reading, selective reading, or interactive reading had increased while critical reading or reading in-depth had decreased among students through digital reading due to the transformation of digital technologies (Divya & Mohamed Haneefa, 2020; Saleh et al., 2022). Although digital reading and print reading have similar reading processes, digital reading dynamically impacts the relationship among readers, texts, and influencing factors (Ebrahimi, 2016).

Digital Reading Framework

Turner et al. (2020) proposed new frameworks of *Connected Reading* (known as digital reading) to discover how individuals purposely navigate, consume, and share information. The framework conceptualized the reading practices involved while reading in a digital context. Certainly, a variety of digital texts (e.g., e-books, websites, and social media) on the internet has a big impact on both authors and readers because of technological changes. The framework could portray a completed cycle of how readers interact with digital texts.

There were three main processes of the digital reading framework when readers approach digital texts, including (1) Encountering, (2) Evaluating, and (3) Engaging.

1. Encountering is the manner of readers when they have their first contact with a specific text. No matter if new reading material was searched online actively or passively or received a hyperlink from others. There are four sub-practices represented as a way readers surf, receive, stumble, and search.

1.1 Surfing is searching without much intention or with the purpose of leisure. Instead, it can refer to skimming and scanning information on the internet for amusement and killing time.

1.2 Receiving is how a person receives the text. The text can be received passively, by means of viewing it when accessing a website, through a link from a friend or colleague, as well as via a present RSS feed.

1.3 Stumbling is a way a person follows related hyperlinks from social media (e.g., Pinterest or Twitter) or websites to find more information while focusing on the primary topic. In other words, it is the purpose of finding information on a particular topic through websites.

1.4 Searching is identified as actively seeking information to confirm and disconfirm a particular topic with the intention of learning new knowledge, while a person also compares and contrasts information from different websites. Active search strategies and critical thinking are involved in focusing attention on searching the website.

According to Turner et al. (2020), the Encountering components were only revised from the first published connected reading by (Turner & Hicks, 2015) making the framework more appropriate for a larger study.

2. Engaging is described as a way or activities readers interact with digital text after encountering them. The process may occur before, during, or after reading a text; however, this process may begin and end within a single second unless the readers decide to preserve the text for future reading and rereading. There are four sub-practices: deciding, curating, reading, and sharing.

2.1 Deciding is the decision-making process by filtering texts whether to read them now, later, or get rid of them completely, and the thinking process on how to read them.

2.2 Curating is a process of selecting and collecting websites or digital text to read at an appropriate time. Once the decision has been made, readers organize text and archive or continue searching for additional information.

2.3 Reading is an action of scanning, skimming, delving, employing multimedia, annotating, responding, monitoring, interacting, and reading beyond a certain text.

2.4 Sharing is described as an action offering public digital texts by posting or sending them directly as a decision to make connections with others.

3. Evaluating is a reader's action in finding value or making evaluative decisions in a digital text. The importance of the text at a particular time would be determined by each reader differently. It consists of the process of determining value, judging, employing digital tools, and managing distraction as four sub-practices.

3.1 Determining value is an act of considering the purpose, intention, and interest of the text in order to identify the usefulness of the digital text whether it is useful in the present or the future.

3.2 Judging is described as criticizing the quality of information for both content and form while comparing or referring to other similar digital texts.

3.3 Employing digital tools is an action of identifying and utilizing the most relevant digital tools that are available for reading, responding, annotating, and sharing a digital text.

3.4 Managing distraction is the self-regulation of one's attention by concentrating on reading tasks and digital tools. This process aims to address an issue commonly found in digital reading from readers' notions.

The digital reading or connected reading framework of Turner et al. (2020), which is the main framework of this study, was adapted from Turner and Hicks (2015) by updating the descriptions, which originally emerged from both the transactional theory of reading (Rosenblatt, 1994) and New Literacies framework (Leu et al., 2013), which aim to conceptualize reading for both online and offline.

Previous Studies of Digital Reading

This section provided previous studies relevant to digital reading in the English as a Second Language (ESL) and English as Foreign Language (EFL) contexts. Unfortunately, few studies using connected reading frameworks have been widely conducted in both contexts. Moreover, most studies used the digital reading framework for instructional practices rather than exploratory research.

In the USA context, Turner et al. (2020) studied adolescents' reading practice from 804 participants, focusing on what types of texts they read, where they read those texts, and how they engage with both print and digital text. At the same time, they proposed new connected reading frameworks with a somewhat new description as a model of both print and digital reading comprehension. The framework was used to understand how adolescents encounter, evaluate, and engage the texts. The findings from the survey revealed that 82% of respondents had a social media account, and most of them engaged with short-form text. News stories or blog posts were the sources of digital texts that 84% of respondents read. Additionally, 50% of them read e-books or digital books, or magazines. Many types of devices such as smartphones, laptops, and mobile phones had been used for various purposes with higher usage outside of school, while the majority of participants used printed paper to read in school. Nevertheless, three key characteristics emerged from the authors' research that they highlighted, including recursion, social connection, and development of both/and mindset toward print and digital reading.

Zucker (2018) explored the digital reading practices of adolescents outside of school when they were reading for their purposes. The study's data was evaluated and analyzed through emerging themes inductively and a recursive model of connected reading by Turner and Hicks (2015) to comprehend readers' decisions and considerations toward digital texts deductively. The result of the study indicated that teenage readers participated in all connected reading practices; however, some practices were more developed than others. Moreover, personal, behavioral, and environmental processes were regulated frequently in the emerging theme of self-regulated learning.

Kucirkova and Karen (2016) conducted a study on the digital reading habits of children in the UK (aged between 0 - 8 years), exploring the use of e-books and digital media through reading for pleasure with parental reports. The findings indicated that television was frequently used by all age groups, as parents believed digital books were suitable for children above two years old. Appropriate content was the most concerning issue since children were exposed while using digital media. Still, most parents were fond of using print books to read with their children.

Gilbert (2017) investigated the use of digital reading strategies for intermediate and upper-intermediate ESL students. The particular reading environment reflects a metacognitive process into three types for readers to achieve successful reading, including the process of planning, monitoring, and self-evaluation strategies. The findings revealed, from self-report activities, that most participants were using a variety of strategies actively for digital reading more than print reading. For greater digital text comprehension, varied strategies were employed to engage them, and self-evaluation strategies to assess readers' success in particular textual environments. Due to print text, the upper intermediate level students tend to concentrate on the main concepts of ideas while reading printed text, whereas the intermediate level participants preferred to focus on the detail by reading line-by-line so that they would not miss an essential detail. However, the participants' decision of whether they read digital texts for ideas or detail was not influenced by their language proficiency but rather by their reading style.

In the EFL context, Al-Amrani (2022) critically reviewed the learning strategies employed by EFL learners for print and digital reading. The findings indicated that EFL learners employed different practices when reading online, such as navigation and using mouse cursors to follow sentences on the monitors. In addition, the influence factors in employing different practices depended on assigned tasks, online text features, language proficiency, metacognitive awareness, age, gender, and cultural and social background.

He (2017) explored the UK and Chinese adolescents' perceptions toward digital reading. It was a comparative study based on their print and digital reading practices in and out of the school context. The findings showed that both UK and Chinese students were aware of new technology in learning and had an identical

understanding of reading that reading encompasses more than the decoding ability of printed texts in fixed space. Both groups used various digital devices such as computers, personal devices, and whiteboards to read in and outside school. Although all of them read through both printed and digital texts, Chinese students were immersed more in a paper-based and subject-based practices environment than UK students. The tendency of preference of UK students was digital reading for learning purposes, while Chinese students enjoyed pleasure reading. The self-reported questionnaires also reported that the UK claimed to have better reading skills in searching, evaluating, and synthesizing digital text information than Chinese students. However, literacy practices, text preferences, genders, and digital reading comprehension differences of both groups might be related to the social and cultural situation of their setting.

Oh et al. (2022) who explored university students' digital reading habits via smartphones found that students were capable of reading through a variety of texts. They preferred to read the topic based on their interest and recommendation. They tended to employ scanning and skimming strategies rather than concentrated reading. Also, they tended to avoid reading lengthy texts that took much time.

In conclusion, the aforementioned research on digital reading serves to describe how readers read in the digital world, although various studies did not apply the Connected Reading framework. Despite the employment of different theoretical frameworks, the studies' purposes were relatively similar because they were looking forward to finding out what their participants' digital reading are, strategies, or behavior implied for indicative appropriate instructional practices. Most of the studies compare reading practice through print text and digital text as well as in- and out-of-school settings, helping to understand how readers live in both the digital and printed world. Although individual background context may affect reading practices, some mentioned research has not shown statistically significant differences across those categories (e.g. gender, grade, and geography). However, to the best researcher's effort, there are no studies on Thai students' digital reading and digital reading on particular materials. Therefore, further exploratory studies on digital reading need to be conducted to investigate students' digital reading and their perceptions. The

findings may help teachers design appropriate instructional practices for students' academic achievement and professional possibilities.

English as an International Language

In this globalization era, modern technologies have revolutionized, providing instantaneous connection and communication between individuals from every part of the globe. Due to the increasing number of new users, the English language is needed for worldwide communication. The diverse cultural, social, and economic backgrounds of users led the English language to become its true status as *English as an International Language* (EIL), which means those non-native speakers of English from different background contexts used English to communicate with one another with the absence of native speakers of English (Jenkins, 2007; Seidlhofer, 2011). Friedrich and Matsuda (2010) conceptualized EIL as a *function* in which the English language is performed in multilingual contexts, whereas each speaker uses English by referring to their cultural frames, as opposed to a specific variety of linguistics, for international communication. While a new variety of English may be formed in a particular area, there is simply no one variety of English that could be employed successfully across every international and intercultural communication situation. McKay (2002), one of the first scholars shedding light on the functional diversity of English, defined EIL as a language of wider communication among individuals from different countries and between individuals from one country. Later, McKay (2018) also described English as an international language into two points of concern. First, EIL is focused on *content* since different varieties are influenced by the native or first language, culture, level of language proficiency, and the purpose of communication. EIL also concerns the *process* of interaction based on speakers' and listeners' language understanding and competence. In other words, EIL integrates two crucial features of World Englishes (WE) and English as a Lingua Franca (ELF) of content and interactions to promote the English language in a global and local community. Graddol (2006) reported that today English is a new phenomenon connected to globalization, necessitating language localization. However, EIL is an uneasy

manageable area with clear boundaries since EIL characteristics depend on users and context diversity (Shomoossi & Ketabi, 2007).

Because the English language is used differently worldwide, Kachru (1986) categorized the world into concentric circles: Inner-Circle, Outer-Circle, and Expanding Circle. First, inner-circle countries are where English is used as the first language in countries such as the United States and Canada. Second, outer-circle countries, such as Singapore and the Philippines, partially use or serve English as a second language. Last, countries in expanding circles, such as Korea and Japan, use English as a foreign language and do not use it officially. Such varieties make it very difficult to understand and recognize every single country and culture, but learning through countries of different circles would help students understand the varieties of English among English-speaking countries (Matsuda & Friedrich, 2011). Sometimes, positive perceptions of students toward EIL were one of the key challenges. They still favored native English speakers of inner-circle countries. However, as EIL awareness has grown, students' perceptions toward a variety of English and non-standard forms of English have started shifting (Foley, 2021).

In Aviation field, English as an International Language (EIL) has been used widely. For example, Thai passengers used English-related aviation when communicating with Singaporean customer service when checking in at the Singapore Changi Airport. As Ishihara and Prado (2021) stated, even aviation professionals do not always share the same culture or first language. English is adaptable and flexible based on the context. Understanding how non-native speakers use or perform English is important in this field. Although most aviation lessons were conducted in English, aviation students still lack situational awareness when facing others with different levels of language proficiency (Doty et al., 2021).

The construct of EIL is meaningful for the pedagogical field. According to McKay (2018), EIL is based on four main principles. First, promoting varieties of English by considering local language demands, local social factors, and local educational factors. For example, most South African learners created grammatical errors in their writing tasks, such as capital letters, definite and indefinite articles, and misspelling based on English standards. However, their written texts were understandable because of localized standards for local people or communities that

differed from a universal norm or common English standard (Blommaert, 2010). Local Students' needs should determine the language teaching and learning standard and curriculum with a sense of community due to the varieties of English and diversity of the second language (L2) context. Second, the native language or the first language (L1) of learners could be considered a valuable resource in helping develop English proficiency that should be acceptable and not prohibited. In the case of using L1 in the classroom, there are 5 concerns: students' and teachers' English proficiency level, grammatical rules, abstract vocabulary, and group work. For example, using English with someone who shared a native language was unnatural and difficult. Third, non-native speakers of English independently expressed and spoke, reflecting their culture and norms. EIL knowledge, communicative strategies, and pragmatic competence must be introduced for various conversational skills such as asking for an explanation, repeating or expressing disagreement, and repairing. Galloway and Cameron (2018) breakdown communication appropriately in the classroom. Lastly, EIL is culturally neutral for every non-native English speaker to share their cultural diversity. For example, the content of the curriculum should not focus only on Western culture or particular culture to encourage L2 learners to compare their cultural assumptions with what they read or learn. If learners could base on their background knowledge, it would encourage them to focus on developing English. If they are unfamiliar with the content within the materials, additional explanations must be provided. Likewise, Galloway and Cameron (2018) proposed a framework based on six principles: 1) non-native students should be exposed to a variety of English rather than native speakers, 2) awareness of English in multilingual contexts, 3) L2 students are aware of Global Englishes studies, 4) negotiation ability is important than grammatical accuracy or native-like accent, 5) be aware of 'standard English' in the classroom, and 6) Non-native English speaking teaching is capable in teaching English by considering their qualification and experience.

In conclusion, from various researchers and scholars toward the perspectives of EIL, English as an International Language (EIL) is a variety of English that non-native speakers or second language speakers of English from different background contexts use today. Due to users' diverse cultural, social, and economic backgrounds, Standard English of inner circle countries such as the US and UK is inappropriate for

judging international communication. Therefore, EIL may be considered a type of Englishes and how users use English. In this study, English as an international language (EIL), based on McKay (2018)'s EIL principles, refers to a variety of English used by non-native speakers, while users' first language (L1) is not restricted or used generally. Also, intercultural communication expresses communicative strategies and pragmatic competence supporting users' identity as well as it does not address any cultural issues or be culturally neutral.

Instructional Materials

In English language courses, instructional materials are important resources that significantly impact learners in achieving specific learning objectives. Nevertheless, available digital materials typically found on the internet, such as YouTube, could be considered instructional materials that students use in their free time because they could help their language skills and competence. Interestingly, Facebook Messenger provided an opportunity for students to have better English language proficiency, confidence, and interaction (Akpan & Chayanuvat, 2022).

In this study, when considering digital materials, it could be a variety of digital texts from multimedia, social media, e-books, and webpages (Turner et al., 2020) that students used or found in their own time. With their capability, digital materials could influence a person to engage with texts actively and meaningfully. Digital materials are beyond the traditional printed text focused on annotating, responding, or evaluating the written words from paper. Looking into screen-based experience, digital materials require readers, viewers, and listeners to participate interactively. For example, once students read the digital materials, they may ask questions to themselves such as "Did it interest me?" or "What do these texts mean to me?" (Turner and Hicks, 2015). As Lopriore (2018) stated, instructional materials refer to everything that assists teachers in producing a better learning environment which book publishers do not often provide. Teachers' responsibility is to include other types of support in the language classroom, such as authentic audio, audio-visual, or written materials. Using the materials would make the teaching more effective in enabling

students to participate in classroom instruction actively (Mathew, 2012, as cited in Ajoke, 2017).

Most of the time, the internet was widely used in people's everyday lives. On the internet, there was an enormous amount of valuably nonlinear information (Zhang, 2011). With the use of the search engine, overwhelming information on the webpages on the internet was not only for commercial purposes but also for academic purposes (Zhang & Dimiroff, 2004). One typical use of the internet for students was to search for information related to their assignments or school projects (Eagleton, Guinee, & Langlais, 2003). Using webpages for instructional materials was beneficial for both teachers and students. Although all webpages were not fully potential for language learning reflecting pedagogical context, there were authentic materials that could improve the teaching and learning process. For example, the news website, www.breakingnewenglish.com, offers modern experiments, discoveries, and up-to-date world issues. It is classified into English language proficiency level for readers, which could improve all learning skills such as reading, listening, writing, and speaking (Abramova, 2019).

Watching English-teaching videos or multimedia on YouTube was able to interest students to share with their friends. With informal language learning, it was considered effective instructional materials to increase student interaction for discussion more than formal learning (Wang & Chen, 2020). The case of video and subtitles could improve students' several English proficiencies, such as listening comprehension, vocabulary acquisition, and language learning (Montero Perez, 2013).

Beyond the traditional book, e-books were commonly known as a book in digital form. Nevertheless, they were not just a book in a digital format displayed via digital devices. E-books were a type of text that could not be editable without authors' permission. A collection of pages in a portable document format (PDF) file could be considered an e-book because of its capacity to maintain custom layouts (Wahl, 2018). Regarding e-books for instructional materials, they were a set of texts of instructional content developed for educational purposes, enabling reading via the screens (Landoni 2007). It was able to facilitate and help students to explore, develop, apply, and exchange knowledge interactively (Rao, 2003). Its decoration, equipped with various multimedia, made the subject content easily understandable and

attractive. Several applications or features that students use on e-books could predict their academic performance (Peng et al., 2015). According to Rahim et. Al., (2020), e-books offered many benefits and effectiveness in learning leading to positive influence on the learning outcomes of students. It was able to impact student engagement positively (Merkle et al., 2022).

Social media such as Facebook, Instagram, and Twitter could also be useful instructional materials. Social media received much attention because of the involvement of texts and multimedia elements, which enhance target language communication among students (Son, 2017; Wongsu & Son, 2020). Since the features in social media helped to access materials, students could interrelate to their life and learning tasks. One social media such as Facebook could positively impact student's motivation to learn English. It promoted authentic conversation indicating the potential through flexible and exciting content (Wongsu & Son, 2022). According to Wongsu and Son (2020)'s research, accessing materials via Facebook for an English lesson caused students to recognize the utility of social network services and to have a positive attitude toward this integration. Importantly, Alm (2015) claimed that social media could connect people, especially students and teachers inside and outside of the classroom. Another social media, TikTok, which language students frequently use to share multimedia, was used for language learning material because of the incorporation of video and audio. Its features, such as video editing and text insertion, influenced the content creators to make a video of language learning. For example, a TikTok duet video post comparing expressions in Malaysian and Indonesian languages aimed to teach languages with English subtitles for each word (Lee, 2022). Even image-based social media like Instagram enable richer multimodality. Due to the image circulation, according to Hand (2017), it was not only user-directed but also involved algorithms, which were often used on the webpage structure. Although short videos could be posted on Instagram's Stories or Reel, the key feature was image-sharing on its feed. It allowed users to edit pictures, insert memes and texts. Instructional content, such as teaching vocabulary or grammar, could be posted or shared to encourage users to learn the language (Lee, 2022). It could mean that social media can potentially be instructional materials.

Teachers frequently develop materials that include their personal teaching experience in teaching and learning (Lopriore, 2018). Nonetheless, Tomlinson and Masuhara (2017) explained that digital materials were more technologically sophisticated than paper materials that were still being used in most countries. For example, mobile devices could be used for English language teaching because they could record certain situations, such as issues or critical reflection, produce multimedia texts, share the output with others, and provide a choice of tasks to students. To promote a digital environment, digital devices or tools (e.g., smartphones, computers, and tablets) were necessary to be used for language teaching and learning. They supported teachers' competence and encouraged students to engage with various materials on the Internet (Son, 2021). However, Sugino (2010) investigated teachers' demotivational factors in the EFL context. The findings showed that teaching materials were one of the lowest score items since there was a significant difference in students' abilities. To some comments from respondents, the school did not provide explicit instruction on whether the school administration or teachers themselves should change or create the materials. Arai (2004), who explored students' demotivational factors, revealed teachers' attitudes toward students, personalities, language proficiency, and teaching methodology with boring teaching materials were sources of factors.

According to Tomlinson (2016), new materials must meet learners' needs and wants because English is not used only by native speakers but will be communicated more among non-native speakers. For example, ELF learners' materials need to be focused on developing an understanding of written and spoken and appropriate interaction with non-native speakers as well as native speakers of English from different backgrounds. The learners' wants should be considered in terms of their ability to express their feelings and ideas. In order to meet learners' needs and wants, Tomlinson (2016) also suggested that it should include authentic texts and tasks, dialogues of structured and unstructured interaction between non-native speakers of English, pragmatic awareness activities, and written texts produced by non-native speakers from a variety sources such as songs, newspapers, blogs or e-mails. As a range of materials, audios, videos, pictures, and the internet are beneficial materials to encounter with non-native speakers of English authentic interactions in order to

connect to local communities that speak English as a second language. Local communities could be the source where the learners encounter different people who interact distinguishably. Also, teaching specific strategies or capacities such as monitoring the effect of communication, appropriate responses with respect or adaptation to interlocutor's behavior, and grammatical features for effective international communication. Although it is difficult to involve all the cultures in the material, developing intercultural competence makes students experience and view their everyday surroundings in a new way by employing deliberate strategies. For example, the development of multicultural activities provides the suggestion of communicative strategies when there is a lack of intercultural awareness leading to communication problems in an Indonesian meeting with a French businessman (Pulverness & Tomlinson, 2013). Likewise, Kirkpatrick and Lixun (2020) pointed out that including a variety of cultures in the materials is necessary due to the development of local varieties of English, especially for learners in Association of Southeast Asian Nations (ASEAN) countries to relate, compare, and differentiate among themselves.

Look at another point, English for Specific Purposes (ESP) is an umbrella term for teaching English to students who are learning the language for specific work or educational purposes. The materials for ESP class focused more on students who wanted to acquire a specific skill while contributing significantly to learning English (Tomlinson, 2003). The specific field of studies with English language knowledge may be highly beneficial to L2 learners since they can connect the language to their job in the future. Developing teaching materials via an aspect of ESP, Byram (2004) mentioned that it is a process of determining what students need and designing content to meet those which will support them in the workplace. The content related to aviation on social media was increasingly exposed through a variety of materials. Multimedia, such as a video involving both visual and auditory senses, could attract more engagement (Sigurdsson, 2020). Tomlinson (2011) also pointed out that the production of teaching materials is a process based on an area of study and the teacher's practical experience. Moreover, Dudley-Evans and Saint John (2007) proposed a set of principles for ESP materials, including flexibility, clear explanation, communicative practice, relevant references, consideration of students' social culture,

relating to students' knowledge, and developing knowledge and awareness toward current situations. However, no materials are suitable for all learners; the materials need adaptation for a particular context (Tomlinson, 2020).

Although course books were the main aid to second language classes, they were often criticized for their inflexibility, vapidness, and insufficient local relevance. Containing rich information, instruction, exposure, and activities for a particular level of learners to develop target language communicative competence, they were insufficient and needed supplementation (Tomlinson & Masuhara, 2017). This was why instructional materials were theoretically and practically powerful tools in improving teaching for attaining course objectives while balancing the use of course books (Tonawanik & Donavanik, 2019). Although, Sangkapreecha and Sangkapreecha (2012) discovered that when Thai students seek online information resources, they lack the capability to make judgments about the accuracy and reliability of particular online materials when they come across them. Although they did not seem aware of the importance of authorship, they still thought general search engines were convenient tools to save and read information via screen without visiting the actual library.

In conclusion, due to globalization and many studies relating to digital materials, the landscape of English materials has undergone a paradigm shift during the past decades. In terms of English language instruction, paradigm transformation reflected the objectives of materials from focusing on native speakers of English to meeting students' local needs, whether in ESP or general English classes. Therefore, in addition to using a course book, all types of materials may make a better learning environment for learners that need teachers' educational background and teaching experience. Importantly, it would be profitable to most L2 learners if the materials do not emphasize creating native users but develop effective materials based on local English languages to fulfill learners' needs and wants in that particular context. However, there is an opportunity for learners to encounter various materials by themselves while they use digital devices.

English as an International Language Materials

English as an international language (EIL) were commonly found in different digital and non-digital contexts due to the interconnected world (Lee et al., 2019). For example, Among the 2.9 billion Facebook active users in 2022, more than 80 percent were from non-native English speaker countries. Although the United States used to have the highest number of Facebook users, today was not. The leading country of Facebook users from the top 10 rankings was India, with 239.65 million users, and others also came from Expanding Circle countries such as Indonesia, Brazil, and Thailand. Interestingly, 98.5 percent of users logged in to Facebook via smartphones. English has become the most popular and used language on the internet of all time (Dixon, 2022; Internet World Stats, 2020; Kemp, 2022). In that case, it provided more opportunities throughout the digital space allowing non-native English speakers to expose to and interact with a speaker from a different cultural background (Kirkpatrick, 2010).

As far as English language teaching and learning were concerned, the goal of ELT shifted from developing native or native-like speakers to developing translanguaging users for intercultural communication (Xu, 2017b). Undeniably, cultural knowledge frequently serves as the foundation or basis for language materials' teaching and learning content (Mckay, 2006). Xu (2018) also mentioned that in response to English teachers' and learners' diversity, many school programs have continuously adjusted their courses to raise awareness of English as an International Language (EIL). Thus, teaching EIL was conceptualized as preparation for English learners to readily become users of English in an international setting in the teaching field (Matsuda, 2012). Matsuda (2017) strongly advocated integrating EIL pedagogy into ELT education.

The situation of the English language today and its varieties impact traditional Standard English (Lopriore, 2018). For example, social media was where people merged their first language with English words (Shyam & Poornachandran, 2018). Although the criticism of the English native language in terms of challenges was evitable, it addressed some major challenges. Since the number of non-native speakers greatly outnumbered native English speakers (Crystal, 2006), English native

material was unsuitable as a target language for effective communication (Si, 2019). Every English user developed and adapted the language for their usage. Promoting only English from inner-circle countries was unnecessary anymore (Marlina, 2017). The first language and culture of each learner became a “badge” of learners’ linguistic, identity, and cultural history rather than a “baggage” of negativity (Xu, 2017b). Yet, only a few publications on materials took into account how materials were utilized and perceived by both teachers and students (Garton & Graves, 2014) and how teachers developed the materials to respond to the societal change that affected students’ language learning (Tomlinson, 2012). Therefore, Xu (2017a) proposed three principles to raise EIL awareness, literacy, and meta-cultural competence. First, the current use of English users should be acknowledged and related to teaching. Second, EIL for intercultural communication must be anticipated in any situation. Last, new literacy, proficiency, and competence should be achieved to be ready to engage in intercultural communication.

According to Matsuda (2012), who reiterated what McKay proposed, the EIL principles should be reflected in the materials designated as EIL materials. In the EIL materials, there are 3 main components, also called McKay’s EIL criteria: (1) a variety of English, (2) the interaction of non-native speakers of English, and (3) representing learners’ and others’ cultures. For example, EIL materials such as CDs, textbooks, audio, visual samples, online texts, and other written materials were examples of different sources of exposure to varieties of English for students to develop awareness because various types of grammatical features and vocabulary can be provided through them (Matsuda & Friedrich, 2011). However, English as an international language material was not similar to English as a foreign language material (EFL); its materials should meet the learners’ needs who would use English to communicate with non-native speakers more than English native speakers. In this manner, authentic texts and tasks were vital to provide motivated exposure to pragmatic awareness when non-native speakers communicate and interact (Tomlinson, 2016), which may include real-life daily English communication. The authentic EIL material could be divided into auditory and print materials (Li & Zhou, 2018). For example, English auditory materials are radio programs, podcasts, recorded materials, TV commercials, songs, cartoons, videos, and conversations

between English speakers. Print English materials, including a variety of English texts and visual materials such as websites, newspapers, magazines, novels, picture books, brochures, menus, street signs, and receipts. The utilization of authentic auditory English materials enabled learners to enhance their pronunciation, concentrate on listening comprehension, and increase their subject understanding. The employment of different types of auditory materials introduced students to know how other people from different backgrounds communicate, how they shift subjects in conversation, and how they express themselves using the incomplete structure of English. Using printed authentic English materials aimed to develop reading comprehension, vocabulary, and reading when they read through visual symbols and contextual clues. In order to be implemented in a particular instructional setting, the use of both materials must be coherent with course goals and teaching methodology to boost students' comprehensibility, confidence, language awareness, and learning motivation (Ebrahimpourtaher & Hamidi, 2015). Despite the effectiveness of authentic materials, textbooks did not mean to be ignored. Therefore, it depended on ESL/EFL teachers' appropriate methodology in designing instruction (Li & Zhou, 2018). Moreover, Cohen and Ishihara (2013) provided content that should be included in specific courses, for example, travelers finding information from a local resident, a foreigner consulting with a local doctor, or giving directions to a local taxi to increase communicative competence with different cultural awareness.

In the EIL context, since EIL materials involved other countries' cultures, Cortazzi and Jin (1999) classified cultural contents into three types used in language materials: target culture, source culture, and international target culture materials. First, target culture materials were the use of culture from countries where English was spoken as a first language. Second, source culture materials used learners' culture as teaching and learning content. Lastly, international target culture materials used a wide range of cultural practices from English- and non-English-speaking countries. Yuen (2011) also divided culture into four elements including products, practices, perspectives, and persons. Through this view, language is a system of code (products) used to represent ideas (perspectives) for the purpose of communication (practices) by different individuals (persons). The finding from Yuen (2011)'s study on English language teaching (ELT) materials in China revealed that textbooks used in secondary

schools had new tendencies to embrace Chinese learners' backgrounds as integral members of a global EIL community. However, in some ASEAN countries where a variety of English could be developed, materials are still needed to offer a wide range of cultures from different countries for learners to relate, compare, and present their own cultures to other people. As the Cambodian minister was aware of the use of English, it is the language for communicative purposes that should not be possessed by only inner circle countries (Kirkpatrick, 2006; Kirkpatrick & Lixun, 2020).

In the Thai context, according to Thumvichit (2018)'s study on the intercultural perspective of English language Teaching (ELT) course book for EIL, the findings of cultural content in reading text from several books (e.g. *Bridge 1*, *New World 1*, *English in Mind 1*, *Motivate! 1*, *Your Space 1*, *Message 1* and *Time Zone1*) revealed that there was a diversity of characters' nationality. Yet, native speakers' culture was generally prioritized. However, teachers' perceptions showed they were ready to accept the intercultural variety of English in the class, although available materials still could not meet the global demand. If teaching and learning materials used in Thailand tend to emphasize the English language of inner countries, Thai English learners may not be well prepared to use English for international communication with other non-native English speakers. Ramnath (2016) discussed and analyzed textbooks used for reading in Thai high schools. The chosen course books were *ICON 2*, *Weaving it Together 1 and 2*, and *Mega Goal 5*. The findings of those books could be concluded that they tended to represent inner circle countries such as western names, interaction, and native speakers' voices rather than Lingua as a Lingua Franca (ELF) features for EIL. However, as claimed by Snodin (2015), course materials with cultural integration designed within the Thai curriculum framework tended to improve students' communication, learning experience, critical thinking, and compassion for other cultures. In order to encourage a frame of worldview in students, relevant instructional materials are TV programs, films, newspapers, magazine articles, and nonfiction.

Looking into another perspective, English for specific purposes (ESP) encouraged some linguists to identify major components of students' particular needs in EFL contexts. Some countries developed their own ESP course books in response to their unique needs for the English language, attempting to represent local norms

rather than any inner circle countries' standard. Formulating English teaching material based on varieties of English in an actual setting was the force leading ESP to be internationalized (Ghobain, 2010). Ghobain (2010) investigated ESP students in medical schools on their beliefs and preferences of EIL and found that they had a positive attitude toward varieties of English with a level of today's English status awareness. Although, they still believed that native English was a 'correct' version of English. Also, Calvo Benzie (2017)'s study focuses on the listening materials of non-native accents (e.g., German, French, Polish, Chinese, and Spanish) in ESP class in the ELF setting. Two groups of students studied in Law and Tourism school, listening to audio material of Business English. The study's results indicated, regardless of the participant's field of study, that they accepted non-native speakers with different accents with the optimistic belief that they could speak well in English. However, some non-native accents were rated higher than one another.

Apart from teaching and learning materials, to be successful in language education in expanding circle countries, positive perceptions and attitudes of teachers and students toward either World Englishes, English as a lingua franca, or English as an international language is required due to aspects of economics, digital technology, and the media. Curran and Chern (2017) investigated pre-service English teachers' attitudes toward ELF by dividing ELF-related principles into four categories: the roles of English in communication, culture, and language, and the use of language in the class. They revealed that there was a request to use English more in class with increasing attention to students' global perspectives. Although a teacher preparation program did not have official content on a variety of English, they supported ELF characteristics and perspectives by emphasizing the use of English for real communication, respecting different varieties of English, and a willingness to educate about international communication with four fundamental skills (e.g., listening, speaking, writing, and reading).

Moreover, in terms of students' perceptions, Lee and Chen Hsieh (2018) studied students' perceptions toward EIL. They categorized EIL into four aspects, including the Current Status of English (CSE), Varieties of English (VE), Strategies for Multilingual and Multicultural communication (SMC), and English Speakers' Identity (ESI). The study's result showed that EIL users of cross-cultural contexts

were willing to accept different varieties of English, especially listening materials that contained an interaction between non-native English speakers. Furthermore, they were open-minded enough to adjust their conversational styles when they confronted multicultural communication. Regarding speakers' identity, they did not neglect their own identities while preferring to achieve native-like English. When people used the materials behind the screen, they encouraged them to comfortably use English to communicate with others since the identities might be kept anonymous (Tan & Rungrojsuwan, 2022). On the other hand, either positive or negative perception depended on the influence of each country's educational aims and social context. For example, Japanese students tended to have negative perception toward their own variety of English or Japanese-English (Tokumoto & Shibata, 2011).

In conclusion, many types of materials are related to English as an international language (EIL), although most commercial textbooks in Thailand focus on the Standard English of inner circle countries and cultures. However, with the support of technology (e.g., the internet and smart devices), students do not read and learn through only textbooks in and outside the class. Therefore, the materials play a crucial role in assisting students to understand and gain more knowledge about the course content. On the other hand, ESP classes and teaching materials of specific contents did not always rely on native English standards and culture but rather to fill local students' needs. The different degrees of exposure to varieties of English varied, and the attitudes and perceptions of teachers and students in expanding circle countries proved that they positively endorse varieties of English and ungrudgingly teach and be taught for intercultural communication and awareness of the role of today's English. Furthermore, further studies on digital reading on EIL materials by understanding how students read on EIL materials need to be conducted for English teachers to design specific reading instructional practices to promote a variety of English and intercultural awareness when all varieties of English have equal value.

In this study, English as an International language (EIL) materials are the digital texts that aid in the acquisition of learning EIL. Those resources contain one or more principles of EIL, such as a variety of English, students' L1, intercultural communication, being culturally neutral, and the current use of English. It can be an authentic EIL situation that increases pragmatic awareness. The sources of EIL

principles are a variety of resources such as webpages, e-books, multimedia, and social media.

Previous Studies of EIL Materials

During this decade, many research studies on English as an International Language (EIL) material have been widely carried out by non-native English speakers. Because English is the most commonly used language among people around the globe, English speakers from diverse social, educational, economic, and cultural backgrounds have used the language for a variety of purposes. EIL materials should be able to introduce how English is used differently in various contexts.

Imelwaty et al. (2021) used YouTube clips in which non-native speakers converse in English from many contexts as EIL materials to teach secondary school students to raise their awareness. The result revealed that the effectiveness of the video clip might depend on teachers' teaching methodologies to introduce EIL contexts, prevent misunderstandings, and prepare students to be aware of English as an international language when they go through the Internet.

Inayati et al. (2021) conducted a survey-based study regarding perceptions toward EIL materials. Although the researchers still confirmed that both teachers and students preferred the materials that include Standard English over the EIL-based materials, negative perceptions toward a variety of English did not occur. EIL materials still provide a sense of achievement, which can increase students' motivation to learn the current use of English. As the study's implication suggests, teachers who were open to and willing to use EIL materials in any form would promote awareness and practical ideas of EIL to their students in the classroom.

On the other hand, Tauchid et al. (2022)'s survey research based on the students in Asian countries' perspectives toward EIL circumstances. The findings revealed that Asian students preferred listening materials with non-native English speakers' interaction and accents. With the positive belief, the instructional materials should distribute EIL or a variety of Englishes. As long as the English language used in the materials was understandable, the students positively perceived EIL materials.

In conclusion, most teachers and students who are non-native speakers of English tend to accept a variety of Englishes, while many teachers want to increase the students' awareness through the use of EIL materials. Nevertheless, most of the studies did not cover all principles of EIL in pedagogy. In addition, it depends on the individual's context, teachers may present EIL intentionally, or students can see EIL materials in their own time due to the digital age.

Previous Studies of Digital Reading on EIL materials

Although the digital reading on EIL materials is under-researched, few studies could be related to. Acknowledging students' use of digital reading strategies, including encountering, engaging and evaluating EIL materials when using digital devices, is crucial to understanding their perception to expand an instructional practice for the particular context.

According to Chou (2011), students who were non-native speakers believed that digital devices limited their digital reading strategies. Nevertheless, most participants encountered the digital texts by searching for online English articles because it was simple to look up the definitions of a word. In addition to reading strategies, the study found that several factors influenced how students read English on digital devices, such as opportunity, reading purposes, or their second language proficiency.

J. S. Lee et al. (2021) conducted survey research on informal digital learning of English toward using EIL for receptive and productive materials. EIL materials such as YouTube videos with a variety of English accents and users gained positive perceptions from EFL teachers. Some of their participants frequently engaged more in receptive EIL materials than productive ones. Nonetheless, receptive and productive EIL materials had an equal impact on them becoming more tolerant in integrating EIL into the classroom.

Lee and Drajati (2019) also researched the relationship between how EFL students learn and utilize English outside of the classroom using digital devices and EIL materials. The findings revealed that the students engaged more in receptive EIL materials than productive materials relating to a variety of English and intercultural

communication. The more they encountered and engaged with the EIL materials, they would have greater degree of intercultural communicative strategies. The students who had never been to other foreign countries seemed to improve their intercultural communication through the use of digital devices.

Altaher (2020)'s study revealed that the engagement of multicultural videos has many benefits leading to positive perception. The survey showed that more than 88 percent of students engaged in the videos. They preferred intercultural communication due to the conversation style. Because of the students' English proficiency differences, the videos related to intercultural communication provided a new vocabulary, interesting global issues, and lifestyle and helped them to learn different grammatical features.



CHAPTER III

RESEARCH METHODOLOGY

This chapter outlines the design of this study's research methodology and procedures used to investigate the digital reading on English as an International Language (EIL) materials and perceptions toward digital reading on EIL materials for Thai undergraduate students. It includes the research design, participants, research instruments, research procedure, data collection, and data analysis.

Research Design

This study was exploratory research designed to investigate the digital reading on EIL materials and explore students' perceptions toward digital reading on EIL materials. EIL digital reading questionnaire and the semi-structured interview were implemented to collect data based on the digital reading on the EIL material framework.

Participants

The participants in this study were first-year, second-year, third-year, and senior-year Thai undergraduate students in the academic year of 2022, the second semester at the university in the northern part of Thailand. The participants were 299 Thai undergraduate students who majored in Aviation Business Management. The purposive sampling method was used to select the participants based on their nationality and school major. Whereas Creswell and Creswell (2017) stated that it was useful for studying a specific population when the participants possess unique characteristics to the study's objectives.

Taro Yamane's formula was applied to this study to determine the suitable number of participants. Of approximately 600 students enrolled in the aviation program, 240 participants were the smallest sample size, with an acceptable degree of sampling error of 0.05. In the beginning, the researcher intended to gather data from

240 aviation students. However, 299 students participated doing the questionnaire. Therefore, this study's total number of participants was two hundred and ninety-nine students.

Research Instruments

The present study included two instruments: (1) EIL digital reading questionnaire and (2) the semi-structured interview. Both instruments were conducted in Thai.

EIL Digital Reading Questionnaire

The first instrument was a close-ended questionnaire constructed to investigate the digital reading on EIL materials for Thai undergraduate students and explore Thai undergraduate students' perception toward the digital reading on EIL materials. The questionnaire (see Appendix A) was modified and adapted from Son (2015) and J. S. Lee et al. (2021)'s questionnaire. First, Son (2015)'s digital literacy questionnaire was designed to acknowledge students' frequency of usage and perceptions toward digital technologies. Second, Lee et al. (2021)'s questionnaire was appropriately organized into 3 sections to answer two research questions. The questions used 5 point-Likert scales with a level of frequency in section 2 and a level of agreement in section 3 for research questions 1 and 2, respectively. In order to reflect the local context of this study, some terms and descriptions of the scale from both questionnaires were used meaningfully to find students' levels of frequency and perceptions. In this study, the questionnaire was divided into three major sections:

Section 1: Background Information (Personal Profile)

Section 2: Digital Reading on EIL materials

Section 3: Perceptions toward Digital Reading on EIL materials

Within the questionnaire, there were 3 sections with 5 questions in total. Section 1 contained 2 questions focusing on the participants' background information,

such as academic year, and information about their digital materials usage. Section 2 had only 1 question with 32 sub-questions as self-rating questions. All of the sub-questions represented sub-components of encountering, engaging, and evaluating to know how often the participants used digital reading on EIL materials. The scale was divided as follows:

- 1 = Never
- 2 = Rarely
- 3 = Sometimes
- 4 = Frequently
- 5 = Very Frequently

Section 3 contained 2 questions. The first question was related to perceptions, while the second one was for participants to provide comments. The first question had 12 sub-questions on participants' perceptions toward digital reading on EIL materials. Five-point Likert scale format was used in this section. The scale format contained as follows:

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Uncertain
- 4 = Agree
- 5 = Strongly agree

Semi-Structured Interview

Constructing a semi-structured interview came with meaningful purposes. It was used to investigate more insightful information to triangulate with EIL digital reading questionnaire findings to answer both research questions.

An interview consisted of 12 open-ended questions representing sub-practices of EIL digital reading materials framework to know how students interact with EIL materials. The participants were purposively chosen for the interview to analyze descriptively through a thematic analysis methodology. The selection criteria were based on the range of time students used digital materials, including webpages, e-books, multimedia, and social media. Out of 10 students who were randomly asked the question, 3 participants with the highest usage in term of “year” of digital

materials would be selected for the semi-structured interview. This analysis method helped to capture and link the concerning data in transcription into meaningful themes, which could be applied to explore student experiences in an educational field (Terry et al., 2017).

The use of both research instruments could make the researcher gain comprehensive information to understand and acknowledge the frequent uses of digital reading on EIL materials and perceptions among Thai undergraduate students in the present study.

Research Procedure

There were two main phases of the research procedure. The first phase concerned the preparation and planning for the research framework and instruments. The second phase presented the implementation of the main study, EIL Digital Reading Materials Framework, as Table 1 illustrates the details of the research procedure.

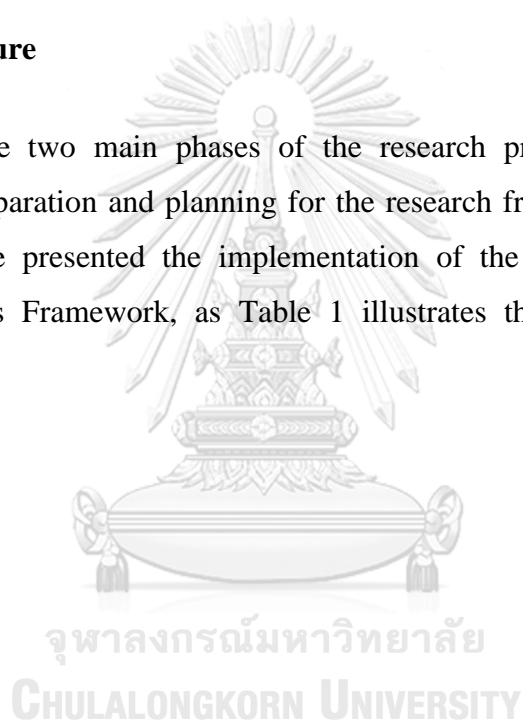


Table 1 The stages of Research Procedure

<p><u>Phase 1</u></p> <p>This phase is about the planning and preparation by exploring through the related documents in order to develop the research framework and main research instruments</p>	<p>Purposes</p>	<p>To study and synthesize most of the concerned documents to construct the research framework and instruments, such as EIL digital reading questionnaire and the semi-structured interview</p>
	<p>Procedures</p>	<p>Stage 1.1 To explore the documents relating to the topic</p> <p>Stage 1.2: Analyzing and studying the concepts and concerned documents</p> <p>Stage 1.3: Constructing the instruments</p> <ul style="list-style-type: none"> • Questionnaire Construction <ul style="list-style-type: none"> ○ validity (experts) ○ reliability (pilot study) • Semi-interview Construction <ul style="list-style-type: none"> ○ validity (experts) ○ reliability (pilot study)
	<p>Result</p>	<p>Completed the questionnaire and semi-structured interview questions with the relevant items, which are ready to administer</p>
<p><u>Phase 2</u></p> <p>This phase is about the implementation of the Digital Reading on EIL materials research instruments to analyze and report respectively</p>	<p>Purposes</p>	<p>To answer the research questions and achieve the research objectives of the study</p> <ol style="list-style-type: none"> 1. to investigate the digital reading on EIL materials 2. to explore students' perceptions toward the digital reading on EIL materials
	<p>Procedures</p>	<p>Stage 2.1: Administering the instruments</p> <p>Stage 2.2: Analyzing data</p> <p>Stage 2.3: Reporting the findings</p>
	<p>Result</p>	<p>Findings from the implementation of the main instruments based on the framework, which is to understand how students interact with the EIL materials so that it helps expand suitable instructional practices</p>

Phrase 1: Planning and Preparation

Stage 1.1: Exploring documents

In the first stage, the researcher sought many studies relating to digital reading once the researcher recognized the current trend of literacy. All interesting documents were organized into several specific sections, such as documents or studies relating to digital reading, English as an international language (EIL), instructional materials, and perceptions toward EIL and EIL materials.

Stage 1.2: Analyzing and studying the concepts and concerned documents

In the second stage, documents relating to digital reading, EIL materials, and recent studies in the field were reviewed inclusively to design the main framework of this study, as shown in Figure 1.

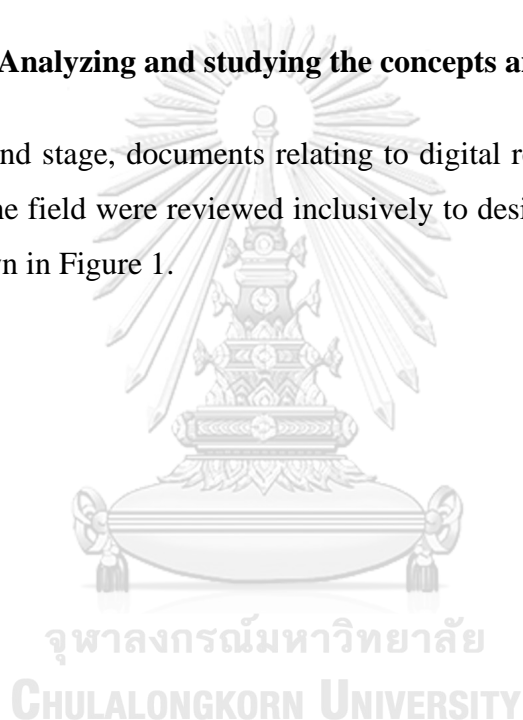
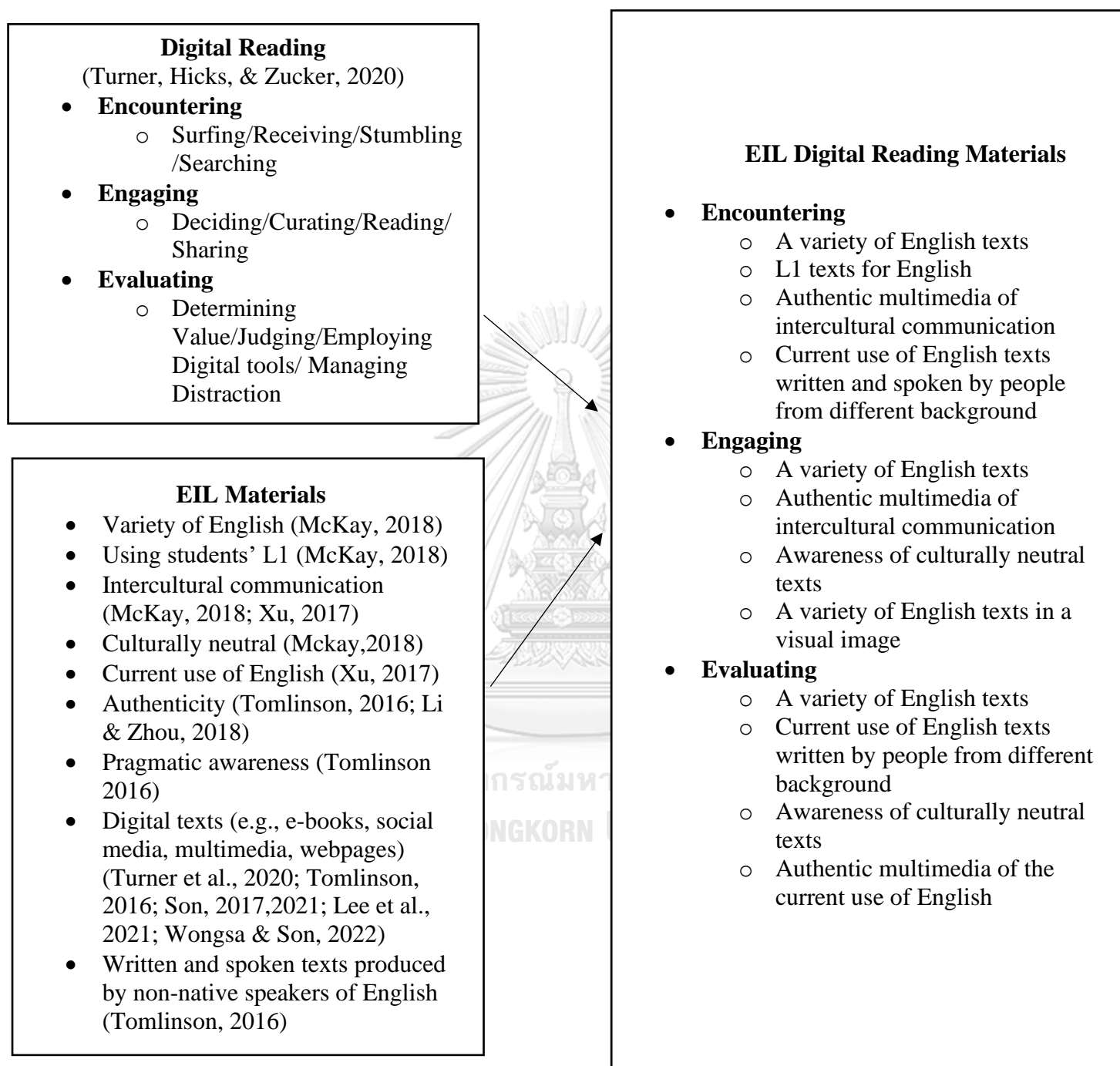


Figure 1: Conceptual Framework of EIL Digital Reading Materials



According to Figure 1, the Digital Reading by Turner, Hick & Zucker (2020) and English as an international language materials and previous studies from McKay, (2018), Xu (2017), Tomlinson (2016), and Li & Zhou (2018), Son (2017), Lee et al.

(2021), and Wongsas and Son (2022) were analyzed and reviewed as a guideline in constructing the conceptual framework and data collecting instruments.

Digital Reading on English as an International Language (EIL) materials of this study was a combination of digital reading framework and materials with EIL principles. The framework intended to apply encountering, engaging, and evaluating components to investigate the extent of the participants use digital reading through digital materials relating to a variety of English, the use of students' first language for English content, intercultural communication, being culturally neutral, and current use of English that written and spoken texts produced by non-native speakers of English. At the same time, the materials need to be a variety of digital texts in the form of webpages, multimedia, e-books, and social media involving authentic situations and increase pragmatic awareness.

This study aimed to construct exploratory instruments to investigate the digital reading on EIL materials and to explore students' perceptions toward the digital reading on EIL materials. Therefore, the documents from Turner, Hick & Zucker (2020), McKay (2018), Xu (2017), Tomlinson (2016), Li & Zhou (2018) Son (2017), Lee et al., (2021) and Wongsas and Son (2022) helped to elicit the required information to construct the instruments.

Stage 1.3: Constructing the Instruments

This section explained the construction process of the main instruments, including EIL digital reading questionnaires and the semi-structured interview. Then, both instruments were constructed based on the reviewed documents.

1.3.1 EIL Digital Reading Questionnaire Construction

The EIL digital reading questionnaire was divided into 3 major parts: the digital reading on EIL materials and the perceptions toward digital reading on EIL materials. In order to construct the conceptual framework of this study, the researcher reviewed, explored, and analyzed the concerned documents. The description of each framework component could help construct the EIL digital reading questionnaire for

this study. To construct the questionnaire items, they were to match the digital reading strategies with EIL principles (see Appendix B).

1.3.1.1 Content Validity

The vital step in constructing the instrument was its validation. Three experts evaluated the content validity. One of the relevant methods is checking the validity of the questionnaire by content experts (Salkind, 2010). There were two professors at the Language Institute, while another expert was a professor at the faculty of management in the Aviation Business Management program. The Index of Item Objective Congruence (IOC) with the questionnaire was sent to three experts to check the content validity of each questionnaire's item. IOC contained a three-point rating scale, including Incongruent (-1), Questionable (0), and Congruent (1). The implementation of corrections and adjustments would be applied after receiving comments and suggestions from three experts. Furthermore, every questionnaire item related to aviation since the participants were in the aviation program. In order to receive data quality, items had to be interesting and meaningful to engage participants (Dörnyei & Taguchi, 2009).

If it was found that the IOC index of the items in part one, two, and three were higher than 0.50, it would indicate that both parts of the questionnaire was acceptable and valid (Pinyoanuntapong, 2003, as cited in Sudsa-Ard & Chinwonno, 2012). However, sections 1, 2, and 3 were calculated separately to find the index of congruence. According to the result of the IOC evaluation form (see Appendix D), question 1 and 4 in section 1 and question 7.8 in section 2 needed to be revised based on the experts' comments. However, there were comments that the overall questionnaire should include more elements of digital materials and ignore some unnecessary questions. To take the comments into account, the researcher decided to delete questions 1, 3, 4, and 5, which may not be necessary to the research objectives. Question 6 was revised by changing from asking about the use of digital devices to digital materials to ensure that every participant had experience in using them. Question 7.8 in section 2 was revised based on experts' comments and expanded to

inform the specific digital materials. Therefore, the number of questions was shifted from 9 questions to 4 questions in total.

Table 2 Original and Revised version of Questionnaire based on Experts' comments

No.	Original Items	Revised Items
6 Section 1	คุณเคยใช้อุปกรณ์ดิจิทัลประเภทใด: ประเภท...../ระยะเวลา...../วัตถุประสงค์ What types of digital devices have you used?	2. นักศึกษาเคยใช้สื่อมานานแค่ไหน เว็บเพจ/อีบุ๊ก/โซเชียลมีเดีย/มัลติมีเดีย 1-3ปี/4-6ปี/7-10ปี/มากกว่า 10ปี How long do you use materials?
7.8 Section 2	ฉันกรองเนื้อหาในสื่อภาษาอังกฤษของหลาย ชาติด้านการบินบนอินเทอร์เน็ตควรรู้ว่าอ่าน อย่างไรและเวลาใด I filter texts in a variety of English aviation materials on the internet to know how to read and when to read.	11. คัดสรรข้อมูลจากอีบุ๊กว่าควรอ่านเวลาใด I filter information from e-books to know when to read.

EIL Digital Reading Questionnaire (Section 2)

After the researcher coordinated with one expert, sections 2 and 3 were revised accordingly. To shorten some statements, the term 'English as an International Language (EIL) materials related to aviation' was informed clearly at the top of the questionnaire.

Section 2's questions were expanded from 22 to 32 in order to include more digital materials' components while maintaining critical terms from the three experts. In Table 3, the following statements were revised due to improper word of choice, ambiguous statements, and a lack of clear reflection of the research framework.

Table 3 Revised and Expanded version of the Questionnaire

No.	Original Items	Revised Items
1	ฉันท่องอินเทอร์เน็ตเพื่อหาสื่อภาษาอังกฤษของ หลายชาติในยามว่าง I surf the internet to find a variety of English materials in my free time	1. หาข้อมูลเพื่อความเพลิดเพลินจากเว็บเพจ Surf information for amusement from the webpages 2. หาข้อมูลเพื่อความเพลิดเพลินจากอีบุ๊ก Surf information for amusement from e- books 3. หาข้อมูลเพื่อความเพลิดเพลินจากโซเชียลมีเดีย Surf information for amusement from social media 4. หาข้อมูลเพื่อความเพลิดเพลินจากมัลติมีเดีย Surf information for amusement from multimedia
2	ฉันได้รับสื่อด้านการบินภาษาอังกฤษที่บรรยาย เป็นภาษาไทยจากบนอินเทอร์เน็ต I receive aviation English materials with Thai descriptions on the internet	5. ได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษ จาก เว็บเพจ Receive information that contains both Thai and English from webpages
3	ฉันได้รับสื่อด้านการบินภาษาอังกฤษที่บรรยาย เป็นภาษาไทยจากเพื่อนในชุมชน I receive aviation English materials with Thai descriptions from a friend in the community	6. ได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษ จาก โซเชียลมีเดีย Receive information that contains both Thai and English from social media
4	ฉันกดลิงก์ที่เป็นสื่อทัศนภาพการสื่อสารระหว่าง วัฒนธรรมในสถานการณ์จริงด้านการบินจาก โซเชียลมีเดีย I click the links that are aviation audio-visual materials related to intercultural communication in real situations on social media	7. กดลิงก์ที่เป็นมัลติมีเดียเกี่ยวกับการสื่อสารระหว่าง วัฒนธรรมในสถานการณ์จริงขณะที่กำลังหาข้อมูลจาก โซเชียลมีเดีย Click the link that is the multimedia related to intercultural communication in real-life situation while information from social media
5	ฉันกดลิงก์ที่เป็นสื่อทัศนภาพการสื่อสารระหว่าง วัฒนธรรมในสถานการณ์จริงด้านการบินจาก อินเทอร์เน็ต I click the links that are aviation audio-visual materials about intercultural communication in real- life situations on websites	8. กดลิงก์ที่เป็นมัลติมีเดียเกี่ยวกับการสื่อสารระหว่าง วัฒนธรรมในสถานการณ์จริงขณะที่กำลังหาข้อมูลจาก เว็บเพจ Click the link that is the multimedia related to intercultural communication in real-life situation while finding information from webpages
6	ฉันค้นคว้าสื่อด้านการบินที่เขียนด้วยภาษาอังกฤษ ที่เป็นภาษานานาชาติ I search for aviation materials written in EIL	9. ค้นคว้าข้อมูลที่เขียนด้วยภาษาอังกฤษจาก เว็บเพจ Search information that is English written texts from webpages

7	ฉันค้นคว้าสื่อด้านการบินที่พูดด้วยภาษาอังกฤษที่เป็นภาษานานาชาติ I search for aviation materials spoken in EIL	10. ค้นคว้าข้อมูลที่เป็นบทพูดภาษาอังกฤษจากมัลติมีเดีย Search information that is English spoken texts from multimedia
9	ฉันจัดเก็บสื่อโสตทัศนสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงด้านการบิน เพื่อดูในเวลาที่เหมาะสม I save audio-visual aviation materials about intercultural communication in real-life situations in to watch at an appropriate time	12. จัดเก็บมัลติมีเดีย เช่นดาวนโหลดคลิป วิดีโอ เกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงเพื่อดูในเวลาที่เหมาะสมจากเว็บเพจ Curate multimedia such as downloading video clips related to intercultural communication in real-life situations to watch at appropriate times from webpages
10	ฉันจัดเก็บสื่อโสตทัศนสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงด้านการบินเพื่อค้นคว้าต่อ I save audio-visual aviation materials about intercultural communication in real-life situations to continue searching	13. จัดเก็บมัลติมีเดีย เช่นดาวนโหลดคลิป วิดีโอ เกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงเพื่อดูในเวลาที่เหมาะสมจาก โซเชียลมีเดีย Curate multimedia such as downloading video clips related to intercultural communication in real-life situations to watch at appropriate times from social media
11	ฉันอ่านสื่อภาษาอังกฤษด้านการบินที่เป็นกลางทางวัฒนธรรมและเสริมสร้างความตระหนักรู้ถึงความหมายเชิงบริบท อย่างละเอียด I read English materials thoroughly that are culturally neutral and increase pragmatic awareness	14. อ่านข้อมูลอย่างละเอียดเพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจากอีบุ๊ก Read information thoroughly to be aware of culturally neutral texts from e-books
12	ฉันอ่านสื่อภาษาอังกฤษด้านการบินที่เป็นกลางทางวัฒนธรรมและที่เสริมสร้างความตระหนักรู้ถึงความหมายเชิงบริบท อย่างผ่านๆ I skim English materials that are culturally neutral and increase pragmatic awareness	15. อ่านข้อมูลอย่างผ่านๆเพื่อตระหนักรู้ ถึงความเป็นกลางทางวัฒนธรรมจากมัลติมีเดีย เช่นคลิปวิดีโอที่มีคำบรรยายภาษาอังกฤษ Skim information to be aware of culturally neutral texts from multimedia such as a video with English subtitle
13	ฉันเผยแพร่ภาพด้านการบินที่มีภาษาอังกฤษเป็นภาษานานาชาติบรรยายแบบสาธารณะ I post aviation visual images that have EIL descriptions publicly	16. เผยแพร่ภาพที่สร้างขึ้นเองโดยมีคำบรรยายภาษาอังกฤษแบบสาธารณะบนโซเชียลมีเดีย Share self-made images with English captions publicly on social media 17. เผยแพร่โดยแชร์ภาพที่มีคำบรรยายภาษา อังกฤษ จากโพสต์คนอื่นแบบสาธารณะบน โซเชียลมีเดีย Share images with English caption from other people's posts
14	ฉันส่งต่อภาพการบินที่มีภาษาอังกฤษเป็นภาษานานาชาติบรรยาย ผ่านช่องทางส่วนตัว I share aviation visual images that	18. ส่งภาพที่สร้างขึ้นเองโดยมีคำบรรยาย ภาษาอังกฤษ ผ่านช่องทางส่วนตัวบนโซเชียลมีเดีย เช่น เฟสบุ๊กแมสเซนเจอร์

have EIL descriptions through a private channel	Send self-made images with English captions through private channels on social media such as Facebook messenger
	19. ส่งต่อโดยแชร์ภาพที่มีคำบรรยายภาษาอังกฤษจากโพสต์คนอื่นผ่านช่องทางส่วนตัวบน โซเชียลมีเดีย เช่น เฟสบุ๊ก แอสมสเซนเจอร์
	Send images with English captions from other people's posts through private channels on social media such as Facebook messenger
	20. แสดงความคิดเห็นในโพสต์บนโซเชียลมีเดีย Comment on social media posts
15. ฉันกำหนดคุณค่าของสื่อการบินภาษาอังกฤษจากแหล่งต่างๆบนอินเทอร์เน็ต ว่ามีประโยชน์หรือไม่ I determine the value of aviation English materials from various sources on the internet, whether they are useful or not	21. ประเมินคุณค่าของข้อมูลจากเว็บเพจว่า มีประโยชน์ ในช่วงเวลาใด หรือไม่ Determine the value of information from webpages, whether it is useful or not during a certain period of time
	22. ประเมินคุณค่าของข้อมูลจาก อีบุ๊กว่ามีประโยชน์ ในช่วงเวลาใด หรือไม่ Determine the value of information from e-books, whether it is useful or not during certain period of time
	23. ประเมินคุณค่าของข้อมูลจากโซเชียลมีเดียว่ามีประโยชน์ ในช่วงเวลาใด หรือไม่ Determine the value of information from social media, whether it is useful or not during certain period of time
	24. ประเมินคุณค่าของข้อมูลจากมัลติมีเดียว่ามีประโยชน์ ในช่วงเวลาใด หรือไม่ Determine the value of information from multimedia, whether it is useful or not during certain period of time
16. ฉันวิจารณ์ สื่อด้านการบินที่เขียนด้วยภาษาอังกฤษเป็นภาษานานาชาติ I criticize aviation materials that are written in EIL	25. วิเคราะห์ข้อมูลที่เขียนด้วยภาษาอังกฤษจาก โซเชียลมีเดีย Criticize information written in English from social media
17. ฉันเปรียบเทียบสื่อด้านการบินที่เขียนด้วยภาษาอังกฤษเป็นภาษานานาชาติ กับแหล่งอื่นๆ I compare aviation materials that are written in EIL with other sources	26. เปรียบเทียบข้อมูลที่เขียนด้วยภาษาอังกฤษกับแหล่งอื่นๆ ที่มีข้อมูลคล้ายกันจากเว็บเพจ Compare information written in English with similar information on other sources from webpages
18. สมาร์ทโฟนเหมาะกับการดูสื่อทัศนด้านการบิน	27. ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิด

	<p>ภาษาอังกฤษที่เป็นกลางทางวัฒนธรรม สำหรับฉัน</p> <p>A smartphone is appropriate for watching English audio-visual aviation materials that are culturally neutral</p>	<p>พจนานุกรม หรือการแบ่งหน้าจอ เพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจาก เว็บเพจ</p> <p>Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from webpages</p>
19	<p>คอมพิวเตอร์เหมาะกับการดูสื่อทัศนด้านการบินภาษาอังกฤษที่เป็นกลางทางวัฒนธรรม สำหรับฉัน</p> <p>The computer is appropriate for watching English audio-visual aviation materials that are culturally neutral for me</p>	<p>28. ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือไฮไลต์คำเพื่อตระหนัก รู้ถึงความเป็นกลางทางวัฒนธรรมจากอีบุ๊ก</p> <p>Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from e-books</p>
20	<p>สมาร์ทโฟนเหมาะกับการอ่านข้อความด้านการบินภาษาอังกฤษที่เป็นกลางทางวัฒนธรรม สำหรับฉัน</p> <p>A smartphone is appropriate for reading English texts related to aviation that is culturally neutral for me</p>	<p>29. ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือ การแบ่งหน้าจอเพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจากโซเชียลมีเดีย</p> <p>Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from social media</p>
21	<p>คอมพิวเตอร์เหมาะกับการอ่านข้อความด้านการบินภาษาอังกฤษที่มีที่เป็นกลางทางวัฒนธรรม สำหรับฉัน</p> <p>A computer is appropriate in reading English texts related to aviation that is culturally neutral for me.</p>	<p>30. ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือการแบ่งหน้าจอ เพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจาก มัลติมีเดีย</p> <p>Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from multimedia</p>
22	<p>ฉันจัดการสิ่งรบกวน เมื่อฟังสื่อเสียงด้านการบินที่พูดภาษาอังกฤษเป็นภาษานานาชาติในสถานการณ์จริง</p> <p>I manage distraction when listening to real-life aviation situations in EIL audio</p>	<p>31. จัดการสิ่งรบกวนโดยทำหลายอย่างพร้อมกันเมื่อดูมัลติมีเดียในสถานการณ์จริงที่มีคำบรรยายภาษาอังกฤษ</p> <p>Manage distraction by multitasking when watching multimedia in a real-life situation with English subtitles</p> <p>32. จัดการสิ่งรบกวนเมื่อดูมัลติมีเดียที่มีคำบรรยายภาษาอังกฤษ เช่นเปิดโหมดเครื่องบิน หรือแอปปิดกั้นโฆษณา</p> <p>Manage distraction when watching multimedia with English subtitle in real-life situation such as opening airplane mode or use adblocker app</p>

Perception Questionnaire (Section 3)

Section 3, with 12 questions, was also revised due to inappropriate word of choice. All statements were shortened, and some provided an example for participants to understand. Table 4 shows a revision of the terms to be similar to those in section 2 questions.

Table 4 Revised and Expanded version of Perception Questionnaire

No.	Original Items	Revised Items
1	ฉันสนุกกับการท่องอินเทอร์เน็ตเพื่อหาสื่อด้านการบินภาษาอังกฤษของหลายชาติ ยามว่าง I enjoy surfing the internet to find a variety of English materials in my free time.	สนุกกับการหาข้อมูลเพื่อความเพลิดเพลิน Enjoy surfing information for amusement
2	ฉันยินดีที่ได้รับสื่อภาษาอังกฤษด้านการบินที่บรรยายภาษาไทยทั้งจากอินเทอร์เน็ตและจากเพื่อน I am willing to receive aviation English materials with Thai descriptions on websites and from friends.	ยินดีที่จะได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษ Be pleased to receive information that contains both Thai and English
3	ฉันชอบที่จะกดลิงค์ที่เป็นสื่อโสตทัศนศาสตร์การสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงด้านการบินบนอินเทอร์เน็ต I like clicking the links that are aviation audio-visual materials about intercultural communication in real-life situations.	ฉันชอบที่จะคลิกลิงค์ที่เป็นมัลติมีเดียเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงขณะที่กำลังหาข้อมูล Prefer to click links that are multimedia related to intercultural communication in real-life situation
4	ฉันยินดีที่จะค้นคว้าสื่อด้านการบินที่เขียนด้วยภาษาอังกฤษเป็นภาษานานาชาติ I am willing to search for aviation materials that are written and spoken in EIL	ยินดีที่จะค้นคว้าข้อมูลที่เขียนด้วยภาษาอังกฤษ Be pleased to search information that is English written texts
5	ฉันเข้าใจวิธีการกรองเนื้อหาด้านการบินในสื่อภาษาอังกฤษของหลายชาติบนอินเทอร์เน็ต ว่าควรอ่านเวลาใด I understand how to filter texts in a variety of English aviation materials on the internet to know how to read and when to read	รู้ประโยชน์ของการคัดสรรข้อมูล Know the benefit of filtering information
6	ฉันชอบจัดเก็บสื่อโสตทัศนศาสตร์การสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงด้านการบิน I like saving audio-visual aviation materials about intercultural	ฉันชอบการจัดระเบียบข้อมูลโดยจัดเก็บมัลติมีเดีย เช่น ดาวนโหลดคลิปวิดีโอ เกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริง Prefer to organize information by

	communication in real-life situations	curating multimedia such as downloading video clips related to intercultural communication in real-life situation
7	ฉันสนุกกับการอ่านสื่อด้านการบินภาษาอังกฤษที่เป็นกลางทางวัฒนธรรม และเสริมสร้างความตระหนักถึงความหมายเชิงบริบท I enjoy reading English aviation materials that are culturally neutral and increase pragmatic awareness	สนุกกับการอ่านข้อมูลโดยหลากหลายวิธีเพื่อตระหนักรู้ถึงความเป็น กลางทางวัฒนธรรม Enjoy reading information in various ways to be aware of culturally neutral texts
8	ฉันชอบส่งต่อภาพด้านการบินที่มีภาษาอังกฤษเป็นภาษานานาชาติบรรยาย I like sharing aviation visual images that have EIL descriptions	ชื่นชอบที่จะแชร์ภาพที่มีคำบรรยายภาษาอังกฤษ Prefer to share pictures with English captions
9	ฉันรู้สึกถูกคุกคามเมื่อคนอื่นสั่งให้กำหนดคุณค่าของสื่อด้านการบินภาษาอังกฤษจากแหล่งต่างๆ บนอินเทอร์เน็ตว่ามีประโยชน์หรือไม่ I feel threatened when other people ask me to determine the value of English aviation materials from various sources on the internet, whether they are useful or not	เต็มใจที่จะประเมินคุณค่าของข้อมูลว่ามีประโยชน์ในช่วงเวลาใดหรือไม่ Be willing to determine value of information whether it is useful or not during certain period of time
10	ฉันยินดีที่จะวิจารณ์หรือเปรียบเทียบสื่อด้านการบินที่เขียนด้วยภาษาอังกฤษเป็นภาษานานาชาติ I am willing to criticize or compare aviation materials that are written in EIL.	ยินดีที่จะวิจารณ์ข้อมูลที่เขียนด้วยภาษาอังกฤษกับแหล่งอื่นๆ ที่มีข้อมูลคล้ายกัน Be pleased to criticize information written in English with similar information on other sources
11	ฉันสามารถเลือกใช้อุปกรณ์ดิจิทัลได้อย่างเหมาะสมและคล่องแคล่ว สำหรับการดูสื่อโซเชียลที่ขึ้นภาษาอังกฤษด้านการบินที่มีเนื้อหาเป็นกลางทางวัฒนธรรมได้ I can choose to use digital devices appropriately and fluently for watching English audio-visual and reading texts related to aviation that are culturally neutral	สามารถเลือกใช้แอปพลิเคชันหรือซอฟต์แวร์ได้อย่างเหมาะสมและคล่องแคล่วเพื่อช่วยในการตระหนักรู้ความเป็นกลางทางวัฒนธรรม Be able to use apps or software appropriately and energetically to help be aware of culturally neutral texts
12	ฉันตระหนักถึงการจัดการสิ่งรบกวน เมื่อฟังสื่อเสียงที่พูดภาษาอังกฤษเป็นภาษานานาชาติในสถานการณ์จริงด้านการบินว่าควรปฏิบัติเมื่อไร I am aware of when to manage distraction, when listening to real-life aviation situations in EIL audio	สามารถจัดการสิ่งรบกวนเมื่อไรก็ตามที่ฉันมีสติ Be able to manage distraction anytime when using multimedia

1.3.1.2 Construct validity

Another vital step for the questionnaire construction was construct validity. It was to measure the underlying construct the EIL digital reading questionnaire was intended to measure. There were several types of methods used to capture the theoretical construct accurately. 1. Item-total correlations (ITC), 2. Pearson correlations, 3. Exploratory factor analysis (EFA), and 4. Confirmatory factor analysis (CFA) was used to validate sections 2 and 3 of the questionnaires.

1) Item-total Correlations

Item-total correlation (ITC) determined the strength of the association between each item and the overall score of the questionnaire. If the individual item did not correlate with the overall score, that item might not measure the same construct as other items. If the individual item did not correlate with the overall score, that item might not measure the same construct as other items. The minimum acceptable of item-total correlation should be at least 0.30 to indicate a positive and significant level (DeVellis, 2017). For the item-total correlation of each question, the ranges were 0.47 to 0.88 in Section 2 and 0.54 to 0.81 in Section 3. It meant that all of the items were above the minimum acceptable correlation. Both sections' components significantly indicated a strong relationship at 0.01. Table 5 shows the item-total correlation for each component.

Table 5 Item-total Correlation Analysis Results (n=32)

Sections	Components	Item-total correlation
2	Encountering (Q1 – Q10)	0.82
	Engaging (Q11 – Q20)	0.90
	Evaluating (Q21 – Q32)	0.89
3	Perception toward Encountering (Q1 – Q4)	0.89
	Perception toward Engaging (Q5 – Q8)	0.90
	Perception toward Evaluating (Q9 – Q12)	0.88

2) Pearson Correlations

The Pearson Product Moment Correlations coefficient was decided to use because it helped to find correlations of mean scores of the three components. Its capacity test the relationship's strength between 2 variables (Mackey & Gass, 2012). Table 6 revealed the relationship or correlation of mean scores of three components of digital reading on EIL materials. With the strongest relationship, it was between engaging and evaluating ($r = 0.89$). Nevertheless, all the components are strongly correlated ($0.78 < r < 0.89$). Table 6 shows the relationship between components from Section 2.

Table 6 The Relationship between Components of EIL Digital Reading Materials (n = 32)

	Encountering	Engaging	Evaluating
Encountering (Q1-Q10)	1.00	0.80**	0.78**
Engaging (Q11-Q20)	0.80**	1.00	0.89**
Evaluating (Q21-32)	0.78**	0.89**	1.00

**Correlation is significant at the level 0.01 level

The strongest correlated components were between perception toward encountering and engaging ($r = 0.87$). Table 7 reveals that correlation among three components of digital reading on EIL materials ($0.78 < r < 0.87$) indicated that all components are significantly correlated at the 0.01 level.

Table 7 The Relationship between Components of Perceptions toward EIL Digital Reading Materials (n=32)

	Perception toward Encountering	Perception toward Engaging	Perception toward Evaluating
Perception toward Encountering (Q1-Q4)	1.00	0.87**	0.84**
Perception toward Engaging (Q5-Q8)	0.87**	1.00	0.85**
Perception toward Evaluating (Q9-Q12)	0.84**	0.85**	1.00

**Correlation is significant at the level 0.01 level

3) Exploratory Factor Analysis

Exploratory factor analysis (EFA) is a method to identify the factors explaining the variation in participants' responses to research instruments, such as the Likert-type scale (Phakiti, 2018). EFA is suitable for a large sample size requiring at least 200 participants or 5 to 10 participants per questionnaire item (O'Brien, 2014). Due to the sample size of a pilot study ($n=32$), main study participants ($n=299$) were used to confirm dimensions within a set of observed variables and uncover the structure of relationships among variables. This study separated the EIL digital reading questionnaire into 2 sections: EFA of items in section 2 related to the use of digital reading on EIL materials and EFA of items in section 3 related to perceptions toward digital reading on EIL materials.

EFA of items related to digital reading on EIL materials in Section 2

The initial step for EFA is the Kaiser-Meyer-Olkin and Bartlett's test to assess the adequacy of the data for conducting the analysis. For the section with 32 questions related to the use of digital reading on EIL materials, KMO and Bartlett's test were used. Based on the result of the test of this study in Table 8, the results are 0.965 ($X^2 = 10570.28$, $df. = 496$, $P < .001$). It could indicate that the correlation matrix possessed properties to implement further factor analysis.

Table 8 KMO and Bartlett's Test ($n=299$)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.97
Bartlett's Test of Sphericity	Approx. Chi-Square	10570.28
	df	496
	Sig.	<.001

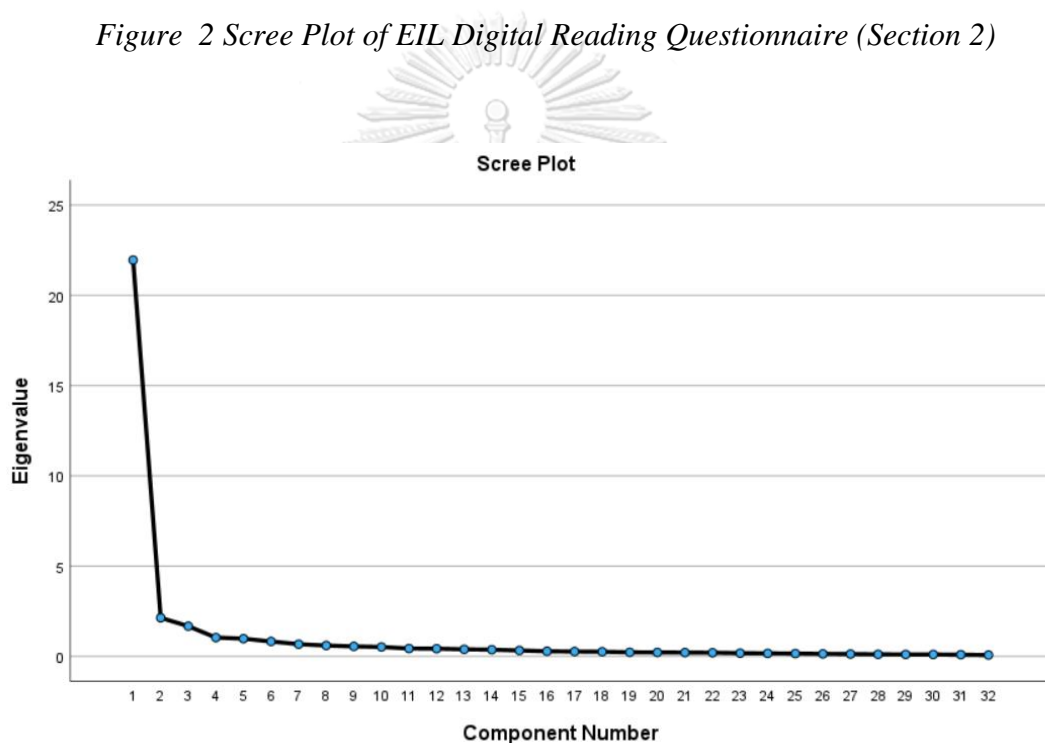
The study found 3 latent factors with Eigenvalues ranging from 7.06 to 9.55. Component 1 could best describe data variance at 26.65 percent, while components 2 and 3 were 25.58 percent and 19.70 percent, respectively. In Table 9, all components explained data variation at 71.87 percent of the Cumulative variance. In addition, the factor extraction relied on the visual interpretation of the Screen Plot. In Figure 2, the scree plot displayed the eigenvalues plateaued 3 components or factors.

Table 9 Eigenvalue in EFA of EIL Digital Reading Questionnaire (Section2)

Component	Eigenvalue	% of Variance	% of Cumulative
1	9.55	26.65	26.65
2	9.15	25.58	52.17
3	7.06	19.70	71.87

N = 299

Figure 2 Scree Plot of EIL Digital Reading Questionnaire (Section 2)



For the factor loading, each question, which had a factor loading higher than 0.45, could be formed into a component for the Section 2. According to Phakiti (2018), factor loading's cutoff point should be between 0.30 and 0.50 as the general standard. It should have at least 4 to 5 items in a component unless it will be eliminated (Brown, 2015) . As a result, three components included encountering, engaging, and evaluating EIL materials from 32 questions of Section 2. All components contained more than 5 items. The range of overall factor loading is 0.473 to 0.812. Therefore, all of the questions passed both criteria without deleting any questions. However, some items were in the undetermined components, and the

confirmation factor analysis would be used to help confirm the relationship between components. The following components shown below are ordered by the amount of total variance.

Component 1: Evaluating

Evaluating EIL materials contains 13 questions, including items 20 to 32, with a factor loading between 0.617 to 0.738. The Eigenvalue of the component is 9.55 or 26.55 percent of the total variance, and the reliability coefficient is 0.97, as shown in Table 10. However, item 20 was determined to be in the component of engaging EIL materials instead of the evaluating component.

Table 10 Number of Items and Factor Loading of Evaluating

	Item	Factor Loading
1	Q32 จัดการสิ่งรบกวนเมื่อดูมัลติมีเดียที่มีคำบรรยายภาษาอังกฤษ เช่นเปิด โหมดเครื่องบิน หรือแอปปิดกั้นโฆษณา Manage distraction when watching multimedia with English subtitle in real-life situation such as opening airplane mode or use adblocker app	0.738
2	Q30 ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือการแบ่ง หน้าจอ เพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจาก มัลติมีเดีย Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from multimedia	0.729
3	Q25 วิเคราะห์ข้อมูลที่ใช้เขียนด้วยภาษาอังกฤษจาก โซเชียลมีเดีย Criticize information written in English from social media	0.726
4	Q28 ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือไฮไลต์คำ เพื่อตระหนัก รู้ถึงความเป็นกลางทางวัฒนธรรมจากอีบุ๊ก Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from e-books	0.691
5	Q23 ประเมินคุณค่าของข้อมูลจากโซเชียลมีเดียว่ามีประโยชน์ ในช่วงเวลา ใด หรือไม่ Determine the value of information from social media whether it is useful or not during certain period of time	0.685
6	Q31 จัดการสิ่งรบกวนโดยทำหลายอย่างพร้อมกันเมื่อดูมัลติมีเดียใน สถานการณ์จริงที่มีคำบรรยายภาษาอังกฤษ Manage distraction by multitasking when watching multimedia in a real-life situation with English subtitles	0.681

7	Q29 ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือ การแบ่งหน้าจอเพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจากโซเชียลมีเดีย Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from social media	0.679
8	Q24 ประเมินคุณค่าของข้อมูลจากมัลติมีเดียว่ามีประโยชน์ ในช่วงเวลาใดหรือไม่ Determine the value of information from multimedia whether it is useful or not during certain period of time	0.677
9	Q26 เปรียบเทียบข้อมูลที่เขียนด้วยภาษาอังกฤษกับแหล่งอื่นๆ ที่มีข้อมูลคล้ายกันจากเว็บเพจ Compare information written in English with similar information on other sources from webpages	0.672
10	Q21 ประเมินคุณค่าของข้อมูลจากเว็บเพจว่า มีประโยชน์ ในช่วงเวลาใดหรือไม่ Determine the value of information from webpages whether it is useful or not during certain period of time	0.662
11	Q27 ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือการแบ่งหน้าจอ เพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจาก เว็บเพจ Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from webpages	0.643
12	Q20 แสดงความคิดเห็นในโพสต์บนโซเชียลมีเดีย Comment on social media posts	0.634
13	Q22 ประเมินคุณค่าของข้อมูลจาก อีบุ๊กว่ามีประโยชน์ ในช่วงเวลาใดหรือไม่ Determine the value of information from e-books whether it is useful or not during certain period of time	0.617
Eigenvalue = 9.55 % of Variance = 26.65 Cronbach's Alpha Coefficient = 0.97		

Component 2: Engaging

Engaging EIL materials consist of 9 questions (item 11, 17, 16, 2, 12, 14, 13, 18, and 15) presented in Table 11. The range of factor loading is between 0.504 – 0.765. This component's variance is 9.55, or 26.65 percent of the total variance, and its reliability coefficient is 0.97. However, item 2 was undetermined to appear in the engaging components rather than the component of encountering.

Table 11 Number of Items and Factor Loading of Engaging

	Item	Factor Loading
1	Q11 คัดสรรข้อมูลจากอีบุ๊กว่าควรอ่านเวลาใด Filter information from e-books to know when to read	0.765
2	Q17 ส่งภาพที่สร้างขึ้นเองโดยมีคำบรรยาย ภาษาอังกฤษผ่านช่องทางส่วนตัวบนโซเชียลมีเดีย เช่น เฟสบุ๊กแมสเซนเจอร์ Send self-made images with English captions through private channels on social media such as Facebook messenger	0.743
3	Q16 เผยแพร่ภาพที่สร้างขึ้นเองโดยมีคำบรรยายภาษาอังกฤษแบบสาธารณะบนโซเชียลมีเดีย Share self-made images with English captions publicly on social media	0.72
4	Q2 หาข้อมูลเพื่อความเพลิดเพลินจากอีบุ๊ก Surf information for amusement from e-books	0.698
5	Q12 จัดเก็บมัลติมีเดีย เช่น ดาวน์โหลดคลิป วิดีโอเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงเพื่อดูในเวลาที่เหมาะสมจากเว็บเพจ Curate multimedia such as downloading video clips related to intercultural communication in real-life situation to watch in appropriate time from webpages	0.691
6	Q14 อ่านข้อมูลอย่างละเอียดเพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจากอีบุ๊ก Read information thoroughly to be aware of culturally neutral texts from e-books	0.682
7	Q13 จัดเก็บมัลติมีเดีย เช่น ดาวน์โหลดคลิป วิดีโอเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงเพื่อดูในเวลาที่เหมาะสมจากโซเชียลมีเดีย Curate multimedia such as download video clips related to intercultural communication in real-life situation to watch in appropriate time from social media	0.664
8	Q18 เผยแพร่โดยแชร์ภาพที่มีคำบรรยายภาษาอังกฤษจากโพสต์คนอื่นแบบสาธารณะบนโซเชียลมีเดีย Share images with English caption from other people's posts	0.573
9	Q15 อ่านข้อมูลอย่างผ่านๆ เพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจากมัลติมีเดีย เช่น คลิปวิดีโอที่มีคำบรรยายภาษาอังกฤษ Skim information to be aware of culturally neutral texts from multimedia such as a video with English subtitle	0.504
Eigenvalue = 9.15 % of Variance = 25.58 Cronbach's Alpha Coefficient = 0.94		

Component 3: Encountering

Encountering EIL materials contains 10 questions (item 6, 5, 3, 4, 9, 1, 10, 7, 8, 19), with a factor loading range between 0.473 – 0.812. This component has a variance of 7.06 or 19.70 percent of the total variance, and its reliability coefficients are 0.95 shown in Table 12. In contrast, item 19 is the predetermined item that should be in the engaging component.

Table 12 Number of Items and Factor Loading of Encountering

	Item	Factor Loading
1	Q6 ได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษ จากโซเชียลมีเดีย Receive information that contains both Thai and English from social media	0.812
2	Q5 ได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษ จากเว็บเพจ Receive information that contains both Thai and English from webpages	0.806
3	Q3 หาข้อมูลเพื่อความเพลิดเพลินจากโซเชียลมีเดีย Surf information for amusement from social media	0.764
4	Q4 หาข้อมูลเพื่อความเพลิดเพลินจากมัลติมีเดีย Surf information for amusement from multimedia	0.73
5	Q9 ค้นคว้าข้อมูลที่เขียนด้วยภาษาอังกฤษจาก เว็บเพจ Search information that is English written texts from webpages	0.686
6	Q1 หาข้อมูลเพื่อความเพลิดเพลินจากเว็บเพจ Surf information for amusement from the webpages	0.649
7	Q10 ค้นคว้าข้อมูลที่เป็นบทพูดภาษาอังกฤษจาก มัลติมีเดีย Search information that is English spoken texts from multimedia	0.58
8	Q7 คลิกลิงก์ที่เป็นมัลติมีเดียเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงขณะที่กำลังหาข้อมูลจากเว็บเพจ Click the link that is the multimedia related to intercultural communication in real-life situation while finding information from webpages	0.579
9	Q8 คลิกลิงก์ที่เป็นมัลติมีเดียเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงขณะที่กำลังหาข้อมูลจากโซเชียลมีเดีย Click the link that is the multimedia related to intercultural communication in real-life situation while information from social media	0.572
10	Q19 ส่งต่อโดยแชร์ภาพที่มีคำบรรยายภาษาอังกฤษ จากโพสต์คนอื่นผ่านช่องทางส่วนตัวบน โซเชียลมีเดีย เช่น เฟสบุ๊ก แอสมสเซนเจอร์ Send images with English captions from other people's	0.473

posts through private channels on social media such as Facebook messenger
Eigenvalue = 7.06
% of Variance = 19.70
Cronbach's Alpha Coefficient = 0.95

2. EFA of items in section 3 related to perceptions toward digital reading on EIL materials

In section 3, with 12 questions related to perceptions toward digital reading on EIL materials, KMO and Bartlett's test was used to discover whether factors were extractable from the current data set. Due to the EIL digital reading materials framework, it had 3 main components. 3 components predetermined this section analysis. The KMO and Bartlett's test result, shown in Table 13, is 0.97 ($X^2 = 3971.87$, $df = 66$, $P < .001$). It could indicate that the current data set was suitable for underlying factors.

Table 13 KMO and Bartlett's Test (n=299)

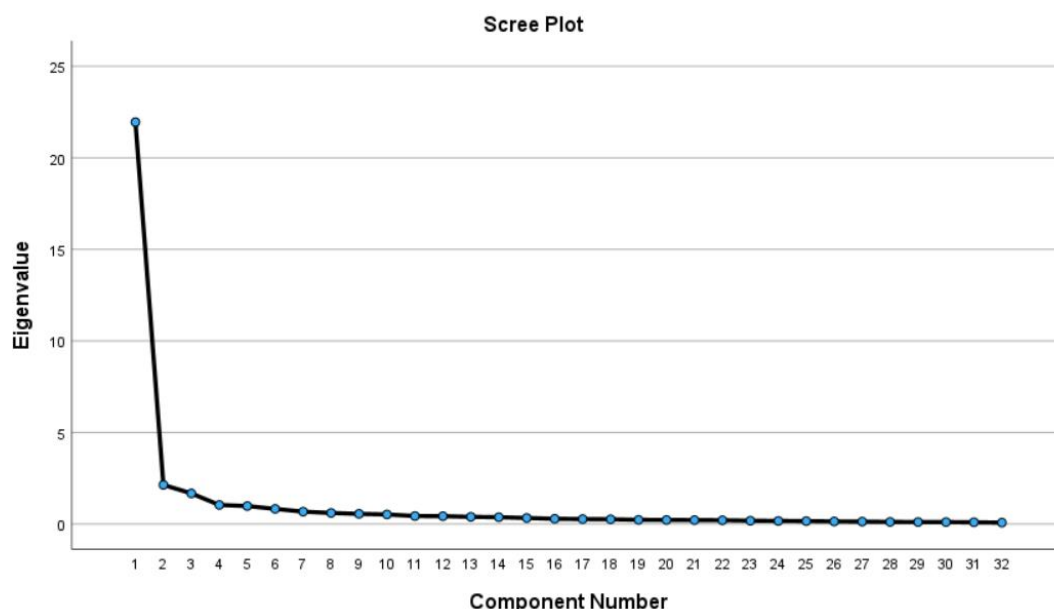
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.97
Bartlett's Test of Sphericity	Approx. Chi-Square
	3974.87
	df
	66
	Sig.
	<.001

The study found 3 components with eigenvalues ranging from 2.78 to 3.63. Component 1 best describes data variance at 30.26 percent and components 2 and 3 at 29.97 percent and 23.13 percent, respectively. Table 11 could determine the potential 3 components, and data variation was at 83.36 percent Cumulative variance. At the same time, the scree plot revealed the eigenvalue's leveling-off points of 3 components in Figure 3.

Table 14 Eigenvalue in EFA of EIL Digital Reading Questionnaire (Section 3)

Component	Eigenvalue	% of Variance	% of Cumulative
1	3.63	30.26	30.26
2	3.60	29.97	60.23
3	2.78	23.13	83.36

Figure 3 Scree Plot of EIL Digital Reading Questionnaire (Section 3)



Regarding the factor loading of the questionnaire's Section 3, the factor loading of 12 questions is higher than 0.50, which is the cutoff point for this section. Since there are 3 components related to perception, including encountering, engaging, and evaluating on EIL materials, 3 is the fixed number of predetermined components. However, the current study's findings revealed a factor with 2 items. According to Brown (2015), 2 items in a component were possible; it should be noted as a limitation. Section 3's range of overall factor loading is 0.564 – 0.839. Therefore, every question passed the criteria without deleting any questions. Nevertheless, some items were in the undetermined components. The confirmation factor analysis using the chi-squared test would be employed to confirm the relationship between

components. The following components shown below are ordered by the amount of total variance.

Component 1: Perception toward Encountering

Perception toward encountering EIL materials contains 5 questions (item 2, 4, 1, 5, and 3) shown in Table 15. The range of factor loading is between 0.564 – 0.839. This component's variance, called the eigenvalue, is 3.63, or 30.26 percent of the total variance, and its reliability coefficient is 0.94. On the other hand, item 5 was undetermined to be in this component. It should be noted that it should be in perception toward the engaging component.

Table 15 Number of Items and Factor Loading of Perception toward Encountering

	Item	Factor Loading
1	Q2 ยินดีที่จะได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษ Be pleased to receive information that contains both Thai and English	0.839
2	Q4 ยินดีที่จะค้นคว้าข้อมูลที่เขียนด้วยภาษาอังกฤษ Be pleased to search information that is English written texts	0.679
3	Q1 สนุกกับการหาข้อมูลเพื่อความเพลิดเพลิน Enjoy surfing information for amusement	0.677
4	Q5 รู้ประโยชน์ของการคัดสรรข้อมูล Know the benefit of filtering information	0.591
5	Q3 ชื่นชอบที่จะคลิกลิงก์ที่เป็นมัลติมีเดียเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงขณะที่กำลังหาข้อมูล Prefer to click links that are multimedia related to intercultural communication in real-life situation	0.564
Eigenvalue = 3.63		
% of Variance = 30.26		
Cronbach's Alpha Coefficient = 0.94		

Component 2: Perception toward Engaging

Perception toward Engaging EIL materials, as the result, has 5 questions (item 6, 7, 9, 11, and 12). The range of factor loading of the items is 0.579 – 0.813. The component reveals a variance of 3.60 and 29.97 percent of the variance. At the same time, its reliability coefficient is 0.94, presented in Table 16. However, this component did not predetermined items 9, 11, and 12.

Table 16 Number of Items and Factor Loading of Perception toward Engaging

	Item	Factor Loading
1	Q6 ชอบการจัดระเบียบข้อมูลโดยจัดเก็บมัลติมีเดีย เช่นดาวน์โหลดคลิปวิดีโอที่มีคำบรรยายภาษาอังกฤษ เกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริง Prefer to organize information by curating multimedia such as downloading video clips related to intercultural communication in real-life situation	0.813
2	Q7 สนุกกับการอ่านข้อมูลโดยหลากหลายวิธีเพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรม Enjoy reading information in various ways to be aware of culturally neutral texts	0.676
3	Q9 เต็มใจที่จะประเมินคุณค่าของข้อมูลว่ามีประโยชน์ในช่วงเวลาใดหรือไม่ Be willing to determine value of information whether it is useful or not during certain period of time	0.644
4	Q11 สามารถเลือกใช้แอปพลิเคชันหรือซอฟต์แวร์ได้อย่างเหมาะสมและคล่องแคล่วเพื่อช่วยในการตระหนักรู้ความเป็นกลางทางวัฒนธรรม Be able to use apps or software appropriately and energetically to help be aware of culturally neutral texts	0.633
5	Q12 สามารถจัดการสิ่งรบกวนเมื่อไรก็ตามที่ใช้มัลติมีเดีย Be able to manage distraction anytime when using multimedia	0.579
	Eigenvalue = 3.60 % of Variance = 29.97 Cronbach's Alpha Coefficient = 0.94	

Component 3: Perception toward Evaluating

Perception toward evaluating EIL materials consists of 2 questions (item 8, and 10). Item 8 gains a factor loading of 0.773, while item 10 has 0.701. The component's variance is 2.78 or 23.13 percent of the variance, with 0.85 of the reliability coefficients, shown in Table 17. Nevertheless, item 9, 11, and 12 should be in this component as predetermined. All of the items in the questionnaire would be tested by chi-squared test to find the significance of the relationship according to the EIL digital reading materials framework.

Table 17 Number of Items and Factor Loading of Perception toward Evaluating

	Item	Factor Loading
1	Q8 ชื่นชอบที่จะแชร์ภาพที่มีคำบรรยายภาษาอังกฤษ Prefer to share pictures with English captions	0.773
2	Q10 ยินดีที่จะวิจารณ์ข้อมูลที่เขียนด้วยภาษาอังกฤษกับ แหล่งอื่นๆที่มี ข้อมูลคล้ายกัน Be pleased to criticize information written in English with similar information on other sources	0.701
Eigenvalue = 2.78 % of Variance = 23.13 Cronbach's Alpha Coefficient = 0.85		

Confirmatory factor analysis (CFA) is one of the effective methods to confirm and measure a common component. The method needs a large group of participants as same as EFA (Phakiti, 2018). However, the chi-squared test, part of CFA, was the only test used in this study for sections 2 and 3 of the EIL digital reading questionnaire. The chi-square test was one of the most used statistical data analyses for determining if there was the significance of association between two or more categorical variables when being compared.

For Section 2, with 32 questions shown in Table 18, the chi-squared test indicates a statistically significant relationship between encountering and engaging ($X^2 = 2306.84$, $df = 1254$, $P < .001$), encountering and evaluating ($X^2 = 2406.51$, $df = 1386$, $P < .001$), and engaging and evaluating ($X^2 = 2406.51$, $df = 1386$, $P < .001$).

Table 18 Result of Chi-Squared Test (n = 299)

Components	X^2	df	P-value
Encountering*Engaging	2306.84	1254	<0.001
Encountering*Evaluating	2406.51	1386	<0.001
Engaging*Evaluating	3066.27	1596	<0.001

For Section 3, with 12 questions shown in Table 19, the chi-squared test of components related to perceptions reveals significant association between perception

of encountering and engaging ($X^2 = 1360.38$, $df = 169$, $P < .001$), encountering and evaluating ($X^2 = 1187.06$, $df = 169$, $P < .001$), and engaging and evaluating ($X^2 = 1278.11$, $df = 169$, $P < .001$). The p-value between components for both sections in the questionnaire was determined to be less than 0.001.

Table 19 Result of Chi-Squared Test (n = 299)

Components	X^2	df	P-value
Encountering*Engaging	1360.38	169	<0.001
Encountering*Evaluating	1187.01	169	<0.001
Engaging*Evaluating	1278.11	169	<0.001

1.3.1.3 Pilot Study of EIL Digital Reading Questionnaire

A pilot study was another vital step in constructing the digital reading questionnaire items before conducting large-scale quantitative research. To test the feasibility of research questions, a pilot study was used or tried out with the participants who were not the actual participants of this study. However, they were in the Logistics and Supply Chain Management program, where they shared some similar courses with Aviation students. The instrument was distributed to 32 selected participants. These participants had approximately fifteen minutes to complete the questionnaire during the class.

After receiving the data, it was analyzed through the use of Cronbach's alpha (α) to find reliability. The alpha could be interpreted into four levels: (1) unacceptable level is when alpha is less than 0.6, (2) low level is alpha less than 0.7, (3) moderate to a high level is when alpha is between 0.8 and 0.9 and (4) high level is above than 0.9 (Murphy and Davidshofer, 1998 as cited in Peterson, 1994). Therefore, if the reliability result of the questionnaire was higher than 0.80, it indicated that the questionnaire was at an acceptable level of reliability. The Pearson Product Moment Correlations coefficient was used and described in the construct validity section.

Based on the pilot study result, Cronbach's alpha of section 2 and section 3 of the questionnaire in Table 20 were 0.98 and 0.94, respectively. It could be interpreted

that both sections in the questionnaire were at a high acceptable level of reliability. For the item-total correlation, the ranges were 0.47 to 0.88 in section 2 and 0.54 to 0.81 in section 3. It meant that all of the items were above the minimum acceptable correlation. Both sections' components significantly indicated a strong relationship at 0.01. Therefore, the questionnaire would not be revised any further.

Table 20 The Reliability Coefficient of Pilot Study

Section	Questionnaire	Cronbach's Alpha (The Reliability Coefficient)
2	Using Digital Reading on EIL materials	
	Encountering (Q1 – Q10)	0.94
	Engaging (Q11 – Q20)	0.94
	Evaluating (Q21 – Q32)	0.96
	Overall	0.98
3	Perceptions toward digital reading on EIL materials	
	Encountering (Q1 – Q10)	0.82
	Engaging (Q11 – Q20)	0.81
	Evaluating (Q21 – Q32)	0.86
	Overall	0.94

1.3.2 Semi-structured Interview Construction

An interview (see Appendix E) was another instrument for this study. The semi-structured interview was constructed based on the conceptual framework and the digital reading questionnaire findings.

1.3.2.1 Content Validity

The index of item objective congruence (IOC) was also used in the semi-structured interview questions for evaluating content validity. The number of experts and rate scale were the same as in the questionnaire construction process. There was a professor from the Aviation Business Management program, while the other two experts were professors at Language institute. The Index of Item Objective Congruence (IOC) with the questionnaire was sent to 3 experts to check the content

validity of each questionnaire's item. IOC contained a three-point rating scale, including Incongruent (-1), Questionable (0), and Congruent (1). Comments and suggestions from the experts improved the validity of the interview questions. When some items in the IOC evaluation form received a mean score less than 0.5, it meant that the item needed to be revised according to experts' comments. Based on the IOC evaluation (see Appendix G) form for the interview questions presented in Table 21, questions 5 and 11 had a mean score of less than 0.5, which needed to be revised.

Table 21 Original and Revised version of Interview Questions

No.	Original Items	Revised Items
5	คุณคิดว่าการกรองเนื้อหาในสื่อภาษาอังกฤษของ หลายชาติสำคัญอย่างไร How important do you think it is to filter texts from a variety of English materials?	คุณคัดสรรข้อมูลในสื่อจากอินเทอร์เน็ตอย่างไร How do you filter information from e- books?
11	คุณใช้อุปกรณ์อะไรในการดูสื่อโสตทัศนศึกษา การbinที่ไม่อ้างอิงถึงวัฒนธรรม ใดๆ และที่เสริมความตระหนักถึงความหมายเชิง บริบท What digital devices do you use to watch audio-visual materials that are culturally neutral and increase pragmatic awareness?	แอปพลิเคชันหรือซอฟต์แวร์อะไร เช่น เปิด พจนานุกรม หรือ แบ่งหน้าจอ ที่ทำให้ตระหนักรู้ถึง ความเป็นกลางทางวัฒนธรรม What applications or software (e.g., opening a dictionary or splitting the screen) do you use to be aware of culturally neutral information?

After the researcher coordinated with an expert, the remaining questions were revised accordingly. Some terms were changed due to the complexity of words and inappropriate terms that may not reflect the study framework. Some questions were added with an example to enhance the understanding of students as presented in Table 22.

Table 22 Original and Revised version of Interview Questions

No.	Original Items	Revised Items
1	<p>คุณคิดเห็นอย่างไรเกี่ยวกับการท่องอินเทอร์เน็ตเพื่อหาสื่อภาษาอังกฤษของหลายชาติด้านการบิน ในยามว่าง</p> <p>How do you think about surfing a variety of English materials on the internet in your free time?</p>	<p>คุณคิดเห็นอย่างไรเกี่ยวกับการหาสื่อด้านการบินเพื่อความเพลิดเพลิน</p> <p>What do you think about surfing a variety of English aviation materials for amusement?</p>
2	<p>คุณคิดเห็นอย่างไร เมื่อได้รับสื่อภาษาอังกฤษด้านการบินที่ใช้ภาษาไทยอธิบายบนอินเทอร์เน็ต และจากเพื่อน</p> <p>How do you think about receiving materials that use your first language to explain on a website or from a friend?</p>	<p>คุณคิดเห็นอย่างไรเมื่อได้รับสื่อด้านการบินที่มีทั้งภาษาไทยและภาษาอังกฤษ</p> <p>What do you think about receiving materials that have both Thai and English language?</p>
3	<p>เพราะเหตุใดคุณถึงกดลิงก์ต่างๆ ที่เป็นสื่อสโตนทัศน์การสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงด้านการบินบนอินเทอร์เน็ตหรือโซเชียลมีเดีย</p> <p>Why do you click links that are audio-visual materials related to intercultural communication in real situations on websites or social media?</p>	<p>เพราะเหตุใดคุณถึงกดลิงก์ต่างๆ ที่เป็นสื่อมัลติมีเดียด้านการบินที่เกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงขณะกำลังหาข้อมูลจากเว็บเพจหรือโซเชียลมีเดีย</p> <p>Why do you click links that are aviation multimedia (e.g., downloading video clips) related to intercultural communication in real-life situation while finding information whether it is from webpages or social media?</p>
6	<p>เพราะเหตุใดคุณจึงจัดเก็บสื่อสโตนทัศน์การสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงด้านการบิน</p> <p>Why do you save audio-visual materials related to intercultural communication in real situations?</p>	<p>เพราะเหตุใดคุณจึงจัดเก็บสื่อมัลติมีเดียด้านการบิน เช่น การดาวน์โหลดคลิปวิดีโอที่เกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงจากเว็บเพจหรือโซเชียลมีเดีย</p> <p>Why do you save multimedia, such as downloading videos related to intercultural communication in real-life situations from webpages or social media?</p>
7	<p>กลยุทธ์การอ่านประเภทใด ที่คุณใช้อ่านสื่อภาษาอังกฤษด้านการบิน ที่ไม่อ้างอิงถึงวัฒนธรรมใดๆ และที่เสริมความตระหนักถึงความหมายเชิงบริบท</p> <p>What are the reading strategies that you used to read materials that contain culturally neutral texts and increase pragmatic awareness?</p>	<p>กลยุทธ์การอ่านประเภทใด เช่น อ่านอย่างละเอียดหรืออย่างผ่านๆ ที่คุณใช้กับสื่อด้านการบินภาษาอังกฤษ เพื่อตระหนักรู้ความเป็นกลางทางวัฒนธรรม</p> <p>What reading strategies (e.g., reading thoroughly or skimming) do you use for English aviation multimedia to be aware of culturally neutral information?</p>
8	<p>เพราะเหตุใด คุณจึงส่งต่อภาพที่ใช้ภาษาอังกฤษ</p>	<p>คุณเคยส่งต่อโดยแชร์ภาพที่มีคำบรรยายภาษาอังกฤษ</p>

	เป็นภาษานานาชาติด้านการบินให้กับผู้อื่น Why do you decide to share visual images with a variety of English descriptions with others?	บนโซเชียลมีเดียหรือไม่ เพราะเหตุใด Have you ever shared images with English captions on social media? Why?
9	คุณพิจารณาสื่อภาษาอังกฤษของหลายชาติด้านการบินบนอินเทอร์เน็ตว่ามีประโยชน์หรือไม่อย่างไร How do you know whether or not a variety of English materials on the internet are useful?	คุณประเมินคุณค่าของสื่อด้านการบินภาษาอังกฤษของนานาชาติจากเว็บเพจว่ามีประโยชน์หรือไม่อย่างไร How do you determine the value of the materials from webpages whether it is useful or not?
10	เพราะเหตุใด คุณจึงวิจารณ์และเปรียบเทียบสื่อที่เขียนด้วยภาษาอังกฤษเป็นภาษานานาชาติด้านการบินจากอินเทอร์เน็ตต่างๆ Why do you criticize and compare EIL materials on websites?	เพราะเหตุใดคุณจึงวิจารณ์และเปรียบเทียบสื่อด้านการบินที่เขียนด้วยภาษาอังกฤษจากโซเชียลมีเดียหรือเว็บเพจ Why do you criticize and compare information from social media or webpages
12	คุณจัดการสิ่งรบกวนรอบข้างอย่างไร เมื่อฟังสื่อเสียงที่พูดภาษาอังกฤษเป็นภาษานานาชาติด้านการบินในสถานการณ์จริง How do you manage distraction when listening to audio that uses English as an international language in real situations?	คุณจัดการสิ่งรบกวนอย่างไรเมื่ออ่านเว็บเพจหรือดูมัลติมีเดียที่มีคำบรรยายภาษาอังกฤษด้านการบินภาษาอังกฤษของนานาชาติ How do you manage distraction when watching multimedia with English subtitle?

1.3.2.2 Pilot Study of Interview Questions

The pilot study of the semi-structured interview was a useful process of conducting a qualitative study which helped to highlight the improvisation before implementing the main study.

One student who spent the most time on digital materials was purposefully selected from the participants to join the semi-structured interview. The interview ended up taking less time than expected via a video conferencing program. To prevent misunderstanding the term “English as an International Language (EIL) materials,” the researcher explained with examples to ensure they provided accurate answers before beginning the main study's interview. It also shortened the questions since they knew the term “information” referred to EIL materials. As a result of the pilot study, some questions needed to be revised to gain more information. Question 4 should be revised as shown in Table 23. For the original version of Question 4, the student could

not remember what terms she used in the past, so the researcher did not gain any meaningful information.

Table 23 Original and Revised version of Interview Questions

No.	Original Items	Revised Items
4	คำที่คุณพิมพ์ในโปรแกรมค้นหา (เสิร์ชเอนจิน) เพื่อที่จะหาสื่อที่เป็นภาษาอังกฤษเป็นภาษานานาชาติด้านการบิน คืออะไร What do you type in search engines to find English as an international language materials?	คุณค้นหาสื่อที่ภาษาอังกฤษของนานาชาติเกี่ยวกับอะไรโดยใช้เสิร์ชเอนจิน เช่น สื่อเขียน หรือ บทพูด ภาษาอังกฤษ What information have you searched by using the search engine? (e.g., English spoken or written texts)

Phrase 2: Implementation of the Main Study

Stage 2.1: Administering the Instruments

After the EIL digital reading questionnaire and the semi-structured interview were revised based on the experts' comments and the pilot study, the course lecturer was asked to distribute the questionnaire to the aviation students. He purposefully chose participants for the study from all 4 years of the Aviation Business Management program. The number of distributions was 299 Thai undergraduate students. In order to triangulate data, 3 participants were also purposefully selected based on years of using digital materials (webpages, e-books, multimedia, and social media) for the semi-structured interview.

Stage 2.2: Analyzing the Data

At this stage, it was the requirement of investigation. All data from the EIL digital reading questionnaire and the semi-structured interview were analyzed and evaluated. Through the use of the SPSS program, descriptive statistics were used to investigate the answer to this study's research questions. Furthermore, item-total correlation (ITC), Pearson correlations, exploratory factor analysis and confirmatory factor analysis (chi-squared test) were used to validate the instruments. Then, the data from the semi-structured interview were analyzed by the thematic analysis method.

Stage 2.3: Reporting the Study's Findings

The findings were presented descriptively as descriptive statistics with mean score (M) and standard deviation (S.D.) of three components, shown in the table. First, the tables revealed the use of digital reading and perceptions on EIL materials of Thai undergraduate students. The item-total correlation was also reported for the main study to validate the instruments. Next, the interview data were used to triangulate with the questionnaire results and gain in-depth information about students' EIL digital reading strategies. Finally, discussion and future research recommendations were provided based on the results for other researchers interested in this topic. The outcomes from this study may assist in establishing relevant tools for investigating digital reading on EIL materials and expanding instructional practices.

Data Collection

In the procedure of data collection, it took two weeks to collect data from participants because the professor at the university in the north of Thailand needed students of particular years to attend the class. The EIL digital reading questionnaire and the semi-interview did not use the similar procedure as described below

Questionnaire

The revised or final version of the EIL digital reading questionnaire was distributed to the 299 students who were the sample for this study by purposive sampling method. The course teacher showed a QR code leading to the Google Form on the board at the end of the class for year 1 and 2 students. The participants who majored in aviation business management were selected to respond to the questionnaire for fifteen minutes. To ensure that everyone answers all the items, they should finish it before leaving the class. Unfortunately, due to the smoke from the forest fire in northern Thailand, the university decided to conduct the class online. For year 3 and 4 students, the Google form link was purposefully sent to the line group of aviation students.

Semi-Structured Interview

After the questions for the semi-structured interview were validated, the course teacher randomly asked 10 students from 4 years to talk with the researcher via a chatting application. 4 students were purposefully selected based on the highest range of time using digital materials, including webpages, multimedia, e-books, and social media. There were 2 students with outstanding years of experience joining the private semi-structure interview while the other 2 had a similar range of time using digital materials. In order to have 3 participants, the researcher chose to conduct the interview for both of them individually. The one who provided much information was selected to report in this study. All of the students did not take more than forty minutes via video conferencing program. The students were asked to answer 12 questions about their digital reading strategies on EIL materials. Noting and recording were utilized for later analysis to ensure questionnaire data accuracy, which also helped elicit the study's findings.

Data Analysis

The data collected from both EIL digital reading questionnaire and semi-structured interview were analyzed using different statistics suited to each type of instrument. The data analysis aims to help answer this study's research questions as follows

Research Question 1: To what extent do Thai undergraduate students use digital reading practices on EIL materials?

Research Question 2: What are the perceptions of Thai undergraduate students toward digital reading on EIL materials?

To answer both of the research questions of this study, descriptive statistics were applied in terms of mean score, and standard deviation (S.D.) for the questionnaire data as quantitative data. With the application of different statistics, they could explicit research findings appropriately. Next, the qualitative data from the interview was transcribed, coded, and analyzed using the Thematic Analysis Method in each individual transcript. Then, data from the semi-structured interview and

questionnaire were triangulated to ensure the data and findings' accuracy, reliability, and confirmation. As a summary of data analysis, Table 24 was provided in detail as follows:

Table 24 Data Analysis Method for Each Research Question

Research Questions	Research Objectives	Instruments	Analysis
(1) To what extent do Thai undergraduate students use digital reading on EIL materials?	(1) To investigate the digital reading on EIL materials for Thai undergraduate students	EIL Digital Reading Questionnaire	Descriptive Statistics
		Semi-Structured Interview	Thematic Analysis
(2) What are the perceptions of Thai undergraduate students toward digital reading on EIL materials?	(2) To explore Thai undergraduate students' perception toward the digital reading on EIL materials	EIL Digital Reading Questionnaire	Descriptive Statistics
		Semi-Structured Interview	Thematic Analysis

CHAPTER IV

RESULTS

This chapter presents qualitative and quantitative results from the EIL digital reading questionnaire and the semi-structured interview. There are three sections divided to report the background of the students and the results of research questions 1 and 2 as follows:

Background of the students

Using digital reading on EIL materials

Perceptions toward digital reading on EIL materials

Background of the students

Table 25 shows the number of respondents. It could be seen that the highest number of participants was from the third year (29.10%) because the questionnaire link was sent directly to the specific Line group of the students. Although fourth-year students received the questionnaire from their Line group, they were in the internship period.

Table 25 The frequency and percentage of the students classified by their academic year

Academic year	Frequency (f)	Percentage (%)
First	66	22.10
Second	79	26.40
Third	87	29.10
Fourth	67	22.40

n = 299

According to Table 26, it was classified by the year of using each type of digital material. It shows that students had more than 10 years (64.50%) of experience using webpages, while they had 7-10 years (31.80%) of experience using E-books. For social media, the majority of students had used it for more than 10 years (42.50%). Similarly, they had used multimedia for over 10 years (57.90%). Therefore, students have used a variety of materials for more than 10 years. However, the

number of students who used E-books for over 10 years was the lowest compared to other digital materials.

Table 26 *The Frequency and Percentage of Students Classified by Year of Using Digital Materials*

Year of using digital materials	Frequency (f)	Percentage (%)
Webpages		
1 – 3 years	7	2.30
4 – 6 years	17	5.70
7 – 10 years	82	27.40
More than 10 years	193	64.50
E-books		
1 – 3 years	48	16.10
4 – 6 years	81	27.10
7 – 10 years	95	31.80
More than 10 years	75	25.10
Social Media		
1 – 3 years	23	7.70
4 – 6 years	48	16.10
7 – 10 years	101	33.80
More than 10 years	127	42.50
Multimedia		
1 – 3 years	15	5
4 – 6 years	24	8
7 – 10 years	87	29.10
More than 10 years	173	57.90
n = 299		

Result of the 1st Research Question

Research Question 1: To what extent do Thai undergraduate students use digital reading on EIL materials?

The research question aimed to investigate digit reading on EIL materials for Thai undergraduate students. To answer the research question, the questionnaire's findings were shown in terms of descriptive statistics, including mean score (\bar{x}) and standard deviation (S.D.) Subsequently, the findings from the semi-structured interview analyzed through the thematic analysis method were presented to support the questionnaire's findings. Furthermore, item-total correlation is shown in the table

to validate the questionnaire items while descriptive statistics answer the research question.

As a overall mean score of each component, it was found in Table 27 that the component of encountering received the highest mean score ($M = 3.93$, $SD = 0.78$). On the other hand, the component of evaluating gained the lowest mean score ($M = 3.62$, $SD = 0.91$). The range of item-total correlation is 0.82 to 0.88. All items indicated a high consistency between individual items and the total score.

Table 27 *The Summary of Descriptive Statistics and Item-Total Correlation of Digital Reading on EIL Materials*

Main Components	M	SD	Meaning	Item-total correlation
Encountering	3.93	0.78	Frequently	0.82
Engaging	3.52	0.93	Frequently	0.88
Evaluating	3.62	0.91	Frequently	0.87

Note. $N=299$, Never ($M = 1.00 - 1.79$), rarely ($M = 1.80 - 2.59$), sometimes ($M = 2.60 - 3.39$), frequently ($M = 3.40 - 4.19$), very frequently ($M = 4.20 - 5.00$)

In Table 28, two statements received the highest scores, which are item 3 “Surf information for amusement from social media ($M = 4.23$, $SD = 0.97$)” and item 6 “Receive information that contains both Thai and English from social media ($M = 4.23$, $SD = 0.86$).” An item with the lowest score, however, revealed that students sometimes surfed EIL information for amusement from e-books ($M = 3.27$, $SD = 1.13$). The range of item-total correlation within encountering is .61 to .79, indicating the questionnaire is consistent and meaningful to the overall score.

Table 28 *The Descriptive Statistics and Item-Total Correlation of Encountering EIL Materials*

Statements	M	SD	Meaning	Item-total correlation
1. Surf information for amusement from the webpages	3.93	0.99	Frequently	0.71
2. Surf information for amusement from e-books	3.27	1.13	Sometimes	0.61
3. Surf information for amusement from social media	4.23	0.97	Very Frequently	0.66
4. Surf information for amusement from multimedia	4.08	0.95	Frequently	0.72
5. Receive information that contains both Thai and English from webpages	4.18	0.90	Frequently	0.69
6. Receive information that contains both Thai and English from social media	4.23	0.86	Very Frequently	0.62
7. Click the link that is the multimedia related to intercultural communication in real-life situation from webpages	3.75	0.96	Frequently	0.79
8. Click the link that is the multimedia related to intercultural communication in real-life situation from social media	3.78	1.01	Frequently	0.76
9. Search information that is English written texts from webpages	3.96	0.97	Frequently	0.74
10. Search information that is English spoken texts from multimedia	3.89	1.01	Frequently	0.79

Note. $N=299$, Never ($M = 1.00 - 1.79$), rarely ($M = 1.80 - 2.59$), sometimes ($M = 2.60 - 3.39$), frequently ($M = 3.40 - 4.19$), very frequently ($M = 4.20 - 5.00$)

It was similar to the semi-structured interview findings. The students often encountered EIL materials in their daily life. Digital reading on EIL materials, such as social media, tended to influence their reading practices to surf around. The following statements are examples of Thai undergraduate students' responses:

Student#1: Using social media is much easier now than before, especially with digital materials like TikTok. It contains people from different race and languages. The most

often thing I do is to surf information from social media on Twitter where they post news.

Student#2: If I have free time after work, I will surf for EIL materials on social media very frequently.

Student#3: I often look for entertainment by scrolling endlessly on social media when I'm free.

It was also found that the students received EIL materials very frequently for particular reasons. They revealed that most social media such as Twitter or Facebook profiles and the page they have been following provided a post in their native language and English. It made the information easier to understand.

Student#1: When I do not understand some words, we hear them at first. Even if we try to translate them, it might not be accurate. But if there is a Thai version, we can understand it immediately.

Student# 2: This [materials with two languages] makes me read both English and Thai, or both English vocabulary and Thai meanings together in one. Mostly, I receive materials by myself because I have followed these kinds of information already.

Student# 3: I often receive materials in the form of news from Twitter where there are translations of the news with the English version on top and Thai version below. I feel that it is useful to know translations of words that I have never encountered before.

Table 29 reveals that the students frequently sent images with English captions from other people's posts through private channels on social media ($M = 3.73$, $SD = 1.00$). It means they shared EIL information by sending them directly as a sub-practice of engaging. At the same time, the students sometimes shared self-made images with English captions publicly ($M = 3.39$, $SD = 1.24$) and commented on posts on social media ($M = 3.39$, $SD = 1.21$). They occasionally filtered EIL information from e-books ($M = 3.39$, $SD = 1.13$). Thus, the three items had identical mean scores, which are the lowest. For item-total correlation, the range is 0.71 to 0.81, indicating the positive relationship between individual items and the total score.

Table 29 *The Descriptive Statistics and Item-Total Correlation of Engaging EIL Materials*

Statements	M	SD	Meaning	Item-total correlation
11. Filter information from e-books to know when to read	3.39	1.13	Sometimes	0.79
12. Curate multimedia such as downloading video clips related to intercultural communication in real-life situation to watch in appropriate time from webpages	3.60	1.08	Frequently	0.79
13. Curate multimedia such as download video clips related to intercultural communication in real-life situation to watch in appropriate time from social media	3.60	1.11	Frequently	0.75
14. Read information thoroughly to be aware of culturally neutral texts from e-books	3.54	1.07	Frequently	0.81
15. Skim information to be aware of culturally neutral texts from multimedia such as a video with subtitle	3.63	0.97	Frequently	0.79
16. Share self-made images with English caption publicly on social media	3.39	1.24	Sometimes	0.75
17. Send self-made images with English caption through private channel on social media such as Facebook messenger	3.41	1.23	Frequently	0.77
18. Share images with English caption from other people's posts publicly	3.55	1.17	Frequently	0.78
19. Send images with English captions from other people's posts through private channel on social media such as Facebook messenger	3.73	1	Frequently	0.78
20. Comment on social media posts	3.39	1.21	Sometimes	0.71

Note. $N=299$, Never ($M = 1.00 - 1.79$), rarely ($M = 1.80 - 2.59$), sometimes ($M = 2.60 - 3.39$), frequently ($M = 3.40 - 4.19$), very frequently ($M = 4.20 - 5.00$)

According to the semi-interview findings, the students often used various engaging sub-practices. They would share EIL materials, based on their interest, from other posts either publicly or privately. It depended on the information they had read. However, the students frequently sent visual images with English captions made by others to their family and friend directly because the images could affect or relate their life, future or people around them for caution. The examples of statements are shown below

Student#1: *If it [image with English captions] is sensitive or it affects our life and death, I will send it to my family. However, it depends on the information of the image.*

Student#3: *If I am really impressed, I will share it [image with English caption]. I often send it directly to my friends because I want them to see it or it is for their benefits.*

Table 30 presents that students frequently used applications or software to be aware of culturally neutral texts from webpages ($M = 3.80$, $SD = 1.02$), with the highest mean score. With the lowest mean score, it is item 25. Students sometimes criticized information written in English from social media ($M = 3.35$, $SD = 1.23$). Almost every sub-practice evaluating EIL materials was implemented frequently, except for criticizing. The range of item-total correlation is 0.74 to 0.85, meaning individual items and total scores are highly related and measure the same construct.

Table 30 *The Descriptive Statistics and Item-Total Correlation of Evaluating EIL Materials*

Statements	M	SD	Meaning	Item-total correlation
21. Determine the value of information from webpages whether it is useful or not during certain period of time	3.56	1.07	Frequently	0.85
22. Determine the value of information from e-books whether it is useful or not during certain period of time	3.45	1.10	Frequently	0.81
23. Determine the value of	3.54	1.05	Frequently	0.84

information from social media whether it is useful or not during certain period of time				
24. Determine the value of information from multimedia whether it is useful or not during certain period of time	3.59	1.06	Frequently	0.83
25. Criticize information written in English from social media	3.35	1.23	Sometimes	0.76
26. Compare information written in English with similar information on other sources from webpages	3.65	1.06	Frequently	0.79
27. Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from webpages	3.80	1.02	Frequently	0.78
28. Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from e- books	3.63	1.06	Frequently	0.81
29. Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from social media	3.74	1.03	Frequently	0.81
30. Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from multimedia	3.73	1.03	Frequently	0.80
31. Manage distraction by multitasking when watching multimedia in a real-life situation with English subtitles	3.71	.99	Frequently	0.77
32. Manage distraction when watching multimedia with English subtitle in real-life situation such as opening airplane mode or use adblocker app	3.71	1.07	Frequently	0.74

Note. n=299, Never ($M = 1.00 - 1.79$), rarely ($M = 1.80 - 2.59$), sometimes ($M = 2.60 - 3.39$), frequently ($M = 3.40 - 4.19$), very frequently ($M = 4.20 - 5.00$)

Based on the semi-interview findings, they frequently evaluated EIL materials. Due to employing digital tools as one of the sub-practices of evaluating component, various applications and software were identified and used as an appropriate tool for helping students evaluate the materials. These tools, such as dictionaries, Good Note, and screen separation, facilitate students to read and summarize frequently for various EIL materials.

Student #1: *I often Long do dictionary and split the screen very often. I use highlighter and Good Note to write comment, Drawboard to summarize and Event Note to takes note.*

Student #2:.. *I often use dictionaries like Longdo and Oxford dictionary, and then use Goodnote to take notes and summarize. It is what I frequently use. It helps me to understand when I read.*

Student #3: *Most of the time, I use the app “Nangsue” on my iPad. It is like a reading book in a digital format, and it usually comes with translation and note-taking features, I use it frequently because it is free. As for splitting the screen, I use it for work. I also frequently use apps that provide assistance.*

Thai undergraduate students believed they needed to criticize what they read by comparing two materials. They revealed that some materials do not provide enough information. For instance, they stated that:

Student #2: *I sometime did it [criticize social media and webpages], I would criticize only when I have to do assignments. If a webpage do not give much information or the content is content comprehensive from beginning to end, I would compare it to another webpage that has more information and explain in more detail*

Student #3: *I do this [criticize social media and webpages] sometimes. When I read, I will criticize why authors think that way. I will compare it with other thoughts in the comments section and on different webpages to see different perspectives.*

Result of the 2nd Research Question

Research Question 2: What are the perceptions of Thai undergraduate students toward digital reading on EIL materials?

The second research aimed to explore Thai undergraduate students' perceptions toward digital reading on EIL materials. The findings also showed the descriptive statistics, including the mean score (\bar{x}) and standard deviation (S.D.). Following by the findings of the semi-structured interview, which were analyzed through thematic analysis, to support the findings of the questionnaire. In addition, the tables display the item-total correlation to validate the questionnaire items, while descriptive statistics answer the research question.

As the overall mean score of each component, it was found that the perceptions toward encountering have the highest mean score ($M = 4.14$, $SD = 0.78$) among other components of the digital reading on EIL materials presented in Table 31. The range of item-total correlation among perceptions toward digital reading on EIL materials is 0.93 to 0.96, indicating positive relationship between individual items and total score.

Table 31 The Summary of Descriptive Statistics and Item-Total Correlation of Perceptions toward Digital Reading on EIL Materials

Main Components	M	SD	Meaning	Item-total correlation
The perceptions toward encountering	4.14	.78	Agree	.96
The perceptions toward engaging	4.03	.82	Agree	.93
The perceptions toward evaluating	4.00	.83	Agree	.95

Note. N=299, Strongly disagree ($M = 1.00 - 1.79$), disagree ($M = 1.80 - 2.59$), uncertain ($M = 2.60 - 3.39$), agree ($M = 3.40 - 4.19$), strongly agree ($M = 4.20 - 5.00$)

According to Table 32, it shows that students were pleased to receive information that contains both Thai and English ($M = 4.26$, $SD = 0.84$). Still, students agreed that they preferred to click multimedia links ($M = 4.02$, $SD = 0.91$), were pleased to search ($M = 4.13$, $SD = 0.85$), and enjoyed surfing for information ($M = 4.14$, $SD = 0.88$). The range of item-total correlation between individual items and total score is 0.81 to 0.87, meaning they measure similar aspects of the construct.

Table 32 Students' Perception toward Encountering EIL Materials

Statements	M	SD	Meaning	Item-total correlation
1. Enjoy surfing information for amusement	4.14	.88	Agree	.81
2. Be pleased to receive information that contains both Thai and English	4.26	.84	Strongly Agree	.81
3. Prefer to click links that are multimedia related to intercultural communication in real-life situation while finding information	4.02	.91	Agree	.85
4. Be pleased to search information that is English written texts	4.13	.85	Agree	.87

Note. $N=299$, Strongly disagree ($M = 1.00 - 1.79$), disagree ($M = 1.80 - 2.59$), uncertain ($M = 2.60 - 3.39$), agree ($M = 3.40 - 4.19$), strongly agree ($M = 4.20 - 5.00$)

It was found that Thai undergraduate students had positive perceptions toward encountering EIL materials, according to the semi-interview findings. The findings could be confirmed through the interview that they think receiving the materials containing their first language and English was great since they were not native speakers of English. As they stated:

Student#1: *I feel great because it [receiving two languages from materials] is good for people who are not good at English. It is comfortable for me.*

Student#3: *I think it [receiving two languages from materials] is great because I am not the owners of the language. Sometimes when I read, I may not know certain words, but if I try to read the meaning in Thai, it is an advantage.*

According to Table 33, the item that received the highest mean score was “know the benefit of filtering information ($M = 4.09$, $SD = 0.90$)”. Other statements also show that students preferred to share image with English caption ($M = 4.04$, $SD = 0.97$) and enjoy reading in various ways ($M = 4.03$, $SD = 0.86$). However, with the lowest mean score, they preferred to organize information by curating multimedia ($M = 3.97$, $SD = 0.93$). The range of item-total correlation is 0.81 to 0.88, meaning there have internal consistency.

Table 33 Students' Perception toward Engaging EIL Materials

Statements	M	SD	Meaning	Item-total correlation
5. Know the benefit of filtering information	4.09	.90	Agree	.88
6. Prefer to organize information by curating multimedia such as downloading video clips with English subtitle related to intercultural communication in real-life situation	3.97	.93	Agree	.82
7. Enjoy reading information in various ways to be aware of culturally neutral texts	4.03	.86	Agree	.87
8. Prefer to share images with English caption	4.04	.97	Agree	.81

Note. $N=299$, Strongly disagree ($M = 1.00 - 1.79$), disagree ($M = 1.80 - 2.59$), uncertain ($M = 2.60 - 3.39$), agree ($M = 3.40 - 4.19$), strongly agree ($M = 4.20 - 5.00$)

Thai undergraduate students believed that they knew the benefit of filtering information. As they revealed, they did not want to spend time reading every paragraph. Thus, they decided to read some paragraphs covering the rest of the information, such as introduction and conclusion. It could imply that they knew the benefit of filtering or deciding as a sub-practice of engaging EIL materials. The examples of students' responses as shown below:

Student #1: *For me, I filter the texts by reading the top and the last paragraph first. It is inclusive enough to know what happens. I do not want to spend too much time on body parts.*

Student#2: *I filter.....by reading topics that I am particularly interested in such as top events or situations. I read the headings or its abstract on the front or last page. I feel that this method makes me read faster without spending time reading everything.*

Student#3: *I decide to read the first and last paragraph to understand the core idea. It is work for me.*

According to Table 34, the students were able to manage distractions ($M = 4.07$, $SD = 0.86$), use apps or software ($M = 4.05$, $SD = 0.85$), and be willing to determine the value of information ($M = 3.96$, $SD = 3.96$), whereas item 10 “be pleased to criticize information ($M = 3.92$, $SD = 0.99$)” had lowest mean score. For item-total correlation, the range of evaluating components is 0.83 to 0.88, indicating all individual items are related to the construct being measured.

Table 34 *Students’ Perception toward Evaluating EIL Materials*

Statements	M	SD	Meaning	Item-total correlation
9. Be willing to determine value of information whether it is useful or not during certain period of time	3.96	.94	Agree	.85
10. Be pleased to criticize information written in English with similar information on other sources	3.92	.99	Agree	.85
11. Be able to use apps or software appropriately and energetically to help be aware of culturally neutral texts	4.05	.85	Agree	.83
12. Be able to manage distractions anytime when using multimedia	4.07	.86	Agree	.88

Note. $N=299$, Strongly disagree ($M = 1.00 - 1.79$), disagree ($M = 1.80 - 2.59$), uncertain ($M = 2.60 - 3.39$), agree ($M = 3.40 - 4.19$), strongly agree ($M = 4.20 - 5.00$)

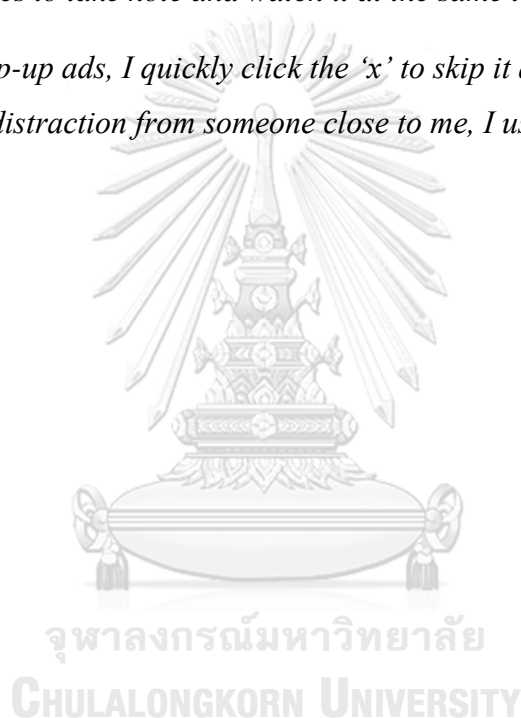
Based on the semi-interview findings, Thai undergraduate students were able to manage distractions anytime when using multimedia. Whether it was distractions from the multimedia or surroundings, they knew how to manage them properly. Most of them revealed that they registered for YouTube membership to avoid distraction

and use earphones when their surroundings disturbed them. They could multitask by note-taking and watching multimedia at the same time.

Student #1: *I will open “Do Not Disturb” mode in my phone while watching multimedia. I also become a premium member of YouTube to avoid ads. Due to the loud noise, I would go to a silent room or wear earphones with noise cancellation.*

Student#2: *Normally, I ignore all ads by clicking “Skip”, but now I subscribe to YouTube membership to avoid distraction. If I watched a video with English subtitle, I also wear earphones to take note and watch it at the same time.*

Student#3: *For pop-up ads, I quickly click the ‘x’ to skip it and do not sign up for anything. If it’s a distraction from someone close to me, I usually use my earphones.*



CHAPTER V

DISCUSSION AND CONCLUSION

This chapter presents the summary of the overall study with findings, a discussion of the study findings in relation to previous studies, the pedagogical implications, the conclusion and limitations of this study, and recommendations for further studies.

Summary of the Study

Since the number of individuals using and owning digital devices has rapidly risen, there are various ways students interact with materials on the digital world. In addition to materials, the current status of English is shifted to English as an international language (EIL) due to a variety of English used by a large population of non-native speakers of English around the globe. Therefore, this exploratory study aims to answer the research questions as follows: (1) To what extent do Thai undergraduate students use digital reading on EIL materials? (2) What are the perceptions of Thai undergraduate students toward digital reading on EIL materials?

This study's research design was a cross-sectional study using quantitative and qualitative methods to collect data. The participants of the study were 299 undergraduate students from Aviation Business Management (ABM) programs in the academic year 2022. EIL digital reading questionnaire and the semi-structured interview were the research instruments for this study.

This study involved 2 main phases: 1) the first phase was about planning and preparation, and 2) the second phase was about the implementation of the main study.

In Phase1, there were 3 stages. The first stage was concerned with thoroughly exploring the documents relating to the research topic, including theories and concepts. The relevant documents were analyzed and studied in the second stage to construct the research instruments. The third stage is to develop English as an international language (EIL) digital reading materials framework. The framework was adapted from what Turner et al. (2020) proposed, which contained three main reading practices as a nonlinear recursive model. It included encountering, engaging, and

evaluating digital texts with four sub-practices in each component. The framework was used to construct the questionnaire and the semi-structured interview questions. This stage also involved the validation of questions by experts and a pilot study.

In Phase 2, there were another 3 stages. It was to deal with the implementation of the research instruments for the main study. The first stage is to administer the questionnaire to 299 students who were participants in this study. Then, 3 participants were purposively selected to participate in the semi-structured interview. The researcher and course teacher coordinated within this stage, ensuring the teacher proceeded correctly. The questionnaire or quantitative data was gathered and analyzed in the second stage using descriptive statistics, item-total correlation, Pearson correlation, exploratory factor analysis, and confirmatory factor analysis. The semi-structured interview or qualitative data was analyzed by the thematic analysis method. The last stage was to report the findings in terms of a mean score and standard deviation (S.D.) to answer both research questions. The semi-structured interview findings were triangulated with the questionnaire findings to confirm and gain in-depth information.

The findings of this study were to investigate the digital reading on EIL materials for Thai undergraduate students and explore Thai undergraduate students' perceptions toward the digital reading on EIL materials through the questionnaire and the semi-structured interview. The findings can be divided into two aspects: 1) The use of digital reading on EIL materials and 2) their perceptions toward digital reading on EIL materials.

For the first aspect of using digital reading on EIL materials, based on the questionnaire, they tended to use all of the digital reading strategies including encounter, engage, and evaluate EIL materials. Thai undergraduate students encountered ($M = 3.93$, $SD = 0.78$), engaged ($M = 3.52$, $SD = 0.93$), and evaluated ($M = 3.62$, $SD = 0.93$) EIL materials frequently. With the highest mean score, sub-practices of EIL digital reading strategies that students used very frequently were to surf information for amusement from social media ($M = 4.23$, $SD = 0.97$) and receive information that contains both Thai and English from social media ($M = 4.23$, $SD = 0.86$). On the other hand, with the lowest mean score, students sometimes surfed

information for amusement from e-books ($M = 3.27$, $SD = 1.13$). Nevertheless, the students have used a variety of digital reading on EIL materials.

For the second aspect, students had positive perceptions toward digital reading on EIL materials. They enjoyed using digital reading on EIL materials based on their purpose and interest at that moment. According to their responses, they would like to encounter EIL materials because they were easy to access and understand and their authenticity. If they were interested in some information, they would engage it using different strategies, such as skim or selective reading, or sharing it publicly. They also were able to criticize and compare information by splitting the screen and used a variety of applications to help them gain as much information as possible.

Discussion

The current study's findings were discussed in two facets: 1) using digital reading on EIL materials and 2) perceptions toward digital reading on EIL materials.

Digital Reading on EIL Materials

Research Question 1 investigated digital reading on EIL for Thai undergraduate students. The current findings revealed that students used a variety of digital reading on EIL materials. They encountered, engaged, and evaluated EIL materials frequently. This study's findings are consistent with previous studies by Turner et al. (2020), who reported that students employed a variety of digital reading strategies, including encountering, engaging, and evaluating digital materials outside the classroom. After students encountered the materials in some ways either passively or actively, they entered a cyclical process of engaging and evaluating process through the use of digital devices at hand. Based on the questionnaire findings of this study, because students frequently encountered such as surfing or searching on social media, they could either curate, read, and share the information as engaging or determine the usefulness of the information while using different digital tools and managing distraction as evaluating. Likewise, Gilbert (2017) reported that students used different reading practices with digital materials. This study's findings reflect Anderson and Jiang (2018)'s study. They claimed that students almost constantly used

their digital devices, such as a smartphone, as they were in a digital reading model. Lee et al. (2021) implied that when participants encountered EIL materials, although they were provided information to be consumed passively, it prompted them to generate English and they would embrace EIL materials more. Since EIL materials involve webpages, e-books, social media, and multimedia, the internet is a major means for students to engage in different cultures and target language societies (Gilbert, 2017). The findings of the digital reading on EIL materials echo those of previous studies (Turner et al., 2020; Zucker, 2018; Lee et al., 2021). They attributed it to the EIL digital reading materials framework.

It should be noted that there were differences in the frequency level in each sub-practice of EIL digital reading materials. Outstandingly, most students very frequently surf a variety of English texts for amusement and receive information that contains both Thai and English from social media. It is supported by Son (2017), Wongsas and Son (2022), and Alm (2015). They stated that social media such as Facebook received great attention, which could make students surf for enjoyment, and it had the potential to offer pedagogical benefits to connect students and teachers both in and outside the classroom. Social media was a material where non-native speakers used a variety of English (Shyam & Poornachandran, 2018). The current findings are also further supported by Tan and Rungrojsuwan (2022) that reading EIL materials could unconsciously influence students to learn English. For example, students who use social media might be perpetually acquiring new English vocabulary without being aware of it. This study found that students tended to frequently encounter information such as surfing, receiving, stumbling, and searching from webpages. It is aligned with Son (2017)'s study, which revealed that most students actively interacted with webpages for information rather than other materials. On the other hand, it found that students only sometimes surfed a variety of English texts for amusement from e-books. According to Peng et al. (2015) and Merkle et al. (2022), although e-books could increase academic performance, students in higher education did not prefer reading and use e-books generally. Nevertheless, Zucker (2018) asserted, which agrees with the findings of this study, that students almost exclusively use digital reading; at the same time, some sub-practices were used more than others. The

provision of conducting a questionnaire related to digital literacy corresponded to Son (2017), which intended to explore students' experiences with the use of digital technologies for language learning.

Perceptions toward Digital Reading on EIL Materials

Research Question 2 explored Thai undergraduate students' perceptions toward the digital reading on EIL materials. In this study, most students positively perceived digital reading practices, including encountering, engaging, and evaluating EIL materials. It was found that they agreed that they could use digital reading on EIL materials, and it was enjoyable, even if some sub-practices were sometimes implemented on particular materials. Additionally, students strongly agreed that they were pleased to receive information containing both languages in the materials. The current study coincides with Wongsas and Son (2022) and Son et al. (2017). Wongsas and Son (2022) supported that digital materials could encourage Thai students' motivation, and they would participate more actively in receiving digital materials leading to positive perception. Son et al. (2017)'s study reported that most students had positive perceptions of using different digital tools for language learning as this study discovered that students had positive perceptions toward the employment of digital tools to be aware of EIL. The findings also corresponded with Lee et al. (2019)'s study. They found that because students were frequently exposed to EIL materials, it led to highly positive perceptions. It could mean that the more students use digital reading on EIL materials, the higher the positive perception is. They also revealed that EIL principles such as a variety of English, the current status of English, and intercultural communication gained positive perceptions. On the other hand, Tokumoto and Shibata (2011) discovered that Japanese and Korean students had negative perceptions toward a variety of English, while Malaysian students embraced them positively. In this study, the students were found to favor and appreciate interacting with EIL digital reading materials. This is in line with the EIL principles McKay (2018) proposed, which support using EIL materials as they allow students to engage in intercultural exchange and gain a wide range of knowledge.

Pedagogical Implications

This study is one of the exploratory research that investigated the digital reading on EIL materials for Thai undergraduate students and explored their perceptions toward digital reading on EIL materials. The study develops a research instrument for investigating digital reading on EIL materials of students based on digital reading on EIL material framework, especially for Thai undergraduate students.

Based on the current study findings, pedagogical implications can be practically applied to three aspects: 1) the digital reading and 2) EIL materials, and 3) methodology.

It is suggested that teachers should expand the instructional practice, including digital reading, into educational courses. In order to develop effective students with digital literacy, they must know how to encounter, engage, and evaluate digital materials properly, even if they have already frequently used digital reading. To overcome the shallow practices, students needed to verify the materials' usefulness and credibility by participating in deeply comprehensive search and reading practice (Coiro et al., 2015; Wolf, 2018). Levy (2019) suggested that teachers should use new technologies in the classroom that may bridge the gap between the classroom and the authentic world to increase students' engagement. However, this study was not designed to assess specific teaching practices or students' reading strategies. This study reflects students' digital reading that they had used, which helps to describe their reading habits articulately. Applying digital reading into the class also helps prepare students for more dynamic and complex practices that they may need in the future, such as self-directed reading and multitasking (Turner et al., 2020). Thus, teachers can adapt digital reading based on their settings and purposes.

It is crucial for English teachers to pay more attention to EIL by incorporating it into the class since students frequently use and have positive perceptions toward EIL materials. Various materials that students interact with could raise awareness of the current status of English—for example, YouTube videos about intercultural communication in an authentic situation. Teachers teaching English should provide opportunities to promote a variety of English for students' language

awareness because English is no longer tied to specific places and speakers (Pennycook, 2020; Tokumoto & Shibata, 2011). Promoting EIL materials in the classroom could also prepare students for authentic multicultural and multilingual contexts. The more EIL materials students encounter, the greater their acceptance of EIL (Lee et al., 2021). When many expanding circle countries have been growing in interest in a variety of English (Hino, 2021), students deserve to acknowledge the current status of English in a different context from the classroom with meaningful advice. Nonetheless, the context of a study may be varied and inapplicable to other contexts.

This study's research instruments were developed to investigate the extent of uses and perceptions toward digital reading on EIL materials, which were validated rigorously and carefully. Therefore, it is suggested that other researchers can adapt these research instruments to meet the purpose and context of their study.

Conclusion and Limitations

The current study shows that Thai undergraduate students used a variety of digital reading on EIL materials with a similar frequency for encountering, engaging, and evaluating. Despite the overall similarity in frequency, some sub-practices were occasionally implemented. In particular to digital literacy, students were able to use EIL digital reading strategies by searching, criticizing, or sharing information for others to encounter. The findings also reveal that students had positive perceptions toward digital reading on EIL materials.

In spite of the fact that this current study was carried out successfully, some limitations were discovered. First, the EIL digital reading questionnaire might not clearly reflect a non-linear recursive model. Second, the aviation business management students are in Thailand, where the study was conducted. Thereby, its findings might not be generalizable to other countries contexts. Third, the framework of this study was constructed based only on the relevant documents. Fourth, the findings focus on the participants as a whole and do not classify or separate the academic years of the students.

Recommendations for Further Studies

This study's findings shed light on EIL digital reading materials for Thai undergraduate students, which would benefit future research. First and foremost, the questionnaire items should be linked to reflect as a non-linear recursive model. Second, the developed framework in this study can be adapted to match further research contexts. Third, the study should include real-time observations of students interacting with EIL materials via digital devices. With the different academic years, students may have different levels of frequencies and perceptions regarding using digital reading on EIL materials. It may be worth classifying and comparing differences among students from various academic years and programs. Furthermore, the study's findings can be used to develop guidelines for digital reading on EIL materials and test its effectiveness. Due to the differences in students' experiences, needs, and contexts, some sub-practices of digital reading may not be necessary for students in other contexts. However, the framework of this study is vital for English teachers who want to expand their instructional practices to prepare students to become strategic readers who can encounter, engage, and evaluate EIL materials effectively.

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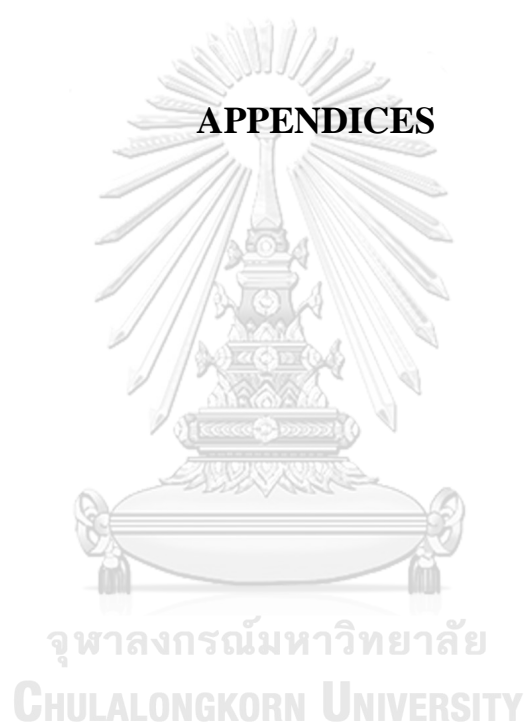
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Appendix A

EIL Digital reading - Questionnaire

แบบสอบถาม การอ่านสื่อดิจิทัลภาษาอังกฤษเป็นภาษานานาชาติ

ขอขอบคุณสำหรับการมีส่วนร่วมในการตอบแบบสอบถามนี้คำตอบของคุณจะได้รับการปฏิบัติอย่างเป็นความลับและจะไม่มีการระบุตัวบุคคลในรายงานหรือสิ่งพิมพ์ใดๆ กรุณาตอบคำถามทุกข้อให้ถูกต้องที่สุดเท่าที่จะทำได้

Thank you for your participation in responding to this questionnaire. Your answers are going to be treated confidentially, and no individuals will be identified in any papers or publications. Please answer all questions as accurate as you can.

ส่วนที่ 1

Q1. Current academic year

ชั้นปี

Year 1 ☐
ปี 1

Year 2 ☐
ปี 2

Year3 ☐
ปี 3

Year4 ☐
ปี 4

Q2. How long do you use materials?

นักศึกษาเคยใช้สื่อมานานแค่ไหน

1–3 years	4 – 6 years	7 – 10 years	more than 10 years
1 – 3 ปี	4 – 6 ปี	7 – 10 ปี	มากกว่า 10 ปี

Webpages
เว็บเพจ

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

E-books
อีบุ๊ก

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

Social media
โซเชียลมีเดีย

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------

Multimedia
มัลติมีเดีย

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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ส่วนที่ 2

Q3. โปรดระบุระดับความถี่ของคุณในการใช้ในแต่ละข้อ โดยคลิกในช่องที่เหมาะสม

Please, indicate your level of frequency of using each of the following items by clicking in the appropriate box.

นักศึกษาอ่านสื่อดิจิทัลภาษาอังกฤษของนานาชาติต่อไปนี้มาน้อยเพียงใด

(5 = ทำบ่อยๆ 4 = ทำบ่อย 3 = ทำบางครั้ง 2 = แทบจะไม่ทำ 1 = ไม่เคยทำ)

How often do you use digital reading on EIL materials?

(5 = very frequently 4 = frequently 3 = sometimes 2 = rarely 1 = never)

	(5)	(4)	(3)	(2)	(1)
1. หาข้อมูลเพื่อความเพลิดเพลินจากเว็บเพจ Surf information for amusement from the webpages					
2. หาข้อมูลเพื่อความเพลิดเพลินจากอีบุ๊ก Surf information for amusement from e-books					
3. หาข้อมูลเพื่อความเพลิดเพลินจากโซเชียลมีเดีย Surf information for amusement from social media					
4. หาข้อมูลเพื่อความเพลิดเพลินจากมัลติมีเดีย Surf information for amusement from multimedia					
5. ได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษ จากเว็บเพจ Receive information that contains both Thai and English from webpages					
6. ได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษ จากโซเชียลมีเดีย Receive information that contains both Thai and English from social media					
7. คลิกลิงก์ที่เป็นมัลติมีเดียเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงขณะที่กำลังหาข้อมูลจากเว็บเพจ Click the link that is the multimedia related to intercultural communication in real-life situation while finding information from webpages					

8. คลิกลิงก์ที่เป็นมัลติมีเดียเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงขณะที่กำลังหาข้อมูลจากโซเชียลมีเดีย Click the link that is the multimedia related to intercultural communication in real-life situation while information from social media					
9. ค้นคว้าข้อมูลที่เขียนด้วยภาษาอังกฤษจาก เว็บเพจ Search information that is English written texts from webpages					
10. ค้นคว้าข้อมูลที่เป็นบทพูดภาษาอังกฤษจาก มัลติมีเดีย Search information that is English spoken texts from multimedia					
11. คัดสรรข้อมูลจากอีบุ๊กกว่าควรอ่านเวลาใด Filter information from e-books to know when to read					
12. จัดเก็บมัลติมีเดีย เช่นดาวน์โหลดคลิป วิดีโอเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงเพื่อดูในเวลาที่เหมาะสมจากเว็บเพจ Curate multimedia such as downloading video clips related to intercultural communication in real-life situation to watch in appropriate time from webpages					
13. จัดเก็บมัลติมีเดีย เช่นดาวน์โหลดคลิป วิดีโอเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงเพื่อดูในเวลาที่เหมาะสมจากโซเชียลมีเดีย Curate multimedia such as download video clips related to intercultural communication in real-life situation to watch in appropriate time from social media					
14. อ่านข้อมูลอย่างละเอียดเพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจากอีบุ๊ก Read information thoroughly to be aware of culturally neutral texts from e-books					
15. อ่านข้อมูลอย่างผ่านๆเพื่อตระหนักรู้ ถึงความเป็นกลางทางวัฒนธรรมจากมัลติมีเดีย เช่นคลิปวิดีโอที่มีคำบรรยายภาษาอังกฤษ Skim information to be aware of culturally					

neutral texts from multimedia such as a video with English subtitle					
16. เผยแพร่ภาพที่สร้างขึ้นเองโดยมีคำบรรยายภาษาอังกฤษ แบบสาธารณะบนโซเชียลมีเดีย Share self-made images with English captions publicly on social media					
17. ส่งภาพที่สร้างขึ้นเองโดยมีคำบรรยาย ภาษาอังกฤษผ่าน ช่องทางส่วนตัวบนโซเชียลมีเดีย เช่น เฟสบุ๊กแมสเซนเจอร์ Send self-made images with English captions through private channels on social media such as Facebook messenger					
18. เผยแพร่โดยแชร์ภาพที่มีคำบรรยายภาษา อังกฤษจาก โพสต์คนอื่นแบบสาธารณะบน โซเชียลมีเดีย Share images with English caption from other people's posts					
19. ส่งต่อโดยแชร์ภาพที่มีคำบรรยายภาษาอังกฤษ จากโพสต์ คนอื่นผ่านช่องทางส่วนตัวบน โซเชียลมีเดีย เช่น เฟสบุ๊กแมสเซนเจอร์ Send images with English captions from other people's posts through private channels on social media such as Facebook messenger					
20. แสดงความคิดเห็นในโพสต์บนโซเชียลมีเดีย Comment on social media posts					
21. ประเมินคุณค่าของข้อมูลจากเว็บเพจว่า มีประโยชน์ ในช่วงเวลาใด หรือไม่ Determine the value of information from webpages whether it is useful or not during certain period of time					
22. ประเมินคุณค่าของข้อมูลจาก อีบุ๊กว่ามีประโยชน์ ในช่วง เวลาใด หรือไม่ Determine the value of information from e-books whether it is useful or not during certain period of time					
23. ประเมินคุณค่าของข้อมูลจากโซเชียลมีเดียว่ามีประโยชน์ ในช่วงเวลาใด หรือไม่ Determine the value of information from social media whether it is useful or not					

during certain period of time					
24. ประเมินคุณค่าของข้อมูลจากมัลติมีเดียว่ามีประโยชน์ในช่วงเวลาใด หรือไม่ Determine the value of information from multimedia whether it is useful or not during certain period of time					
25. วิจารณ์ข้อมูลที่เขียนด้วยภาษาอังกฤษจาก โซเชียลมีเดีย Criticize information written in English from social media					
26. เปรียบเทียบข้อมูลที่เขียนด้วยภาษาอังกฤษกับแหล่งอื่นๆ ที่มีข้อมูลคล้ายกันจากเว็บเพจ Compare information written in English with similar information on other sources from webpages					
27. ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือ การแบ่งหน้าจอ เพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจาก เว็บเพจ Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from webpages					
28. ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือ ไฮไลต์คำเพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจากอีบุ๊ก Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from e-books					
29. ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือ การแบ่งหน้าจอเพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจากโซเชียลมีเดีย Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from social media					
30. ใช้แอปพลิเคชันหรือซอฟต์แวร์ เช่น เปิดพจนานุกรม หรือ การแบ่งหน้าจอ เพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรม					

ธรรมจาก มัลติมีเดีย Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from multimedia					
31. จัดการสิ่งรบกวนโดยทำหลายอย่างพร้อมกันเมื่อดูมัลติมีเดียในสถานการณ์จริงที่มีคำบรรยายภาษาอังกฤษ Manage distraction by multitasking when watching multimedia in a real-life situation with English subtitles					
32. จัดการสิ่งรบกวนเมื่อดูมัลติมีเดียในสถานการณ์จริงที่มีคำบรรยายภาษาอังกฤษ เช่น เปิดโหมดเครื่องบิน หรือแอปปิดกั้นโฆษณา Manage distraction when watching multimedia in a real-life situation with English subtitles such as opening airplane mode or use adblocker app					

ส่วนที่ 3

Q4. โปรดระบุการรับรู้ของคุณ เห็นด้วยหรือไม่เห็น ด้วยกับข้อความต่อไปนี้โดยคลิกในช่องที่เหมาะสม

Please, indicate your perceptions. Agree or disagree with each of the following items by clicking in the appropriate box.

นักศึกษารับรู้การอ่านสื่อดิจิทัลภาษาอังกฤษของนานาชาติจาก เว็บเพจ อีบุ๊ก มัลติมีเดีย โซเชียลมีเดีย อย่างไร

(5 = เห็นด้วยอย่างยิ่ง 4 = เห็นด้วย 3 = ไม่แน่ใจ 2 = ไม่เห็นด้วย 1 = ไม่เห็นด้วยอย่างยิ่ง)

What are your perceptions toward digital reading on EIL materials including webpages, e-books, multimedia, and social media?

(5 = strongly agree 4 = agree 3 = uncertain 2 = disagree 1 = strongly disagree)

	(5)	(4)	(3)	(2)	(1)
1. สนุกกับการหาข้อมูลเพื่อความเพลิดเพลิน Enjoy surfing information for amusement					
2. ยินดีที่จะได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษ Be pleased to receive information that contains both Thai and English					
3. ชื่นชอบที่จะคลิกลิงก์ที่เป็นมัลติมีเดียเกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงขณะที่กำลังหาข้อมูล Prefer to click links that are multimedia related to intercultural communication in real-life situation					
4. ยินดีที่จะค้นคว้าข้อมูลที่เขียนด้วยภาษาอังกฤษ Be pleased to search information that is English written texts					
5. รู้ประโยชน์ของการคัดสรรข้อมูล Know the benefit of filtering information					
6. ชื่นชอบการจัดระเบียบข้อมูลโดยจัดเก็บมัลติมีเดีย เช่นดาวน์โหลดคลิปวิดีโอ เกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริง Prefer to organize information by curating multimedia such as downloading video clips related to intercultural communication in real-life situation					

7. สนุกกับการอ่านข้อมูลโดยหลากหลายวิธีเพื่อตระหนักรู้ถึง ความเป็นกลางทางวัฒนธรรม Enjoy reading information in various ways to be aware of culturally neutral texts					
8. ชื่นชอบที่จะแชร์ภาพที่มีคำบรรยายภาษาอังกฤษ Prefer to share pictures with English captions					
9. เต็มใจที่จะประเมินคุณค่าของข้อมูลว่ามีประโยชน์ในช่วงเวลา ใดหรือไม่ Be willing to determine value of information whether it is useful or not during certain period of time					
10. ยินดีที่จะวิจารณ์ข้อมูลที่เขียนด้วยภาษาอังกฤษกับ แหล่งอื่นๆ ที่มีข้อมูลคล้ายกัน Be pleased to criticize information written in English with similar information on other sources					
11. สามารถเลือกใช้แอปพลิเคชันหรือซอฟต์แวร์ได้อย่างเหมาะสม และคล่องแคล่วเพื่อช่วยในการตระหนักรู้ความเป็นกลางทาง วัฒนธรรม Be able to use apps or software appropriately and energetically to help be aware of culturally neutral texts					
12. สามารถจัดการสิ่งรบกวนเมื่อไรก็ตามที่ใช้มัลติมีเดีย Be able to manage distraction anytime when using multimedia					

Q5. หากคุณมีความคิดเห็นใดๆ เกี่ยวกับ การอ่านสื่อดิจิทัลภาษาอังกฤษของนานาชาติ โปรดระบุไว้
ด้านล่าง

If you have any comments about digital reading on EIL materials, please type them
below

ขอขอบคุณที่กรอกแบบสอบถาม




จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

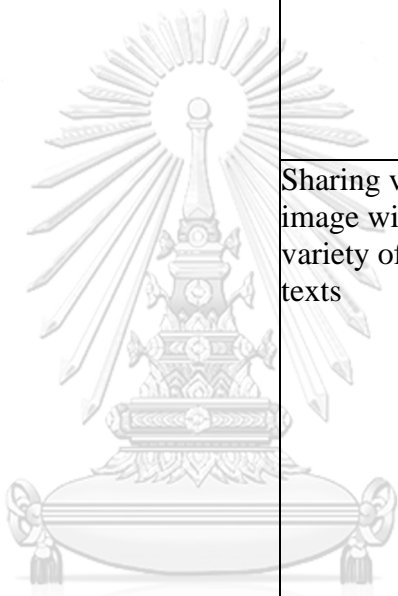
Appendix B

Questionnaire Construct

Digital Reading Framework (Turner et al.,2020)	EIL Materials	EIL Digital Reading Framework	Questionnaire
Surfing to seek the texts without much intention or with the purpose of leisure. Skimming and scanning information on the internet for amusement and killing time	Turner et al. (2020); Tomlinson, (2016); Son (2017); Lee et al. (2021); Wongs & Son (2022) Digital texts include information on webpages, social media, e-books, and multimedia. Mckay (2018) A variety of English reflect localized standard of local language which is understandable. The use of L1 for English is unrestricted to used freely. Being Cultural neutral is not linked to any particular social or cultural context.	Surfing a variety of English texts	1. หาข้อมูลเพื่อความเพลิดเพลินจากเว็บเพจ Surf information for amusement from the webpages 2. หาข้อมูลเพื่อความเพลิดเพลินจาก อีบุ๊ก Surf information for amusement from e-books 3. หาข้อมูลเพื่อความเพลิดเพลินจาก โซเชียลมีเดีย Surf information for amusement from social media 4. หาข้อมูลเพื่อความเพลิดเพลินจาก มัลติมีเดีย Surf information for amusement from multimedia
Receiving when texts come across passively, by means of viewing them when accessing a website, through a link from a friend or colleague, as well as via a present RSS feed	Mckay (2018); Xu (2017) Intercultural communication is between non-native speakers of English reflecting their culture and norm. Xu (2017) Current use of English is the written and spoken texts that could raise EIL awareness	Receiving texts using students' L1 and English	5. ได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษจากเว็บเพจ Receive information that contains both Thai and English from webpages 6. ได้รับข้อมูลที่มีทั้งภาษาไทยและภาษาอังกฤษจากโซเชียลมีเดีย Receive information that contains both Thai and English from social media

<p>Stumbling to follow related hyperlinks from social media (e.g., Facebook or Twitter) or websites to find more information while focusing on the primary topic</p>	<p>Tomlinson (2016); Li & Zhou (2018) Authenticity is real-life situations that students can relate to the current and future world that improve their understandability</p> <p>Tomlinson (2016) Pragmatic awareness is an ability to understand various situations such as greeting or inviting people.</p> <p>The use of written and spoken texts produced by non-native speakers of English as authentic language</p>	<p>Stumbling authentic multimedia of intercultural communication</p>	<p>7. คลิกลิงก์ที่เป็นมัลติมีเดียเกี่ยวกับการ สื่อสารระหว่างวัฒนธรรมใน สถานการณ์จริงขณะที่กำลังหาข้อมูลจากเว็บเพจ</p> <p>Click the link that is the multimedia related to intercultural communication in real -life situation while finding information from webpages</p> <p>8. คลิกลิงก์ที่เป็นมัลติมีเดียเกี่ยวกับการ สื่อสารระหว่างวัฒนธรรมใน สถานการณ์จริงขณะที่กำลังหาข้อมูลจากโซเชียลมีเดีย</p> <p>Click the link that is the multimedia related to intercultural communication in real -life situation while information from social media</p>
<p>Searching to find information actively to confirm and disconfirm a particular topic with the intention of learning new knowledge, while a person also compares and contrasts information from different websites</p>		<p>Searching spoken and written texts that include current use of English by people from different cultural backgrounds</p>	<p>9. ค้นคว้าข้อมูลที่เขียนด้วยภาษาอังกฤษจาก เว็บเพจ</p> <p>Search information that is English written texts from webpages</p> <p>10. ค้นคว้าข้อมูลที่เป็นบทพูด ภาษาอังกฤษจาก มัลติมีเดีย</p> <p>Search information that is English spoken texts from multimedia</p>
<p>Deciding</p>		<p>Deciding a variety</p>	<p>11. คัดสรรข้อมูลจากอื่บุ้ก</p>

<p>a decision-making process by filtering texts whether to read them now, later, or get rid of them completely and the thinking process on how to read them</p>		<p>of English</p>	<p>ว่าควรอ่านเวลาใด Filter information from e -books to know when to read</p>
<p>Curating to manage and organize text websites or digital text to read at an appropriate time. Once the decision has been made, readers can archive or continue searching for additional information</p>	 จุฬาลงกรณ์มหาวิทยาลัย CHULALONGKORN UNIVERSITY	<p>Curating authentic multimedia of intercultural communication</p>	<p>12. จัดเก็บมัลติมีเดีย เช่น ดาวน์โหลดคลิป วิดีโอ เกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงเพื่อดู ในเวลาที่เหมาะสมจากเว็บเพจ Curate multimedia such as downloading video clips related to intercultural communication in real -life situation to watch in appropriate time from webpages 13. จัดเก็บมัลติมีเดีย เช่น ดาวน์โหลดคลิป วิดีโอ เกี่ยวกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงเพื่อดูในเวลาที่เหมาะสมจาก โซเชียลมีเดีย Curate multimedia such as download video clips related to intercultural communication in real -life situation to watch in appropriate time from social media</p>
<p>Reading a variety of reading actions: scanning, skimming, delving, employing multimedia, annotating,</p>		<p>Reading for awareness of culturally neutral texts</p>	<p>14. อ่านข้อมูลอย่างละเอียดเพื่อตระหนักรู้ ถึง ความเป็นกลางทางวัฒนธรรม จาก อินเทอร์เน็ต Read information thoroughly to be</p>

<p>responding, monitoring, interacting and reading beyond a certain text</p>			<p>aware of culturally neutral texts from e - books</p> <p>15. อ่านข้อมูลอย่างผ่านๆ เพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจากมัลติมีเดีย เช่นคลิปวิดีโอที่มีคำบรรยายภาษาอังกฤษ</p> <p>Skim information to be aware of culturally neutral texts from multimedia such as a video with English subtitle</p>
<p>Sharing to Offer texts to the public by posting or sending them directly as a decision to make connections with others</p>	 <p>จุฬาลงกรณ์มหาวิทยาลัย CHULALONGKORN UNIVERSITY</p>	<p>Sharing visual image with a variety of English texts</p>	<p>16. เผยแพร่ภาพที่สร้างขึ้นเองโดยมีคำบรรยายภาษาอังกฤษแบบสาธารณะบนโซเชียลมีเดีย</p> <p>Share self-made images with English captions publicly on social media</p> <p>17. ส่งภาพที่สร้างขึ้นเองโดยมีคำบรรยาย ภาษาอังกฤษผ่านช่องทางส่วนตัวบนโซเชียลมีเดีย เช่น เฟสบุ๊กเมสเซนเจอร์</p> <p>Send self-made images with English captions through private channels on social media such as Facebook messenger</p> <p>18. เผยแพร่โดยแชร์ภาพที่มีคำบรรยายภาษาอังกฤษจากโพสต์คนอื่นแบบสาธารณะบนโซเชียลมีเดีย</p> <p>Share images with English caption from</p>

		<p>other people's posts</p> <p>19. ส่งต่อโดยแชร์ภาพที่มีคำบรรยายภาษาอังกฤษจากโพสต์คนอื่นผ่านช่องทางส่วนตัวบนโซเชียลมีเดียเช่น เฟสบุ๊กแมสเซนเจอร์</p> <p>Send images with English captions from other people's posts through private channels on social media such as Facebook messenger</p> <p>20. แสดงความคิดเห็นในโพสต์บนโซเชียลมีเดีย</p> <p>Comment on social media posts</p>
<p>Determining Value</p> <p>to consider the purpose, intention, and interest of the text in order to identify the usefulness of the digital text whether it is useful in the present or the future</p>	<p>Determining value of a variety of English texts</p>	<p>21. ประเมินคุณค่าของข้อมูลจากเว็บเพจว่ามีประโยชน์ในช่วงเวลาใดหรือไม่</p> <p>Determine the value of information from webpages whether it is useful or not during certain period of time</p> <p>22. ประเมินคุณค่าของข้อมูลจากอีบุ๊กว่ามีประโยชน์ในช่วงเวลาใดหรือไม่</p> <p>Determine the value of information from e - books whether it is useful or not during certain period of time</p> <p>23. ประเมินคุณค่าของข้อมูลจากโซเชียลมีเดียว่ามีประโยชน์ในช่วงเวลาใดหรือไม่</p>

			<p>Determine the value of information from social media whether it is useful or not during certain period of time</p> <p>24. ประเมินคุณค่าของข้อมูลจาก มัลติมีเดียว่ามีประโยชน์ในช่วงเวลาใดหรือไม่</p> <p>Determine the value of information from multimedia whether it is useful or not during certain period of time</p>
<p>Judging to criticize the quality of information for both content and form while comparing or referring to other similar digital texts</p>		<p>Judging written texts that include current use of English by people from different cultural backgrounds</p>	<p>25. วิเคราะห์ข้อมูลที่เขียนด้วย ภาษาอังกฤษจาก โซเชียลมีเดีย</p> <p>Criticize information written in English from social media</p> <p>26. เปรียบเทียบข้อมูลที่เขียนด้วย ภาษาอังกฤษกับแหล่งอื่นๆ ที่มีข้อมูลคล้ายกันจากเว็บเพจ</p> <p>Compare information written in English with similar information on other sources from webpages</p>
<p>Employing digital tools to identify and utilize the most relevant digital tools that are available for reading, responding, annotating and sharing a digital text</p>		<p>Employing digital tools for awareness of culturally neutral texts</p>	<p>27. ใช้แอปพลิเคชันหรือซอฟต์แวร์เช่น เปิดพจนานุกรม หรือการแบ่งหน้าจอ เพื่อตระหนักรู้ถึงความเป็นกลาง ทางวัฒนธรรมจาก เว็บเพจ</p> <p>Use apps or software such as opening a dictionary or splitting the screen to be aware of</p>

			<p>culturally neutral texts from webpages</p> <p>28. ใช้แอปพลิเคชันหรือซอฟต์แวร์เช่น เปิดพจนานุกรม หรือไฮไลต์คำเพื่อ ตระหนัก รู้ถึงความเป็นกลางทางวัฒนธรรมจากอีบุ๊ก</p> <p>Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from e-books</p> <p>29. ใช้แอปพลิเคชันหรือซอฟต์แวร์เช่น เปิดพจนานุกรม หรือ การแบ่งหน้าจอ เพื่อตระหนักรู้ถึงความเป็นกลาง ทางวัฒนธรรมจากโซเชียลมีเดีย</p> <p>Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from social media</p> <p>30. ใช้แอปพลิเคชันหรือซอฟต์แวร์เช่น เปิดพจนานุกรม หรือการแบ่งหน้าจอ เพื่อตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรมจาก มัลติมีเดีย</p> <p>Use apps or software such as opening a dictionary or splitting the screen to be aware of culturally neutral texts from multimedia</p>
Managing Distraction		Managing Distraction when	<p>31. จัดการสิ่งรบกวนโดย</p>

a self-regulation of one's attention by concentrating on reading tasks and digital tools		watching authentic multimedia of the current use of English	<p>ทำหลายอย่างพร้อมกันเมื่อดูมัลติมีเดียใน สถานการณ์จริงที่มีคำบรรยายภาษาอังกฤษ</p> <p>Manage distraction by multitasking when watching multimedia in a real-life situation with English subtitles</p> <p>32. จัดการสิ่งรบกวนเมื่อดูมัลติมีเดียใน สถานการณ์จริงที่มีคำบรรยายภาษาอังกฤษ เช่นเปิดโหมดเครื่องบิน หรือแอปปิดกั้นโฆษณา</p> <p>Manage distraction when watching multimedia in a real-life situation with English subtitles such as opening airplane mode or use adblocker app</p>
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Appendix C

Sample of IOC Evaluation Form for Questionnaire Questions

Please mark your answer with a tick (✓) in the provided box accordingly for each question. In case that you give –1 for that item, please provide comments or suggestions

1 means that the item is appropriate for this study

0 means that you are not sure about the appropriateness of the item for this study

-1 means that the item is not appropriate for this study

Domain	Items	IOC			Comments
		-1	0	+1	
Encountering	1.หาข้อมูลเพื่อความเพลิดเพลิน จากเว็บ เพจ Surf information for amusement from the webpages				
	2.หาข้อมูลเพื่อความเพลิดเพลิน จาก อีบุ๊ก Surf information for amusement from e- books				
	3.หาข้อมูลเพื่อความ เพลิดเพลินจาก โซเชียลมีเดีย Surf information for amusement from social media				

Appendix D

IOC Result of The Questionnaire Question Evaluation

Questions	Analysis of IOC from Expert			IOC Score (Mean)	Results
	A	B	C		
Q1	0	0	1	0.33	<i>Revise</i>
Q2	1	1	1	1	Keep
Q3	1	1	0	0.67	Keep
Q4	1	-1	1	0.33	<i>Delete</i>
Q5	1	1	1	1	Keep
Q6	1	1	1	1	Keep
Q7	Q7.1	1	1	1	Keep
	Q7.2	1	0	1	Keep
	Q7.3	1	0	1	Keep
	Q7.4	0	1	1	Keep
	Q7.5	0	1	1	Keep
	Q7.6	1	0	1	Keep
	Q7.7	1	0	1	Keep
	Q7.8	1	0	0	<i>Revise</i>
	Q7.9	1	1	1	Keep
	Q7.10	1	1	1	Keep
	Q7.11	1	1	0	Keep
	Q7.12	1	1	0	Keep
	Q7.13	1	1	1	Keep
	Q7.14	1	1	1	Keep
	Q7.15	1	1	1	Keep
	Q7.16	1	1	1	Keep

Q8	Q7.17	1	1	1	1	Keep
	Q7.18	1	1	1	1	Keep
	Q7.19	1	1	1	1	Keep
	Q7.20	1	1	1	1	Keep
	Q7.21	1	1	1	1	Keep
	Q7.22	1	1	1	1	Keep
	Q8.1	1	1	1	1	Keep
	Q8.2	1	1	0	0.67	Keep
	Q8.3	0	1	1	0.67	Keep
	Q8.4	1	0	1	0.67	Keep
	Q8.5	1	1	1	1	Keep
	Q8.6	1	1	1	1	Keep
Q9	Q8.7	1	1	0	0.67	Keep
	Q8.8	1	0	1	0.67	Keep
	Q8.9	1	0	1	0.67	Keep
	Q8.10	1	1	1	1	Keep
	Q8.11	1	1	1	1	Keep
	Q8.12	0	1	1	1	Keep
		0	1	1	0.67	Keep

Appendix E

The Semi-structured Interview

Rationale

The semi-structured interview was one of the two instruments implemented in this study. It aimed to triangulate with the questionnaire findings to ensure accuracy and confirm the findings.

From the study sample, three participants, who had the highest number of years using digital materials, were purposefully selected to participate in the semi-structured interview. The researcher was the interviewer. Each interview session lasted no more than forty minutes. It was a private interview session via video conferencing software. The questions that were asked were as follows:

The Semi-structured Interview Question

Digital Reading on EIL materials' Components	Interview Questions
Encountering	1. คุณคิดเห็นอย่างไรเกี่ยวกับการหาสื่อเพื่อความเพลิดเพลิน What do you think about surfing information for amusement?
	2. คุณคิดเห็นอย่างไรเมื่อได้รับสื่อที่มีทั้งภาษาไทยและภาษาอังกฤษ What do think about receiving information that contains both Thai and English language?
	3. เพราะเหตุใดคุณถึงกดลิงก์ต่างๆ ที่เป็นสื่อมัลติมีเดียที่เกี่ยวข้องกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริงขณะกำลังหาข้อมูล Why do you click links that are multimedia related to intercultural communication in real situations?
	4. คุณค้นหาสื่อภาษาอังกฤษของนานาชาติเกี่ยวกับอะไรโดยใช้เสิร์ชเอนจิน เช่น สื่อเขียน หรือ บทพูดภาษาอังกฤษ What information have you searched by using search engine? (e.g., English spoken or written texts)
	5. คุณคัดสรรข้อมูลในสื่อจากอีบุ๊กอย่างไร How do you filter information from e-books?

<p>Engaging</p>	<p>6.เพราะเหตุใดคุณจึงจัดเก็บสื่อมัลติมีเดีย เช่น การดาวน์โหลดคลิปวิดีโอที่เกี่ยวข้องกับการสื่อสารระหว่างวัฒนธรรมในสถานการณ์จริง</p> <p>Why do you save multimedia, such as downloading videos, related to intercultural communication in a real-life situation?</p>
	<p>7. กลยุทธ์การอ่านประเภทใด เช่น อ่านอย่างละเอียด หรืออย่างผ่านๆ ที่คุณใช้กับสื่อเพื่อตระหนักรู้ความเป็นกลางทางวัฒนธรรม</p> <p>What reading strategies (e.g., reading thoroughly or skimming) do you use to be aware of culturally neutral information?</p>
	<p>8. คุณเคยส่งต่อโดยแชร์ภาพที่มีคำบรรยายภาษาอังกฤษบนโซเชียลมีเดียหรือไม่ เพราะเหตุใด</p> <p>Have you ever shared images with English captions on social media? Why?</p>
<p>Evaluating</p>	<p>9.คุณประเมินคุณค่าของสื่อว่ามีประโยชน์อย่างไร</p> <p>How do you determine the value of the materials whether it is useful or not?</p>
	<p>10.เพราะเหตุใดคุณจึงวิจารณ์และเปรียบเทียบสื่อที่เขียนด้วยภาษาอังกฤษ</p> <p>Why do you criticize and compare information written in English?</p>
	<p>11. แอปพลิเคชันหรือซอฟต์แวร์อะไร เช่น เปิดพจนานุกรม หรือแบ่งหน้าจอ ที่ทำให้ตระหนักรู้ถึงความเป็นกลางทางวัฒนธรรม</p> <p>What applications or software (e.g., opening a dictionary or splitting the screen) do you use to be aware of culturally neutral information?</p>
	<p>12.คุณจัดการสิ่งรบกวนอย่างไรเมื่อดูมัลติมีเดียที่มีคำบรรยายภาษาอังกฤษ</p> <p>How do you manage distraction when watching multimedia with English subtitle?</p>

Appendix F

Sample of IOC Evaluation Form for Interview Question

Please mark your answer with a tick (✓) in the provided box accordingly for each question. In case that you give –1 for that item, please provide comments or suggestions

1 means that the item is appropriate for this study

0 means that you are not sure about the appropriateness of the item for this study

-1 means that the item is not appropriate for this study

Semi-structured interview questions	IOC		
	-1	0	+1
1. คุณคิดเห็นอย่างไรเกี่ยวกับการหาสื่อภาษาอังกฤษของนานาชาติเพื่อความเพลิดเพลิน How do you think about surfing a variety of English materials for amusement?			
Comments/ Suggestions			
2. คุณคิดเห็นอย่างไร เมื่อได้รับสื่อที่มีทั้งภาษาไทยและภาษาอังกฤษ How do you think about receiving information that have both Thai and English language?			
Comments/ Suggestions			

Appendix G

IOC Result of The Semi-structured Interview Question Evaluation

Questions	Analysis of IOC from Expert			IOC Score (Mean)	Interpretation
	A	B	C		
Q 1	1	1	0	0.67	Keep
Q2	1	1	0	0.67	Keep
Q3	1	1	0	0.67	Keep
Q4	1	1	0	0.67	Keep
Q5	0	0	1	0.33	<i>Revise</i>
Q6	1	1	1	1	Keep
Q7	1	1	1	1	Keep
Q8	1	1	1	1	Keep
Q9	1	1	1	1	Keep
Q10	1	1	1	1	Keep
Q11	0	1	0	0.33	<i>Revise</i>
Q12	1	1	1	1	Keep

Appendix H

List of Experts

1. Lect. Charukit Chaiwan

School of Management, Mae Fah Luang University

2. Asst. Prof. Mintra Puripunyavanich, Ph.D.

Language Institute, Chulalongkorn University

3. Lect. Sumanee Pinweha, Ph.D.

Language Institute, Chulalongkorn University



VITA

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