CHAPTER II
LITERATURE REVIEW

This chapter reviews the theoretical and empirical foundations that guide this study of reading preferences among English Education students. The review begins by examining reading in EFL contexts, then discusses the characteristics and cognitive demands of online versus printed reading materials. Next, the chapter explores the concept of reading preferences and factors that shape format choices. The theoretical frameworks—Self-Determination Theory, Cognitive Load Theory, and reading preference models—are then presented to explain the psychological and cognitive mechanisms underlying students' decisions. Finally, relevant previous research is reviewed to position this study within the broader scholarly conversation and identify gaps this research addresses.

A. Theoretical Framework

1. Reading in EFL Context

Reading occupies a central position in English as a Foreign Language (EFL) education because it simultaneously serves as both a language learning tool and an academic skill (Al Roomy, 2022). For EFL learners, reading provides essential exposure to authentic language use, grammatical structures, vocabulary in context, and discourse patterns that are difficult to acquire through direct instruction alone (Larasati et al., 2023). Unlike native speakers who develop reading skills while already possessing substantial oral language competence, EFL learners must often develop reading abilities while simultaneously building foundational language knowledge. This dual challenge makes reading both more difficult and more crucial for EFL students' overall language development.

Research consistently demonstrates strong relationships between reading proficiency and other language skills in EFL contexts. Sidabutar (2022) found significant correlations between Indonesian EFL students' reading habits

and their speaking abilities, suggesting that extensive reading input supports productive language development. Similarly, studies show that reading comprehension affects EFL learners' writing quality, listening comprehension, and overall academic achievement (Mohseni et al., 2020). The vocabulary acquisition that occurs through reading proves particularly valuable for EFL learners who lack the immersive language environments that support incidental vocabulary learning for native speakers.

Beyond language development, reading in EFL contexts serves critical thinking and analytical functions necessary for academic success. Namaziandost et al. (2024) investigated the relationship between critical thinking and reading comprehension among Iranian EFL learners and found significant positive correlations, indicating that reading comprehension both requires and develops critical thinking abilities. For English Education students specifically—who will become future English teachers—developing sophisticated reading skills becomes doubly important because they must not only use reading for their own learning but also understand how to teach reading effectively to their future students (Hassan et al., 2021).

However, EFL learners face particular challenges that native speakers do not encounter. Limited vocabulary knowledge can impede comprehension and slow reading speed, creating frustration that undermines motivation (Al Roomy, 2022). Unfamiliar grammatical structures require conscious processing that disrupts reading flow and increases cognitive load. Cultural references and idiomatic expressions that native speakers understand intuitively may confuse EFL readers. These challenges mean that the choice between digital and printed reading materials takes on additional significance for EFL learners, as different formats may offer different types of support or impose different cognitive demands that interact with language learning needs (Larasati et al., 2023).

In Indonesian higher education contexts specifically, EFL reading instruction must address both language development and academic literacy needs within resource-constrained environments (Sidabutar, 2022). Students need access to sufficient reading materials at appropriate difficulty levels, opportunities to practice reading strategies, and support for managing the cognitive demands of reading in a foreign language. Understanding how students navigate choices between digital and printed reading formats can inform instructional decisions and resource allocation that better support EFL learners' diverse needs.

2. Reading Materials: Online vs Printed Reading Resources

Digital reading materials encompass texts accessed through electronic devices, including computers, tablets, smartphones, and e-readers (Baron, 2021). These materials range from born-digital content like websites and blogs to digitized versions of printed texts like PDF scans or EPUB e-books. Digital texts share several defining characteristics that distinguish them from print. First, they depend on technological infrastructure—devices, software, electricity, and often internet connectivity—creating both opportunities and vulnerabilities (Cumaoglu et al., 2020). Second, digital texts typically offer interactive affordances including hyperlinks, search functions, adjustable typography, electronic annotation tools, and multimedia integration. Third, digital reading environments frequently present multiple stimuli simultaneously—notifications, advertisements, navigation elements, and multiple open applications competing for attention (Skulmowski and Rey, 2021).

Research on digital reading reveals both cognitive advantages and challenges. The search functionality enables rapid location of specific information across lengthy texts or multiple documents, supporting efficient information retrieval (Mizrachi et al., 2018). Hyperlinks can provide immediate access to definitions, translations, or background information that

scaffolds comprehension, particularly valuable for EFL learners encountering unfamiliar vocabulary (Baron, 2021). Digital annotation tools allow color-coded highlighting, text extraction, and note organization that support active reading strategies. The portability of digital libraries means students can carry thousands of texts on single devices, enabling opportunistic reading and eliminating logistical barriers (Cumaoglu et al., 2020).

However, digital reading also imposes cognitive costs that can undermine comprehension and retention. The hypertextual structure of digital environments fragments attention and can increase cognitive load as readers navigate multiple linked materials (DeStefano and LeFevre, 2007). Notifications and multitasking opportunities create constant interruptions that disrupt the sustained attention necessary for deep reading (Lee and Martin, 2020). Screen-based reading causes greater visual fatigue than print, particularly during extended sessions, potentially reducing reading endurance and comfort (Cumaoglu et al., 2020). Research comparing comprehension between digital and print formats often finds advantages for print, especially for complex materials requiring integration of information across multiple sections (Delgado et al., 2018).

Printed reading materials refer to physical texts on paper, typically bound in formats like books, journals, or photocopied documents. Print materials possess stability and tangibility absent from digital formats (Mangen et al., 2013). The fixed spatial layout of printed pages supports mental mapping of content—readers develop spatial memory of where information appeared on pages, aiding later retrieval. The tactile and sensory dimensions of print—paper texture, book weight, page-turning motions, visual permanence—create embodied reading experiences that some readers find more engaging or comfortable than screen-based reading (Baron, 2021).

Printed materials avoid many challenges associated with digital reading. They require no electricity, internet, or compatible software, providing

reliable access independent of technological infrastructure. Print creates distraction-free reading environments—no notifications interrupt attention, no hyperlinks tempt readers away from primary texts, and no advertisements compete for visual attention (Mizrachi et al., 2018). The stable, focused interface of print may reduce extraneous cognitive load and support sustained concentration, particularly beneficial for complex academic materials requiring deep comprehension (Mangen et al., 2013).

However, print materials also have significant limitations. They lack the search and navigation affordances of digital texts, requiring manual page-turning and index consultation to locate specific information. Print materials cannot be easily annotated, copied, or reorganized without physically marking or destroying the original document. The physical bulk and weight of printed materials creates portability challenges—students cannot carry extensive libraries and must predict which specific texts they will need. Print materials incur higher production and distribution costs, creating economic and environmental concerns (Baron, 2021). For rapidly updating fields or current events, print materials may become outdated before students access them.

Understanding the cognitive demands imposed by different reading formats requires examining how medium characteristics interact with reading purposes and reader capabilities. Delgado et al. (2018) conducted a comprehensive meta-analysis comparing reading comprehension across formats and found small but consistent advantages for print, particularly for longer texts and when reading under time pressure. They suggest that digital environments increase extraneous cognitive load through distractions and navigation demands, leaving fewer cognitive resources for actual comprehension.

However, format effects vary by task type. For quick information lookup or scanning multiple sources, digital advantages often outweigh comprehension costs (Mizrachi et al., 2018). For extended study requiring

sustained attention and integration of complex information, print may better support the focused processing necessary for deep learning (Mangen et al., 2013). Reader characteristics also moderate format effects—individuals with strong self-regulation skills may manage digital distractions effectively, while those with weaker metacognitive control experience greater performance decrements in digital environments (Lee and Martin, 2020).

For EFL learners specifically, format considerations involve additional layers of complexity. Digital tools offering instant dictionary access or translation can reduce the vocabulary burden that impedes comprehension for non-native readers (Larasati et al., 2023). However, over-reliance on these tools might prevent the deep processing that supports vocabulary acquisition. The cognitive load of reading in a foreign language may interact with format-imposed loads in ways that differ from native language reading. Research examining these interactions in EFL contexts remains limited, creating opportunities for studies like the present research to contribute new insights.

3. Reading Preference

Reading preferences refer to individuals' tendencies to select particular types of reading materials, formats, or contexts when given choices (Hirsch, 2003). In the context of digital versus print reading, preferences involve students' inclinations toward electronic or physical texts across various situations. Important to note, preferences should not be conceptualized as fixed personality traits but rather as dynamic decision-making processes influenced by multiple factors including task requirements, material availability, previous experiences, and contextual constraints (Baron, 2021).

Guthrie and Wigfield (2000) emphasize that reading preferences reflect underlying motivational processes. Intrinsic reading motivation—reading for enjoyment, curiosity, or personal interest—may lead to different format preferences than extrinsic motivation driven by external requirements like assignments or grades. Students who find reading inherently pleasurable might

gravitate toward formats that enhance sensory engagement or comfort, while those reading primarily to complete assignments might prioritize efficiency and accessibility regardless of reading experience quality.

Reading preference research distinguishes between stated preferences (what readers report preferring) and revealed preferences (what readers actually choose in natural contexts). Baron (2021) notes that students sometimes express preferences for one format but default to another when making actual reading decisions, suggesting that practical constraints often override stated preferences. This distinction highlights the importance of qualitative research that explores not just which formats students prefer but why they make specific choices in specific situations—the focus of the present study.

Research on format preferences among university students reveals complex, sometimes contradictory patterns. Mizrachi et al. (2018) surveyed over 10,000 students across multiple countries and found that approximately 65% preferred print for academic reading despite widespread digital access and high digital literacy. Students cited better concentration, reduced eye strain, and easier annotation as primary reasons for print preferences. However, the same students acknowledged using digital formats frequently for practical reasons including cost, availability, and convenience.

Baron (2021) documents a shift in reading practices where students increasingly use digital formats for initial scanning, searching, and quick reference tasks while turning to print when they need to study seriously or prepare for exams. This task-dependent format selection suggests that preferences reflect strategic adaptations to different reading purposes rather than universal medium preferences. Students appear to develop implicit understanding of which formats best support which cognitive activities, even without explicit instruction in strategic format selection.

For EFL learners specifically, Almadhi and Alanazi (2024) found that

Saudi students acknowledged e-books' convenience but still perceived printed materials as more effective for comprehension and learning. Larasati et al. (2023) reported similar patterns among Indonesian EFL students, who preferred digital texts for practical reasons but expressed concerns about reduced comprehension and increased distraction. These findings suggest that EFL learners experience tensions between practical needs and perceived learning effectiveness that may differ from native speakers' experiences.

Multiple interacting factors shape reading format preferences in educational contexts. Practical factors include accessibility (how easily materials can be obtained), cost (economic barriers to access), portability (ease of carrying materials), and convenience (effort required to use materials). Digital formats typically excel on these practical dimensions, particularly for students with limited budgets or those who need access to multiple sources simultaneously (Cumaoglu et al., 2020). Cognitive factors involve how different formats support or impede (1) comprehension, (2) memory, and (3) learning. Print advantages often emerge for complex materials requiring sustained attention, integration of information across sections, or development of coherent mental models (Delgado et al., 2018). Digital advantages appear for tasks involving search, quick reference, or accessing supplementary information. Individual differences in cognitive processing styles may moderate these effects—some readers naturally adapt to digital environments while others struggle with their demands.

Physical and sensory factors include comfort dimensions like eye strain, postural demands, haptic feedback, and sensory engagement. Screen-based reading creates visual fatigue that accumulates during extended sessions, particularly problematic for students who must read multiple hours daily (Cumaoglu et al., 2020). Some readers value the tactile and olfactory dimensions of print—paper texture, book heft, page-turning motions—as contributing to reading pleasure and engagement (Baron, 2021). Social and institutional factors involve peer influences, instructor expectations, and

systemic structures that normalize particular practices. When instructors require digital submissions, provide materials through online platforms, or assign readings available only digitally, they channel students toward digital reading regardless of individual preferences (Mizrachi et al., 2018). Peer recommendations and shared practices within student communities also shape format adoption through social learning and normative influence.

Motivational and affective factors relate to psychological needs, emotional responses, and subjective experiences associated with different formats. Some students associate print with serious academic work and focused study, while viewing digital reading as casual or recreational. Others appreciate the autonomy and customization that digital platforms provide, supporting their psychological needs for independence and control. These affective associations can influence format choices independently of objective performance differences (Ryan and Deci, 2020). These affective associations can influence format choices independently of objective performance differences (Ryan and Deci, 2020). In summary, reading preferences are not fixed traits but dynamic, multifaceted decisions shaped by the interplay of practical constraints, cognitive demands, physical comfort, social influences, and motivational factors. Students navigate these complex considerations when choosing between digital and print formats, often adapting their selections based on specific reading purposes, task requirements, and contextual circumstances. Understanding this complexity is essential for educators and institutions seeking to support effective reading practices in contemporary academic environments.

4. Self-Determination Theory (SDT)

Self-Determination Theory, developed by Deci and Ryan (1985) and refined over subsequent decades, explains human motivation through the lens of psychological needs satisfaction (Ryan and Deci, 2020). SDT proposes that human behavior and wellbeing depend fundamentally on satisfying three innate

psychological needs: autonomy (experiencing oneself as the origin of one's actions and having choices aligned with one's values), competence (feeling effective and capable in producing desired outcomes), and relatedness (feeling connected to others and experiencing meaningful social relationships). When environments support these needs, individuals experience autonomous motivation, psychological wellness, and optimal functioning. When environments thwart these needs, individuals experience controlled motivation, diminished wellbeing, and impaired performance.

The theory distinguishes between intrinsic motivation (engaging in activities for inherent satisfaction) and various forms of extrinsic motivation (engaging in activities for separable outcomes like rewards or approval). SDT describes how extrinsic motivation becomes internalized through a continuum: external regulation (behavior controlled by external contingencies), introjected regulation (behavior driven by internal pressure like guilt or ego involvement), identified regulation (behavior chosen because one values its importance), and integrated regulation (behavior fully aligned with one's values and identity). Supporting autonomy, competence, and relatedness facilitates movement toward more autonomous forms of motivation along this continuum (Deci and Ryan, 2000).

Recent applications of SDT in educational contexts confirm that autonomy-supportive teaching practices, competence-affirming feedback, and relatedness-fostering classroom climates enhance student motivation, engagement, and achievement (Wang et al., 2024). For understanding reading preferences, SDT provides a framework for examining whether format choices reflect attempts to satisfy psychological needs. Do students choose digital formats because they support autonomy through customization and flexibility? Do certain formats better support competence needs by making students feel more capable of completing academic tasks successfully? Do social and institutional influences on format choices operate through relatedness needs—desires to align with peer practices or meet instructor expectations?

Vansteenkiste et al. (2020) emphasize that examining basic needs satisfaction helps explain not just what people do but why they do it and how sustainable their motivation proves over time. Applied to reading preferences, SDT suggests that format choices supporting psychological needs should predict more sustained reading engagement and better learning outcomes than choices driven by external pressures or practical constraints alone. Recent research on SDT in education demonstrates that supporting all three needs produces optimal outcomes, while thwarting any need undermines motivation and wellbeing (Ryan and Deci, 2020).

For this study, SDT guides examination of whether students' reading format preferences reflect autonomous choices supporting psychological needs or controlled choices driven by external circumstances. The theory suggests that sustainable, effective reading practices require formats that simultaneously support autonomy (students feel free to choose and customize), competence (students feel capable of comprehending and learning), and relatedness (students feel connected to their academic community through shared practices). Understanding these psychological dynamics can inform educational interventions that help students make format choices supporting both their immediate practical needs and long-term learning goals.

5. Cognitive Load Theory (CLT)

Cognitive Load Theory, originating with Sweller's (1988) work and extensively developed over subsequent decades, explains how instructional design affects learning by managing demands on working memory (Sweller et al., 2019; Paas and van Merriënboer, 2020). The theory rests on the understanding that working memory has severely limited capacity—typically only 4-7 elements can be held and processed simultaneously (Sweller, 2020). This constraint means that learning efficiency depends critically on how cognitive resources are allocated during instruction and study.

CLT distinguishes three types of cognitive load that compete for limited working memory resources. Intrinsic load stems from the inherent complexity of the material being learned and the learner's prior knowledge—complex topics with many interacting elements impose higher intrinsic load than simple topics with few elements (Sweller et al., 2019). Intrinsic load cannot be eliminated without changing what is learned, though it can be managed through sequencing and scaffolding. Extraneous load arises from how information is presented and from environmental factors that do not support learning—poor instructional design, confusing layouts, distractions, or inefficient information formats increase extraneous load without contributing to learning (Sweller, 2020). Extraneous load should be minimized because it wastes cognitive resources on irrelevant processing. Germane load represents the productive mental effort invested in schema construction and automation—the actual cognitive work of organizing, understanding, and integrating new information with existing knowledge (Castro-Alonso, 2020). Germane load should be optimized to the extent working memory allows after intrinsic and extraneous loads are accounted for. Effective learning requires instructional designs that manage these loads strategically: presenting material in ways that respect working memory limits (managing intrinsic load), eliminating unnecessary cognitive demands (minimizing extraneous load), and supporting meaningful processing that builds understanding (optimizing germane load). When total load exceeds working memory capacity, learning suffers regardless of effort or time invested (Paas and van Merriënboer, 2020).

Recent applications of CLT to digital learning environments reveal that technology can either support or undermine cognitive processing depending on design decisions (Sweller, 2020; Hanham et al., 2023). Well-designed digital materials can reduce intrinsic load through features like interactive diagrams, integrated multimedia explanations, or adaptive difficulty adjustment. However, poorly designed digital environments often increase extraneous load through split attention (forcing learners to integrate information across multiple

locations), redundancy (presenting the same information multiple times in different formats), or distractions (notifications, advertisements, navigation complexity) that divert attention from learning (Skulmowski and Rey, 2021).

For understanding reading format preferences, CLT provides a framework for analyzing cognitive demands imposed by digital versus print reading. Digital environments potentially increase extraneous load through notifications, advertisements, multitasking opportunities, and navigation complexities that distract from text processing (Lee and Martin, 2020). Screen-based reading may also impose physical strain that diverts cognitive resources from comprehension to managing discomfort. Conversely, digital search and annotation tools might reduce intrinsic load by making information easier to locate and organize, or they might increase load by requiring simultaneous management of multiple functions.

Print materials typically minimize extraneous load by providing distraction-free, stable interfaces with fixed spatial layouts that support mental mapping (Mangen et al., 2013). However, print lacks digital affordances for search and navigation, potentially increasing intrinsic load for tasks requiring information retrieval across lengthy texts. Recent research confirms that format effects on comprehension partly reflect differences in cognitive load—digital reading often imposes a higher extraneous load that undermines processing, particularly for learners with limited self-regulation skills (de Bruin, 2020; Lee and Martin, 2020).

For this study, CLT suggests that students' format preferences may reflect implicit awareness of cognitive load differences. Students might choose print for complex materials requiring sustained concentration (minimizing extraneous load) while selecting digital formats for quick searches or multiple-source tasks (leveraging search tools to reduce intrinsic load). Understanding these cognitive trade-offs can inform recommendations about strategic format

selection for different academic tasks and guide the development of digital reading environments that better support learning by reducing extraneous load.

B. Study of Relevant Research

Recent research on reading format preferences reveals several consistent patterns across different educational contexts, though significant gaps remain for Indonesian EFL learners. Mizrachi et al. (2018) conducted one of the largest and most comprehensive studies, surveying 10,293 university students across multiple countries. Their key finding was that approximately 65% of students preferred print materials for academic reading, citing better focus, comprehension, and note-taking as primary reasons. This preference held regardless of students' digital literacy levels or cultural backgrounds, suggesting that cognitive and experiential factors rather than technological comfort drive format preferences. Importantly, students acknowledged using digital formats frequently despite preferring print, indicating a gap between ideal preferences and actual practices driven by practical constraints.

Almadhi and Alanazi (2024) examined reading preferences among Saudi EFL learners through a mixed-methods study combining surveys and interviews. They found that while students recognized e-books' convenience and accessibility advantages, they still perceived printed materials as more effective for deep comprehension tasks and exam preparation. Qualitative data revealed that students associated print with "serious" academic work requiring sustained concentration, while viewing digital reading as appropriate for casual browsing or quick reference. Importantly, their study found that reading medium affected not only comprehension outcomes but also students' attitudes toward reading itself—some students reported reduced motivation and engagement when required to read lengthy academic texts digitally.

Larasati et al. (2023) investigated Indonesian EFL students' reading preferences, providing particularly relevant context for the present study. Their key finding was that students preferred digital texts primarily for practical reasons—portability, cost savings, and searchability—rather than for learning effectiveness.

When asked about comprehension and retention, participants expressed concerns that online reading produced more superficial processing and reduced memory compared to print. The study highlighted economic factors specific to Indonesian contexts: many students simply cannot afford printed textbooks and must rely on digital alternatives regardless of preferences. This finding reveals how economic constraints can override pedagogical considerations in shaping reading practices.

Baron (2021) conducted longitudinal research examining how students' reading practices evolved over several years. Her key finding was that students increasingly adopt strategic, task-dependent format selection rather than using one format for all purposes. Specifically, students reported using digital formats for initial scanning, keyword searching, and identifying relevant sources, but switching to print when they needed to study seriously, annotate extensively, or prepare for exams. This pattern suggests that preferences are not fixed but context-dependent, with students recognizing that different formats support different cognitive activities. Baron argues that rather than debating which format is "better," educators should help students develop metacognitive awareness of when each format serves their learning goals most effectively.

Cumaoglu et al. (2020) studied Turkish university students' perceptions of e-books versus printed materials. Their survey of 294 students found that 68% cited accessibility as e-books' main advantage, while 72% reported physical discomfort (eye strain, headaches) as the primary disadvantage. Importantly, students who used e-books extensively reported increasing discomfort over time, suggesting that physical costs accumulate with sustained digital reading. The study also found that students were willing to pay modest premiums for printed versions of key textbooks, indicating that physical comfort and perceived learning effectiveness outweigh cost savings for important materials.

Delgado et al. (2018) conducted a comprehensive meta-analysis of 54 studies comparing reading comprehension across formats. Their analysis found small but consistent advantages for print reading, particularly for longer texts (more

than 500 words) and when reading under time pressure. Effect sizes were larger for informational texts than narratives, suggesting that format effects intensify when materials require integration of complex information or careful evaluation of arguments—precisely the type of reading common in academic contexts. The meta-analysis also revealed that format effects increased when studies controlled for various confounds, suggesting that real-world comparisons underestimate print advantages because digital reading often occurs under suboptimal conditions.

These studies are relevant to the present research because they establish several important points. First, reading format preferences involve multiple competing factors—practical convenience versus learning effectiveness, immediate accessibility versus physical comfort, cost savings versus comprehension quality. Second, preferences are not fixed but context-dependent, with students strategically selecting formats based on task requirements and situational constraints. Third, economic and infrastructural factors significantly shape preferences, particularly in developing country contexts where resource limitations may force digital adoption regardless of pedagogical considerations.

However, existing research also reveals significant gaps that this study addresses. Most previous research uses quantitative surveys that measure what students prefer but cannot explore why students make specific choices in specific situations. The present study's qualitative approach through in-depth interviews can reveal the reasoning processes and decision-making factors underlying format preferences in ways that surveys cannot capture. Additionally, few studies focus specifically on Indonesian EFL contexts where unique combinations of technological access, economic constraints, and language learning demands create distinctive challenges. Most research comes from Western countries with different educational infrastructures and student populations, limiting generalizability to Indonesian settings. Finally, limited research applies motivational and cognitive theories like SDT and CLT to explain reading preferences, instead treating preferences as simple consumer choices. This study bridges these gaps by examining Indonesian EFL students' reading preferences through theoretically

grounded qualitative analysis that explores psychological needs, cognitive demands, and contextual factors shaping format selection.