

Digital distraction, attention span, and academic reading engagement in Indonesian EFL reading classes

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ABSTRACT

Reading engagement in English as a Foreign Language (EFL) context is closely associated with students' ability to sustain attention while processing academic texts. However, limited attention has been given to how students experience attention span as part of their reading engagement, particularly in digitally saturated learning environments. This study explored Indonesian EFL university students' experiences of attention span and reading engagement in an academic reading class. Using a qualitative follow-up design, semi-structured interviews were conducted with selected students who had previously completed a questionnaire and agreed to participate in the interview phase. The interview data were analyzed using reflexive thematic analysis to identify recurring patterns in students' accounts. The findings revealed four major themes: personal interest as a motivational entry point into reading, reading duration as a natural boundary of sustained attention, reading environment as a condition for concentration, and digital distractions as disruptors of reading flow. The study shows that attention span and reading engagement are not fixed individual traits but dynamic processes shaped by motivational, cognitive, environmental, and technological factors. The findings suggest that EFL reading instruction should not only focus on comprehension skills but also support students' attention management, self-regulated reading strategies, and creation of low-distraction reading environments. This study contributes to EFL reading research by highlighting attention span as an important condition for sustaining meaningful reading engagement.

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Introduction

Reading remains a central academic practice in higher education, particularly in English as a Foreign Language (EFL) context, where students are required to process academic texts, construct meaning in a non-native language, and develop disciplinary literacy for both academic and professional purposes. This process requires vocabulary knowledge, linguistic competence, background knowledge, strategic reading, and sustained engagement with texts. Reading is therefore not merely a linguistic activity, but a purposeful and effortful task that involves motivation, strategy use, and active investment in comprehension (Baker & Wigfield, 1999). For EFL students, limited vocabulary, unfamiliar academic genres, and varying English proficiency may further challenge their ability to engage deeply with reading materials. In English education programs, this issue is particularly important because students are expected not only to become competent academic readers but also to develop the pedagogical awareness needed to support future learners' reading practices.

Two constructs are especially relevant to understanding students' reading experiences in this context: attention span and reading engagement. Attention span refers to the duration in which learners can maintain concentration on a task without being distracted. It is closely related to students' ability to sustain focus, manage cognitive resources, and remain attentive during learning activities. Previous research emphasizes that attention span influences academic performance and cognitive development, while distractions in learning environments may weaken students' ability to absorb and retain information (Posner & Rothbart, 2007). In reading activities, limited attention span may prevent students from following the development of ideas, identifying textual relationships, and sustaining comprehension across longer academic texts.

Reading engagement, meanwhile, is a multidimensional construct involving behavioral, cognitive, and emotional dimensions. Behavioral engagement refers to students' observable participation in reading activities; cognitive engagement concerns the mental effort, strategies, and self-regulation used to comprehend texts; and emotional engagement involves affective responses such as interest, enjoyment, frustration, or confidence during reading (Fredricks et al., 2004; Unrau & Quirk, 2014). Recent literature also suggests that engaged readers invest time and effort, use strategies purposefully, and approach reading as a meaningful activity rather than as a mere academic obligation. Thus, reading engagement is not equivalent to simply opening a text or completing an assignment; it reflects the depth of students' interaction with reading materials.

The relationship between attention span and reading engagement is theoretically important because reading requires sustained cognitive effort. Students who are able to maintain attention are more likely to monitor comprehension, evaluate textual meaning, and persist when encountering difficult vocabulary, unfamiliar concepts, or complex sentence structures. Conversely, students with fragmented attention may show superficial reading behaviors: scanning without comprehension, rereading without integration, or abandoning texts when cognitive demands increase. This relationship is especially relevant

in EFL contexts, where reading often requires additional mental effort due to limited vocabulary, syntactic complexity, unfamiliar genres, and anxiety associated with foreign language learning.

The issue has become increasingly urgent in the digital era. University students are exposed to fast-paced digital content, multitasking practices, and short-form media that may reshape their habits of attention. Studies on short-form video consumption indicate that frequent exposure to highly stimulating media may reduce students' capacity for sustained attention and interfere with academic tasks such as reading, studying, and listening to lectures. Haliti-SylaJ & Sadiku (2024), for example, found that short-reel consumption was negatively associated with undergraduate students' attention span and academic performance, suggesting that the highly engaging but cognitively shallow nature of short-form media may disrupt students' ability to maintain academic focus. Although digital media may support learning when used pedagogically, excessive exposure to fragmented content can challenge students' ability to engage deeply with extended academic texts.

In Indonesian EFL university settings, the problem deserves closer empirical attention. English education students are expected to read journal articles, textbooks, literary texts, teaching materials, and research-based academic sources. However, their reading engagement may be affected by several conditions: varying English proficiency levels, limited reading habits, dependence on translation tools, academic workload, digital distractions, and uneven motivation toward reading. These conditions suggest that attention span and reading engagement should not be treated as isolated psychological variables, but as interrelated aspects of students' academic literacy development. Understanding this relationship can help lecturers design reading instruction that promotes sustained focus, strategic reading, and meaningful participation.

Although previous studies have examined reading strategies, digital reading, motivation, and academic engagement, limited research has specifically investigated the relationship between attention span and reading engagement among Indonesian EFL university students. Existing literature on reading engagement highlights the importance of reader-related, text-related, task-related, and contextual factors in shaping students' engagement with reading. By contrast, insufficient research has examined how students' capacity to sustain attention interacts with their behavioural, cognitive, and emotional engagement during EFL academic reading. This issue is significant because students may appear behaviourally engaged through attending classes, accessing assigned readings, or submitting reading tasks, yet may not necessarily demonstrate deeper cognitive and emotional engagement with the reading materials.

Therefore, this study aims to investigate the relationship between attention span and reading engagement among Indonesian EFL university students. Specifically, the study seeks to examine how students' ability to sustain attention is associated with their behavioural, cognitive, and emotional engagement in academic reading classes. By addressing this focus, the study contributes to EFL reading research by offering empirical

insight into how attention-related challenges shape students' reading engagement in higher education. Practically, the findings are expected to inform lecturers, curriculum designers, and English education programs in developing reading instruction that is more responsive to students' cognitive realities in the post-digital learning environment.

Literature Review

Attention Span in Academic Reading

Attention span in academic reading should be understood as a regulated cognitive capacity rather than a simple measure of how long students sit with a text. In reading, attention enables learners to select relevant information, suppress distractions, maintain textual ideas in working memory, and coordinate lower-level decoding with higher-level inference making (Posner & Petersen, 1990; Cowan, 2010; Sweller et al., 2019). This is particularly important in EFL contexts because readers must simultaneously process vocabulary, syntax, discourse organization, and meaning across paragraphs, making sustained attention a prerequisite for comprehension monitoring and strategic reading (Sweller, 1988; (Grabe & Stoller, 2020).

From the perspective of cognitive load theory, reading difficulties emerge when the demands of a task exceed the learner's available cognitive resources. Complex vocabulary, unfamiliar text structure, weak background knowledge, and competing digital distractions can increase extraneous cognitive load, leaving fewer resources for comprehension, interpretation, and critical response (Sweller, 1988; Sweller et al., 2019; Mayer, 2021). In this sense, attention span is not an isolated psychological trait; it is shaped by the interaction between learner capacity, task design, text complexity, and learning environment (Ellah et al., 2019; Shuwara et al., 2025; Sharpe et al., 2025).

The limited-capacity model of mediated message processing also helps explain why students exposed to rapid digital stimuli may struggle with extended academic reading. The model assumes that individuals have limited cognitive resources for encoding, storage, and retrieval; when media environments demand frequent shifts of attention, fewer resources remain for deep processing (Lang, 2000; Ellah et al., 2019). Evidence from media multitasking studies similarly shows that habitual switching across media streams is associated with weaker cognitive control and greater susceptibility to irrelevant stimuli (Uncapher & Wagner, 2018). These findings support the view that attention in reading is vulnerable not merely to distraction frequency, but also to the broader attentional habits cultivated by digital media ecologies.

Recent empirical evidence makes this issue more urgent for university students. (Haliti-Sylaj & Sadiku, 2024) reported that frequent exposure to short-form reels on TikTok, Instagram, and YouTube was associated with reduced attention span and weaker academic performance among undergraduates. In a classroom-based study, Shuwara et al. (2025) also showed that teaching methods are connected to students' attention, engagement, and attainment, suggesting that attention is responsive to pedagogical organization rather than fixed. Sharpe et al. (2025) further demonstrated that structured micro-breaks can help

sustain performance across university classes, reinforcing the idea that attention can be supported through instructional design rather than treated only as an individual deficit.

Reading Engagement as a Multidimensional Construct

Reading engagement is commonly conceptualized as a multidimensional construct involving behavioral, cognitive, emotional, and social dimensions. Behavioral engagement refers to observable participation and persistence in reading tasks; cognitive engagement refers to strategy use, self-regulation, and investment in understanding; emotional engagement refers to interest, enjoyment, value, or frustration; and social engagement concerns interaction around texts through discussion, collaboration, and shared meaning-making (Fredricks et al., 2004); (Guthrie, 2004); (Unrau & Quirk, 2014). This multidimensional framing is important because a student may appear behaviorally compliant while remaining cognitively passive or emotionally disengaged.

Social cognitive theory provides one useful explanation for how reading engagement develops. From this perspective, engagement is influenced by reciprocal interactions among personal factors, behaviors, and environment: learners' beliefs, self-efficacy, reading habits, teacher support, text difficulty, and classroom norms mutually shape one another (Bandura, 1986); (Alqahtani, 2024). Alqahtani (2024) argues that reading engagement is enabled by the relationship among reader, text, task, and context, including culturally relevant texts, autonomy-supportive instruction, differentiated tasks, and collaborative reading structures. This means reading engagement cannot be adequately explained by motivation alone; it must also be examined through the instructional and ecological conditions that invite or inhibit sustained reading.

Self-determination theory adds a motivational explanation by emphasizing autonomy, competence, and relatedness as core conditions for deeper engagement. Students are more likely to engage in reading when they perceive choice, experience progress, receive meaningful feedback, and feel that reading connects to personally or socially valued purposes (Deci & Ryan, 2000); (Ryan & Deci, 2020); (Alqahtani, 2024). In EFL reading classrooms, this suggests that engagement can be strengthened when reading activities move beyond comprehension checks toward purposeful discussion, reflective response, peer collaboration, and opportunities to connect texts with learners' academic and cultural experiences (Grabe & Stoller, 2020; Guthrie, 2004; Yang & Ying, 2025).

Empirical studies further confirm that reading engagement is closely related to reading outcomes. Baker & Wigfield (1999) showed that reading motivation is multidimensional and linked to reading behavior, while Wang & Guthrie (2004) found that motivation and strategy use are associated with text comprehension. More recently, Sur & Ünal (2024) found that reading attitude mediates the relationship between reading engagement and reading comprehension among elementary students, indicating that affective orientation toward reading can shape comprehension outcomes. Although their context differs from Indonesian EFL higher education, the finding is theoretically relevant

because it confirms that engagement, attitude, and comprehension are interdependent rather than separate variables.

Attention, Engagement, and EFL Reading in the Digital Era

The relationship between attention span and reading engagement can be explained as a reciprocal process. Sustained attention supports engagement because it allows readers to remain mentally present with the text, monitor comprehension, infer meaning, and persist through difficulty; at the same time, meaningful engagement can protect attention by increasing interest, perceived value, and willingness to invest effort (Sweller et al., 2019; Unrau & Quirk, 2014). In EFL reading, this reciprocity is especially important because comprehension often requires additional effort to bridge linguistic gaps, activate background knowledge, and regulate uncertainty (Grabe & Stoller, 2020).

However, this relationship is complicated by contemporary digital reading practices. Digital environments can support reading through access to multimodal resources, dictionaries, annotations, and collaborative platforms, but they may also encourage fragmented attention, superficial scanning, and frequent task switching (Firth et al., 2019; Haliti-SyalaJ & Sadiku, 2024; Uncapher & Wagner, 2018). Therefore, it would be theoretically weak to frame digital media only as a threat to attention. A stronger argument is that digital media changes the ecology of attention: the same technologies can either reduce sustained reading when used as high-stimulation distraction or enhance engagement when embedded in structured, purposeful, and cognitively manageable tasks (Alqahtani, 2024; Lang, 2000, 2017).

Evidence on gamified reading illustrates this ambivalence. Matyakhan et al., (2024) reported that gamification enhanced reading engagement and reading comprehension among Thai EFL university students, suggesting that game elements such as goals, feedback, challenge, and collaboration may support persistence in reading. Cheng et al., (2025) found that gamification improved EFL reading proficiency and foreign language learning enjoyment among Chinese undergraduates, while Yang and Ying (2026) showed that Duolingo-based gamified reading contributed to L2 reading comprehension and learner motivation, although its effect on reading self-efficacy was limited. These studies imply that gamification is pedagogically useful when it directs attention toward reading goals, but it should not be assumed to automatically produce deep engagement (Deci & Ryan, 2000; Deterding et al., 2011).

The Indonesian EFL university context requires particular attention because students are expected to read journal articles, textbooks, literary texts, and research-based materials in English, while also navigating digitally saturated learning environments. Studies on Indonesian EFL learners' digital experiences suggest that short-form video may support vocabulary, listening, and speaking exposure but does not necessarily foster extended reading or academic writing development (Hafizh et al., 2025). This distinction is critical: digital exposure to English is not equivalent to academic reading engagement. University-level EFL reading demands sustained attention, strategic comprehension, critical

evaluation, and disciplinary literacy, which require different cognitive routines from those cultivated by short-form media consumption (Alqahtani, 2024; Grabe & Stoller, 2020; Haliti-Sylaj & Sadiku, 2024).

Pedagogical and Theoretical Implications for the Present Study

The reviewed literature suggests that attention span should be positioned as a cognitive condition that may enable or constrain reading engagement, while reading engagement should be treated as a broader construct that includes behavioral participation, cognitive investment, emotional response, and social interaction (Fredricks et al., 2004; Unrau & Quirk, 2014). This theoretical positioning prevents the study from reducing reading engagement to frequency of reading or reducing attention span to a simple psychological limitation. Instead, both constructs can be examined as dynamic and context-sensitive dimensions of students' reading experience (Alqahtani, 2024; Bandura, 1986).

Pedagogically, the literature also indicates that students with limited sustained attention should not be labeled as lazy or academically weak without considering text difficulty, task design, digital distraction, instructional method, and motivation. Cognitive load theory suggests that poorly sequenced reading tasks can overload students; self-determination theory suggests that low autonomy and weak perceived competence can reduce engagement; and social cognitive theory suggests that classroom environment and self-efficacy shape students' willingness to persist (Sweller et al., 2019; Deci & Ryan, 2000; Bandura, 1986; Shuwara et al., 2025). Therefore, investigating the relationship between attention span and reading engagement can provide practical insights for designing EFL reading instruction that balances challenge, support, autonomy, feedback, and attention management.

Despite the growing body of research, several gaps remain. Previous studies have examined attention span in relation to problem solving, storytelling, classroom methods, micro-breaks, and short-form video exposure (Ellah et al., 2019; Bartan, 2020; Haliti-Sylaj & Sadiku, 2024; Sharpe et al., 2025; Shuwara et al., 2025). Other studies have examined reading engagement, reading attitude, gamification, and reading comprehension in various EFL or general literacy contexts (Alqahtani, 2024; Matyakhan et al., 2024; Sur & Unal, 2024; Cheng et al., 2025; Yang & Ying, 2026). However, fewer studies have directly investigated how attention span is associated with multidimensional reading engagement among Indonesian EFL university students, a context where academic reading demands and digital attention habits intersect.

Consequently, the present study is conceptually positioned at the intersection of attention research, reading engagement theory, and EFL academic literacy. Its contribution lies not only in testing whether attention span and reading engagement are statistically related, but also in clarifying how sustained attention may function as a cognitive foundation for behavioral, cognitive, and emotional engagement in reading. Such a focus is timely because universities increasingly expect students to read complex English academic texts while students' everyday literacy practices are shaped by short-form, algorithmic, and

multimodal digital environments (Firth et al., 2019; Haliti-Sylaj & Sadiku, 2024; Grabe & Stoller, 2020; Alqahtani, 2024).

Methods

This study adopted a qualitative follow-up design to obtain a deeper understanding of students' experiences with attention span and reading engagement after the questionnaire phase. The qualitative component was intended to explain and enrich the questionnaire findings by eliciting students' subjective accounts of how they sustain attention, manage distractions, and remain engaged while reading academic texts. A semi-structured interview approach was selected because it provides a systematic yet flexible procedure for exploring participants' experiences, allowing the researcher to maintain focus on the research questions while probing unexpected but relevant issues that arise during the interaction (Adeoye-Olatunde & Olenik, 2021; Kallio et al., 2016).

Research Context

The study was conducted in an English as a Foreign Language (EFL) learning context in Indonesia, where students are expected to engage with academic reading materials in English while simultaneously facing attentional challenges associated with digital learning environments. In this context, reading engagement is understood not merely as the amount of time students spend reading, but as a multidimensional construct involving behavioral participation, cognitive investment, emotional involvement, and strategic regulation during reading activities. This contextual framing is important because both individual factors, such as motivation and reading habits, and environmental factors, such as digital distraction, learning demands, and the accessibility of reading materials shape students' attention span and engagement with academic texts.

The qualitative phase was therefore designed to capture students' lived experiences in relation to attention and reading engagement. Rather than treating attention span as a fixed personal trait, this study approached it as a situated and dynamic phenomenon that may vary according to task difficulty, text characteristics, motivation, learning conditions, and students' self-regulation strategies. This orientation is consistent with qualitative inquiry, which emphasizes contextual meaning-making and the interpretation of participants' perspectives within particular educational settings (Braun & Clarke, 2021).

Participants

Participants for the interview phase were selected purposively from students who had completed the earlier questionnaire. The selection criteria included students' willingness to participate in the follow-up interview, their consent to be recorded, and their familiarity with the topic of attention span and reading engagement. Five to six students were invited to participate. This sample size was considered appropriate for the purpose of qualitative exploration because the aim was not to achieve statistical representativeness, but to generate rich and contextualized insights into students' reading experiences (Vasileiou et al., 2018).

The purposive sampling strategy allowed the researcher to select participants who could provide relevant and meaningful information related to the phenomenon under investigation. In interview-based qualitative research, the adequacy of sample size is commonly judged by the depth, relevance, and interpretive richness of the data rather than by numerical size alone (Vasileiou et al., 2018). Accordingly, the selected participants were expected to contribute reflective accounts of their reading habits, attentional difficulties, and strategies for sustaining engagement.

Data Collection

Data were collected through semi-structured interviews conducted online via Zoom between 12 and 15 May 2025. Each interview lasted approximately 20-30 minutes. Individual invitations and Zoom meeting links were sent to participants through WhatsApp to facilitate direct and convenient communication. Before the interviews began, participants were informed about the purpose of the interview, the voluntary nature of their participation, the approximate duration of the session, and the use of recording for transcription and analysis purposes.

The interview guide consisted of open-ended questions focusing on students' reading habits, perceived attention span, attention-related challenges, sources of distraction, motivational factors, and strategies used to remain engaged while reading. Open-ended prompts were used to encourage participants to express their experiences in their own words, while follow-up questions were used to clarify meanings, explore examples, and obtain more detailed explanations. This format is consistent with the logic of semi-structured interviewing, which combines comparability across participants with flexibility in probing individual experiences (Kallio et al., 2016; Adeoye-Olatunde & Olenik, 2021).

All interview sessions were audio-recorded with participants' consent. The recordings were then transcribed using an online transcription tool. To enhance accuracy, the researcher checked the transcripts against the original recordings and corrected unclear words, transcription errors, and inconsistencies where necessary. This checking process was important to ensure that the transcripts represented participants' intended meanings as faithfully as possible before the coding process began.

Data Analysis

The interview data were analyzed using reflexive thematic analysis, following the methodological principles developed by Braun and Clarke (2021). Reflexive thematic analysis was selected because it provides a theoretically flexible yet rigorous approach for identifying, analyzing, and interpreting patterned meanings across qualitative data. This approach was appropriate for the present study because students' attention span and reading engagement are complex, subjective, and context-dependent phenomena that require interpretive analysis rather than purely descriptive categorization.

The analysis was conducted through a recursive process rather than a strictly linear sequence. First, the researcher familiarized themselves with the data by repeatedly reading

the interview transcripts and making preliminary notes on recurring ideas, striking statements, and possible connections with the research questions. Second, initial codes were generated manually using Microsoft Word by highlighting meaningful segments related to attention span, reading engagement, digital distraction, reading motivation, self-regulation, reading strategies, and learning environment. Third, codes with conceptual similarities were grouped into provisional themes that represented broader patterns across participants' accounts.

Fourth, the provisional themes were reviewed in relation to both the coded extracts and the entire data set to ensure that each theme was internally coherent, analytically meaningful, and distinct from other themes. Fifth, the themes were refined, defined, and named to capture the central meanings of students' experiences. Finally, the themes were interpreted in relation to the research questions and relevant literature on attention, reading engagement, and EFL reading behavior. This process aligns with (Braun & Clarke, 2006, 2021) six-phase model of thematic analysis: familiarization, coding, generating initial themes, reviewing themes, defining and naming themes, and producing the report.

In line with reflexive thematic analysis, the researcher acknowledged their active role in producing themes. Themes were not treated as objective entities that simply emerged from the data; rather, they were developed through the researcher's sustained engagement with the transcripts, theoretical sensitivity to the research problem, and reflective interpretation of participants' accounts (Braun & Clarke, 2019, 2021). Analytic notes were used throughout the process to document coding decisions, emerging interpretations, theme revisions, and potential researcher assumptions. This reflexive procedure helped strengthen the transparency and trustworthiness of the analysis.

Data adequacy was considered when later interviews no longer produced substantially new patterns and when the existing themes were sufficiently developed to address the research questions. Rather than applying saturation mechanically, the study treated data adequacy as a matter of thematic depth, interpretive richness, and relevance to the analytical purpose of the qualitative phase (Hennink & Kaiser, 2022).

Results

This section presents the findings from the semi-structured interviews with fourth-semester EFL students. The analysis is organized around four themes generated through reflexive thematic analysis: personal interest as a motivational entry point into reading, reading duration as a natural boundary of sustained attention, reading environment as a condition for concentration, and digital distractions as disruptors of reading flow. In keeping with qualitative reporting conventions, the findings are presented as interpretive thematic narratives that synthesize repeated patterns across participants' accounts rather than as isolated responses. The emphasis is placed on how students made sense of their attention span and reading engagement during academic reading.

The interview data indicate that attention span and reading engagement were experienced as dynamic and situated processes. Students did not describe attention as a

fixed personal trait; rather, they linked their ability to remain engaged with the perceived relevance of the text, the duration of reading, the surrounding environment, and the presence of digital interruptions. Table 1 summarizes the thematic structure of the findings and the type of interview evidence supporting each theme.

Table 1. Thematic structure of students' interview accounts

Theme	Analytic focus	Pattern across interview accounts
Personal interest as a motivational entry point into reading	How relevance and curiosity shaped willingness to read	Students reported stronger focus and persistence when texts were connected to topics they found meaningful, useful, or personally interesting.
Reading duration as a natural boundary of sustained attention	How students recognized the temporal limits of concentration	Students commonly described a decline in focus after approximately 25-45 minutes and responded by using breaks, alarms, or time limits.
Reading environment as a condition for concentration	How physical and social surroundings supported or weakened attention	Quiet, comfortable, and low-distraction spaces were associated with deeper concentration, whereas noise, discomfort, and crowding led to rereading and fragmented comprehension.
Digital distractions as disruptors of reading flow	How smartphones and social media interrupted reading engagement	Notifications, messages, and habitual phone checking interrupted reading flow, although students also reported self-management strategies such as turning off notifications or keeping phones away.

Personal Interest as a Motivational Entry Point into Reading

The first theme shows that students' reading engagement was strongly shaped by personal interest. Across the interviews, students consistently associated meaningful or personally relevant texts with greater willingness to begin reading, stronger concentration, and a more positive emotional orientation toward the reading task. Interest appeared to function as an entry point into engagement because students were more likely to invest attention when they perceived the topic as connected to their curiosity, academic needs, future goals, or everyday experiences.

Students also indicated that interest influenced the quality of their attention. When the text was perceived as engaging, they tended to read for longer periods, follow the argument more carefully, and experience the reading process as less burdensome. In contrast, texts described as boring, overly technical, unfamiliar, or unrelated to students' interests were more likely to produce shallow engagement. In such situations, students often needed to reread the same passage several times because their attention shifted away from the text before meaning could be fully constructed.

This theme suggests that reading engagement was not only a matter of task completion. It involved an affective and cognitive investment in the text. Students were more engaged when they felt that the reading material had personal meaning, whereas low-interest texts created a distance between the reader and the reading task. Therefore, personal interest operated as a condition that helped students sustain attention and move from passive reading toward more active meaning-making.

Reading Duration as a Natural Boundary of Sustained Attention

The second theme concerns students' awareness of the temporal limits of sustained attention. The interview accounts showed that students commonly experienced a decline in concentration after a certain period of continuous reading, typically around 25 to 45 minutes. Rather than presenting this decline as a failure, students tended to describe it as a normal part of the reading process. They recognized that their focus was not stable throughout a reading session and that prolonged reading required deliberate management.

Students' descriptions revealed a practical understanding of attention regulation. Many participants reported using time-based strategies, including setting reading targets, using alarms, dividing the reading task into shorter segments, and taking brief pauses before returning to the text. These strategies indicate that students were not merely passive recipients of distraction; they actively attempted to regulate their reading process by adjusting the length and rhythm of their reading sessions.

The data also show that reading duration affected the depth of comprehension. When students pushed themselves beyond their perceived attention limit, they often experienced reduced comprehension and needed to reread sections that had been processed superficially. Conversely, when reading was divided into manageable intervals, students reported being able to return to the text with renewed focus. Thus, sustained attention in academic reading appeared to depend not only on individual ability but also on how students structured the reading episode.

Reading Environment as a Condition for Concentration

The third theme highlights the importance of the reading environment. Students described concentration as easier to maintain in quiet, comfortable, and low-distraction spaces. Places such as bedrooms, libraries, or other calm settings were associated with a stronger sense of control over the reading process. In these environments, students felt more able to follow the content of the text, remain mentally present, and continue reading without frequent interruption.

By contrast, noisy, crowded, hot, or physically uncomfortable environments weakened students' concentration. Interview accounts indicated that environmental disturbance often resulted in fragmented reading, repeated rereading, and difficulty maintaining the flow of comprehension. The reading environment therefore, shaped not only students' comfort but also their cognitive access to the text. When the environment competed for attention, students' engagement with the reading material became less stable.

This theme demonstrates that attention span and reading engagement were situated within the material conditions of students' learning spaces. The interaction between internal readiness and external support shaped students' ability to concentrate. A supportive reading environment helped students preserve attentional resources, while an unsupportive environment increased the effort required to remain engaged.

Digital Distractions as Disruptors of Reading Flow

The fourth theme shows that digital distractions were among the most salient barriers to reading engagement. Students frequently referred to smartphones, notifications, messages, and social media as sources of interruption during reading. These interruptions did not simply pause the reading activity; they disrupted the continuity of attention. After checking a phone or responding to a notification, students often found it difficult to return to the same level of focus they had before the interruption.

Students' accounts suggest that digital distraction affected both attention span and reading flow. Some students described losing track of the argument, forgetting the previous point in the text, or needing to reread earlier sentences after a digital interruption. This indicates that distraction was experienced not only as a behavioral issue but also as a cognitive disruption that interfered with comprehension and continuity of meaning-making.

However, the interviews also showed that students were aware of these distraction patterns and had developed coping strategies. Several students reported turning off notifications, using do-not-disturb modes, placing their phones away from the reading area, switching off internet access, or setting rules for when they could check their phones. These strategies suggest that students were developing forms of self-management in response to the demands of reading in digitally saturated environments.

Discussion

The findings of this study contribute to the understanding of attention span and reading engagement in EFL academic reading by showing that both constructs operate as dynamic and mutually reinforcing processes. The results are consistent with multidimensional views of engagement, which conceptualize engagement as behavioral participation, cognitive investment, emotional involvement, and motivational commitment (Fredricks et al., 2004; Guthrie & Wigfield, 2000; Alqahtani, 2024). Rather than treating attention span as a simple measure of how long students can sit with a text, the findings suggest that attention should be interpreted as a regulated cognitive resource that is shaped by motivation, task demands, environment, and digital media exposure.

Personal Interest, Motivation, and the Quality of Reading Engagement

The finding that personal interest strengthened reading motivation and focus can be interpreted through self-determination theory and expectancy-value theory. Self-determination theory argues that learners become more deeply engaged when tasks support autonomy, competence, and meaningfulness (Deci & Ryan, 2000; Ryan & Deci, 2020). In this study, students were more engaged when they felt that the reading topic was personally relevant. This suggests that interest created a sense of ownership over reading and reduced the perception of reading as externally imposed academic work.

Expectancy-value theory also helps explain this finding because learners are more likely to persist in a task when they believe it has value and when they expect that their

effort can lead to successful understanding (Eccles & Wigfield, 2020). Texts that were perceived as relevant or interesting appeared to increase the subjective value of reading, while difficult or irrelevant texts weakened students' willingness to sustain attention. This aligns with Alqahtani's (2024) argument that reading engagement is shaped by the interaction of reader-related factors, text relevance, task design, and learning context. Therefore, the role of personal interest in this study should not be treated as a minor affective factor; it is a central mechanism through which students enter into deeper reading engagement.

Attention Span, Cognitive Load, and Self-Regulated Reading

The finding that students' attention often declined after 25 to 45 minutes can be understood through cognitive load theory. Cognitive load theory explains that working memory has limited capacity, and reading comprehension becomes difficult when the cognitive demands of decoding, vocabulary processing, inference-making, and distraction management exceed available resources (Sweller, 1988). For EFL students, this limitation may be intensified because academic reading requires simultaneous processing of content knowledge and second-language form. Consequently, declining attention should not automatically be interpreted as lack of motivation; it may indicate cognitive fatigue produced by demanding reading conditions.

The students' use of time limits, pauses, alarms, and breaks also indicates the presence of self-regulated learning. Self-regulated learning theory emphasizes that successful learners plan, monitor, control, and evaluate their cognition, motivation, and behavior during learning tasks (Zimmerman, 2002; Pintrich, 2004). Recent EFL research similarly shows that self-regulation strategies can improve motivation, self-efficacy, and active learning behavior (Zhang, 2024). In this study, students' strategies for managing reading duration demonstrate that attention span is not merely an innate cognitive capacity; it can be supported through metacognitive regulation and strategic task management.

Environmental Support and the Ecology of Reading Engagement

The importance of quiet, comfortable, and low-distraction environments shows that reading engagement is ecologically situated. From a sociocultural and ecological perspective, learning is shaped not only by individual cognition but also by the social, physical, and material contexts in which activity occurs (Bronfenbrenner, 1979). Students' preference for calm reading spaces indicates that the environment functions as a form of external support for attention. When the reading space reduces irrelevant sensory input, students can allocate more cognitive resources to comprehension and meaning-making.

This finding extends reading engagement theory by showing that engagement is not located solely inside the learner. Alqahtani (2024) emphasizes that reading engagement involves the interaction among the reader, text, task, and contextual environment. The present findings support that view: students' concentration depended on the degree to which the environment protected them from noise, discomfort, and interruption. In

practical terms, reading pedagogy should therefore address not only what students read and how they read, but also where and under what conditions reading is expected to occur.

Digital Distraction, Reading Flow, and Fragmented Attention

The finding that smartphones and social media disrupted students' reading flow is strongly supported by recent literature on digital distraction. Digital distraction in educational contexts refers to the interruption of academic focus by non-academic digital stimuli, including notifications, messaging, social media, and off-task device use (Martin et al., 2025). A recent systematic review found that digital distractions arise from technology-related, personal, and instructional-environment factors, and that their consequences include personal performance problems and ineffective learning conditions (Martin et al., 2025). The students' experiences in this study mirror these patterns because they described digital interruptions as reducing continuity, comprehension, and reading persistence.

The findings can also be interpreted through the limited capacity model of mediated message processing, which argues that individuals have finite cognitive resources for processing information in media-rich environments (Lang, 2017). When notifications or social media compete with academic texts, students must divide attention between the reading task and external stimuli. This fragmentation weakens reading flow, a state of deep involvement characterized by focused attention, intrinsic interest, and a sense of control (Egbert, 2003). Recent evidence strengthens this interpretation. (Shen, 2025), in a meta-analysis of digital reading distractions, reported a negative overall effect of attentional interference on reading comprehension. Haliti-Sylaj and Sadiku (2024) also found that frequent exposure to short reels may reduce attention span and impair academic performance among undergraduate students. Thus, the present findings are consistent with the view that digital media habits can undermine the sustained attention required for academic reading.

From Distraction Control to Strategic Digital Reading Pedagogy

Although digital distraction was a barrier, students' coping strategies indicate that the problem is pedagogically addressable. Their efforts to turn off notifications, place phones away, or use do-not-disturb mode show emerging digital self-regulation. This finding suggests that educators should avoid framing students as passive victims of technology. Instead, reading instruction can explicitly teach attention-management strategies as part of academic literacy. Such strategies may include planned reading intervals, device boundaries, distraction logs, metacognitive monitoring, and structured post-reading reflection.

Recent studies on EFL reading pedagogy support this implication. (Matyakhan et al., 2024) found that gamification enhanced reading engagement and reading comprehension among Thai EFL university students by creating a more interactive and motivating reading environment. Similarly, (Mekheimer, 2025) reported that digital mind magnets, as structured metacognitive scaffolds, improved EFL online reading comprehension, focus,

organization, and learner confidence. These studies suggest that the solution to digital distraction is not simply to remove technology from reading instruction, but to redesign digital reading environments so that technology supports attention, strategy use, and deeper comprehension.

Conclusion

This study examined students' experiences of attention span and reading engagement in EFL academic reading. In relation to the research objective, the findings show that reading engagement was shaped by the interaction of motivational, cognitive, environmental, and technological factors. The interview data revealed four main patterns: personal interest encouraged students to devote more attention to reading; sustained attention tended to decline after a limited period of reading; quiet, comfortable environments supported concentration; and digital distractions, especially smartphones and social media notifications, disrupted reading flow and comprehension. These findings indicate that attention span and reading engagement are mutually reinforcing: attention helps students remain cognitively and emotionally involved with texts. In contrast, engagement makes sustained attention more meaningful and purposeful.

Theoretically, the study contributes to EFL reading scholarship by positioning attention span and reading engagement as interrelated rather than separate constructs. The findings support a multidimensional understanding of engagement that includes behavioral participation, cognitive effort, emotional investment, and self-regulated reading practices. They also suggest that attention span should not be viewed only as an individual cognitive capacity, but as a situated process influenced by students' interests, task demands, physical learning conditions, and digital habits. This perspective strengthens the argument that EFL reading is not merely a linguistic activity, but an attentional, motivational, and self-regulatory process.

Practically, the findings imply that EFL reading instruction should move beyond assigning texts and assessing comprehension. Teachers need to design reading activities that are relevant, appropriately challenging, and connected to students' interests. Reading tasks should also be organized into manageable segments and supported by explicit strategies for maintaining concentration, monitoring comprehension, managing fatigue, and controlling digital distraction. In this sense, attention management and digital self-regulation should become part of academic reading instruction, particularly in technology-rich learning environments.

The study is limited by the small number of interview participants and the reliance on students' self-reported experiences. Therefore, the findings should be interpreted as an in-depth qualitative account rather than a generalizable representation of all EFL learners. Future research may involve larger and more diverse participants, combine interviews with classroom observation or digital reading logs, and examine how specific pedagogical interventions, such as gamified reading, micro-break strategies, or guided digital reading routines, influence students' attention span and reading engagement over time.

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Conflicts of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article. The authors also confirm that the research was conducted independently, and that no institutional, commercial, or personal interests affected the study design, data collection, data analysis, interpretation of findings, or preparation of the manuscript.

CRedit Authorship Contribution Statement

Muhammad Bayu Anggara Pratama Putra: Conceptualization, Methodology, Investigation, Data Collection, Formal Analysis, Writing – Original Draft, Visualization, and Project Administration.

Fiftinova Fiftinova: Supervision, Methodology, Validation, Writing – Review & Editing, Resources, and Academic Guidance.

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