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THE ROLE OF DIGITAL AND PHYSICAL BOOKS IN ACADEMIC SUCCESS AND READING HABITS

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ABSTRACT

This study examines the impact of digital and printed books on university students' reading habits and academic performance. The research aims to determine how each format influences focus, comprehension, and learning accessibility. Using a quantitative descriptive approach, data were collected from 25 university students through a structured questionnaire. Results indicate that 56% of participants encounter difficulties accessing printed materials due to cost barriers, while 68% read digital books one to two times weekly, demonstrating greater convenience. However, 72% of students reported that printed books enhance concentration, and 64% found physical texts improve comprehension. These findings suggest that while digital books facilitate reading frequency and accessibility, printed materials remain superior for promoting deeper cognitive engagement and academic understanding. The study recommends a balanced approach, utilizing digital resources for supplementary reading and printed texts for intensive study.

Keywords: Academic success, Digital books, Physical books, Reading habits

INTRODUCTION

Rapid advancements in digital technology have fundamentally transformed reading practices in higher education, reshaping how students access, evaluate, and interact with academic materials. Student engagement with academic reading tasks has emerged as a critical factor in hybrid learning environments (Heiman, 2021), directly influencing attention allocation and information processing across diverse formats (Xu et al., 2025). Reading remains a fundamental academic competency that strengthens comprehension, enhances vocabulary development, and cultivates analytical thinking, all essential components for successful university-level learning (Tyner, 1998). As educational institutions increasingly integrate digital learning platforms, students must navigate both printed and digital reading environments, each presenting distinct cognitive demands. This transformation has prompted researchers to reexamine how reading formats affect learning outcomes, particularly as digital resources become more embedded in academic life (Singer & Alexander, 2017).

Recent meta-analytic evidence demonstrates that paper-based reading consistently yields higher comprehension than screen-based reading, especially for academic tasks requiring deep processing and sustained cognitive effort (Clinton, 2019). This research reinforces ongoing scholarly discussions comparing the relative strengths and limitations of print versus digital reading formats. Furthermore, contemporary research reveals significant differences between print and digital reading experiences. Print materials facilitate enhanced cognitive processing, sustained attention, and improved memory retention through tactile engagement, consistent formatting, and reduced digital distractions (Støle et al., 2020; Mangen et al., 2019). Conversely, digital formats provide distinct advantages in terms of accessibility, portability, and cost-effectiveness, allowing rapid access to diverse academic sources (Amirtharaj et al., 2023; Chen & Deng, 2020). This duality creates an ongoing challenge in educational contexts: print supports cognitive depth while digital offers practical benefits aligned with modern learning needs. These concerns underscore the importance of carefully designing technology-enhanced learning tools that address digital reading challenges while preserving the convenience and accessibility digital formats provide (Bower, 2019).

Despite substantial research, context-specific studies examining how students' reading habits and media preferences relate to academic performance remain needed. Scholars such as Baron (2023) highlight an ongoing gap regarding how reading formats influence actual learning behavior rather than theoretical expectations alone. The present study addresses this gap by integrating established theories with empirical data collected from students in the researchers' academic context. Understanding how students interact with reading materials holds academic importance because these patterns influence comprehension, focus, and long-term achievement. This research also contributes to broader discussions on improving instructional strategies and designing reading support systems suited to contemporary student needs.

Two research questions guide this investigation: (1) To what extent does the use of digital and printed book formats relate to students' academic performance? (2) How do students' reading patterns, both in academic contexts and general reading, reflect the intensity

and manner in which they engage with texts? These questions arise from theoretical perspectives on reading comprehension, cognitive load, and media-based attention differences, which argue that reading formats affect how students process information, allocate mental effort, and construct meaning from texts (Singer & Alexander, 2017).

To strengthen the empirical foundation, this study incorporates findings from a questionnaire distributed to students in the researchers' academic environment. The responses reveal distinct reading behaviors that align with and extend existing research. A total of 68 percent of participants reported reading digital books one to two times per week, suggesting that digital sources remain the most accessible and frequently used medium. Additionally, 56 percent of students indicated limited access to printed books, primarily due to financial restrictions or availability issues, reinforcing previous claims about digital reading's practicality. Despite this reliance on digital materials, strong preferences for printed books emerged: 72 percent of respondents stated that printed materials help maintain better concentration, while 64 percent reported improved comprehension when engaging with physical texts. These findings mirror patterns described in current scholarship and highlight the continuing discrepancy between digital reading convenience and the cognitive benefits associated with print. Research indicates that extensive screen reading may diminish children's selective attention and impair their ability to understand texts over time (Salmerón et al., 2025). This underscores the cognitive challenges associated with digital reading and emphasizes the importance of using a balanced mix of reading formats to enhance learning outcomes.

Taken together, the theoretical insights and empirical evidence underscore the importance of investigating how reading formats shape academic engagement and performance. By combining contemporary literature with localized data, this study contributes meaningfully to the field and offers a foundation for developing reading strategies that better support students' learning needs in higher education.

METHOD

This study employed a quantitative descriptive research design aimed at examining students' reading behaviors and their perceptions of digital and printed book formats. A quantitative descriptive approach was chosen because it allows researchers to capture observable patterns, measure tendencies, and describe phenomena as they naturally occur without manipulating variables. This method is particularly suitable for educational contexts where the goal is to understand existing conditions based on numerical data (Levitt et al., 2018).

The variables investigated in this study encompassed several key dimensions of reading activity:

1. Reading frequency for digital and printed materials (Q1, Q3)
2. Weekly time allocated to reading activities (Q2)
3. Perceived accessibility challenges for printed books (Q5)

4. Format-specific effects on concentration (Q8)
5. Comprehension levels across different media (Q9)

These variables were selected based on established research indicating that reading medium, accessibility, and individual engagement significantly shape cognitive processing and learning outcomes (Baron, 2023; Singer & Alexander, 2017; Chen & Deng, 2020). By focusing on these dimensions, the study aimed to portray a holistic picture of how students interact with text across formats.

The participants in this study were twenty-five students from various class levels who voluntarily agreed to complete the questionnaire. The use of a naturally occurring class-based sample ensured that the data reflected authentic reading patterns within the school environment. Although the sample size was modest, it was considered adequate for descriptive statistical analysis and aligned with previous recommendations for small-scale survey research in education (Levitt et al., 2018). In addition, involving students from different class groups enabled the collection of diverse responses, which increased the representativeness of the findings and allowed the study to identify broader tendencies rather than isolated behaviors.

Data were collected using a structured closed-ended questionnaire consisting of multiple-choice items and agreement-scale statements. Closed-ended instruments were chosen because they facilitate the collection of quantifiable data, minimize ambiguity, and support efficient analysis, especially when dealing with perceptual and behavioral constructs (Rubaeah & Gaffar, 2023). The questionnaire was designed to be accessible and easy to complete, ensuring that students could respond consistently and without confusion. The structured nature of the instrument allowed the researcher to capture specific indicators related to reading practices, such as format preference, accessibility challenges, and cognitive responses to digital and physical texts.

The research procedure consisted of several systematic stages designed to maintain rigor and clarity throughout the data collection process. The first stage involved developing the questionnaire instrument and conducting a validation process to ensure that each item was clear, relevant, and aligned with the research objectives. The validation included expert judgment from a lecturer familiar with reading research and a small-scale pilot test involving a few students to assess the readability and comprehensibility of the items. Revisions were made based on feedback to eliminate ambiguity and enhance the accuracy of the questions.

In the second stage, the validated questionnaire was distributed to the twenty-five selected participants. Students were given sufficient time to complete the instrument independently to minimize external influence on their responses. The third stage involved collecting the completed questionnaires and organizing the data into a structured tabulation table. This step ensured that all responses were accurately categorized according to the variables being measured.

The final stage of the research involved processing and analyzing the data using descriptive statistical techniques. Frequencies and percentages were calculated for each variable to illustrate patterns and dominant trends among the participants. Descriptive

statistics were chosen because they provide a clear and accessible means of summarizing behavioral tendencies and perception patterns in educational research without requiring complex inferential testing (Caturegli, 2021). Through this analytic approach, the study was able to present a comprehensive overview of how frequently students read, which formats they preferred, how format influenced their ability to focus, and how well they understood the content across different media. The detailed analysis offered insights into students' reading dynamics and contributed to the broader understanding of digital versus printed reading in contemporary learning environments.

RESULTS/FINDINGS

Table 1. Summary of students' reading habits across print and digital formats

Variable	n	Percentage	Interpretation
Difficulty accessing printed books	14	56%	Printed books less accessible
Reading digital books 1–2×/week	17	68%	Digital books used more frequently
Better focus with printed books	18	72%	Printed format improves concentration
Better comprehension with printed books	16	64%	Printed format enhances understanding

Based on the responses from Table 1, over half of respondents (56%, n=14) reported substantial barriers to accessing printed materials, primarily attributed to financial constraints and limited availability. This accessibility challenge appears to drive increased reliance on digital formats for academic work. The cost factor emerged as a particularly significant concern, with students indicating that purchasing required textbooks often exceeded their budget constraints. Library access, while available, proved insufficient to meet all academic reading needs, especially during peak examination periods when demand for physical copies increased substantially.

Digital reading demonstrated high adoption rates, with 68% (n=17) of students engaging with digital texts one to two times weekly. This frequency reflects the practical advantages of digital materials, including immediate availability, device compatibility, and cost-free access to academic resources. Students reported that digital platforms enabled them to access multiple sources simultaneously, download materials instantly, and carry extensive reading materials on portable devices without physical burden. The convenience factor proved particularly relevant for students managing multiple courses simultaneously, as digital formats eliminated the need to transport heavy textbooks across campus.

Despite widespread digital usage, students demonstrated strong cognitive preferences for print. Nearly three-quarters of participants (72%, n=18) indicated that physical books supported better concentration, while 64% (n=16) reported enhanced comprehension when reading printed texts. Students attributed improved concentration to several factors, including reduced exposure to digital distractions such as notifications, social media applications, and the temptation to multitask while reading on electronic devices. The tactile experience of handling physical pages, the ability to flip back and forth easily, and the visual stability of printed text were frequently mentioned as factors contributing to sustained attention.

Regarding comprehension, students noted that printed materials facilitated better memory retention and deeper understanding of complex concepts. Several participants mentioned that the physical act of highlighting, annotating margins, and bookmarking pages helped reinforce learning and created stronger mental associations with the content. The fixed layout of printed pages also appeared to support spatial memory, enabling students to remember information based on its location within the physical book.

These findings suggest a paradox in contemporary reading behavior: digital formats dominate in terms of frequency and accessibility, yet print materials provide superior cognitive engagement for academic learning. This pattern indicates that students make pragmatic choices based on availability and convenience while recognizing the cognitive advantages of traditional print media for tasks requiring deep comprehension and sustained focus.

DISCUSSION

This study's findings illuminate the complex relationship between reading format and academic engagement, revealing a tension between practical accessibility and cognitive effectiveness. The data demonstrate that while digital materials dominate reading frequency due to convenience factors, printed texts maintain superiority in supporting deeper learning processes. This pattern aligns with contemporary research trends showing increased digital adoption alongside persistent cognitive advantages for print-based reading (Khongtim, 2021)

The observed preference for digital reading in terms of frequency corresponds with earlier research suggesting that digital formats have gained prominence due to convenience, portability, and immediate availability (Chen & Deng, 2020). The strong preference for digital formats observed in this study appears driven by external factors such as mobile device availability, limited access to physical libraries, and students' increasing familiarity with digital learning environments. The causal relationship implied here suggests that higher accessibility of digital texts promotes more frequent reading activities among students. This finding carries important implications for educational resource planning, as institutions seeking to increase reading engagement may benefit from expanding digital library collections and ensuring robust technological infrastructure.

However, although digital reading occurred more frequently, students reported that printed books enhanced their ability to concentrate and comprehend complex content. Research comparing paper and screen reading demonstrates that comprehension generally proves higher when reading printed texts, especially for tasks requiring accuracy and deeper processing (Margolin et al., 2013). This finding aligns with arguments from Singer and Alexander (2017), who found that readers often demonstrate deeper comprehension when interacting with printed materials. The results of this study support those claims, indicating that despite widespread use of digital formats, physical books still hold significant cognitive advantages for tasks requiring sustained focus and deep processing. This suggests a theoretical relationship between medium type and cognitive engagement, where print may facilitate more deliberate and reflective reading. Recent research also indicates that printed

texts lead to stronger comprehension than digital formats, particularly in academic contexts requiring deep processing (Mitchell, 2021) .

The findings align with research by Ackerman and Goldsmith (2011), who reported that readers display reduced metacognitive regulation when learning through digital screens compared to printed materials. Individuals frequently assume they comprehend digital texts well, even though their actual comprehension outcomes often prove weaker. This perspective reinforces the current study's results, showing that printed formats contribute to stronger concentration and more effective understanding. Cognitive load theory also supports this argument, suggesting that the additional cognitive demands imposed by screen reading such as managing scrolling, dealing with interface elements, and resisting digital distractions may reduce the mental resources available for deep content processing.

When compared with previous studies, the results show both similarities and differences. Similar to Baron's (2023) findings, students in this study also experienced distractions while reading digitally, which may affect comprehension. Digital reading research also indicates that students frequently engage in skimming, scanning, and rapidly shifting attention when reading on screens, behaviors that can disrupt concentration and lower comprehension accuracy (Konukati, 2025). These behavioral patterns suggest that digital environments may inadvertently encourage superficial reading strategies rather than the sustained, focused engagement required for academic mastery.

Yet, unlike studies reporting dramatic declines in printed book use, this research found that printed materials continued playing important roles, especially when students needed better focus or when content required careful understanding. This demonstrates that the shift toward digital formats is not absolute; rather, students strategically choose formats depending on their reading purpose and the level of cognitive effort required. In this regard, the findings complement Chen and Deng's (2020) conclusion that reading format suitability depends on the complexity of the learning task. Students appear to develop intuitive understandings of which format best serves their immediate learning goals, selecting digital for quick reference and print for intensive study.

The strengths of this study lie in its use of multiple variables related to reading behaviors, allowing nuanced understanding of how reading format interacts with accessibility, focus, and comprehension. By combining frequency data with perceptual indicators, the study reveals meaningful relationships between reading format and learning outcomes. However, the research also has limitations. The sample size of 25 students, although adequate for descriptive purposes, restricts the generalizability of the findings. Larger samples or comparative groups would provide more robust insights. Another limitation involves the use of self-reported data, which may be influenced by memory bias or subjective interpretation. Future studies could integrate experimental or observational methods to examine reading behavior more objectively. Additionally, longitudinal research tracking students' reading patterns and academic outcomes over extended periods could offer valuable insights into how format preferences evolve and impact long-term learning success.

Despite these limitations, the study contributes important implications for educational practice. The findings suggest that digital books can enhance academic success by supporting frequent reading, especially when students need immediate access to materials. At the same time, physical books continue playing crucial roles in supporting comprehension and focus, particularly for academic texts requiring deep engagement. Educators should therefore balance the use of both formats rather than rely solely on digital or printed materials. Recent studies examining printed and digital reading formats highlight that both media provide unique strengths for learning and should be strategically integrated to support effective reading performance (Pratama et al., 2025). This hybrid approach is supported by earlier recommendations emphasizing multimodal reading strategies to optimize learning outcomes (Singer & Alexander, 2017).

Educational institutions might consider implementing format-appropriate assignment designs, where digital resources serve exploratory or supplementary reading while printed materials support core curriculum content requiring intensive cognitive engagement. Library services could be restructured to ensure both robust digital collections and adequate physical book availability, particularly for high-demand academic texts. Furthermore, explicit instruction in metacognitive reading strategies could help students make more informed choices about when to use each format, ultimately supporting more effective learning across diverse academic contexts.

CONCLUSION

This study clarifies the complementary roles of digital and printed books in academic settings. Digital books improve reading frequency and accessibility, helping students overcome financial and availability barriers, making them useful for quick reference and wide engagement due to their convenience and portability. In contrast, printed books support better focus and comprehension, which are crucial for deep learning and complex analysis because of their tactile nature and fewer distractions. An integrated reading approach is recommended, where digital texts serve as supplementary resources and printed materials are prioritized for tasks requiring intensive cognitive effort. This balanced use enhances learning outcomes by combining the strengths of both formats. Educators should consider these differences when selecting course materials and guiding students, while future research should explore evolving format preferences and the impact of emerging technologies on academic reading habits.

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