
| RESEARCH ARTICLE

Applying Online Reading Comprehension Theory: A Comparative Study of Online and Offline Reading Practices Using ReadTheory among Saudi University Students

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| ABSTRACT

In this study I examine the differential reading behavior in online and paper reading among university students, investigating their perception, strategy use, and reading proficiency. Using a mixed-methods approach, I used IBM SPSS Statistics software to conduct quantitative and thematic analyses of open-ended. Results demonstrated participants prefer online reading because it allows for flexibility, faster pace, and interactive engagement than reading print copies does. However, some reading strategies were consistent regardless of medium. Stimulation through ReadTheory engagement increased motivation and perception of skills but did not result in statistically significant proficiency gains. This highlights student reading's increasingly changing environment and provides insight into improving understanding of digital literacy in a higher education context.

| KEYWORDS

Online reading, Offline reading, ReadTheory, Reading Strategy, Reading Proficiency

| ARTICLE INFORMATION

ACCEPTED: 16 June 2025

PUBLISHED: 30 June 2025

DOI: 10.32996/jeltal.2025.7.3.4

1. Introduction

Everything has changed rapidly in the digital age, including university students' interaction with digital reading materials. As technology becomes increasingly embedded in classrooms and out-of-classroom learning, students read across multiple formats, from traditional paper-based text to web-delivered, adaptive literacy activities. Despite online reading's strengths (i.e., access, interactivity, and immediacy), there are concerns that it may be inferior for developing deep comprehension, sustained attention, and meaningful learning compared to paper-based reading (Clinton, 2019; Delgado et al., 2018).

The trend of replacing traditional educational environments with digital platforms is now also visible for most of the higher education around the world, and Saudi Arabia is no exception. Through a national strategy for educational reform, universities adopt digital tools for literacy and personalized learning. ReadTheory is one such tool that provides online reading passages at different levels based on students' reading ability. They can read on ReadTheory and receive instant feedback, making it a fantastic tool for developing reading comprehension skills (Syafryadin & Ismawati, 2022).

While there is an increased prevalence of reading online, questions remain about the differences students experience with online versus paper reading methods. While some researchers have claimed that students perceive digital texts as more appealing and convenient (Mangen et al., 2019), others have pointed out that reading print contributes to greater understanding and retention (Skulmowski & Xu, 2022). Furthermore, student strategies may be different in these formats. Online reading usually requires different cognitive and navigational strategies, such as skimming, hyperlink evaluation, and scrolling, whereas reading print texts tends to be more successive, allows for underlining and annotation, and is slower and more deliberate (Li et al., 2022).

Another major concern, in addition to preferences and strategies, is the long-term effects of digital reading on reading skills. Although digital tools provide more gamified feedback and easy conveniences, some scholars have questioned whether they foster deep reading practices or just facilitate surface reading. This is especially true when students use platforms such as ReadTheory in isolation, with no teacher to mediate. Thus, it is necessary to evaluate whether such platforms promote reading growth or are just motivational additives.

These evolving reading practices raise critical questions about how reading format influences student performance and whether digital tools such as ReadTheory genuinely enhance reading proficiency. Understanding student preferences and the strategies they adopt is essential for educators and policymakers aiming to design effective, inclusive reading instruction.

Although research on the digital versus print reading debate is expanding, much of it focuses on general or international student populations. There is a lack of localized, data-driven insight into how Saudi university students perceive and perform in different reading environments. Additionally, few scholars have examined the specific impact of graded digital reading tools such as ReadTheory on reading development within the Saudi context. In this study I address this gap by examining the perceptions, reading strategies, and reading proficiency outcomes associated with online and paper-based reading among Saudi university students. I structure our research around three key questions aimed at exploring students' experiences and outcomes across reading modalities.

1.2 Research Objectives

Based on the above rationale, I seek to

1. Investigate university students' perceptions regarding online reading compared to paper-based reading,
2. Identify the reading strategies students use in both formats, and
3. Evaluate whether graded online reading improves students' reading proficiency.

1.3 Research Questions

1. **RQ1:** What are the perceptions of university students regarding online reading compared to paper-based reading?
2. **RQ2:** What type of reading strategies are used in both formats?
3. **RQ3:** Will graded reading affect students' reading proficiency?

2. Literature Review

2.1 Digital vs. Paper-Based Reading: Comprehension and Preferences

In recent years, educational research has focused on the transition from traditional to reading on digital formats. Delgado et al. (2018) conducted a meta-analysis and suggested that students have better understanding during readings of printed than digital texts due to immersion, tactile response, and lower distraction. Similarly, Clinton (2019) found that digital reading can lead to overestimating comprehension abilities, a finding possibly attributable to digital texts' nonlinear nature.

However, other studies have indicated that digital reading can be just as effective with the right strategies. According to Li et al. (2020), interactivity is a key factor that distinguishes digital texts from paper-based texts, and a few scholars have examined the difference in comprehension outcomes when middle school students read interactive e-books instead of paper-based texts. According to Singer and Alexander (2017), the use of progress tracking, embedded questions, and organized navigation are key components of a digital text container that mitigate print texts' processing advantage. They added that digital reading, like the print experience, can facilitate deeper thinking as well when combined with instructional support and opportunities for reflection. These results suggest that the medium affects student experience not by the medium itself but rather by instructional design, or technological scaffolding included in digital reading environments.

2.2 Online Reading Strategies and Metacognitive Awareness

The important key to success with reading, across both digital and print mediums, is in the use of the right strategies. Rinantanti et al. (2024) found that the reader who is good at reading will be the one who not only performs well but also runs the comprehension assessment process and decides to use strategies to understand the measurement text (a type of educational source) that will significantly benefit them in the digital era. Anggia and Habók (2025) also emphasized metacognitive awareness for online reading, concluding that students with high self-efficacy and motivation present enhanced digital reading performance.

In the domain of native language reading, a Hungary-based study found problem-solving strategies to be the only variable that significantly predicted online reading comprehension among lower secondary students. This highlights the general nature of strategic reading processes across languages and educational settings (Habók, Oo, & Magyar, 2024). Additionally, Li et al. (2022) found that students who applied metacognitive strategies, that is, planning, monitoring, and evaluation, scored significantly

better in online comprehension tests. They also found that digital reading success is as much about how people behave as readers and emphasized the necessity for integrated strategy instruction alongside technology. These strategies were also associated with greater reading engagement and perceived autonomy, which are essential precursors of academic outcomes in the digital landscape.

2.3 The Role of ReadTheory in Enhancing Reading Proficiency

ReadTheory is an adaptive online platform that recently caught the spotlight for its promise to make reading comprehension fun. In their study, Syafryadin and Ismawati (2022) asked university students to give their impressions about ReadTheory and found that most of them viewed it positively. The students also stated that their reading ability had improved by using ReadTheory. Some key aspects that made use of the platform effective were students' immediate feedback and texts that are leveled appropriately.

In addition, Anggia and Habók (2025) found that students who took part in an extensive online reading program (using ReadTheory) were able to make significant improvements in their reading comprehension level over time as opposed to control groups. The effect of intrinsic motivation and self-efficacy as mediating variables were also considered in the study.

Alalwany (2021) found that students practicing with ReadTheory were able to recognize more words and completed comprehension passages quicker than those not using it due to the gamified and stage-based feedback. Additionally, the platform responds to a learner's performance by adapting reading levels in real time, supporting constant progression and limiting the frustration or boredom that often accompanies static text assignments. These features could also help instill a growth mindset, inviting students to read more complex texts as they gain mastery, reinforcing reading growth in a cycle.

2.4 Implications for Saudi University Students

Although global studies have their benefits, few have been conducted with Saudi university students. In the context of the current national drive to digitalize education, it is important to gain insights into how students manage both online and offline reading environments. Platforms such as ReadTheory provide an opportunity not only to evaluate comprehension outcomes but also to gather information about students' perceptions or strategy use in developing comprehension, specifically in a cultural context.

In the current digital age, recent studies have drawn attention to Saudi university students' changed reading practices. Today, many students regularly consume online content (Khreisat, 2023); nevertheless, their time spent reading is primarily dedicated to social media and limited articles, suggesting that additional focus may be required to develop strategies for students to be able to engage more deeply with academic texts. Furthermore, Salem et al. (2022), in a longitudinal study of Saudi students, demonstrated a decrease in students' self-efficacy in digital skills and suggested that it might have affected their transition to a full online learning approach during the COVID-19 pandemic. The scholars also highlighted the need for a supportive digital literacy program incorporated within university courses to allow students to feel more confident and capable in the world of digital reading.

Additionally, Alhumsi et al. (2021) showed that e-learning sessions were more beneficial for Saudi learners' reading comprehension than any traditional method was, specifically with interactive strategies including skimming and scanning. Specifically, male and female students showed differing outcomes with the use of digital reading tools, indicating a need for instructional design that is more responsive to gender. Therefore, the immediate feedback and tailored reading passages that adaptive platforms such as ReadTheory provide could be beneficial to making significant progress in reading outcomes. In addition, such platforms should consider cultural values and prior educational experience and add a language support component so that students can satisfy their local learning desire which will help to engage students even more.

3. Methodology

3.1 Research Design

I adopted a descriptive mixed-methods design in this study to investigate university students' online and offline reading practices, perceptions, and strategies. Our design approach stemmed from the online reading comprehension theory, which posits that digital literacy goes beyond merely decoding text by incorporating the skills of evaluating information rather than navigating hyperlinks and synthesizing content. The mixed methods research design has its strength in studies that require both measurement and experience (Creswell & Creswell, 2018; Johnson et al., 2007). In this case, closed-form survey responses constituted the quantitative phase while thematic analysis of open-ended reflections provided qualitative contextual depth.

3.2 Participants

The participants were 31 Saudi undergraduate English majors who were taking a computer-assisted language learning course at a Saudi university. I used purposive sampling to select these students because they were engaged with the online reading environment, particularly ReadTheory, which was part of their curriculum. Participants were thus equally experienced in reading online and print texts, allowing comparative investigation. Their common academic experience and access to online learning environments enabled them to meet regularly. Further, the sampling method was the most suitable for education studies focusing on specific learner experiences (Palinkas et al., 2015).

3.3 Instruments

I used two tools to collect the data: a questionnaire designed by the researchers and the ReadTheory platform. The questionnaire consisted of 28 items, of which 26 were closed-ended and two were open-ended. Q3 to Q22 were Likert-scale questions measuring strategy use and reading preference. Q23 asked whether any student had heard of ReadTheory before, while Q24 to Q26 asked how effective they found ReadTheory and how frequently they engaged or interacted with the platform. The 28 items were classified based on the three research questions: perception of reading formats, strategy use of different media, and the effect of graded online reading on reading performance. Open-ended items (Q27 and Q28) encouraged students to describe their reading preferences and compare online and paper-based reading experiences in their own words.

ReadTheory functioned as both an instructional tool and a data source. The platform provides personalized reading content based on Lexile levels, adjusts difficulty as students' progress, and offers instant feedback. It aligns with principles of adaptive learning shown to enhance engagement and comprehension in digital reading environments (Skulmowski & Xu, 2022). Over the course of the semester, participants completed a combined total of 176 quizzes, and their usage data (Lexile levels, completion frequency) were used to support quantitative analysis.

3.4 Procedure

At the beginning of the semester, participants were introduced to the study's purpose and procedures and were guided through ReadTheory registration. After providing informed consent, they used the platform over a 6-week period, accessing reading materials and quizzes at their own pace. Because of the sustained nonintervention period, this method enabled the system to monitor student performance in a real-world context. I delivered the questionnaire online through the university's learning management system after the read period. Completion of the form was entirely optional, and I invited students to provide detailed answers to the open questions at the end.

I planned the research itself to be as invasive as possible, where the researcher remains an observer. As a result, this approach maintained the authenticity of how students interacted with the platform and facilitated a more valid measurement of reading behavior. I consistently maintained ethical protocols (voluntary participation and confidentiality).

3.5 Data Analysis

I used IBM SPSS Statistics software to process the quantitative data coming from the questionnaire. To identify overall trends in student attitudes and strategy use, I employed descriptive statistics including means for group differences, frequencies, and standard deviations. In addition, I ran paired sample *t* tests and Pearson correlations to investigate any possible statistical relationships between the use of digital strategy and improvement in reading perceived by the students.

I analyzed the qualitative data using thematic analysis via Braun and Clarke's (2006) six-step process. Following seven reads of the responses, I manually coded and organized them thematically according to students' digital reading, preferences for certain formats, and perceived cognitive or motivational differences between online and offline reading. It allowed us to gain more qualitative information regarding motivation, distraction and perceptions around ReadTheory's effectiveness.

Using self-reported outcomes along with data from ReadTheory (e.g., the percentage of students completing quizzes and the change in Lexile levels), I examined students' usage data to see if the patterns supported the claims of reading gain. Recent research has shown that students reap the greatest benefits from digital tools when there are consistent opportunities for engagement, and content takes a personalized learning path (Li et al., 2022; Zakiyuddin et al., 2022).

3.6 Ethical Considerations

In this study I adhered to the university's ethical guidelines and obtained all necessary permissions. I informed students of their right to confidentiality, voluntary participation, and withdrawal without penalty. I obtained their consent digitally in advance. I anonymized and securely stored all data and used the results solely for academic research.

4. Results

4.1 Quantitative Analysis

4.1.1 Descriptive Statistics of Computed Variables

First, I arranged the data and computed the variables to run statistical tests. I then performed descriptive statistics as shown in Table 1.

Table 1
Descriptive Statistics of Computed Variables

Computed Variables	N	Minimum	Maximum	Mean	Std. Deviation
Online attitude	31	2.00	4.50	3.3468	0.60785
Paper attitude	31	1.33	3.67	2.6882	0.67184
Online strategy	31	2.17	4.00	3.1935	0.41073
Paper strategy	31	2.17	4.00	3.1290	0.49011
Perceived efficiency	31	3.00	5.00	4.3871	0.61522
Time spent reading	31	1.00	4.00	1.4839	1.02862
Used ReadTheory	31	1.00	2.00	1.0968	0.30054

Table 1 presents the basic descriptive statistics for the key computed variables I used in the study. It includes the number of participants ($N = 31$), minimum and maximum observed scores, mean scores, and standard deviations for each variable. Students’ attitudes toward online reading had a mean of 3.35 ($SD = 0.61$), ranging from 2.00 to 4.50. This suggests moderately positive perceptions of online reading among students. Attitudes toward paper-based reading showed a lower mean of 2.69 ($SD = 0.67$), with scores ranging from 1.33 to 3.67, indicating generally less favorable attitudes toward reading on paper.

The mean score for online reading strategies was 3.19 ($SD = 0.41$), with scores between 2.17 and 4.00, suggesting relatively frequent use of strategies during online reading. Similarly, offline (paper) reading strategies had a mean of 3.13 ($SD = 0.49$), indicating comparable strategy use across reading formats. Students’ perceived improvement in reading proficiency was relatively high, with a mean of 4.39 ($SD = 0.62$), suggesting that students generally felt confident in their reading development. The reported time students spent on reading activities had a mean of 1.48 ($SD = 1.03$) on a scale of 1 to 4, indicating moderate engagement with reading activities overall. The variable “used ReadTheory” (coded 1 = no, 2 = yes) had a mean of 1.10 ($SD = 0.30$), reflecting that most students had not used the ReadTheory platform prior to the study.

4.1.2 Perceptions of University Students Regarding Online Reading Compared to Paper-Based Reading

To answer RQ1, “What are the perceptions of university students regarding online reading compared to paper-based reading?” I conducted a paired sample t test on the computed variables, that is, students’ attitudes toward online and paper-based reading. Tables 2, 3, 4, and 5 indicate the comparison of students’ attitudes toward online and paper-based reading.

Table 2
Paired Sample Statistics

	Mean	N	Std. Deviation
Online reading attitude	3.3468	31	0.60786
Offline reading attitude	2.6882	31	0.67184

Table 3
Paired Samples Correlations

	N	Correlation	One-Sided p	Two-Sided p
Online attitude and paper attitude	31	-0.509	0.002	0.003

Table 4
Paired Samples Test

	Mean	Std. Deviation	Std. Error Mean	t	Df	One sided p	Two-sided p
Online attitude and paper attitude	0.65860	1.11188	0.19970	3.298	30	0.001	0.003

Table 5
Paired Sample Effect Size

		Standardizer	Point Estimate	Lower	Upper
Online attitude and paper attitude	Cohen's d	1.11188	0.592	0.206	0.970

The results revealed that students reported significantly more positive attitudes toward online reading ($M = 3.35$, $SD = 0.61$) than paper-based reading ($M = 2.69$, $SD = 0.67$), $t(30) = 3.298$, $p = .003$. The mean difference of 0.66 points suggests a clear preference for online reading. The correlation between the two variables was negative and significant ($r = -.509$, $p = .003$), indicating that students who favored one format tended to score lower on the other. The effect size, measured by Cohen's $d = 0.592$, represents a moderate difference, supporting the conclusion that students' preferences are meaningfully distinct across formats. The bar chart in Figure 1 indicates a visualization of the attitude results.

Figure 1
Bar Graph Showing Attitudes Toward Online vs. Paper Reading

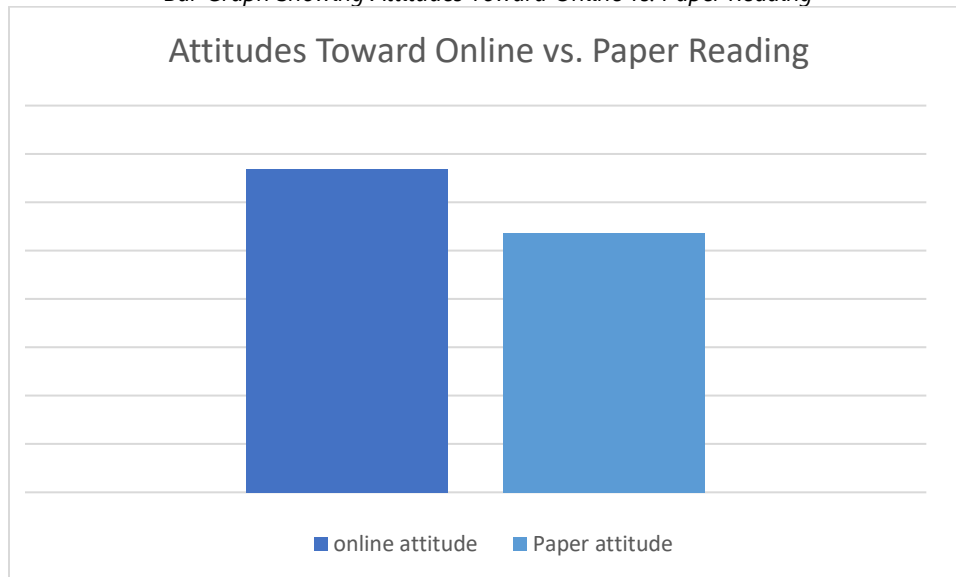


Figure 1 shows that students had significantly more positive attitudes toward online reading ($M = 3.35$) than paper reading ($M = 2.69$). The preference difference was statistically significant, with a moderate effect size, indicating a meaningful trend.

4.1.3 Strategies Utilized in Both Formats

To answer RQ2, "What type of reading strategies are used in both formats?" I again conducted a paired sample t test on both online strategy and offline strategy variables. Tables 6, 7, 8, and 9 indicate the statistical results.

Table 6
Paired Sample Statistics

	Mean	N	Std. Deviation
Online strategy	3.1935	31	0.41073
Offline strategy	3.1290	31	0.49011

Table 7
Paired Sample Correlations

	N	Correlation	One-Sided p	Two-Sided p
Online strategy and offline strategy	31	0.134	0.236	0.472

Table 8
Paired Sample Test

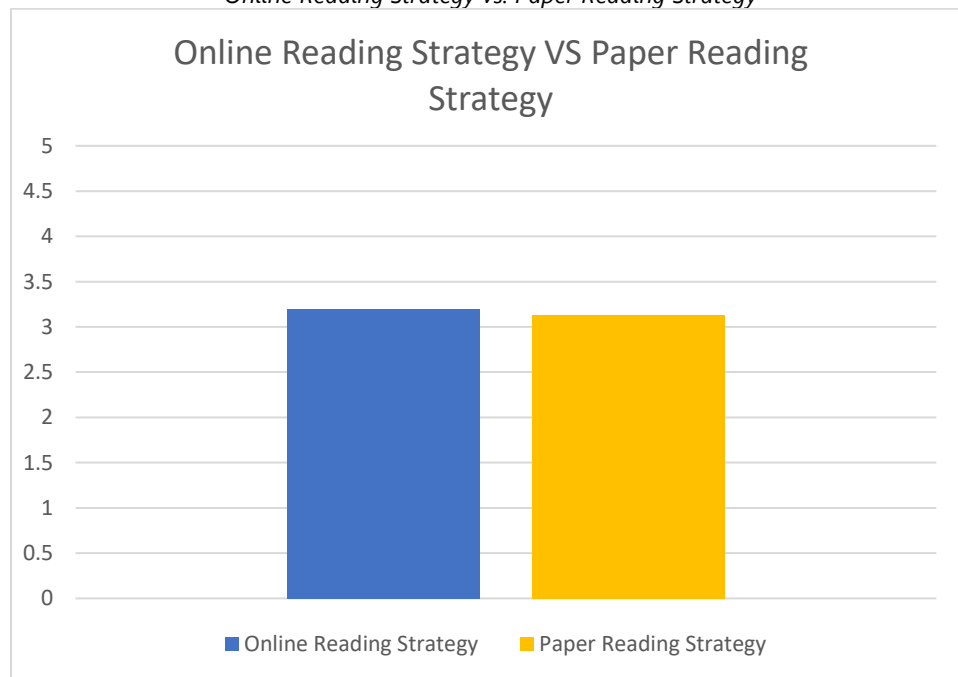
	Mean	Std. Deviation	Std. Mean	Error	<i>t</i>	Df	One- sided <i>p</i>	Two- sided <i>p</i>
Online strategy and offline strategy	0.06452	0.59578	0.10701		0.603	30	0.276	0.551

Table 9
Paired Samples Effect Sizes

	Cohen's <i>d</i>	Standardizer	Point Estimate	Lower	Upper
Online strategy and offline strategy	0.108	0.59578	0.108	-0.246	0.460

The results indicated no statistically significant difference between online strategy use ($M = 3.19$, $SD = 0.41$) and offline strategy use ($M = 3.13$, $SD = 0.49$), $t(30) = 0.603$, $p = 0.551$. The correlation between online and offline strategy use was weak and not significant ($r = .134$, $p = .472$), indicating that students' use of strategies in one format did not reliably predict their use in the other. The effect size (Cohen's $d = 0.108$) suggested only a negligible practical difference. Overall, students appeared to engage with reading strategies in both formats at similar frequencies regardless of the medium. The bar graph in Figure 2 indicates a visualization of the results. The graph shows that students used similar reading strategies for both formats. The difference in mean strategy use was minimal (Online = 3.19, Offline = 3.13), and statistical tests showed no significant difference, suggesting strategy application is medium-independent.

Figure 2
Online Reading Strategy vs. Paper Reading Strategy



4.1.4 Graded Reading and Students' Reading Proficiency

To answer RQ3, "Will graded reading affect students' reading proficiency?" I tested the data in two ways. First, I assessed the correlation between perceived proficiency and time spent reading, followed by an independent samples *t* test.

Table 10
Correlations

Variables	Pearson Correlation	Sig. (2-tailed)	N
Perceived proficiency score and time spent reading	-0.042	0.821	31

As depicted in Table 10, there is a weak indirect relationship between perceived proficiency and time spent reading. Moreover, this weak indirect relationship is insignificant as well— $p = 0.821$, which is greater than 0.05. Therefore, it can be inferred that reading time has no impact on students’ reading proficiency skills. Tables 11, 12, and 13 depict the statistical results.

Table 11
Group Statistics

Group	N	Mean	Std. Deviation	Std. Error Mean
Did not use ReadTheory	28	4.36	0.621	0.117
Used ReadTheory	3	4.67	0.577	0.333

Table 12
Independent Samples T Test

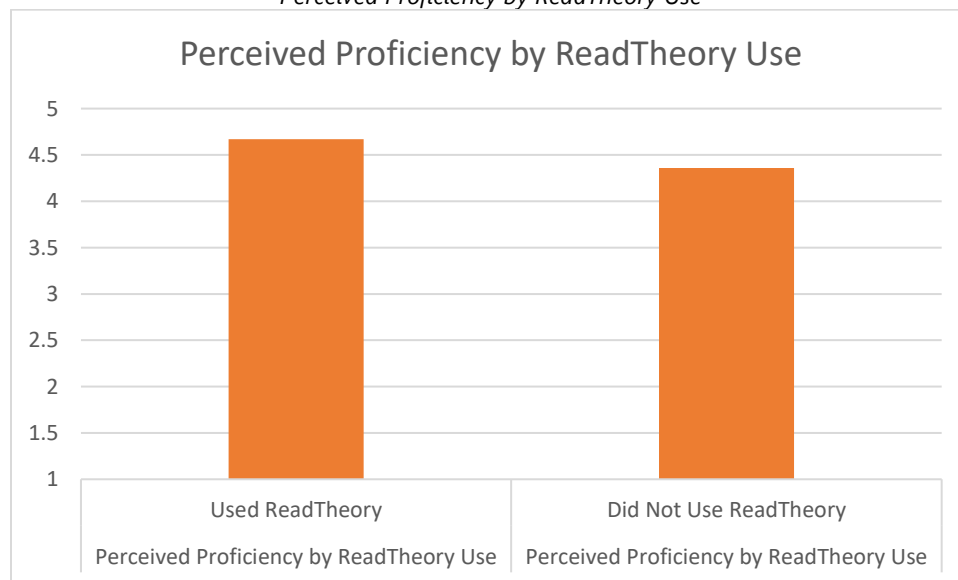
Levene’s Equality of Variances	Test for F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	
Equal assumed	variances	0.446	0.510	-0.824	29	0.417	-0.310	0.376

Table 13
Independent Samples Effect Sizes

Effect Size	Point Estimate	95% Confidence Interval (Lower)	95% Confidence Interval (Upper)
Cohen’s <i>d</i>	0.619	-0.500	0.701

I conducted an independent samples *t* test to assess whether prior use of the ReadTheory platform influenced students’ perceived improvement in reading proficiency. The results showed that students who had previously used ReadTheory ($M = 4.67$, $SD = 0.58$) reported slightly higher perceived improvement than those who had not ($M = 4.36$, $SD = 0.62$). However, the difference was not statistically significant, $t(29) = -0.824$, $p = .417$. Although the effect size was moderate (Cohen’s $d = 0.619$), the small number of students in the “yes” group limits the generalizability of this result. The bar graph in Figure 3 shows a visual depiction of the results.

Figure 3
Perceived Proficiency by ReadTheory Use



As depicted in Figure 3, students who used ReadTheory reported slightly higher perceived improvement ($M = 4.67$) than those who did not ($M = 4.36$); the difference was not statistically significant. The small sample size in the “used” group limits generalizability.

4.2 Qualitative Analysis

4.2.1 Thematic Analysis

I conducted a thematic analysis on open-ended responses to questions 27 and 28. Regarding their experience with ReadTheory (Q27), students largely expressed positive attitudes, identifying improvements in reading proficiency and vocabulary as well as increased motivation and engagement. Many highlighted the convenience, interactive feedback, and interesting content as reasons for preferring digital reading. However, a few expressed mixed feelings or a preference for paper-based formats due to content selection limitations or comfort.

When comparing paper and online reading (Q28), students consistently reported that online reading was faster, more accessible, and visually appealing. They appreciated the ability to search for meanings instantly, use visuals, and engage more flexibly with texts. Nevertheless, a subset of students noted that paper reading offered eye comfort and better focus, particularly for long or academic texts. This contrast suggests that while online reading is perceived as more engaging and practical, paper reading still holds value for specific purposes. Figure 4 shows the themes that emerged most often from students in response to questions 27 and 28. They most often stated that ReadTheory helped them read vocabulary and engage better; relatively few students wanted to continue reading from a paper text. Figure 4 illustrates different aspects of student reading preferences and experiences.

Figure 4
Frequency of Themes in Responses to Q27 and Q28

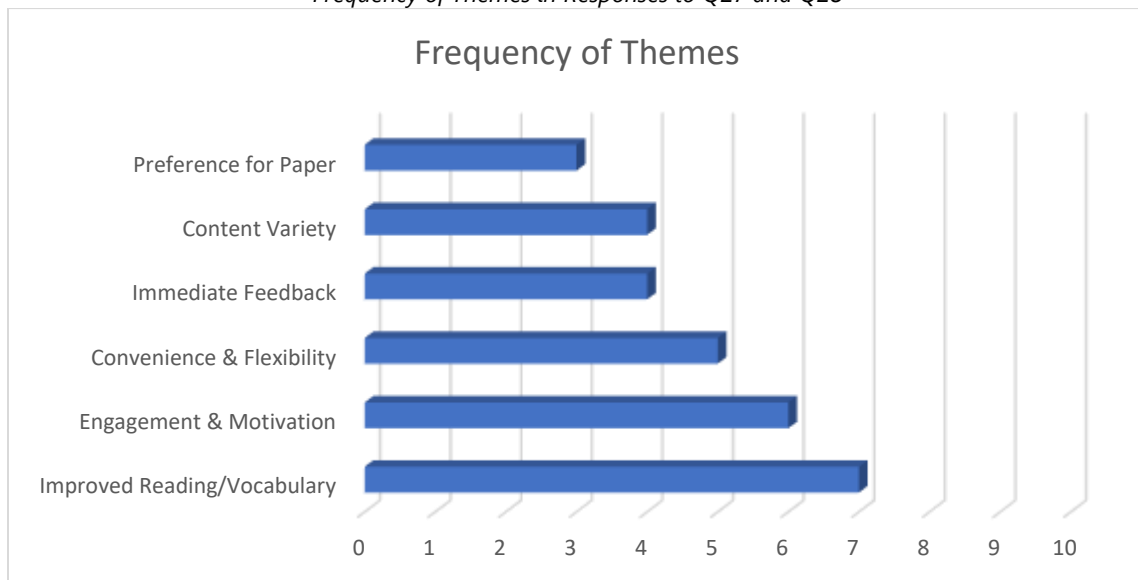


Table 14 shows the six themes extracted from themes extracted from questions 27 and 28.

Table 14
Themes Extracted from Open-Ended Questions

<p>Question 27 Do you like reading online (ReadTheory)? Why?</p>
<p>1. Improvement in Reading Skills and Vocabulary Many students noted that ReadTheory helped improve their reading abilities and vocabulary acquisition. "It improves my skill reading, and I gain knowledge from texts about cultures, nature, and technologies." "Yes, because it improves my reading and my vocabulary." "Yes, because it has a lot of exercises that fit your level and boost your reading skill."</p>
<p>2. Engagement and Motivation Students emphasized that ReadTheory made reading more enjoyable and motivated them to read. "Yes, it motivates me to like reading." "It is more fun and attainable. Moreover, it is amazing how it teaches me to get the right answer." "You don't easily get bored of reading because the site gives you short passages."</p>
<p>3. Convenience and Accessibility Some mentioned that ReadTheory's flexibility made reading easier at any time or place.</p>

<p>"Yes, because I can read anywhere and anytime I want to." "I can read in the dark—no need to switch on the light."</p>
<p>4. Immediate Feedback and Grading Students considered the auto-correction and level-based progression as valuable learning tools. "ReadTheory gives you the right answer with an explanation . . . it is wonderful." "It has grading and images to make it simple."</p>
<p>5. Content Variety and Organization Several students praised the diverse and interesting topics. "It gives me interesting topics to read." "It's organized in an interesting way. Also, easily dealt with."</p>
<p>6. Critiques and Limitations A few responses reflected dissatisfaction or preferences for paper texts. "No, I like to read on paper for the best experience." "Yes and no. I like it because it is easy to use, but I can't choose what kind of texts I would like to read."</p>
<p>Question 28 What is the difference between paper reading and online reading?</p>
<p>1. Speed and Information Access Most respondents agreed online reading is quicker and more efficient in finding and navigating information. "Online reading is enjoyable and faster to get the information you want." "In online reading, you can search for anything you want." "You can reach any topic quickly, while paper texts take time."</p>
<p>2. Visual Appeal and Multimedia Support Students preferred online texts due to visuals, colors, and interactive features. "Reading online is more fun, with colors, pictures, and videos." "As a digital native who likes visuals, I find reading online more enjoyable."</p>
<p>3. Convenience and Portability Students emphasized the ease of accessing content anytime, anywhere. "Online reading can be done any time and in any place." "You don't need to carry a book everywhere."</p>
<p>4. Paper Reading: Comfort and Focus While students generally preferred online reading, some still appreciated the tactile experience and eye comfort of paper. "Paper reading is an eye-relaxing experience." "Paper puts me in a mood for reading."</p>
<p>5. Online Reading Enhances Motivation Students said online reading gave them more autonomy and encouraged them to read more. "It motivates students to choose the topic and time." "Online reading keeps you excited with the text."</p>
<p>6. Academic Utility of Both Formats A few students noted that both formats serve different purposes. "Paper reading is restricted to classes and offices, but online reading is everywhere and every time." "I prefer paper for long passages and online for short ones."</p>

4.2.2 Crux of Data Analysis

The analysis showed that students overall preferred reading online to paper for reasons of engagement and access. While they employed reading strategies equally across both conditions, they perceived ReadTheory as supportive of skill development and motivation. Statistical tests revealed no significant differences in perceived proficiency between users and non-users of ReadTheory. In the focus groups, thematic analysis more specifically highlighted the convenience and interactivity and motivational aspects of online reading but also indicated that some students still appreciated the comfort and focus derived from paper-based texts.

5. Discussion

In this paper I investigated the pedagogical implications of the use of adaptive reading platforms such as ReadTheory in higher education at the Saudi university level.

Student perceptions of online versus paper-based formats were the focus of RQ1. The quantitative data indicated a clear preference for reading online. This mirrors recent research showing digital reading is often more appealing to younger generations when augmented with versatile and interactive aspects (Anggia & Habók, 2025; Singer & Alexander, 2017). Students in this study reported that ReadTheory enabled them to read anytime and anywhere with adaptive content and immediate feedback. Similarly, Zakiyuddin et al., (2022) reported that personalization features in digital platforms increased students' motivation and task engagement, supporting this study's findings. Nonetheless, some students actually preferred reading on paper because their eyes hurt less and they focused more. This resonates with Clinton (2019), who suggested that even though digital reading is more convenient, print texts seem to help best when it comes to comprehension and focus.

As for RQ2 about the reading strategies students applied in both reading formats, the statistical analysis revealed no difference between the use of strategies online and offline, which indicates that the students used similar strategies, such as skimming, rereading, and inferring, in both media. This is consistent with findings from Li et al. (2022), who reported that metacognitive strategies are transferable between digital and traditional contexts. While the frequency of strategy use did not differ significantly, qualitative responses suggested that online reading offered some functional advantages, such as quick searching for unfamiliar words, zooming in on text, and interactive feedback. This aligns with Rinantanti et al. (2024), who emphasized that digital reading enhances metacognitive control, especially among proficient readers.

RQ3 covered whether graded reading through ReadTheory influenced students' reading proficiency. Although students who had used ReadTheory previously reported slightly higher perceived gains, the difference was not statistically significant. I found no significant correlation between time spent on the platform and self-rated proficiency. These results suggest that perceived improvement may not directly translate into measurable skill development, a finding also noted by Skulmowski and Xu (2022), who emphasized the complexity of assessing actual growth through self-perception alone. Despite this, qualitative feedback suggested that students appreciated ReadTheory's gamified structure, level-based reading passages, and immediate feedback. These features appear to foster motivation and self-efficacy, which are essential components of reading development (Syafryadin & Ismawati, 2022).

Overall, this study supports existing evidence that online reading tools can enhance engagement and support the use of effective strategies. However, their actual impact on proficiency may vary depending on the intensity and quality of use, learners' motivation, and access to feedback. In line with Khreisat (2023), who emphasized the need for structured integration of digital tools in Saudi universities, I recommend that platforms such as ReadTheory be combined with reflective reading practices and teacher guidance. While students are increasingly drawn to online reading, educators should promote a balanced reading approach that values both digital and paper-based experiences for academic and personal growth.

Table 15 summarizes the main patterns observed in the study across all three research questions, highlighting students' attitudes, strategy use, and learning outcomes related to both online and paper-based reading formats.

Table 15
Summary of Findings on Digital and Paper-Based Reading Practices

Research Question	Online Reading	Paper-Based Reading
RQ1: Perceptions	<ul style="list-style-type: none"> Highly preferred for its flexibility, speed, and visual appeal Perceived as more engaging and convenient for independent reading 	<ul style="list-style-type: none"> Valued by some for focus, comfort, and mood-setting Seen as more traditional and less adaptable
RQ2: Strategies	<ul style="list-style-type: none"> Use of skimming, scrolling, and search-enhanced reading noted Students appreciated control features (zoom, highlights) 	<ul style="list-style-type: none"> Similar use of rereading and annotation Preferred for physical interaction (e.g., underlining)
RQ3: Proficiency Impact	<ul style="list-style-type: none"> ReadTheory boosted motivation and perceived vocabulary gains No significant statistical link with improvement reported 	<ul style="list-style-type: none"> No specific proficiency improvement noted Still considered useful for exam prep and review routines

6. Conclusion

In this study I examined university students' perceptions of online versus paper-based reading, the strategies used in each format, and the impact of ReadTheory, a graded online reading platform, on their perceived reading proficiency. Using a mixed-methods approach, I combined quantitative survey data with qualitative responses to gain a well-rounded understanding of students' reading habits and experiences. The findings revealed a clear student preference for online reading. Students appreciated its accessibility, interactive content, and personalized feedback, particularly through ReadTheory. They saw these features as motivating and supportive of independent learning. However, some students still valued paper reading for its comfort and ability to help them focus, indicating that both formats offer unique advantages.

Students stated that in many cases they used the same reading strategies—rereading, skimming for the main idea, and inferring meaning—in both the digital and print reading modes. This indicates that reading strategies are largely medium-independent and transferable between formats. With respect to reading ability, students who used ReadTheory showed positive perceptions of improved learning in vocabulary and comprehension. In addition, while users of the platform showed a statistically significant greater gain in perceived reading improvements compared to non-users, time spent on ReadTheory did not significantly correlate with improvement. However, qualitative feedback indicated that students had fun and were motivated to use the platform.

Our findings highlight how digital and traditional reading practices maintain university education. Although online mediums increase flexibility and involvement in learning, some students still use reading on paper to improve concentration and understanding. Our educators should strive to combine ReadTheory and regular reading materials, balancing each with what students like or prefer to do to obtain generalized reading improvements.

6.1 Contribution to the Field of English Language Teaching and Learning

In the context of paper-based versus online reading, our study offers a valuable contribution to the understanding of how university students interact with their reading through ReadTheory as a platform. The majority of students preferred digital reading due to accessibility, interactivity, and motivation. Though the proficiency gains were not statistically significant, students reported a substantial gain in vocabulary and engagement. These ideas add to the English language teaching field by suggesting that students would benefit from combining mobile digital tools that adapt with traditional methods because this would help raise their autonomy and motivation and prepare them with digital literacy in a modern classroom.

6.2 Recommendations for Further Research

Longitudinal designs would help to clarify the long-term effect of reading via online platforms on real reading ability and must be considered in future research. Greater generalizability of findings is warranted, with researchers using a larger sample size in a multistep intervention across various institutions and learner levels. In addition, improving the evidence base could include a comparison of different digital reading tools and some kind of objective measure of proficiency instead of self-assessment only. In the context of English language learning, researchers could also examine the effects of digital reading on critical thinking, retention, and comprehension across text types and genres.

Funding: The Researcher would like to thank the Deanship of Graduate Studies and Scientific Research at Qassim University for financial support (QU-APC- 2025)

Conflicts of Interest: The authors declare no conflict of interest.

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