Does Digitalised Reading Enhance Comprehension While Reading for Pleasure?

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Abstract

This pilot study is an exploratory investigation aimed at understanding the influence of a Reading for Pleasure (RfP) program on the reading comprehension abilities of 11th-grade students in private schools of Ajman, United Arab Emirates (UAE). Anchored in the context of secondary education, this research addresses a significant gap in the literature by focusing on a region typically underrepresented in educational research. At the core of this study lies a comparative analysis of two distinct reading mediums-digital and traditional. Employing a mixed-methods approach, the study intertwines quantitative data from quasi-experimental designs with qualitative insights garnered from student interviews. This methodology allows for a nuanced understanding of the effectiveness of the RfP program, along with students' perceptions and preferences concerning digital versus traditional reading formats. The research findings are particularly illuminating in the current educational landscape. Despite the increasing digitalisation of education, the study reveals no significant difference in reading comprehension outcomes between digital and traditional reading mediums. Additionally, it underscores the pivotal role that reading for pleasure plays in enhancing comprehension skills, a facet often overlooked in conventional academic settings. Furthermore, the study offers pertinent insights into the practical implications of these findings for the UAE's educational system, especially in light of the country's endeavors to enhance English language proficiency and prepare students for international benchmark examinations such as PISA.

Keywords

Reading Comprehension, Reading for Pleasure, Digital Reading, Paper-Based Reading

1. Introduction

Reading comprehension is one of the most important skills in a language as it is

considered an interaction between the reader and the reading text which increases students' "schemata" in all aspects of life (Gonzales, 2020). It can significantly influence academic achievement, career success, and lifelong learning as it plays a vital role in various subjects, particularly in science, where it enhances the interaction between reading comprehension and linguistic features of written texts (Lonigan et al., 2018). Exposure to language in and out of school has a substantial impact on the development of reading comprehension and reading comprehension skills. One of the worldwide programs used to enhance students' reading comprehension skills and can be implemented in and out of schools is the "Reading for Pleasure" (RfP) Program. According to Clark & Rumbold (2006), RfP is the reading that people do in their free time to enjoy. There are various benefits of reading for pleasure (RfP). Notably, it encourages the development of an active and "Extensive" reader, instilling a tendency for habitual and passionate engagement with reading (Muchtar, 2020). Moreover, RfP encourages learners to engage in a continuous cognitive process during text analysis in which they analyse a text to find clues that lead to accurate responses. Additionally, RfP helps improve reading fluency, speed, and general comprehension of textual content (Waring, 2012). While it is known that Intensive Reading (IR) is commonly used to supplement students' vocabulary, current research suggests that Extensive Readers display more significant lexical learning. This tendency is due to the increased frequency with which Extensive Readers encounter a wider range of terms in their reading activities (Waring, 2012).

As this program can be implemented using both mediums, digital and paper-based, the argument about which medium is more effective has been running for a while now, yet because of the current digital revolution in education in the era of pandemic, a shift to using digital tools in teaching has emerged (Gonzales, 2020; Pardede, 2019). According to Anderson & Jiang (2018), Adolescents prefer reading digital books in all formats. Also, Cumaoglu et al. (2013) believe that e-books have been widely used for many reasons: They are accessible all the time and everywhere as they can be accessed by PCs as well as pocket devices such as smartphones. Moreover, e-books are much cheaper and easier to manage as there is no need to buy books and carry them from one place to another. Although there are many reasons why e-reading has become very popular, some studies have proven that printed texts are more effective as students gain more knowledge when they use them. This can happen because digital devices can be distractive with all the other apps, websites, and notifications. One more reason is the need for sufficient software and good internet connections in some cases. E-books can also hurt students' eyes because of staring at digital devices for extended hours. Overall, the debate of which reading medium is more preferable to convey knowledge will continue for some more time. However, implementing RfP is important whether digitally or traditionally because it can create a chance for students to improve their reading skills which can lead to intellectual improvement (Pardede, 2019).

Numerous research in the United Arab Emirates (UAE) has examined the "Reading for Pleasure" (RfP) project, either directly or implicitly within the framework of case studies undertaken among undergraduate populations. Alternatively, other studies have focused solely on the views of students and educators regarding the program. While a substantial body of research has investigated the impact of various reading mediums on reading comprehension in the context of intensive reading courses; research into the preferred reading mediums in extensive reading courses is noticeably rare. The current study has the potential to make significant contributions to both the academic and educational fields. Academically, this study distinguishes out by addressing Reading mediums (RM) and RfP in a new context—secondary schools in the UAE. Furthermore, it can improve educators' understanding of the benefits of RfP, hence using it as a co-curricular activity in academic programs. Furthermore, educators will acquire insights regarding their students' reading medium preferences, allowing them to accommodate these preferences within intensive reading courses to help students gain maximum benefits from them. The resulting data can help teachers prepare students for benchmark exams like the Programme for International Student Assessment (PISA) and the Emirates Standardized Test (EmSAT).

1.1. Background Literature

Reading comprehension can be described as a complex cognitive process of decoding and understanding a written text. Moreover, reading is an interaction between the reader and the written text. RfP is the strategy in which students read a large number of long texts to gain a general understanding for learners' pleasure and enjoyment. There are no conclusive definitions of the term "paper-based" in dictionaries or literature, yet in this study, it means the reading texts that are located in printed books that can be held and read. On the other hand, according to Attwell (2023), a "digital reading material" is a digital file containing a body of text and graphics that are suited for electronic distribution and display on a computer screen and smart devices.

Nowadays students are considered digital natives as they were born during and within the digital revolution (Campbell, 2020; Von der Heiden et al., 2011). Prensky (2001) described digital natives as children born in the 1980s onward. The Digital Native Theory has influenced educational practices by promoting the integration of technology in classrooms. As a result, teachers have been advised to adapt teaching methods to engage digital natives effectively. When employed for reading projects, teachers' usage of digital tools was found to be favorably associated with students' reading comprehension, demonstrating that digital resources had a favorable impact on comprehension (Salmerón et al. 2022). However, Von der Heiden et al. (2011) argued that these students are multi-taskers and open to using more learning approaches than previous generations. Their study proved that students did not just depend on digital resources, but also used printed books to acquire knowledge. Many questions are raised about the previous arguments which the study in hand tends to answer. One of

these questions is if these so-called digital native students prefer reading digitally or traditionally and whether the reading mediums preferences differ if they read intensively in school courses or read extensively for pleasure.

It is hard for L2 students to understand written texts for many reasons such as the limited vocabulary knowledge and the text structure and cohesion (Yusuf et al., 2017). New findings in the reading strategies research have proved that the text features influence the cognitive process that governs reading comprehension and develops reading comprehension skills (Jake Follmer & Sperling, 2018). This recent study was guided by the structural theory ideas, so the reading texts used in the RfP program were suitable to participants' cognitive capacities and developmental stages within the Zone of Proximal Development (Beglar et al., 2011). The ideas of Structural Theory have informed the level of the test used before and post the program as the test was taken from Cambridge English Preliminary for Schools, Handbook for Teachers for Exams from 2016 (level B) which is aligned with the participants' proficiency level in English.

Cognitive load theory (CLT) suggests that effective instructional material facilitates learning by directing cognitive resources toward activities that are relevant to learning rather than toward preliminaries to learning (Chandler & Sweller, 1991). Chandler & Sweller (1991) suggested that while learning is taking place, the new information is stored in the working memory during which it is being processed to pass to the long-term memory for learning to be efficient. CLT can help with the design and implementation of reading-for-pleasure programs. CLT focuses on optimizing learning by managing cognitive load. Consequently, CLT informed the selection of reading materials used in the RfP program used in this study to reduce unnecessary cognitive load and improve learning experiences while enjoying reading.

The Transactional Theory is concerned with the reading process as a transaction including a reader and some formation of symbols on a page in certain settings (context and time). Consequently, the focus of this theory is constituting meaning from a written text, and both the writer and the reader are partners in the process (Rosenblatt, 2018). Based on the ideas of the Transactional Theory, the reading texts used in this study were not only suitable for participants' proficiency level in English, but also these texts were relatable to students and their knowledge background. As a consequence, the reading materials included informative as well as narrative texts to which the participants could relate and feel familiar.

RfP is considered one of the commonly used intervention programs to develop reading habits and improve students' reading skills. In a study conducted in Sri Lanka by Soba (2019), she concluded that reading for pleasure is very important to help "reluctant readers" read although she did not identify the demography or specify the data-collecting methods, she referred to the subjects as children and referred to public documents to analyze. In Indonesia, the results of analyzing the data collected qualitatively through interviews and observations showed that most of the students had started reading after implementing the

program despite their lack of interest in reading (Maharsi et al., 2019). Similar results were proven correct in another study on 21 freshmen in Iran (Kazemi, 2021). That study used a survey and concluded that by implementing RfP, students have improved in reading comprehension skills. The study referred to the previous results to the fact that in RfP, students read different types of texts which may urge them to read more to know more.

Furthermore, in a study conducted by Horowitz-Kraus & Hutton (2017) on 19 American students, the results showed that the more they read, the more their brains remained connected which employed healthy brains. In the Middle East and GCC fewer studies about RfP were conducted. A study conducted on 17 readers in High Education Institutes in most GCC countries (Saudi Arabia, United Arab Emirates, Qatar, Bahrain, Oman, and Kuwait), showed that there was inconsistency in implementing and sustaining the RfP programs and recommended more space in the curriculum for them (Meniado, 2021). These previous studies have inspired the recent study to further investigate the benefits of this program in a different context with different natures and features. While most of the studies were conducted on tertiary students, the study in hand focuses on investigating the benefits of the program when implemented in secondary education female students in a private school in Ajman, UAE.

Shifting from reading on paper to reading on screen has become a norm somehow, especially during Covid19 pandemic. It is undoubtedly that the COVID-19 pandemic has accelerated the digital transformation of various sectors (Lumat, 2023). Therefore, the field of education has also witnessed a shift in favor of digital revolution as the pandemic made it impossible for colleges, institutions, and schools to remain open, which led to a change in pedagogy toward digital platforms (Hamal & Aryal, 2022). Although students use screens for gaming, watching videos, and other activities, many studies showed that students concentrated and benefited more when using printed texts and that they were not comfortable using E-books (Jeong & Gweon, 2021). Another study was conducted in Turkey on prospective English teachers who showed higher performance when reading printed texts; however, their speed in DR is 12% faster than PBR (Solak, 2014). In Oman, undergraduates at university showed their preference for printed books especially in IR and long texts although they have experience in using e-books. On the other hand, a survey conducted on adolescents showed that they prefer digital books more (Anderson & Jiang, 2021). A study conducted in Palestine on 8th graders showed that students enjoyed e-books only if they were engaged in higher-thinking skills activities (Hadar, 2017). Other studies in the UAE showed that participants prefer DR when some logistics were provided such as suitable software, strong internet connection, and availability of resources. As mentioned earlier, the debate of which medium is more efficient and/or more preferable continues. To have a stance in this ongoing debate, the researcher has decided to examine the most effective reading medium in the UAE site and a female secondary students' context. This recent

study can inspire other researchers to apply the same experiment in a male secondary context in different sites in the UAE. This can enrich research on this topic and allow other comparative studies to take place.

1.2. Research Gap

ER/RfP programs are important tools to improve students' reading comprehension skills. Many theories have addressed this topic and how important it is to keep the brain connected. Rich research discussed RfP programs and reading mediums in tertiary education. The study in hand was inspired by and built upon 2 studies. The first one was conducted quantitatively by Kazemi (2021). The participants in that study were 21 freshmen (tertiary) students in Iran. The duration was 15 sessions over 5 weeks in which the experimental group received the RfP intervention, yet the control group did not receive it. The results were collected by analyzing the marks of the pretest and the posttest. The results showed that the score of the posttest changed significantly by 7.6 points in favor of the experimental group. However, the score of the control group changed by 1 point only.

The second study was conducted by Campbell (2020). She conducted a mixed-method single case study on students with special educational needs to investigate the impact of both reading mediums on students' performance in their intensive reading courses. She used a pretest (pre-assessment test) to collect preliminary data; however, she used another test to measure the impact of the reading medium. This procedure can affect the validity and reliability of data even if both tests are standardized. One more point was that Campbell's subjects were native elementary students with special needs in the USA. This can make it easier for them to read and comprehend even though they have special needs, but it might be different for ESL students. By the end of her experiment, she conducted observations and interviews with students to explore their perceptions regarding the reading mediums.

Inspired by both Campbell (2020) and Kazemi (2021), the recent study investigates the importance of RfP as well as the more beneficial reading medium. Moreover, this study takes their research to a different site and context, ESL secondary mainstream students in the UAE. It will also explore students' rationale towards the program and the reading mediums, so it will avoid the weakness points in Kazemi's research. It will also use the same standardized test for pre and post-assessment to guarantee more valid and reliable results. Finally, the insufficient amount of research on this topic in the UAE on school students makes it more unique and may encourage other researchers to dig deeper into this context.

1.3. Objectives and Hypotheses

This mixed-method pilot study aims to examine the tools used in the main study about the impact of the "Reading for Pleasure" program on improving students' levels of performance in reading and if there is a difference in results if the pro-

gram is executed digitally or traditionally with paper-based texts. It will also analyze the effect of students' perception of using these interactive websites. In addition, it will study the factors that might have positive and/or negative impacts on the main study before being implemented. Consequently, this pilot study aims to seek preliminary answers to the following research questions:

RQ1) How does the "Reading for Pleasure" program affect 11th graders' levels of achievement in reading comprehension in private schools in Ajman?

To answer this question, we posed three sub-questions:

SQ1) Is there a significant difference in scores of all groups in the pretest Vs posttest?

SQ2) Is there a significant difference in the control group's score of the pretest Vs post-test?

SQ3) Is there a significant difference in the experimental groups' score of the pretest vs. posttest?

RQ2) What are the differences in 11th graders' levels of achievement in reading comprehension when reading digital materials or printed texts in the RfP program?

Based upon the existing literature and young age of our participants, we hypothesised that students would who engaged in digitalized reading would outperform students who read printed texts.

2. Materials and Methods

The methodological approach used in this sequential explanatory study, is the Mixed-Method approach. This approach is concerned with collecting both quantitative and qualitative data, combining the two, and then basing the interpretation on the strengths points of both sets of data (Creswell, 2015; Christensen et al., 2015). In educational research, the mixed-method approach has various advantages that help to acquire an in-depth understanding of educational phenomena. Ponce & Pagán-Maldonado (2015) underlined the importance of multimodal techniques in portraying the complexities of the educational profession. Researchers can acquire a more holistic view of educational challenges by merging quantitative and qualitative data, allowing for a deeper study of research questions and a more nuanced interpretation of findings.

Furthermore, the use of mixed methods allows more thorough analysis because it helps explore both the breadth and depth of educational phenomena, resulting in a fuller and more extensive understanding of the topic under investigation (Ponce & Pagán-Maldonado, 2015; Ferguson et al., 2020).

Consequently, in this proposed study, the sequential explanatory mixed-method approach will be used to address the purposes of the study. These purposes are to examine the impact of the "Reading for Fun" program on improving students' levels of performance in reading and if there is a difference in results when the program is implemented digitally or using printed texts and analyze the effect of students' opinions towards RfP and reading mediums. Moreover, the study will explore students' rationale and reasons for these opinions. Moreover, this "se-

quential" technique will help collect data quantitatively to acquire decisive results and then explore the participants' perceptions which will add a humanitarian dimension to the research (Noble & Heale, 2019). The sequential study will start with the quantitative quasi-experiment that includes a test that will be used as the pretest and the posttest, and the intervention (RfP) to find answers for the first two questions. It will also include a survey, to find answers to question 3 about students' perceptions of reading mediums, and how it can affect their progress. To be able to explain the data collected quantitively, the study will use a focus-group semi-structured interview as a qualitative tool to find answers to the last question and get an insight into students' rationale and reasons behind their choices of reading mediums.

In a nutshell, the study will start quantitatively. To be able to understand the data collected quantitively, some qualitative tools will be used to add depth to the numerical data collected.

2.1. Context of the Study

This pilot study will be conducted in a private school that follows the government curriculum in Ajman, UAE. The study will take place in Ajman as it will be easier for the researcher to conduct and monitor the progress of the study where she lives and works. The researcher's first intention was to conduct the study in government schools because the RfP program can improve students' performance in EmSAT reading exams. Since it is difficult and time-consuming to obtain the government's permission to conduct the study in government schools, it is considered a reasonable alternative to do it in private schools that follow the government curriculum. The results can be applied to government schools as both sectors use the same curriculum.

2.2. Participants

The targeted population is students in grade 11 because the intervention program will help them score in the EmSAT exam in grade 12. Grade 12 students are excluded since they are overloaded with school subjects and internal and external exams, so joining the intervention program might add to their load and increase their anxiety. The study is conducted in girls' schools because girls are keener to learn and adhere to instructions than boys. It will also be easier for the researcher, as a female, to visit girls' schools without further complications. Furthermore, choosing to conduct the study in solely girls' schools will eliminate the "gender" variable that might affect the results of the study. The number of participants in this pilot study is limited as the main purpose of this study is to pilot the main study, yet the results can shed light on the limitations and delimitations that can be avoided in the main study.

Participants are female 11th graders in a private school. Based on the BUiD Research Ethics Guidelines, an ethical form was approved before data collection. Consent letters were sent to the schools' principals and students before the study. All participating students are 15+, so no need for parental approval. All

information about the purpose of the study was shared with the participants. All data collected will be used strictly for this research purpose.

2.3. Assessments and Measures

The study used the "ex-post single difference" Model to analyze the data collected in the quasi-experiment (White & Sabarwal, 2014). SPSS will be used to tabulate and analyze data to grant objectivity, validity, and generalizability of results (Zou et al., 2020). To answer RQ.1, Homogeneity and descriptive analysis tests will be conducted followed by a paired t-test to answer Q.1&2. For Q.3, a One-Way ANOVA test will be used to decide which reading medium is more effective. The researcher will use these tests as they are used in literature in similar studies such as (Brown et al., 2016; Kazimi, 2021; Phadung & Dueramae, 2018).

3. Results

In order to answer RQ1, it was necessary to answer SQ1, SQ2 and SQ3. Their results can be found below.

3.1. Outcome 1—SQ1

The parameters of SQ1 are:

μ1: the mean of the pretest

μ2: the mean of the posttest

α: 0.05 and the confidence factor is 95%

The hypotheses are H0: "There is no significant difference in mean between the scores of the pretest and posttest of all groups" H0: $\mu1 = \mu2$ ($\mu1 - \mu2 = 0$). The researchers also have put an alternative hypothesis (H1): "There is a significant difference in mean between the scores of the pretest and posttest of all groups" H1: $\mu1 \neq \mu2$ ($\mu1 - \mu2 \neq 0$). Examining the main of the pretest for all groups, results showed that: $\mu = 23.90$ while the main of the posttest is $\mu = 24.67$ with a difference of 0.077. This means that the main of the posttest scores are higher than the main of the pretest scores. The standard deviation of the pretest score is $\sigma = 4.732$ which is bigger than the standard deviation of the posttest: $\sigma = 2.595$ which means the scores of the posttest are distributed more closely to the mean than the scores of the pretest. To test the null hypothesis, a paired sample T-test was conducted as shown in Table 1.

Table 1 shows that p = 0.806 which is higher than $\alpha = 0.05$ (P > α). This means that there is no statistically significant difference in the means of the scores of the two tests although the mean of the posttest is higher with a 2.595 marks difference. In conclusion, the previous results failed statistically to reject

Table 1. The correlation between the pretest and posttest scores.

	N	Correlation	One-Sided P	Two-Sided P
		significance		
Pair 1: Pretest scores & posttest scores	19	0.061	0.403	0.806

the null hypothesis which states that "there is no significant difference in mean between the scores of the pretest and posttest of all groups" with 95% confidence.

3.2. Outcome 2—SQ2

The parameters of SQ2 are:

- $\mu1$: the mean of the controlled group in the pretest
- $\mu2$: the mean of the controlled group in the post-test
- α: 0.05 and the confidence factor is 95%

The hypotheses are H0: "There is no significant difference in mean between the scores of the pretest and posttest of the controlled group" H0: $\mu1 = \mu2$ ($\mu1 - \mu2 = 0$). The alternative hypothesis is (H1): "There is a significant difference in mean between the scores of the pretest and posttest of the controlled group" H1: $\mu1 \neq \mu2$ ($\mu1 - \mu2 \neq 0$). Examining the main of the pretest for all groups, the results showed that: $\mu = 23.14$ while the main of the posttest is $\mu = 24.57$ with a difference of 1.43. This means that the main of the posttest scores is higher than the main of the pretest scores. The standard deviation of the pretest score is $\sigma = 6.362$ which is bigger than the standard deviation of the posttest: $\sigma = 2.992$. This means the scores of the posttest are distributed more closely to the mean than the scores of the pretest. To examine the significance of difference in mean, a paired-sample T-test was conducted as shown in **Table 2**.

Table 2 shows that p = 0.656 which is higher than $\alpha = 0.05$ (P > α). This means that there is no statistically significant difference in the means of the scores of the two tests although the mean of the posttest is higher with 1.43 marks difference. The previous results failed statistically to reject the null hypothesis which states that "there is no significant difference in mean between the scores of the pretest and posttest of the controlled group" with 95% confidence.

3.3. Outcome 3—SQ3

The parameters of SQ3 are:

- $\mu1$: the mean of the experimental groups in the pretest
- $\mu2$: the mean experimental groups in the post-test
- α: 0.05 and the confidence factor is 95%

The hypotheses are H0: "There is no significant difference in mean between the scores of the pretest and posttest of the experimental groups" H0: $\mu1 = \mu2$

Table 2. The correlation between the scores of the pretest and posttest of the control group.

	Paired Differences							Significance	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence interval of the difference		t	df	One-Sided p	Two-Sided p
				Lower	Upper				
Pretest scores & posttest scores (control group)	−1.429	8.080	3.054	−8.901	6.044	−0.468	6	0.328	0.656

Table 3. The correlation between the pretest and posttest scores of the experimental groups.

| | | | | Paired Differences | | | | | |
| | | | | 95% Confidence interval of the difference | | | | Significance | |
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	One-Sided p	Two-Sided p
Pretest scores & posttest scores (experimental groups)	−0.154	3.870	1.087	−2.492	2.185	−0.1431	2	0.444	0.888

($\mu 1 - \mu 2 = 0$). The alternative hypothesis is (H1): "There is a significant difference in mean between the scores of the pretest and posttest of the experimental groups" H1: $\mu 1 \neq \mu 2$ ($\mu 1 - \mu 2 \neq 0$). To measure the mean, a descriptive analysis was conducted. The results showed that the mean of the pretest of experimental groups is $\mu = 24.29$ while the mean of the posttest is $\mu = 24.71$ with a difference of 0.42. This means that the mean of the posttest scores is higher than the mean of the pretest scores. The standard deviation of the pretest score is $\sigma = 3.9$ which is bigger than the standard deviation of the posttest: $\sigma = 2.49$ which means the scores of the posttest are distributed more closely to the mean than the scores of the pretest. To check if the difference in mean is significant or not, a paired-sample T-test is conducted as shown in **Table 3**.

Table 3 shows that p = 0.888 which is higher than $\alpha = 0.05$ (P > α). This means that there is no statistically significant difference in the means of the scores of the two tests although the mean of the posttest is higher with 1.43 marks difference. The previous results failed statistically to reject the null hypothesis which states that "there is no significant difference in mean between the scores of the pretest and posttest of the experimental groups" with 95% confidence. All answers to the previous sub-Qs indicate that RfP had an effect on students' levels of achievement, yet the effect was not statistically significant. As a result, the answer to the first question is that RfP has a positive impact on students' performance in reading comprehension, yet that impact is not significant.

The above results can be due to many reasons such as the number of the study sample: N = 21. The previous number is too small to represent the 11th graders' population. One more reason is that the duration in which the intervention program was executed was too short to show valid results. Another reason was that students were not allowed to bring their smart devices to school, so they had to do the tests at home. This can affect the reliability of results as they might have gotten help from their families and/or peers. One last reason was that the level of the exam, although aligned with CEFR and the government curriculum the school follows, might have been below their level as students in private schools.

3.4. Outcome 4—RQ2

Regarding RQ2 the parameters are:

Table 4. The correlation between the post-test scores of the digital group and the post-test scores of the traditional group.

	Mean	Std. Deviation	Std. Error Mean	95% Confidence interval of the difference				Significance	
				Lower	Upper	t	df	One-Sided p	Two-Sided p
Posttest scores (digital group) & posttest scores (traditional group)	1.714	4.030	1.523	−2.0135	5.441	1.126	6	0.152	0.303

- $\mu 1$: the mean of digital reading groups in the pretest
- $\mu 2$: the mean of the traditional reading group in the post-test
- α: 0.05 and the confidence factor is 95%

The hypotheses are H0: "There is no significant difference in mean between the posttest scores of the group that read digitally and the group that read traditionally" H0: $\mu 1 = \mu 2$ ($\mu 1 - \mu 2 = 0$). The alternative hypothesis is (H1): "There is a significant difference in mean between the posttest scores of the group that read digitally and the group that read traditionally" H1: $\mu 1 \neq \mu 2$ ($\mu 1 - \mu 2 \neq 0$). A descriptive analysis was conducted. The results were: the mean of the posttest score of the group that read digitally is $\mu = 25.57$ which is higher than the mean of the scores of the group that read traditionally $\mu = 23.86$ with a difference of 1.71. To check if the difference in mean is significant or not, a paired-sample T-test is conducted as shown in **Table 4**.

Table 4 shows that p = 0.303 which is higher than $\alpha = 0.05$ (P > α). This means that there is no statistically significant difference in means of the scores of the two tests although the mean of the scores of the group that read digitally is higher with 1.71 marks difference. The previous results failed statistically to reject the null hypothesis which states that "there is no significant difference in mean between the posttest scores of the group that read digitally and the group that read traditionally" with 95% confidence. This can conclude that although nowadays students are considered digital natives, many of them still prefer traditional ways of reading.

This can be due to many possible reasons such as: although nowadays students are digital natives, a lot of them still prefer the traditional way of reading. Additionally, the sample size of students was very small (N = 7 students in each group), making it impossible to draw firm conclusions from it or to use it as a representative sample of 11th graders. Nevertheless, it can provide insight into potential issues that students in the main study may encounter and help them avoid those issues in the future. One more reason is that as the pretest and post-test were conducted online outside school, students could have gotten help from their families and/or peers. Moreover, the over-dependence on technology during the pandemic might have led students to refrain from using more technology when they read for pleasure and might have caused a sort of nostalgia to use books when they read.

4. Discussion

This pilot study included a thorough background of the RfP program and 2 reading mediums: digital and traditional. It also explored the theories under-pinned the topic and tools used in collecting data. It also analyzed the results obtained with these tools and provided an analysis of those results. The results showed a lack of significant difference in the reading performance levels within the experimental groups and the control group. Based on these results, tools will be modified to be more efficient for data collection in the main study. These modifications will be: (a) Adding a text from the PISA benchmark exam to the pretest/posttest to alleviate the level of the test to suit students' levels and to prepare them for the national and international benchmark exams in grade 12; (b) The books used in the intervention program will vary between narrative and informative texts to give students versatile knowledge and lexis; (c) The sample in the main experiment will be larger to be more adequate to represent the grade 11 population; (d) The duration of the experiment will be extended to 8-9 weeks for students to have more time to read more books.

One of the limitations is the disapproval of schools to host the pilot study, or the unwillingness of students to participate in the study which can affect the study execution. Another limitation is that the study cannot include all 11th graders. That is why the researcher will use many tools in collecting and analyz-ing data to grant more generalizability. The main purpose of the study is to ex-amine the effect of RfP on reading skills, so other researchers can investigate the effects of the previous program on other skills such as grammar and writing. The duration of the pilot study is relatively short, yet the target of the pilot study is to discover the unforeseen problems that can hinder the progress of the main study. The pilot study can inform the validity and reliability of the tools used to be improved in the main study, so although the duration is crucial in the main study, it can be considered an informative tool in the pilot study.

5. Conclusion

In conclusion, this pilot study has made significant strides in exploring the im-pact of the "Reading for Pleasure" program on 11th graders' reading compre-hension, focusing on the comparison between digital and traditional reading mediums. The findings suggest that while there is a general positive influence of the program on students' reading comprehension, the differences in outcomes between digital and traditional mediums are not statistically significant. This underlines the importance of incorporating both digital and traditional methods in educational practices, catering to diverse student preferences and learning styles. Furthermore, the research highlights the necessity of broader and more inclusive studies in this area, especially in non-Western educational contexts. The limited sample size and short duration of the pilot study indicate the need for more extensive research to draw more generalizable conclusions. Future stu-dies could benefit from a larger sample size, longer duration, and perhaps the

inclusion of different educational contexts to provide a more comprehensive understanding of the impact of reading mediums on comprehension. In light of the increasing digitalization of education, these findings contribute valuable insights into the ongoing debate about the efficacy of digital versus traditional reading formats. The study underscores the need for educators to remain flexible and open to using a variety of reading mediums to support the diverse learning needs of students. As the educational landscape continues to evolve, research such as this is crucial in guiding effective pedagogical strategies and ensuring that students are equipped with the necessary skills to succeed in an increasingly digital world.

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Conflicts of Interest

The authors declare no of interest regarding the publication of this paper.

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