The Different Learning Modes and Their Relation to Reading Comprehension Achievement Among ESL Tertiary Learners

Tengku Farah Petri Tengku Mahmood

Universiti Teknologi MARA, Cawangan Negeri Sembilan, Kampus Seremban, Persiaran Seremban Tiga 1, Seremban 3, 70300 Seremban, Negeri Sembilan, Malaysia

Sheela Paramasivam

Universiti Teknologi MARA, Cawangan Negeri Sembilan, Kampus Seremban, Persiaran Seremban Tiga 1, Seremban 3, 70300 Seremban, Negeri Sembilan, Malaysia

Mohd Ikram Mohd Nor Rizan

Universiti Teknologi MARA, Cawangan Negeri Sembilan, Kampus Seremban, Persiaran Seremban Tiga 1, Seremban 3, 70300 Seremban, Negeri Sembilan, Malaysia

Nur Fadhlina Zainal Abidin

Universiti Teknologi MARA, Cawangan Negeri Sembilan, Kampus Seremban, Persiaran Seremban Tiga 1, Seremban 3, 70300 Seremban, Negeri Sembilan, Malaysia

Suhendi Andang

English Department, Faculty of Literature, Universitas Islam Sumatera Utara, Medan, Indonesia

Alice Shanthi (Corresponding author)

Universiti Teknologi MARA, Cawangan Negeri Sembilan, Kampus Seremban, Persiaran Seremban Tiga 1, Seremban 3, 70300 Seremban, Negeri Sembilan, Malaysia

E-mail: aliceshanthi@uitm.edu.my

Abstract

Reading is an important language skill for second-language learners. Effective reading is essential for undergraduates to understand academic texts and become critical thinkers in identifying and evaluating opinions and arguments. This study examines students' achievement in reading tests conducted in three different modes: physical face-to-face, online and blended learning platforms. The selection of respondents was made using purposive sampling. The data for this study consists of secondary data obtained from 392 participants from three different faculties in a local university. The data were analyzed using the SPSS version 20 tool. The results indicate significant differences in teaching and learning modes and students' achievement in reading tests. The findings show that physical face-to-face mode produced the highest test scores, while blended learning produced the lowest test scores. Next, the findings also showed that girls performed better in reading tests than boys. This study suggests that face-to-face mode is still preferred in teaching and learning reading as students need the monitoring, interaction, attention, and discussion done in real-time learning in a physical classroom compared to blended and online modes. Further research needs to be conducted, involving more samples, faculties, and private and public universities to examine if similar results prevail.

Keywords: reading skills, online learning, face-to-face learning, blended learning

1. Introduction

1.1 Background of Study

Reading allows learners to become critical thinkers as they must be able to extract main ideas and supporting details, evaluate the author's arguments, infer meaning, and form conclusions. Proficiency in reading is essential, especially among college and university students, as having a good grasp of reading proficiency opens the pathway for them to explore various academic texts, which will enable them to prepare and complete their assignments, have good research and writing skills as well as partake in critical discussions (Zainol Abidin et al., 2011). The assessment of students' reading proficiency requires the use of reading assessments comprising academically selected reading texts. Within the context of these assessments, students are presented with academic reading materials, requiring them to engage in reading, comprehending, and responding. The core objective of these assessments is to evaluate students' capacity to comprehend the given texts and effectively demonstrate their comprehension by providing accurate responses to comprehension questions within a predefined time limit. Through these assessments, instructors could gain insights into students' reading abilities and aptitude for extracting meaning from complex academic texts. Students' active interaction with the text and schema activation may occur here. They could decode meaning and understand the text to get information by using their schema or prior knowledge (Bojovic, 2010).

The Covid-19 pandemic has significantly impacted the various facets of higher education globally. Higher learning institutions were driven to move from the traditional face-to-face learning mode to a fully online mode during the pandemic. On the other hand, post-pandemic saw many higher education institutions opting for the blended learning mode. The transition affected learners and educators in many ways. Teachers had to carry out learning activities without the usual face-to-face lessons, learners had to self-regulate at home, and parents had to support their children's learning more than before (Ludewig et al., 2022). The pandemic has also affected the reading skills of college students. A research study released in January 2022 found that average fall 2021 reading test scores in grades 3-8 were 0.09-0.18 standard deviations lower than same-grade peers in fall 2019 when reading skills were taught face-to-face (Kuhfeld et al., 2022). During the post-pandemic times, students returned to campus, where blended mode became a preferred learning method. How these learning conditions affected students' achievement in reading skills is of considerable interest to educational policy, administration, and practice, especially in the Malaysian context.

This study aims to investigate undergraduate students' achievement in reading comprehension tests in English proficiency classes where they are taught in different modes: online, face-to-face and blended. The question is whether the different learning modes affect students' achievement in reading proficiency.

1.2 Statement of Problem

Reading is a language skill which should be given serious attention. This is because reading paves the way for academic success and learning. Students with good reading skills can

comprehend reading materials better, communicate more effectively, and have better critical thinking skills (Al Roomy, 2022). Therefore, the success of reading, measured through the reading scores obtained, should be viewed through the teaching-learning modes and platforms in which it is delivered.

Physical classes, blended and online methods have pros and cons in teaching reading comprehension skills. In a physical classroom, students have more access to peer interaction, and teachers can provide more explicit instruction, explanation, and support. On the other hand, online learning can offer more flexibility regarding when and where students learn and the ability to personalize learning experiences through digital resources and adaptive technology (Normadhi et al., 2019). In the blended learning mode, students can have the best online and offline learning regarding interaction, personal attention from teachers and technology.

Ultimately, the best mode may depend on individual students' specific needs and preferences. Some students may benefit more from a physical classroom's structure and social interaction, while others may thrive in an online learning environment. Combining elements of both modes may also provide a more balanced and practical learning experience.

1.3 Objective of the Study and Research Questions

This study investigates undergraduate students' achievement in reading comprehension tests in English proficiency classes where they are taught in different modes: online, face-to-face and blended and how this affects their performance in reading tests. Specifically, this study is done to answer the following research questions:

1) Is there any significant difference in reading scores based on different teaching modes?

2) Which teaching mode exhibits the highest and lowest reading score?

3) Is there any significant difference between gender in the English reading score based on the different teaching modes?

2. Literature Review

Three modes of learning commonly taught in universities are face-to-face (physical), entirely online and blended learning. The online and blended learning mode became popular during the Covid-19 pandemic as there was a lockdown of institutions of higher learning not allowed to conduct physical classes. Before the pandemic, the preferred learning mode was face-to-face.

2.1 Different Modes of Learning

Face-to-face learning (physical mode) is the traditional, classroom-based learning method. There are many benefits to this mode. First, it allows in-class teaching and learning to occur in real-time interaction between teachers and students (Xu & Jaggars, 2014). In addition, it allows for immediate teacher response, more flexible content delivery, engagement, collaboration, and teamwork within the given physical setting (Paul & Jefferson, 2019). Kemp and Grieve (2014) argued that, unlike online teaching, face-to-face instruction offers

dynamic learning characteristics which offer more inspiration, support, and guidance. They also mentioned that even if a student intended to drop out within the first few weeks of class, the teacher and other students might be able to convince him or her otherwise by modifying the course's structure and teaching methodology to increase student retention.

Regarding employment preferences, Columbaro and Monaghan (2009) argued that traditional classroom degrees triumph over online ones. They reported that many academic and professional organizations did not value online degrees on par with campus-based degrees. Prospective hiring bodies generally believed that online education was a watered-down, easier way to acquire a degree, citing weak curricula, unmonitored tests, and lax homework assignments as barriers to the learning process (Paul & Jefferson, 2019).

On the other hand, in an online learning platform, learners access course materials, lecture notes, and assignments through digital platforms. Learning can be synchronous (real-time, where learners participate in live lectures, discussions and webinars) or asynchronous, where learners access materials and complete given tasks, such as assignments, according to schedules. While there are advantages to online learning, such as flexibility, time efficiency as well as self-paced learning, online learning mode may pose academic integrity issues among students, which may result in students getting higher scores due to unauthorized collaboration and plagiarism (Holden et al., 2021). Another disadvantage of online learning highlighted by Asgari et al. (2021) is that instructors also experienced difficulties with software licenses, internet connectivity, and webcams, essential tools for conducting Zoom sessions and online classes. Most instructors also had trouble using online writing tools and accessing campus resources. They also pointed out that students were also discovered in the situation where they had to share their digital devices, hardware, and other resources with their families. It is crucial to remember that the digital gap was further aggravated by students' inability to access computers, proper software, and sufficient bandwidth to access course materials online and finish tasks (Lake & Makori, 2020; Asgari et al., 2021).

Another type of learning mode is hybrid or blended learning mode. According to Dziuban et al. (2004), blended learning is a teaching strategy that combines the effectiveness and socialization chances of the traditional face-to-face classroom with the learning opportunities provided by the online mode of delivery. Simply put, blended learning is an environment that mixes technology and face-to-face instruction (McGee & Reis, 2012). In blended learning mode, students can regularly access online resources whenever and wherever they choose and still have the chance to connect with instructors and peers in the actual classroom; a hybrid or blended course may have positive effects on students' learning results (Chen & Lin, 2016). However, hybrid or blended courses could add to both students' and instructors' workloads, which may negatively impact learning results (Reasons, 2004).

2.2 Teaching Reading Comprehension Skills in the Different Learning Modes

Reading comprehension is a significant skill that develops learners' various academic tasks. Many mental processes were involved during reading, and Krashen (1988) believed that readers recreate messages while reading. Although reading has often been defined as a passive skill, Grabe (1991) argued that reading should be considered an active process. It

facilitates students with text analysis, explanation, and expressing their opinions regarding written materials (Gilakjani & Sabouri, 2016). They further explained that learning to read and comprehend written information is a skill learners need to master to succeed in the class assignments that their instructors assign them. If students intend to become proficient readers, one of the main goals of reading comprehension is to help them develop their reading abilities and comprehension of texts (ibid).

In teaching reading skills, the stages and activities involved in a reading session include pre-reading, while reading and post-reading. In the pre-reading stage, an explanation of reading skills such as skimming, scanning, contextual clues, facts and opinion, inference, and concluding is given in the form of notes and lectures. In the while-reading stage, students read the text and decipher the meaning of the text as well as answer questions about the text. The interactive process occurs between the reader and the text. Brainstorming is also done as the reader uses prior knowledge to understand the text that is read and answer the comprehension question. In the post-reading stage, answers are discussed in small groups or as a class. In an exam, learners will be given a reading paper comprising text articles and need to answer questions on it within the stipulated time. Moreover, it can sometimes be given and answered as homework.

The foundation of traditional education has long been acknowledged as face-to-face reading lessons. First, the interpersonal connections fostered in these sessions may increase student involvement and engagement, which leads to a greater grasp of the subject matter (Richardson & Swan, 2003). They highlighted that direct communication with instructors fosters individualized learning experiences by allowing real-time clarification and feedback. Additionally, in-person instruction fosters social interactions among students, promoting peer collaboration and the development of critical thinking abilities (Swan, 2001). It could be seen that the benefits of face-to-face reading sessions in terms of active participation, personalized learning, social contact, and improved comprehension are generally consistently supported by the literature.

Meanwhile, in an online learning mode, reading is taught through various platforms and tools such as videos and online platforms. Online reading courses provide many advantages to start with. They offer convenience and flexibility, enabling students to access reading materials anytime and anywhere. Online platforms frequently provide interactive elements that increase engagement and comprehension, including multimedia resources, discussion forums, and quick feedback (Jaggars & Xu, 2016). Since reading materials are usually referred to as authentic texts, one of the primary goals for many language learners is to access authentic resources when reading hypertexts online (Behjat, Yamini, & Bagheri, 2012). In their study, Verezub and Wang (2008) demonstrated how leveraging the internet's hypertexts could help language learners understand texts more fully.

There are, however, disadvantages as well. Students' social and communication abilities may suffer because there is less face-to-face interaction in online reading sessions. Technical problems or unpredictable internet connections might also interfere with learning (Khalil et al., 2020). In the absence of actual classroom situations and direct supervision from

instructors, some students might also have trouble maintaining their drive and self-control (Barrot, Llenares, & Del Rosario, 2021). Therefore, to maximize online learning and fulfil their students' various needs, educators must balance these benefits and drawbacks.

Reading conducted in blended mode includes physical classes and online activities. The instructors can assign quizzes, tests, and reading activities such as videos as out-of-class or take-home activities while still conducting reading activities as group or class discussions. Asadzadeh Maleki and Ahangari (2010) researched the effects of computer-assisted instruction on reading and writing. According to their study, most EFL students had a favourable attitude towards using multimedia resources in their language programmes. In their article, Ehrlich et al. (2011) discussed the features and design of an e-learning system that could be used to develop reading comprehension abilities. They concluded that by using a particular website, learners were actively encouraged to utilize various reading abilities and tactics to increase their comprehension of written materials. Reading online also enabled students to analyze texts independently, think about them, and attempt to understand them without a teacher's aid. Szymaska and Kaczmarek (2011) concluded that learners benefited from a blended learning reading course employing both printed and online texts in terms of both recollection and comprehension of the texts. In conclusion, it is evident from the literature that incorporating a blend of online and offline teaching methods yields substantial benefits for students.

2.3 Past Studies on Different Learning Modes and Students' Achievement in Reading Tests

Numerous research studies have examined the effect of different learning styles on students' performance on reading tests. These studies have shed light on the efficacy of various strategies and given educators and policymakers valuable insights into the students' reading performance (Wu & Zhang, 2023; Barrot, Llenares, & Del Rosario, 2021; Szymaska & Kaczmarek, 2011).

One line of research has focused on traditional classroom instruction, where instructors deliver lessons face-to-face. Studies comparing this mode with others have revealed mixed findings. While some research suggests that traditional classroom instruction fosters higher reading achievement, other studies have shown limited or no significant differences compared to alternative learning modes. In the physical face-to-face mode, a traditional way of delivering courses for a long time, teachers implement activities and plan strategies to keep students engaged to retain their attention. Nikolopoulou's (2022) findings showed that university students' learning mode preferences in Greece chose physical face-to-face mode over online and hybrid mode. Among the reasons cited were personalized attention, social interaction, engagement, and immediate feedback, although the timetable is demanding, and there is hardly any use of technology in class (ibid). This concurred with Zhang (2010), who mentioned that the communication between teachers and students depends mainly on the teachers' educational philosophy and personality. In another study, Lubis et al. (2011) highlighted that group discussions in a reading comprehension class in the physical mode produce better scores than in online or blended learning mode. Thus, it can be assumed that students look forward to the human physical touch in class. However, it should be noted that

the significant disadvantage of conventional language learning classes was that they offered limited access to additional information besides those given inside the classroom or within students' textbooks (Sanchez-Villalon & Ortega, 2004).

On the other hand, online learning has gained considerable attention in recent years. Several studies have examined the effectiveness of online reading programs and interventions. Findings indicated that well-designed online platforms could positively impact students' reading abilities, particularly with interactive and personalized features (Zhang et al., 2023). These digital tools offer flexibility, allowing students to learn at their own pace and access various resources tailored to their needs. Although online learning has been around for some time now and is being implemented by many universities and institutions of higher learning worldwide, it gained more recognition with the outbreak of the Covid-19 pandemic.

A study on online learning among medical students during the Covid-19 pandemic in China by Zhang et al. (2023) reported that of the 1164 students, more than 90 per cent gave importance to online learning, and more than 80 per cent had a good online learning experience during the pandemic. One positive aspect mentioned in the study was that online learning offers students asynchronous learning as students can record, replay, and relearn what was taught in the online lesson at the convenience of their space and time in another study on using Google Classroom in an online learning platform to learn Arabic, Al-Ewesat and Al-Ghzewat (2022) reported that students' reading skills in the Arabic language improved upon using the Google Classroom platform as they were able to understand the text well and determine the semantics in the text better. This increased their self-confidence as Google Classroom allowed active participation of the students through its collective and individual activities.

On the contrary, Støle et al. (2020) study on reading comprehension tests conducted online for children revealed that the children performed poorly in digital reading tests compared to paper reading tests. Among the factors that contributed to this was children's lack of digital skills and experience in screen scrolling. They took longer to scroll the screen to read online than hardcopy texts. Online scrolling also disrupted the reader's comprehension of text and spatial location of information and thus made it more difficult to infer and comprehend the text. Additionally, a digital display with rich multimedia demands that learners frequently shift their attention to various concurrent stimuli in the display (Eshet-Alkalai, 2009). Given these reading habits, it was not surprising that users of digital learning materials report concerning sensations of disorientation. These feelings were caused by the constant scrolling and shifting focus between hyperlinks and various display sections (Lazar et al., 2003).

Another approach that has gained popularity is blended learning, which combines online and offline elements. Research suggests blending face-to-face instruction with online activities can enhance reading comprehension and vocabulary acquisition. The combination of direct teacher guidance and the independent exploration of online resources contributes to improved reading performance.

According to Wu and Zhang (2023), in their study on blended learning using multimedia platforms, it was found that students scored better in reading assessments compared to the

traditional physical mode. Among the reasons cited was that flexible learning time allowed students to improve their autonomous learning ability. They further explained that this mode strengthened the interaction between students and teachers as interaction occurs inside and outside the classroom, and students can share English reading resources. Besides sharing resources, students could learn from each other's reading strategies. Many institutions today adopt the blended learning mode in language teaching and learning as technology is integrated into the delivery of lessons and has become the way forward in delivering educational programmes in this millennium.

In teaching reading skills, learners can benefit from the advantages of blended learning as an accelerator of learning as they can read both online and offline at their own pace and space. According to Støle et al. (2020), blended learning offers the opportunity to integrate innovative technology in an online learning platform while delivering content online and in the traditional face-to-face (F2F) platform. Using computers, institutional learning platforms such as Moodle, and social media such as websites, Facebook, and WhatsApp allows learners to explore reading materials and communicate online with fellow learners and their instructors. This may, in turn, further enhance learner autonomy by giving more responsibility to the learner, thus moving away from traditional teacher-centred classes.

However, blended learning modes have drawbacks if students cannot utilize technology well. A study by Maysarah and Wahyuni (2021) on students' achievement in a reading class in a school in Indonesia revealed that blended learning had no significant improvement in the student's test scores. One reason is that the students were not yet ready to learn online. Some of them had never done online learning before. Students also were not ready to learn independently and had to be reminded by their teacher to complete their online tasks. There were instances of students cheating online or they asked someone to do their online task. This means that reading online did not yield better test scores as was expected by the researchers. Again, factors such as student readiness and technology play an essential role in blended learning mode.

Studies have shown that learners with varying backgrounds, skills, and learning preferences may respond to different types of instruction differently. Students' reading performance can be maximized by designing the learning environment to consider these variances. Additionally, individual students' characteristics should be considered.

In conclusion, previous studies have emphasized the significance of considering various learning styles and their influence on student's performance on reading comprehension examinations. Learning about the advantages and disadvantages of various modes can guide instructional decisions and support the development of productive learning environments for all students. Improved reading outcomes can be achieved using conventional classroom education, online learning, and blended learning strategies.

2.4 Conceptual Framework

Learners' success in reading skills and their performance in reading tests relates to the platforms used to conduct teaching and learning. Learners' motivation to learn and absorb the

lesson's contents is influenced by factors such as instructions, interaction and materials besides delivery of the subject matter using different methods and platforms. Thus, to teach practical reading skills, teachers must choose appropriate learning platforms, face-to-face, online or blended learning to deliver lessons. In doing so, teachers must understand that students have different learning styles. A self-motivated and independent student may prefer online mode as this mode offers self-regulated space and learning time. The student may access the resources online at his/her convenience. On the other hand, for students who need constant monitoring and coaching, a physical platform may be a better choice as there is more physical interaction and feedback, which helps them feel more confident and comfortable (Qureshi et al., 2019). The blended learning mode is also popular as it offers the benefits of face-to-face physical interaction and online learning and utilizes technology in the learning process (Ghimire, 2022).

This study's concept is based on the Schema theory, part of the more significant Cognitive Learning Theory. The Schema theory proposes that learners have their schema in acquiring knowledge. Reading is an interactive process whereby learners comprehend a text using their background knowledge or "schemata". In their study, Shanthi et al. (2021) mention that learning platforms, teaching materials, and teaching styles must be carefully selected to make teaching-learning effective for students. Hence, this study investigates students' performance in reading comprehension in the different learning modes: physical face-to-face, online and blended. The study also examines whether gender plays a role in reading achievement.
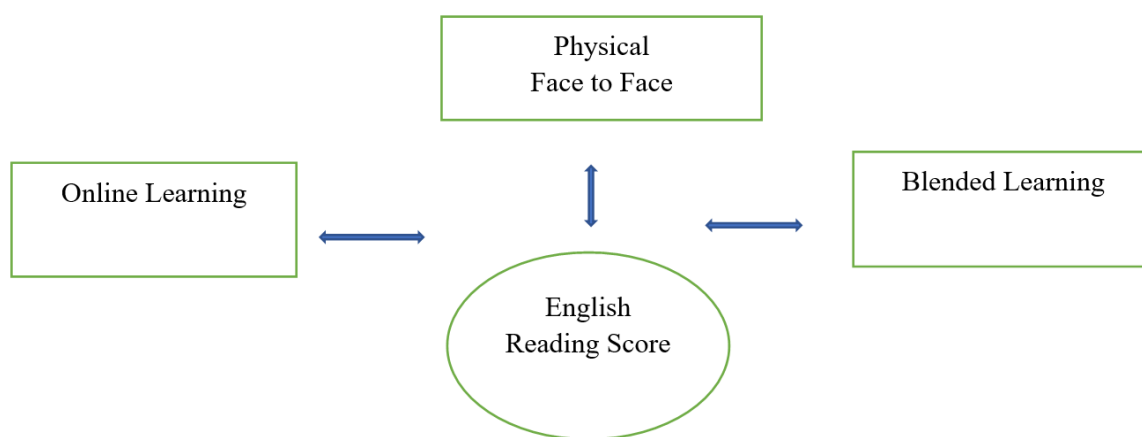

Figure 1. Conceptual framework of the study

Is there a relationship between different learning modes and students' reading achievement?

3. Methodology

This study uses a quantitative approach to investigate how different learning modes, physical face-to-face, online and blended learning, affect students' reading achievement. Purposive sampling consisting of undergraduates from a local public university was used. The

respondents were 392 students from three different faculties; the Faculty of Administrative Science and Policy Studies (FSPPP), the Faculty of Computer and Mathematical Science (FSKM) and the Faculty of Sports Science and Recreation (FSR) who answered the study's research questions. A breakdown of the respondents according to faculties is given below:

FSPPP   : 175 respondents   (44.6%)

FSKM   : 102 respondents   (26.0%)

FSR   : 115 respondents   (29.3%)

The data used in the study are secondary data, where students' reading scores were collected from the university's Academic Affairs Division (HEA). The scores were extracted from internal e-Result Exam System (e-RES) records. From the data collected (refer to Table 1), the scores were chosen from three different teaching modes: face-to-face (September 2019–February 2020), online (March 2020–July 2020), and blended (October 2022–February 2023).

The Covid-19 pandemic forced students to only take classes online from March 2020 to July 2022. Students were taking face-to-face English classes prior to the pandemic. For the October 2022–February 2023 semester, the students were back on campus and were instructed to use a blended learning mode.

Table 1. Faculties, teaching modes, and semesters of the data

Faculties	Teaching modes	Semester
FSPPP	Face-to-Face	September 2019–February 2020
	Online	March 2020–July 2020
	Blended	October 2022–February 2023
FSKM	Face-to-Face	September 2019–February 2020
	Online	March 2020–July 2020
	Blended	October 2022–February 2023
FSR	Face-to-Face	September 2019–February 2020
	Online	March 2020–July 2020
	Blended	October 2022–February 2023

The reading scores were part of the assessment for an English Proficiency course. The total mark for the reading assessment is 40%. The data taken from the physical face-to-face mode consists of 120 respondents (30.6%), online mode 101 respondents (25.8%) and blended mode 171 respondents (43.6%).

Statistical analysis was done using the Statistical Package for Social Sciences (SPSS) software version 20 to examine the relationship between students' reading scores in the different learning modes. The study used one-way ANOVA to examine the reading performance with different teaching methods. The ANOVA is used to identify differences in

students' reading scores and the teaching modes and faculties. Besides that, the independent t-test is used to examine students' reading performance based on gender. The study assumes no difference in students' reading scores on the different learning modes.

4. Findings

This study aims to investigate undergraduate students' achievement in reading comprehension tests in English proficiency classes where they are taught in different modes: online, face-to-face and blended. The respondents for the study were 392 undergraduates, of whom 136 (34.7%) were male and 256 (65.3%) were female (refer to Table 1). The total mark for the reading assessment was 40. The average reading performance was 25.41, with a standard deviation of 4.859. The minimum and maximum scores were 11 and 36, respectively. While according to gender, females exhibited a higher mean of 26.23 with a standard deviation of 4.526 as compared to males (M = 23.85, SD = 5.097).

Table 1. Descriptive statistics of reading performance

	N	Minimum	Maximum	Mean	Std. Deviation
Overall	392	11	36	25.41	4.859
Male	136	11	35	23.85	5.097
Female	256	14	36	26.23	4.526

To answer the first research question, "Is there any significant difference in reading scores based on different teaching modes?" the inferential test by one-way ANOVA was performed. Table 2 showed a significant difference between teaching modes and reading performance (F(2, 389) = 53.399, p = 0.000). Table 3 reports the robustness test of equality of means by Welch. The results were also significant (F_{welch}(2, 248.306) = 49.483, p = 0.000), therefore rejecting the null hypothesis of equal population means. This meant that the reading performance was not equal across all teaching modes, verifying the findings of the ANOVA test.

Table 2. Analysis of variance for teaching methods and reading performance

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1988.784	2	994.392	53.399	.000
Within Groups	7243.882	389	18.622		
Total	9232.666	391			

Table 3. Robust tests of equality of means

	Statistic[a]	df1	df2	Sig.
Welch	49.483	2	248.306	.000

Note. a. Asymptotically F distributed.

Since the ANOVA test indicated a significant difference between students' reading scores and teaching and learning modes, a further analysis, namely a posthoc test by Games-Howell, was conducted to answer research question 2, "Which teaching mode exhibits the highest and lowest reading score?". The test identified pairwise differences between the teaching modes (Table 4). The findings showed a significant difference between face-to-face and blended teaching methods; the mean score for face-to-face was 4.435 points higher than blended. The next significant pairwise difference was between online and blended learning. The mean score for the reading test for those taught using the online learning mode was 4.662 points higher than for students taught using the blended mode. There was no significant performance difference between the face-to-face and online teaching methods. Based on the findings, it could be concluded that the blended learning mode exhibited the lowest reading performance compared to face-to-face and online modes. The highest reading score came from students whom we taught using the face-to-face mode.

Table 4. Multiple comparisons between teaching methods

(I) TM	(J) TM	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Face-to-face	Online	-0.227	0.500	0.893	-1.41	.95
	Blended	4.435[*]	0.509	0.000	3.24	5.63
Online	Face-to-face	0.227	0.500	0.893	-.95	1.41
	Blended	4.662[*]	0.532	0.000	3.41	5.92
Blended	Face-to-face	-4.435[*]	0.509	0.000	-5.63	-3.24
	Online	-4.662[*]	0.532	0.000	-5.92	-3.41

Note. *. The mean difference is significant at the 0.05 level.

Finally, to answer research question 3, "Is there any significant difference between the genders in the English reading score based on the different teaching modes?" a two-sample independent t-test was performed to compare the reading performance between genders. The equality of variances by Levene's test was fulfilled as the null hypothesis of equal variance was accepted ($p = 0.169 > 0.05$). The results in Table 5 revealed that there was a significant difference in reading performance between males (M = 23.85, SD = 5.097) and females (M = 26.23, SD = 4.526); $t(390) = -4.739$, $p = 0.000$. Since female students exhibited a higher mean than male students, we could say that females tend to perform better than males on

reading tests regardless of the teaching and learning mode.

Table 5. Independent Sample T-test for Gender

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% CI of the Difference	
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
H_0	1.895	.169	-4.739	390	.000	-2.379	.502	-3.366	-1.392
Ha			-4.570	248.680	.000	-2.379	.521	-3.405	-1.354

Note. H_0: Equal variances assumed, Ha: Equal variances not assumed.

5. Conclusion

5.1 Summary of Findings and Discussions

This study investigated undergraduate students' reading performance in an English proficiency course in three learning modes: physical, face-to-face, online and blended. The results revealed that reading performances differed across the various teaching platforms used. Physical face-to-face mode exhibited the highest reading score, higher than blended mode or online. Blended mode received the lowest reading score. The mean score for reading performance in the physical face-to-face mode was 4.435 points higher than blended. Online learning mode, too, had a higher mean score of 4.662 compared to blended learning. This finding contrasts with Wu and Zhang's (2023) study, which claims that students scored better in blended learning mode as multimedia is used in learning. This study's findings indicate that physical face-to-face mode produces better reading scores, in line with the study by Lubis et al. (2011), which found that students performed better in group discussions in a physical face-to-face reading class.

This study's findings also suggest that the physical face-to-face teaching mode exhibited the highest reading score, followed by the online mode. Surprisingly blended mode had the lowest reading score suggesting that for reading comprehension, students may not be fully engaged or responsive in the online and blended mode as they could face technical issues such as poor Internet connection or lack of technical know-how for online learning as suggested by Maysarah and Wahyuni (2021).

Next, this study also aimed to investigate students reading performance based on gender. Results of the Levene test show that female students achieved better scores than male students. This concurs with studies by Puteh et al. (2016), who reported that female students outperform male students in reading scores as they are more diligent in doing more exercises and practices. Male students, on the other hand, prefer to do reading for leisure.

5.2 Implications and Suggestions for Future Research

This study had a few limitations. One of the limitations was that the data was collected from a

single campus and limited to only three faculties. Thus, the results may not be applied to other faculties and tertiary institutions. Secondly, this study used secondary data. Data collection could be triangulated by conducting structured interviews with selected students to enhance the validity and credibility of the findings. Another limitation was that the data collected was from the students only; it could be better if data were collected from different stakeholders, such as lecturers and university administrators, to avoid the flaws and research bias of reliance on a single stakeholder. In addition, the level of ongoing assessment difficulties may differ between the three teaching modes, especially for the fully online mode. Completing an online assessment was usually longer than the other two modes, and it was difficult to monitor any unauthorized collaboration and plagiarism, as mentioned in the literature. This may affect the validity and credibility of the overall findings. Future research may explore students' achievements in reading and writing and compare students' achievements between private and public universities.

Acknowledgements

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