Blended learning intervention on the students' reading comprehension achievement with different personality traits

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Reading is one of fundamental receptive skills that students should master in language acquisition. In fact, many students struggle in reading even they have mastered language acquisition. Non linguistics factor, for instance personality traits affects the student's reading comprehension process. The research objectives are (1) to identify the effectiveness of blended learning and conventional learning instruction in improving EFL students' reading comprehension with different personality traits and (2) to explore the differences in students' impressions regarding integrating blended learning instruction in the EFL class. This research employs a mixed-methods approach. Sixty-six participants of SMA N 1 Pulau Morotai participated in this study as a sample. Research instruments utilize the Eysenck Personality Test (EPI) to determine students' personality types. The TOEFL prediction test is used in the reading comprehension test, and a semi-structural interview is used for the qualitative instrument. In addition, analyzing the data uses Independent T-test and N-Gain Interpretation Test. The descriptive method is utilized to analyze the qualitative data. The finding shows that the average learning outcomes of mix introverted-extroverted students who use blended learning were higher compared to those of mix introverted-extroverted students who use traditional learning models. Unfortunately, even though both had different learning outcomes, these learning models were generally regarded as ineffective due to the N-gain score being less than 40%. As seen from the interview result, blended learning models were regarded as multi-way instructional models that accommodated students' needs despite an inadequate internet connection, enhanced reading comprehension, fostered students' technological proficiency, and provided efficiency and adaptability.

Keywords: blended learning, personality traits, reading comprehension achievement

INTRODUCTION

English is a major foreign language to learn in the Indonesian educational system today, from elementary school to university level, because English plays a significant role in globalization. It is demonstrated by a significant increase in interest in teaching and learning English in Indonesian elementary (Prastiwi, 2015; Zein, 2016, Zein, 2017), secondary (Widodo, 2016; Putra & Lukmana, 2017), and tertiary schools (Riyanti, 2017; Zacharias, 2016).

As a result, the Indonesian Ministry of Education seeks to prioritize English language education in public and private institutions, emphasizing the necessity of mastering receptive

and productive English skills. This attempt is executed by making continual policy modifications addressing the integration of English into the school curriculum. These reforms are intended to ensure that English maintains a required subject at all school levels and focus on mastery of language acquisition (Silalahi, 2016).

Reading is one of the most fundamental receptive skills to master in language acquisition. Despite their prominent role in reading, many students struggle with reading even when they have mastered linguistic skills. Numerous non-linguistic factors influence the reader's reading comprehension process. Thus according to Andres (2002), non-linguistic factors such as emotional and mental human behavior significantly influence language learning.

Additionally, two variables considered to be the most influential in reading and its effects on the comprehension process are the reading and text variables. Motivation, personality, reading strategies, and self-esteem are indicators of reading variables. These indicators have gained prominence in recent years, significantly impacting foreign language and second language learning. In this context, the personality trait is an indicator that significantly influences the reading variable (Andres, 2002).

Furthermore, educators need to understand their students' personality types; this helps teachers understand class dynamics and facilitate appropriate and effective learning activities understanding each student's personality type enables teachers to explain why they choose different task approaches for their students (Wilz, 2000). According to experts, personality has been demonstrated to be a factor that affects EFL performance (Revola, 2016). Indeed, most second-language educators believe that students with adaptable personalities are more likely to succeed at learning a second or foreign language than students with introverted personality types. According to a study, Individuals with introverted traits tended to have lower levels of extraversion and scored lower on the extroversion trait (HemmatNezhad et al., 2014). Indeed, students taught by extroverted teachers achieved significantly better performance compared to students taught by introverted teachers (Dost et al., 2017). Faisal (2019) claims there is a significant association between extraversion and English as a Foreign Language (EFL) learners. Furthermore, individuals with extraversion traits are known to have significant effects on English language proficiency. Safdarian et al., (2014) reveals that Introversion is strongly correlated with strategies for reading. It indicates that students' differences in extraversion and introversion must be considered to understand their utilization of reading strategies.

It is recognizable that personality has a significant impact on the process of language acquisition. As a result, an educator must design and implement an effective learning method for EFL students. However, the learning process has changed dramatically in recent years. At the same time, the teacher-centered learning paradigm has shifted to a student-centered learning paradigm by incorporating educational technology (Agrahari, 2016). Integrating technology into the educational process promotes student-centered and self-directed learning (Adinda & Mohib, 2020).

Smaldino et al., (2019) demonstrated the importance of analyzing learner characteristics to effectively use educational technology and revealed that user characteristics affect behavioral technology acceptance. Another research has focused on the characteristics of learners that influence their performance outcomes. They have examined emotional intelligence, adaptability, personal traits, and achievement in the case of digital learning (Berenson et al., 2008). Thus, educators should design an effective learning environment by integrating various educational technologies to facilitate learning activities and meet student needs and individual characteristics. There is no doubt that blended is a popular learning model among EFL students and educators alike. Because blended learning is considered capable of accommodating a variety of student characters, some students prefer face-to-face instruction while others prefer synchronous and asynchronous instruction. Rybushkina & Krasnova (2015) emphasized that students are not entirely suited to a traditional learning environment due to individual differences in their learning abilities. Blended learning benefits the language acquisition process by facilitating an optimal and enjoyable learning experience for English. Krasnova & Ananjev (2015) highlight several benefits of the blended learning model in this case, including the flexible learning process, personalization, and interactivity, all of which originate from the blended learning component.

Additionally, this learning model's advantages include collaboration, spontaneity, and direct feedback from traditional learning components, all of which are covered by blended learning. Furthermore, the characteristics of this learning model are providing a meaningful learning experience for students, motivating the students, and flexibility (Rybushkina & Krasnova, 2015). The critical point is that blended learning strengthens students' reading comprehension abilities (Kheirzadeh & Birgani, 2018). Moreover, the blended learning environment fosters student satisfaction with learning, autonomy, and motivation to improve reading comprehension skills (Saeheng, 2017).

There has been an increase in studies on learner personality related to online learning in the latest years. The literature review explores the blended learning model's application in a second language setting. Three major themes are explored in this qualitative research: student involvement in various environments and activities, student perceptions, and the outcomes of these combinations (Hamilton, 2018). At the same time, another study demonstrated the impact of team teaching and blended learning strategies for teaching students with various personality types to speak fluently. Whereas in a team teaching class, two teachers teach, the teacher incorporates both face-to-face and synchronous online learning in a blended learning class (Mazizah et al., 2021).

Compared to non-academic achievement, personality significantly affects students' online learning attitudes toward virtual learning approaches (Dikaya et al., 2021). Significant factors affecting the efficacy of e-learning have been identified as learner characteristics (Lee et al., 2014).

Personality has a significant impact on the success of online learning in terms of overall academic outcomes, retention rates, and learner satisfaction with online and mixed approach-based instruction (Bolliger & Erichsen, 2012). Another previous study analyzed perceived student satisfaction by personality type in blended and online learning environments (Vasileva-Stojanovska et al., 2015). Mofrad (2017) tries to determine writing practice's efficacy in a blended learning approach. Mofrad's research indicated that extroverts outperformed introverts and that learners in a blended learning environment outperformed those in a traditional learning environment.

Furthermore, while blended learning is integrated using a face-to-face and synchronous system-based learning model, to fill the gap, in this most recent alternative study, the researcher primarily uses two learning models: face-to-face interactions and asynchronous systems. It is associated with low internet connectivity in schools located in limited-resource areas, which will serve as the research locations. Offline applications that utilize asynchronous systems, for instance, Screencast-O- Matic, Flipbooks, and pre-recorded videos via zoom, will be used as instructional media. Moreover, the researcher is concerned about the relationship and differences in reading comprehension achievement between students with mix introverted-extroverted personality types using the blended learning model.

By emphasizing personality traits as one of the external factors affecting students' reading achievement, this proposed teaching approach will address the insufficiency of experimental research in this area of blended EFL classrooms, particularly in the case of the limited research area. Blended learning instruction is another option for implementing it in an EFL class. It emphasizes students' interactive communication with groups or peers in the classroom and how students establish their knowledge of the text while reading.

Besides, incorporating blended learning instruction in the EFL class makes it easier for teachers to deliver material and improve students' reading comprehension skills with different personalities. The use of asynchronous-based applications assists students who have difficulty communicating in class in understanding the material in-depth, particularly introverted students. Students with extroverted personalities can also improve their comprehension of the studied reading text. Incorporating blended learning encourages students to learn independently and on their own time. This learning model is based student-centered, allowing students to feel more at ease than in traditional learning contexts. The importance of this research is to encourage students to study independently and to control the reading process by themselves so that students can discuss with groups or peers without hesitation and pressure. The teacher facilitates to control and guidance of students' learning progress.

Furthermore, blended learning improves students' reading comprehension skills with introverted and extroverted personalities. In that case, EFL students have a positive view of the application of blended learning,

particularly in border areas. So, the teacher can apply this learning model to EFL classes and other classes that prefer practical courses. Through this research, teachers should emphasize external factors that affect student success in the teaching and learning process.

Additionally, this study is concerned with (1) identifying the effectiveness of blended learning and conventional learning instruction in improving EFL students' reading comprehension with different personality traits and (2) to explore the differences in students' impressions regarding integrating blended learning instruction in the EFL class.

METHODS

Participants
The research population comprised all seventh-grade students at SMA N 1 Pulau Morotai. Although there were 83 participants, only 66 participated in this study as a sample. A sample size of 66 was determined using Krejchie- Morgan's table for finite population sizes. Whereas 33 students were grouped introverted traits and 33 were categorized into extroverted traits. The researcher used Krejchie- Morgan's table with a 5% error rate to select the sample. The research setting included experimental and control groups. Both groups were taught by the same English teacher and used the same reading textbooks during the same instructional period. Still, the primary difference between the two groups was how they were taught using blended learning or not. Eight weeks are allotted to each group in this study. Meetings were scheduled twice a week for 45 minutes each session, both for the experiment and control group.

Instrument
This research employed a mixed-methods approach. This research applied both qualitative and quantitative methods. More precisely, quantitative research addressed quantitative research questions, whereas qualitative research highlighted qualitative research questions. In quantitative research, the research adopted a quasi-experimental design. It was a non-equivalent controlled group design comprised of two separate groups. One group served as the experimental class, while the other served as the control class. In qualitative analysis, on the other hand, the descriptive method is used.

Instrument of Personality traits (questionnaire)
In table 1, Eysenck Personality Inventory test was used to collect data in this study. The EPI comprised 39 items (including positive and negative statements) and focused exclusively on the introvert-extrovert dimensions following the examined issues. The measurement scale was a Likert scale with five estimation scales: strongly agree (5), agree (4), doubtful (3), disagree (2), and strongly disagree (1). The overall duration of the test was approximately 40 minutes.

Instrument of Reading Test
The researcher employed the TOEFL prediction test in the reading comprehension test. The researcher used the TOEFL prediction test because it was a standardized test with high reliability and validity. Students had 55 minutes to complete the TOEFL prediction in the reading comprehension test.

TABLE 1 | Eysenck Personality Inventory (EPI) Measurement

Dimension	Sub Dimension	Indicators	Items	Total of Item
Extroverted Introverted	Activity	Physical Activity	1, 8, 25, 27, 28, 29, 39	7
	Sociability	Speed of moving	2, 3, 4, 6, 9, 11, 13, 15, 22, 23, 33, 34, 40	13
	Risk-Taking	Happy to find friends, meet lots of people	7, 19, 24	3
	Impulsiveness	Courage to take risks	26, 30, 32, 35	4
	Expressiveness	Tendency to act suddenly	5,10,12, 14, 16,17,18, 21,36, 38	10
	Reflectiveness	Rarely use consideration	31	1
	Responsibility	Express feelings	37	1
Number of items				39

Interview

Interviews were conducted to ascertain students' responses to integrating blended learning into their reading comprehension class. In this study, a semi-structural interview was used.

Procedure

The researcher assessed each participant's personality before classifying them into control and experimental groups. The researcher utilized the Eysenck Personality Inventory (EPI) test to determine students' personality types; this test was chosen because it encompassed individual personality types. After identifying the differences in student personalities, half of students with introverted and extroverted personalities were directed to the experimental group, while the rest of students with introverted and extroverted personalities were selected for the control group.

The pre-test

The researcher administered a pre-test to both classes to collect data. Furthermore, the Pre-test was used to determine the students' prior knowledge of reading comprehension before beginning treatment. There were 50 reading comprehension questions with multiple-choice tests.

The experimental group's treatment

The experimental group was directed to carry out reading activities in the reading comprehension learning process by first explaining reading strategies, introducing new vocabulary, identifying main ideas and supporting ideas, interference questions, detail questions, and overall review questions. This group was taught using a blended learning model. Furthermore, in the blended learning model, students were taught using traditional instruction or face-to-face learning instructions for three meetings, the Screencast-O-Matic application for two meetings, the pre-recorded Zoom application for three meetings, and flipbooks for two meetings. The class was designed for interactive learning activities such as peer reviews, group discussions, and presentations during the learning process.

The control group's treatment

Students in the control group received instruction relatively traditionally without being connected to blended learning. The control group participated in reading comprehension activities using the same material as the experimental group. The teacher introduced the material via lecture and then

directed students' attention to practice questions. The teacher divided students into peer groups and facilitated group discussions while they worked on practice questions. The teacher then encouraged the control group students to practice using the newly acquired vocabulary and grammar and expressed themselves verbally. Additionally, students were asked to summarize the text's main ideas.

The post-test

A post-test was used to compare the effects of instructional interventions on students' reading comprehension learning outcomes (Blended learning vs. conventional learning instruction). The post-test was administered in the same manner as the pre-test. After obtaining post-test results from both groups, the researcher used an independent T-test to compare the pre-test and post-test results between the two groups.

Analytical Method

Identifying the effectiveness of blended learning and conventional learning instruction in improving EFL students' reading comprehension, the researcher conducted the normality test through Kolmogorov Smirnov to know whether the data were distributed normally and to identify whether the data were homogeneous or consistent; the Homogeneity test was employed through the One-way ANOVA formula. In addition, analyzing the data used Independent T-test, with the criteria if the significant level was lower than 0.05 ($\alpha = < 0.05$), it meant that Hi was accepted. Finally, the researcher carried out an N-Gain interpretation. Normalized Gain (N-gain score) was used to determine the effectiveness of a learning method in the control and experimental classes. The N-gain score test was utilized since the independent sample t-test revealed a significant difference between the experimental group's average post-test value and the control group's post-test value. Regarding the interpretation category, the N gain score based on a percentage was divided into four categories, namely ineffective ($< 40\%$), Less effective (40%-55%), moderately effective (56%-75%) as well as effective (>76). The descriptive method was used to explore the differences in students' impressions regarding integrating blended learning instruction in the EFL class. The researcher describes the result through the content analysis method in analyzing the data.

RESULTS AND DISCUSSION

The effectiveness of blended learning and conventional learning instruction in improving EFL students' reading comprehension

TABLE 2 | Normality Test

	Class	Kolmogorov Smirnov		
		Statistic	df	Sig.
Students Learning Outcome	Pretest Experiment Group	.142	33	.090
	Posttest Experiment Group	.150	33	.057
	Pretest Control Group	.142	33	.089
	Posttest Control Group	.108	33	.200[*]

The data in table 2 depicted that the sig value was higher than 0.05; it can be said that the data were distributed normally.

TABLE 3 | Homogeneity of Variances Test

Levene Statistic	df1	df2	Sig.
.603	1	64	.440

The table 3 showed that the sig value was 0.440, whereas the r-table with a significance level of 5% was 0.235, so the sig value was higher than the r-table (0.440 > 0.235). It meant that the data were consistent or homogeneous.

TABLE 4 | Independent t-test for experiment and control group

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Students learning outcome	Equal variances assumed	.603	.440	2.679	64	.009	3.879	.986	.986	6.771
	Equal variances not assumed			2.679	63.022	.009	3.879	.985	.985	6.772

On the output table 4 above, the sig (2-tailed) value was calculated as 0.009 less than 0.05. It can be concluded that the average learning outcomes of students with mixed introverted and extroverted personalities who use the blended learning model were higher than those with mixed introverted extroverted personalities who use conventional learning models.

TABLE 5 | N Gain Test

		Mean	Minimum	Maximum
N-Gain Percent	Experiment Group	34.8603	2.04	59.62
	Control Group	32.1844	11.11	54.10

Referring to the N-Gain score (table 5) in the percentage form and based on the results of the N gain Score test calculations, the average N gain score for the experimental class utilizing the blended learning model for students with mixed introverted and extroverted personality types was 34.8603 or 34%, with a minimum score of 2.04 and a maximum score of 59.62. The average N-gain score for the control class using conventional learning models was 32.1844, or 32%, with a minimum score of 11.11 and

a maximum score of 54.10. Using blended learning models for students with mixed introverted and extroverted personality types and conventional learning models for students with mixed introverted and extroverted personality types to improve reading comprehension skills in second-grade students of SMA Negeri 1 Pulau Morotai were generally considered ineffective.

Students' impressions regarding integrating blended learning instruction in the EFL class
Strengthening reading comprehension aspects
In comparison to other aspects of reading, vocabulary had grown the most. In the vocabulary test questions, students were required to find words that were synonyms for those in the question. It helped students increase their knowledge of the material, particularly the text's vocabulary. The researcher claimed that the type of question, vocabulary, had the strongest impact, whereas students only needed to find the appropriate words to respond.

"After being taught using a blended learning model, I believe I can easily recall the taught vocabulary" (p1.1).

In addition, the blended learning model stimulated the brain so students could retain the vocabulary being taught.

"The learning application's instructions stimulated my brain, especially during the warm-up session, and I believe it encourages me to be more enthusiastic about memorizing words" (p2.1).

"In the reading text displayed by the application, unfamiliar words are highlighted, making it possible for me to remember them"(p3.1).

"Because I was not interacting directly with the teacher, I felt less anxious and less pressured when studying on my own after being taught using the blended learning method"(p4.1).

"I am impressed to learn reading subject using the blended learning model because I do not feel carefully monitored by the teacher, making it easier for me to comprehend reading material quickly" (p9.1).

According to the preceding explanation, students' reading comprehension changed after being taught using the blended learning method. Students were better at recalling the reading material's vocabulary. However, two students encountered difficulties when using conventional learning methods. Students tend to feel less convenient and more closely monitored during teaching and learning. The characteristics or personality of a student affect his or her level of anxiety when conventional learning methods were employed. This learning model enables teachers to rapidly assess student progress and think logically about how to differentiate and personalize instructional systems.

On the other hand, specific information derived the least benefit from other aspects of reading. Following the implementation of the blended learning model, the main idea and supporting idea were developed. The supporting ideas offer a lot of useful information regarding the main idea. Therefore, students must carefully read the text to ensure they did not miss any information; therefore, the blended learning model played a significant role in enhancing these aspects of reading. There were participants in the study who said;

"I can better understand reading aspects such as identifying main ideas, supporting ideas, references, comprehending vocabulary, and making interferences, particularly in reading"(p6.2).

"With the blended learning method, it is easier for me to understand aspects of reading such as identifying main ideas and supporting ideas" (p7.2).

Encourage student's technology proficiency
The majority of participants agreed that inserting several learning applications based on asynchronous systems helped the students become proficient in technology. However, the students had never previously experienced e-learning media in English lessons. They only learn through conventional learning processes. Thus, the blended learning model enthusiastic students about both aspects, learning English subjects and educational technology.

"I am more familiar with the taught technologies because I have never been taught them before" (p3.4).

"Some applications are not only used to cover teaching materials but there is also an application that is used for quizzes and group and individual assignments, allowing me to acquire resources of technological expertise" (p1.4).

Similarly, other blended learning participants were believed to offer new perspectives on mastering technology and facilitate students' comprehension of the provided content.

"In addition to encouraging me to comprehend reading materials and easily memorize vocabulary, blended learning encourages me how to utilize educational technology"(p7.4).

"This learning model provided me with multiple benefits. In addition to understanding my knowledge, I am also knowledgeable about technology. Thus, my curiosity was piqued, and I was eager to learn anything I could about high-tech"(p4.4).

"Blended learning has provided me with knowledge of educational tools, making it easier for me to cultivate and comprehend the material" (p8.4).

Based on the description, the blended learning model encouraged students to advanced professional technologies. Although students were initially unfamiliar with the applied learning applications, they quickly grasped them through an asynchronous system-based application.

An asynchronous system provides efficiency and flexibility
Since the applications used were based on an asynchronous system, blended learning provided students with the flexibility to repeat the material being taught, allowing them to learn at their own pace. With this system, students could strengthen their comprehension of reading materials, foster enthusiasm, and self-confidence, and promote learning independence and a sense of responsibility. Despite the limitations of electronic device ownership, the application-based learning process ran smoothly. A few students made contrastingly strong arguments regarding this point.

"In my opinion, it makes it simpler for me to repeat lessons and comprehend the material that the teacher provides" (p3.8).

"Blended learning gave me the flexibility to learn generally from a low-income family with limited electronic device ownership, allowing me to share electronic devices with my siblings"(p4.8).

"The result is that I can distinguish between the main idea and the supporting ideas; however, the blended learning model enables me to study anywhere and at any time, and the asynchronous system enables me to review the reading material without hesitation or pressure from the teacher or classmate" (p4.7).

"Several reading-related applications allow me to study independently and with a strong commitment to completing individual tasks while allowing me to study

according to my mood and without any pressure from the teacher." (p6.7).

A multi-way instructional model and the advantages it offers

Blended learning, which combined technology and face-to-face instruction, had been deemed feasible by some students for use in the instructional process.

"I believe this method is highly implementable, particularly if conventional learning is combined equally with technological learning" (p1.10).

"combination learning models such as adopting electronic devices and conventional learning method is better than one-way instructional models"(p3.10).

P6 and P7 emphasized that blended learning using a two-way instructional system made learning more engaging and encouraged students to express their thoughts.

"Face-to-face learning puts too much pressure on me, making it difficult for me to comprehend the material presented; therefore, I believe that blended learning, which is dominated by the use of application tools, allows me to explore the knowledge I have and express my ideas without being embarrassed by having to meet face-to-face with classmates or teachers"(p6.8).

"In my opinion, this learning system comprises two main components: face-to-face and application-based. This learning system is intriguing because, during the face-to-face learning process, the teacher divides students into large or pair groups so that I can share knowledge about the material. In contrast, the material is packaged very well when using the application. It is so engaging that it generates great curiosity about the subject matter"(p7.8).

Other students reported that the blended learning model could facilitate the learning process despite a poor internet connection.

"My opinion is that the majority of the applications used are asynchronous, allowing me to gain knowledge even when my internet connection is poor"(p8.8)

"I originate in a rural area, and blended learning based on an asynchronous system accommodates my study needs despite an inadequate internet connection"(p9.8).

Based on the findings, it was known that the average learning outcomes of mixed introverted and extroverted students who use blended learning were higher compared to those of mixed introverted and extroverted students who use traditional learning models. Unfortunately, even though both had different learning outcomes, these learning models were generally regarded as ineffective due to the N-gain score being less than 40%. As seen from the interview result, blended learning models were regarded as multi-way instructional models that accommodated students' needs despite an inadequate internet connection, enhanced reading comprehension, fostered students' technological proficiency, and provided efficiency and adaptability.

This study is consistent with (Kheirzadeh & Birgani, 2018). The findings of this study indicate that blended learning has a substantial positive impact on the reading comprehension of Iranian English language learners. Therefore, Kheirzadeh & Birgani (2018) stresses the significance of utilizing the blended learning model to enhance language proficiency. In previous studies, Kheirzadeh & Birgani (2018) did not consider personality traits as one of the external factors that significantly affect student achievement in reading comprehension when using the blended learning model. Although the results of this study are identical to those of previous studies, students' performance in reading comprehension improves after applying the blended learning model.

Another previous study by R. Zhou & Chen (2020) to determine students' perceptions of the application of blended learning during the pandemic-19 era revealed that two-way learning was more effective than one-way learning. Students argued that face-to-face and online systems should be applied equally to encourage students' flexibility and independence during dramatic shifts in study schedules during the pandemic. In addition, a detailed syllabus assists students in organizing their schedules effectively. On the other hand, reading assignments are less appealing to students than online quizzes, homework assignments, and videos. It differs from the feedback provided by students in the most recent study. Where application-dominated learning is preferable to face-to-face learning, which triggers student interest in technology-based learning, this learning model has never been implemented. Some students believe that this system reduces anxiety and does not involve direct pressure from the teacher during the teaching and learning process. Due to the limitations of the internet network, blended learning with an asynchronous system is generally well-received by students, although learning with a synchronous system can also be implemented.

Indeed, Al-Mubireek (2019) found that students are generally enthusiastic about implementing digital tools for language learning. It was in line with the study had been conducted by Basri et al., (2021), who voiced out that educational technology could enhance the students' ICT skills. In recent years Educational technology has seen a slight increase, and it is regarded as flourishing and well-suited for the technological age (Sulisworo et al., 2016; Zhou et al., 2020).

Furthermore, the blended learning model assists teachers in evaluating student progress and determining appropriate learning systems (Schechter et al., 2017; Hilliard, 2015). The shifting model is the most prevalent method for optimizing the performance of blended learning (Dziuban et al., 2018). Two-way instruction, such as face-to-face and online models, enhances student performance compared to one-way instruction. Teacher involvement is the most effective mediator in blended learning (Müller & Wulf, 2022). Incorporating digital educational tools into the classroom encourages students to become more autonomous learners; thus, the teacher's role shifts from a dominant lecturer to a mentor, guide, or instructor (Archibald et al., 2020).

A previous study on mixed learning in secondary and higher education has identified four critical success factors: (1) the significance of teacher education, (2) the educational tools' technical operation, (3) the programs' effectiveness in terms of student achievement, (4) the significance of recognizing blended learning as little more than simply incorporating technology into instruction unless it is about integrating student-directed and teacher-directed, traditional and digital classroom instruction (Vaughan, 2014).

Several studies have been conducted to understand better how personality type affects learning. Personality type can impact a student's learning process. Introverts are more likely than extroverts to apply what they have learned in one class to another and achieve higher grades, which allows students to work at their own pace. Introverted individuals outperform extroverted individuals. Introverts may exhibit cautiousness, the capacity for focused solitary work, and the ability to produce ideas independently (Boroujeni et al., 2015). In a series of threaded discussions, Lee & Lee (2006) examined the interactions between different personality types (extroverts, introverts, and mixed). According to the findings, extroverted and mixed group participants posted significantly more messages than introverted groups. The findings show that extrovert-only and introvert-and-introvert groups interacted more socially, interactively, and cognitively than groups with only introverted members. In addition, the mixed groups had a higher level of metacognitive interaction than the other groups.

Furthermore, another finding revealed that the average learning outcomes of introverted students who use blended learning differ from those of extroverted students who use traditional learning models. Many factors contribute to success or failure. Students may favor one educational setting if their personality dictates that preference. However, incorporating face-to-face and online instruction is preferred by some students. In contrast, several students may prefer a hybrid approach, while others may prefer a more flexible approach incorporating face-to-face and online instruction. Harmonies with Keshavarz & Hulus' statement (2019), they said that students' personality influence their learning preferences. Extrovert students typically favor blended learning, while introvert students do not. Teachers should be cautious not to force introverted students with diverse learning preferences to participate in blended learning. Indeed, Kintu et al., (2017) clarifies that two principal factors determine the effectiveness of blended learning: student characteristics and learning design through advanced technologies.

According to the findings of Manal (2021), Introverts preferred online courses, while extroverts and perceivers preferred classroom instruction. Extroverted are more likely to miss out on social interactions when taking classes online. Introverts cited anxiety as a reason for their tense state during class. According to research, online learning was more appealing to intuitive than in traditional classroom settings (Daughenbaugh et al., 2002). Although students with an analytical style had a higher sense of community in a blended course, those with an intuitive style felt less

connected. Significant factors affecting the efficacy of e-learning have been identified as learner characteristics (Varela et al., 2012). Personality has a significant impact on the success of online learning in terms of overall academic outcomes, retention rates, and learner satisfaction with online and mixed approach-based instruction (Bolliger & Erichsen, 2012). A subsequent study Keller & Karau (2013) discovered a significant correlation between learner personality and online learning perceptions based on engagement, career value, overall evaluation, anxiety/frustration, and preference for online courses. Thus, the personality factor is considered critical for online learning.

Despite the researcher's best efforts to avoid bias in this study, this research has a number of flaws. This study focuses on improving students' reading comprehension on the dimensions of introvert and extrovert personality; ambivert students are excluded. In addition, the researcher did not include control variables in the measurement of variables, thereby choosing to leave open the possibility that external factors caused the calculation results to be biased. It is perhaps that future researcher who conduct similar studies will include aspects not covered in this study.

CONCLUSION

To sum up, According to studies, the blended learning model can provide enhanced learning results for introverted students even though this learning approach is generally less effective. The blended learning paradigm also has various benefits, including flexibility, the capacity to meet the demands of students, enhanced reading comprehension, increased student technology abilities, efficiency, and adaptability. The pedagogical value of blended learning is based on the idea that these findings can be used to inform the design of learning models that consider external factors influencing learning improvement. In addition, blended learning utilizing an asynchronous system application can accommodate the learning needs of students regardless of internet network or economic constraints. Moreover, the blended learning model aims to equip students to learn through virtual devices in order to pique their interest in the taught material. Thus, this learning model inspires teachers and learning developers to design and develop innovative teaching media and encourages changes in the preparation of teaching materials that significantly impact pedagogical quality.

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