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The Effect of Blended Learning Method and Self-Efficacy on Students' Self-Directed Learning

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Abstract: This study aims to determine the effect of blended learning method and students' self-efficacy on Self-directed Learning, as well as the combined effect of both variables on students' self-directed learning. The research follows a quantitative approach and utilizes a survey method to collect data. The sample size consisted of 341 students which was determined using the Slovin formula with α = 5%. It comprised 219 students from MAN 1 Banda Aceh, 56 students from SMKS Pharmacy CUT Mutia, and 66 Students from Labschool (Senior high schoool). The data was obtained through the distribution of valid and reliable questionnaires and analyzed quantitatively. The questionnaire consists of 3 items: Self-Regulated Learning, Blended Learning, and Student Self-Efficacy. A multicollinearity test was conducted to analyze the data. The results of the study showed that the blended learning method had a positive effect on students' self-directed learning, accounting for 30.4% of the variance. The blended learning method and self-efficacy combined had a positive effect on students' self-directed learning, accounting for 62.3% of the variance. In summary, apart from the blended learning method and self-efficacy, approximately 37.5% of other variables influenced Students' Self-directed Learning. Self-efficacy was found to have a more dominant contribution to students' self-directed learning compared to the blended learning method.

Keywords: Blended Learning; Self-efficacy; Students' Self-directed Learning

Abstrak: Penelitian ini bertujuan untuk mengetahui pengaruh metode pembelajaran blended learning dan efikasi diri siswa terhadap kemandirian belajar, serta pengaruh gabungan kedua variabel tersebut terhadap kemandirian belajar siswa. Penelitian ini menggunakan pendekatan kuantitatif dan menggunakan metode survei untuk mengumpulkan data. Sampel terdiri dari 341 siswa yang ditentukan menggunakan rumus Slovin dengan α = 5%. Sampel ini terdiri dari 219 siswa dari MAN 1 Banda Aceh, 56 siswa dari SMKS Farmasi CUT Mutia, dan 66 siswa dari Labschool (SMA). Data diperoleh melalui distribusi kuesioner yang valid dan reliabel, kemudian dianalisis secara kuantitatif kuestionnare terdiri dari 3 item; Kemandirian Belajar, Blended Learning Kuesioner, dan efikasi diri Siswa. Uji Multikolinearitas dilakukan untuk menganalisa data. Hasil penelitian menunjukkan bahwa metode pembelajaran *blended learning* memiliki pengaruh positif terhadap kemandirian belajar siswa, dengan kontribusi sebesar 30,4% dari varians. Metode *blended learning* dan efikasi diri siswa secara gabungan memiliki pengaruh positif terhadap kemandirian belajar siswa, dengan kontribusi sebesar 62,3% dari varians. Secara keseluruhan, selain metode pembelajaran *blended learning* dan efikasi diri, sekitar 37,5% variabel lain mempengaruhi kemandirian belajar siswa. Efikasi diri ditemukan memiliki kontribusi yang lebih dominan terhadap kemandirian belajar siswa dibandingkan dengan metode belajar *blended learning.*

Kata Kunci: Metode *Blended Learning*; Efikasi Diri Siswa; Kemandirian Belajar

INTRODUCTION

The advancement of technology has influenced various aspects of community life, including the teaching and learning process. According to Ertmer & Ottenbreit-

Leftwich (2010), technology is considered a crucial tool to meet the needs of learners in the twenty-first century, and teachers are expected to use it in education. The learners of the twenty-first century are largely composed of Generation Z and Alpha. Fernández-Cruz & Fernández-Díaz, (2016) state that Generation Z is defined as children born between the late 1990s and 2005, who are considered digital natives. They explain that Generation Alpha consists of those born after 2010, commonly referred to as "Google Kids," who are early adopters of advanced technology, spend more time in school, and focus on technology. The Directorate General of Teachers and Educational Personnel (Ditjen GTK) collaborates with Milealab enhance digital literacy competence for teachers and educators. Both parties agree to advance the quality of technologically informed educators to optimize self-Students' Self-directed Learning activities (Kedikbud.go.id news, October 17, 2023). Furthermore, the Ministry of Education and Culture and the Ministry of Research and Technology (Kemendikbudristek) also implement the Information and Communication Technology-Based Learning (PembaTIK) 2023 program, which is attended by 79,919 participants at PembaTIK level 1, 33,923 participants at level 2, 13,931 participants at level 3, and 1,066 participants at level 4 from various educational levels, including Early Childhood Education (Paud), Elementary School (SD), Junior High School (SMP), High School (SMA), Vocational High School (SMK), and Special Needs Education (SLB) throughout Indonesia in an online format (Antara News, October 11, 2023). From this overview, the influence of technology in education is evident, prompting the government to make efforts to improve digital literacy among educators to enhance the quality of education and the self-directed of learners.

Blended learning method has raised concerns from researchers nowadays. Existing studies may be devided into three catogories. First, studies that examines the perceptions of both teachers and students toward blended learning. The studies found that blended learning seen to be a solution for providing education in the 21st century, create an efficients EFL learning environment and gain positive students perceptions (Bordoloi et al., 2021; Han & Wang, 2021). Second, studies that position blended learning as the strategy to enhance the outcome such as students' knowledge, problem-solving ability, and learning satisfaction (Kang & Kim, 2021)-understood as having both psychological and achievement elements (Warren et al., 2021; Rafiola et al., 2020). Third, studies that investigate the challenges and future of blended learning. The studies found that the challenges are vary arrange from technical challenges to the organizational challenges and instructional design challenges, self-regulation of students, and effective training support (Kaur, 2013; Rasheed et al., 2020). It is little of such studies investigate the combined variables of blended learning and psychological aspect such as self-efficacy effect on Students' Students' Self-directed Learning.

This article seeks to fill this gap by examining the blended learning method and self-efficacy effects on students' self-directed learning. It does so by answering three questions.

1. How significant is the influence of the blended learning model on students' self-directed learning?
2. How significant is the influence of students' self-efficacy on students' self-directed learning?
3. How significant is the combined variables (blended learning and students' self-efficacy) on students' self-directed learning?

Those questions are answered in the following sections.

THEORETICAL OVERVIEW

Blended learning is one of the innovative and effective learning approaches implemented during pandemic and post pandemic conditions. It is a technology-based learning method that combines face-to-face learning with online learning (Dwiyogo, 2018). The blended learning model is one of the active learning methods that is student-cantered and utilizes learning resources from various media, including television, computers, smartphones, videos, and more. It's an innovative concept that combines the strengths of traditional classroom teaching and technology-supported learning, encompassing both offline and online learning (Dangwal, 2017). Wahyuni & Nurhayati (2019) concluded that blended learning is one of the forms of learning innovation during the pandemic and is effectively applied to enhance students' self-directed learning. Furthermore, Melia et al., (2022) concluded that the implementation of the blended learning model can improve students' learning achievement and learning activities. Subsequently, the research results of Wiharja et al., (2020) indicate that students' learning outcomes and students' self-directed learning are enhanced by implementing the blended learning model compared to students' learning outcomes using the conventional learning model overall or based on students' initial/fundamental abilities. Blended learning is a method that should be embraced in teaching and learning.

Several studies highlight the advantages of implementing the blended learning method in the classroom. Blended learning is capable of enhancing students' independence and collaboration (Wahyuni, 2019). Blended learning is a manifestation of education that integrates face-to-face and online teaching, making it better able to accommodate students' learning styles. Research results indicate that the blended learning model influences students' learning outcomes (Anggrawan, 2019). Previous studies have shown that the implementation of the blended learning model affects students' self-directed learning, academic achievements, increases students' learning motivation, and enhances students' thinking abilities (Ceylan & Kesici, 2017; Islam et al., 2018; Sukma & Priatna, 2021). Because of such advantages, it is recommended to implement the blended learning method in the teaching-learning process.

The success of implementing the blended learning model is influenced by several factors, including readiness and the availability of facilities or technology, technology usage, parental readiness, teachers' ability to use technology, and the learning environment. The success of blended learning is not solely dependent on the quality of the courses and the virtual environment but also on the students' readiness to work in their virtual learning environment. The success of blended learning also depends on students' ability to self-regulate with specific backgrounds and utilize all the tools used (Hubackova & Semradova, 2016).

Furthermore, another variable in this study is self-efficacy. Self-efficacy plays a crucial role in a student's academic achievement. Self-efficacy is an individual's confidence in their abilities or qualities, making them feel capable of accomplishing something in specific situations. This statement emphasizes that individuals with high self-efficacy levels will manifest motivation in their actions, maintain stable emotions, and have clear goals, leading to excellent performance. The level of confidence an individual possesses will impact the success or accomplishment of an activity.

Someone with self-efficacy can be observed in aspects such as task difficulty (magnitude), generalization (generality), and strength (Maddux, 1995). Task difficulty is related to the level of difficulty of tasks given by teachers, ranging from easy tasks to moderate and high difficulty levels. Students with higher levels of commitment, belief, and interest will have confidence in completing tasks assigned by teachers. The level of task difficulty becomes a challenge for students in facing failure, making them resilient and determined not to give up. To sum up, students' self-efficacy is one of variables that determines the outcome of teaching and learning process.

The description of the self-efficacy theory above suggests that self-efficacy is an individual's belief in their ability to perform a particular action. Student self-efficacy can be enhanced by providing motivation and offering experiences to students while working on tasks, thereby influencing the students' optimistic attitudes toward their work. Student self-efficacy can be observed through the level of task difficulty, strength, and the generalization of tasks assigned by teachers.

Independence is an individual's competence in controlling oneself to think, act, and decide on an attitude without dependency on others. An independent person is someone who makes decisions based on an understanding of an action, considering the impact or consequences of their decisions. Self-directed learning is an attitude that arises from an individual's desire to learn independently, thus achieving the expected goals. La Sulo & Tirtarahardja (2005: 50) state: "Self-directed learning is the activity or learning process undertaken by an individual as their own desire, choice, and responsibility." The ability to learn independently becomes more crucial for students facing independent tasks or projects, such as open-ended projects, and so on. When facing such tasks, students are actually confronted with various abundant learning sources that may or may not be relevant to their needs and goals. In such conditions, they must have their own initiative and intrinsic motivation, analyse needs, formulate goals, choose and apply problem-solving strategies, select relevant sources, and self-evaluate. Student self-directed learning is a requirement to shape professional graduates.

The role of the teacher in the learning process to enhance students' self-directed learning is that of a facilitator and guide. The teacher helps students become more independent in the teaching and learning process, enabling them to solve problems in their own ways. Experiences related to independence gained through learning are expected to be applied in students' lives. Furthermore, Mcdevitt & Ormrod (2008) explain that the learning independence of students developed through education not only regulates the independent behaviour of students but also governs the mental processes of students

Self-directed learning needs to be shaped and developed through the teaching and learning process to achieve the expected learning outcomes. Zimmerman (1984: 4) suggests that "self-directed learning can be examined through several indicators, namely: (1) self-regulation awareness, (2) self-concept, (3) monitoring related to learning effectiveness, (4) self-esteem, and (5) self-actualization." This perspective indicates that someone with self-directed learning will exhibit an attitude of voluntary learning, driven by self-awareness, without pressure or commands from others. The self-directed learning of students is influenced by various other variables, including the learning environment and self-efficacy as the mental strength of students. This indicates that learning independence is a meticulous process of self-design and

monitoring of cognitive and affective processes in completing an academic task. Some characteristics of learning independence include setting learning goals, viewing difficulties as challenges, selecting and using available resources, collaborating with others, constructing meaning, understanding that achieving success requires not only effort and ability but also self-control.

Based on the literature review and theoretical foundation, the conceptual framework in this research is that the blended learning model and self-efficacy significantly influence students' self-directed learning. The blended learning model and self-efficacy serve as independent variables (X), while students' self-directed learning is the dependent variable (Y). The conceptual framework for this research can be seen in the following diagram.

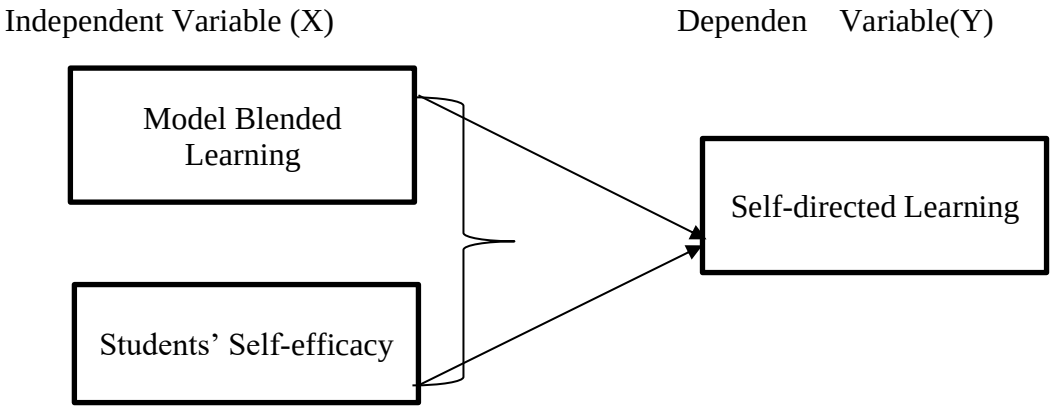

Figure 1. Conceptual Framework

METHODS

This research is a quantitative study using a survey method. Survey research aims to quantitatively depict the trends, attitudes, or opinions of a specific population by examining a sample from that population. The survey was conducted using a cross-sectional survey method, collecting data one by one at a single point in time to generalize the population based on the predetermined sample (Creswell, 2019).

This study was carried out in high schools in Banda Aceh, Indonesia. The selected school locations were Madrasah Aliyah Negeri 1 Banda Aceh, representing Islamic religious schools; SMA Labschool Universitas Syiah Kuala, representing public schools affiliated with Syiah Kuala University; and SMK Farmasi Cut Mutia, representing private vocational schools in the field of health. The research was conducted from the beginning of July 2022 to the end of August 2022, with questionnaires distributed to respondents via Google Forms. The population in this study consisted of 2,302 students. The sample was selected through random sampling. The sample size for the research was 341 students determined based on the Slovin formula with a significance level (α) of 5%. The research sample can be seen in Table 1 below.

Table 1. Characteristics of Research Samples

Description		MAN 1 Banda Aceh	SMK Farmasi Cut Mutia	SMA Labschool Unsyiah	Frequency	Percentage (%)
Gender	Male	92	26	29	147	43,1
	Female	127	30	37	194	56,9
Amont		**219**	**56**	**66**	**341**	**100**
Grade	X	26	9	12	47	13,8
	XI	67	19	21	107	31,4
	XII	126	28	33	187	54,8
Amont		**219**	**56**	**66**	**341**	**100**

Data collection was carried out using a questionnaire as a research instrument developed from research variables. The indicators of the self-directed learning variable are self-regulation awareness, self-concept, learning effectiveness monitoring, self-esteem, and self-actualization (Zimmerman, 1989). The indicators for blended learning include flexible schedules, face-to-face classes, online classes, learning resource search strategies, learning experiences, and time management (Staker & Horn, 2012). Self-efficacy indicators include magnitude, generality, and strength (Bandura, 2006). Before the questionnaire was distributed to the samples/respondents, it was first tested for validity and reliability. Out of the 30 statement items distributed, 28 statement items were found to be valid and reliable. A statement item is considered valid if the calculated correlation (r) is greater than the table correlation (r-table) with $\alpha = 5\% = 0.05$, and the r-table value is 0.361. The instrument's reliability, assessed using Cronbach's Alpha coefficient, was found to be 0.933. Data analysis was conducted quantitatively.

RESULTS AND DISCUSSION

The blended learning model is the independent variable, denoted as *X1*, while students' self-directed learning is the dependent variable, denoted as *Y*. The formulated hypothesis is that the blended learning model has an impact on students' self-directed learning. The hypothesis test results will reveal whether the implementation of the blended learning model makes students more independent in their learning, or vice versa. The formulated hypothesis is as follows:

H0: $\beta 1 = 0$ (No linear relationship or no influence between *X1* and *Y*)
H1: $\beta 1 \neq 0$ (A linear relationship exists, or there is an influence between *X1* and *Y*)

The analysis design formulation is $y = a + bx1$ with a two-tailed test and a significance level of 5%. Using SPSS version 22, the regression equation for the sample can be read as per the output results in the following table.

Table 2. Results of Coefficients Test Regenerate

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	9,661	,770		12,550	,000
	Blended learning	,334	,027	,552	12,175	,000

a. Dependent Variable: Students' Self-directed Learning

Based on the output in Table 2, the obtained values are a = 9.661 and b = 0.334. Thus, the regression equation is y = 9.661 + 0.334x. To determine whether to accept or reject the hypothesis, please refer to the ANOVA output table below.

Table 3. ANOVA Model for Blended Learning

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	464,421	1	464,421	148,236	,000[b]
	Residual	1062,084	339	3,133		
	Total	1526,504	340			

a. Dependent Variable: Students' Self-directed Learning

b. Predictors: (Constant), Blended Learning

Table 3 illustrates that F = 143.236 and sig = 0.000. The significance value sig = 0.000, which is less than 5% (0% < 5%). This implies that H0 is rejected, and H1 is accepted. Therefore, the equation is linear, and Blended Learning *(X1)* positively influences Students' Self-directed Learning*(Y)*. The implementation of blended learning increases students' self-directed learning by 0.334. The extent of the influence of blended learning *(X)* on students' self-directed learning *(Y)* can be found in the Model Summary table below.

Table 4. Model Summary for Blended Learning

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,552[a]	,304	,302	1,770

a. Predictors: (Constant), Blended Learning

Table 4 shows that the R Square *(R2)* result is 0.304, which is equivalent to 30.4%. This indicates that Blended Learning *(X1)* has a positive influence on students' self-directed learning *(Y)* to the extent of 30.4%, while approximately 69.6% is still influenced by other factors.

Self-efficacy is considered an independent variable, denoted as X2, and students' self-directed learning is the dependent variable, denoted as Y. The formulated hypothesis is that self-efficacy affects students' self-directed learning. The results of the hypothesis testing will reveal whether self-efficacy makes students more independent in their learning or not. The hypothesis formulation is as follows:

H0: $\beta 1 = 0$ (There is a non-linear relationship or no influence between X2 and Y).
H1: $\beta 1 \neq 0$ (There is a linear relationship or an influence between X2 and Y).

The analysis design is formulated as y = a + bx2 with a two-tailed test and a significance level of 5%. Using SPSS version 22, you can read the regression equation for the sample based on the output results of the coefficients test, as presented in the following table.

Table 5. Coefficients Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,242	,753		4,307	,000
	Self efficacy	,383	,018	,752	20,989	,000

a. Dependent Variable: Students' Self-directed Learning

Based on the output in Table 5, it can be observed that the values obtained are a = 3.242 and b = 0.383. Therefore, the regression equation is y = 3.242 + 0.383x2. To accept or reject the hypothesis, you can refer to the ANOVA output table below.

Table 6. ANOVA Self-Efficacy

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	862,652	1	862,652	440,519	,000[b]
	Residual	663,852	339	1,958		
	Total	1526,504	340			

a. Dependent Variable: Students' Self-directed Learning

b. Predictors: (Constant), Self efficacy

Table 6 shows that F = 440.519 and sig = 0.000. The significance value sig = 0.000, which is less than 5% (0% < 5%). This means that H0 is rejected, and H1 is accepted. Therefore, the equation is linear, and Self-efficacy (X2) has a positive influence on students' self-directed learning(Y). The increasement in self-efficacy influence Students' Self-directed Learning by 0.383. The magnitude of the influence of self-efficacy (X2) on Students' Self-directed Learning (Y) can be seen in the Model Summary table below.

Table 7. Model Summary Self Efficacy from Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,752[a]	,565	,564	1,399

a. Predictors: (Constant), Self efficacy

Table 7 illustrated that the R Square (R2) result is 0.565, which is equivalent to 56.5%. This means that Self-efficacy (X2) positively influences students' self-directed learning (Y) to the extent of 56.5%, while approximately 43.5% is still influenced by other factors. Blended learning and self-efficacy are independent variables denoted as X1 and X2, respectively. Students' self-directed learning is the dependent variable denoted as Y. The formulated hypothesis is that the model of blended learning and self-efficacy affect students' self-directed learning. The results of hypothesis testing will reveal whether the implementation of blended learning and self-efficacy makes students more independent in their learning or not. The hypothesis formulation is as follows:

H0: $\beta = (\beta 1, \beta 2) = 0$ (The relationship is non-linear or there is no influence between X1 and X2 on Y).

H1: $\beta = (\beta 1, \beta 2) \neq 0$ (The relationship is linear or there is an influence between X1 and X2 on Y).

The analysis design is formulated as y = a + bx1 + cx2, with a two-tailed test and a significance level of 5%. Using SPSS version 22, you can read the regression equation for the sample based on the output results of the coefficients test, as shown in the following table.

Table 8. Coefficients Test Results for Problem-Based Learning and Self-Efficacy Regenerate

		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	1,210	,756		1,601	,110
	Self-efficacy	,321	,019	,631	16,927	,000
	Blended learning	,163	,023	,270	7,236	,000

a. Dependent Variable: Students' Self-directed Learning

Based on the output in Table 8, it can be determined that the values are a = 1.210, b = 0.321, and c = 0.163. Therefore, the regression equation is y = 1.210 + 0.321x1 + 0.163x2. To accept or reject the hypothesis, you can refer to the ANOVA table output below.

Table 9: ANOVA for the blended learning method learning and self-efficacy model

Model		Sum of Squares	*df*	Mean Square	*F*	*Sig.*
1	Regression	951,694	2	475,847	279,808	,000[b]
	Residual	574,810	338	1,701		
	Total	1526,504	340			

a. Dependent Variable: Students' self-directed learning

b. Predictors: (Constant), Blended, Self-efficacy

From Table 9, it can be seen that *F* = 279.808 and *sig* = 0.000. The sig value = 0.000 = 0% < 5%, which means H0 is rejected, or H1 is accepted. So, the equation is linear, or the application of blended learning *(X1)* and Self-efficacy *(X2)* has a positive effect on students' self-directed learning*(Y).* For every increase in blended learning and self-efficacy will increase students' self-directed learning by 0.321 + 0.163 = 0.484. The magnitude of the influence of blended learning *(X1*) and Self-efficacy *(X2)* on students' directed learning *(Y)* can be seen in the Model Summary table below.

Table 10. Model Summary for blended learning method and self-efficacy

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,790[a]	,623	,621	1,304

a. Predictors: (Constant), Blended, Self- efficacy

Model Summary table above summarized that the R Square *(R2)* result is 0.623 = 62.3%, that implies the application of blended learning method *(X1)* and self-efficacy *(X2)* positively influences students' self-directed learning *(Y)* by 62.3%, and there is still about 37.5% influenced by other variables but blended learning and self-efficacy.

Based on the results of regression analysis and hypothesis testing, the dominant influencing factors can be concluded. The Variable Blended Learning Model *(X1)* influences students' self-directed learning *(Y)* independently by 30.4%. After introducing the self-efficacy variable *(X2),* variable *X2* is capable of increasing *R2* by 62.3% - 30.4% = 31.9%. On the other hand, variable *X1* can increase the value of *R2* by 62.3% - 56.5% = 6%. So, the self-efficacy variable *(X2)* contributes more dominantly to the variable of students' self-directed learning*(Y)* than the Blended Learning variable (X1) contributes to Students' Self-directed Learning*(Y).*

DISCUSSION

The research results indicate that the implementation of blended learning significantly affects students' self-directed learning. The magnitude of the influence of blended learning on students' self-directed learning is 30.4%. Blended learning method is a learning model that combines face-to-face and online learning. Face-to-face learning allows for interactions between teachers and students, as well as interactions among students themselves during the learning process. Online learning makes it easier for students to access learning materials from various sources, making learning more efficient. Face-to-face teaching- learning process and online learning in implementing the blended learning model have their respective advantages and complement each other. The blended learning model has several advantages,

including: learning can be delivered to students because it can be conducted anywhere and anytime, learning is more flexible, and it facilitates students in accessing learning materials, making learning more effective and efficient.

The utilization of media and technology in the implementation of blended learning can provide students with a different learning experience, making them more independent and creative (Haka et al., 2020). Students' self-directed learning can be facilitated by teachers through providing accessible learning resources for students (Yanto & Retnawati, 2018). The role of teachers in designing both face-to-face and online learning is one of the determining factors for the success of implementing the blended learning model. Therefore, teachers need to design learning by applying the blended learning model through planning, implementation, and evaluation of learning appropriately based on the students' conditions, needs, and circumstances. Planning of blended learning method needs to be done well and in accordance with the characteristics of the students. The implementation of blended learning can be achieved by consistently delivering teaching materials, conducting learning seriously, improving and meeting the standards of distance learning, and allocating time according to the initial 75:25 formula. This means allocating 75% of the time for online learning and 25% for face-to-face learning to achieve an ideal time allocation. Evaluation in the implementation of the blended learning model can include assessing how easily students can access the provided information in the learning, the quality of the instructional content in achieving learning objectives, the professional presentation of the material, how much the presented learning can stimulate students' interest in learning, the practicality of applying the learning, and the cost-effectiveness of participating in the learning.

The use of technology in blended learning enhances students' initiative to learn, especially when combined with instructional videos directly related to the subjects they are studying (Izzati & Kuswanto, 2019). Students who access learning materials in advance will be more informed about what they will learn and better prepared for their studies. The blended learning model can enhance students' self-directed learning (Sutisna, 2016; Diana et al., 2020). There is a difference in learning achievement among students with high self-directed Learning when using the blended learning model compared to the conventional learning model. Therefore, students with high self-directed learning tendencies tend to perform better in blended learning and will always strive to achieve the best results.

The findings of this research on self-efficacy show that self-efficacy significantly influences students' self-directed learning by 56.5%. High levels of self-efficacy indicate a high degree of students' self-directed Learning as well (Wibasuri & Lilyana, 2014). Someone with high self-efficacy believes they can handle various situations and tends to view problems or difficult situations as challenges because they always have the confidence to achieve success. High self-efficacy in students allows for the emergence of awareness to learn and engage in self-directed learning activities. This includes time management, determining suitable learning activities and strategies to understand learning materials, and evaluating learning outcomes (Hanifah et al., 2017). Students' self-efficacy provides the motivation to achieve their goals because students believe they possess advantages that others do not. Students' belief that they can perform a series of learning activities, including time management, strategy determination, method, and learning resources tailored to their needs, can encourage them to achieve their set learning goals. When students engage in these learning

activities, they are practicing self-directed learning (Septantiningtyas & Nisa, 2022). Students' self-confidence can drive them to achieve their study goals (Ketaren & Wijayanto, 2021). Students' belief in their ability to perform a series of learning activities, including time management, strategy determination, method, and learning resources tailored to their needs, can motivate them to reach their learning goals. When students engage in these learning activities, they are practicing self-Students' Self-directed Learning. This aligns with the research findings of Karmila & Raudhoh (2021), concluding that self-efficacy influences students' self-directed learning.

Self-efficacy affects students' ability to apply self-directed learning as an effort to achieve their learning goals. Individuals with high self-efficacy tend to exert more effort and persist in tasks because they believe they will succeed in achieving their goals, and vice versa (Schunk, 2012). Students with high self-efficacy are consistently optimistic about achieving their learning goals, which is why they apply self-directed learning as a motivating effort to reach those goals.

The belief in students' ability to apply self-directed learning can empower students to understand the material and achieve optimal learning outcomes (Aprilia et al., 2017). Conversely, students with low self-efficacy are less confident in their abilities, making them more prone to giving up and not maximizing their potential in a series of efforts to achieve their set goals. The level of self-confidence, whether high or low, can influence students to persevere in a series of activities designed to achieve their learning goals. Therefore, high levels of student self-efficacy can enhance their self-directed learning, and vice versa. This indicates a relationship between self-efficacy and Self-directed Learning (Kurnia et al., 2018).

The research results show that the combined implementation of blended learning and student self-efficacy significantly influences students' self-directed learning. The magnitude of the influence of blended learning and student self-efficacy on students' self-directed learning is 62.3%. The research findings confirm that self-directed Learning plays a crucial role in learning. Students with high self-directed in blended learning are highly supportive of the learning process. Students with high self-directed Learning, who engage in blended learning, will continuously strive to achieve the best results. This ultimately leads to optimal learning outcomes. Students with high self-directed learning exhibit characteristics such as a competitive spirit, the ability to make decisions and take initiative in solving problems, and confidence in performing tasks and taking responsibility for their actions. In contrast, students with low self-directedness are characterized by a lack of confidence, pessimism, a lack of enthusiasm in completing tasks, and heavy reliance on others. students' self-directed learning will have an impact on their learning outcomes (Wiriani, 2021). Therefore, learning needs to foster autonomous in students. Modern life requires individuals who can think, act, and communicate creatively. Therefore, students' self-directed learning needs to be nurtured and developed from an early age through the learning process (Sobri et al., 2020).

CONCLUSION

The blended learning model has a positive influence on students' self-directed learning. Self-efficacy has a positive influence on Students' self-directed learning. The blended learning model and self-efficacy, when considered together, have a significant impact on students' self-directed learning. The self-efficacy variable *(X2)* contributes

dominantly to students' self-directed learning variable *(Y)* compared to the contribution of the Blended Learning variable *(X1)* to Students' Self-directed Learning *(Y)*.

Based on the findings of this research, the authors recommend that teachers should implement the blended learning model in school instruction according to the curriculum and provide more diverse and engaging learning resources. This approach can enhance self-efficacy, Students' Self-directed Learning, and students' learning outcomes. Schools should support the provision of relevant learning facilities to ensure smooth learning activities and improve the quality of education. Future researchers are encouraged to apply the blended learning model in different research settings and variables to examine its impact on students' self-directed learning.

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