

Implementation of Blended Learning in The Pademic Era of Covid-19: The Effect of Motivation on Learning Outcomes in Vocational School Students' Mechanical Engineering Drawing Subject

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ABSTRACT

Abstract: The emergence of the COVID-19 virus has had a major impact on various sectors, one of which is the education sector. This greatly hampers the learning process for students, especially in SMK. As a middle ground, several vocational schools have implemented blended learning, which combines face-to-face learning with online learning. The application of blended learning in schools received a good response from teachers and students. The purpose of this study was to determine the effect of motivation with student learning outcomes in the subject of Mechanical Engineering Drawing on the application of blended learning. Research method, this research is ex post facto research with causal comparative type. The sample in this study were students of SMK Negeri 1 Singosari Malang as many as 70 students. The data analysis technique uses regression analysis. The results showed that there was an influence of motivation on the learning outcomes of Mechanical Engineering Drawing for SMK students with the application of blended learning.

On March 16 2020, the Indonesian government officially enforced rules for studying, praying and working from home. The purpose of this regulation is to minimize and limit gatherings that involve physical contact as an effort to reduce the spread of the COVID-19 virus. This condition has implications for the effectiveness of the learning process in schools. In order to maintain the continuity of learning activities so that they run well amid the Covid-19 pandemic, on March 24 2020 the Minister of Education and Culture (Mendikbud) followed up on the President's directives by issuing Circular Letter No.4 of 2020 concerning Implementation of Policies in the Emergency Period of the Spread of Covid-19. The policy from the Minister of Education and Culture requires all educational units in Indonesia without exception, starting from the early childhood education level to the tertiary level, to apply distance/online learning.

Online learning is a solution for teaching and learning activities to continue in the midst of the corona pandemic (Adnan, 2020; Adedoyin & Soykan, 2020). The demands of online learning are that students and teachers must be able to master information technology to support online learning. Teachers and students are required to have skills in the field of learning technology. The mastery of both students and teachers in various learning technologies is a challenge for them. Various online learning media that can be used include: Google Classroom, Zoom and social media such as WhatsApp (Adedoyin & Soykan, 2020; Kanojiya, 2020). Online learning is a type of learning and allows the delivery of teaching material or materials provided to students via the internet network. Dahmash, (2020), Online learning has the advantage of students learning whenever and independently. According to Brahma (2020), Online-based learning has several syntaxes which include: (1) simulation, students are allowed to read and at the same time understand the basic competencies to be achieved online-based; (2) problem formulation, students can access all information that has been uploaded by the teacher such as quizzes and teaching materials; (3) data collection, students collect information provided by the teacher; (4) data processing, students process the information data obtained and then discuss it with the teacher or other friends in a discussion group that has been made and (5) independent evaluation, students are able to conclude and understand the implementation of learning.

Online learning is not very effective, especially for practical learning such as the Mechanical Engineering Drawing subject at Vocational High Schools. To address practical learning during the co-19 pandemic, several SMKs have implemented blended learning. Law et al., (2019) Blended learning is a combination of face-to-face teaching and online learning. According to Ekawati, (2018) Blended learning will make it easier for many people, because information or knowledge can be accessed very easily without being hindered by time and place. Sudiarta & Sadra (2016) explained that the application of the blended

learning model also provides innovation and helps solve problems in learning. The implementation of blended learning should be the right alternative to the disadvantages of e-learning and the barriers of face-to-face learning. The implementation of blended learning will indirectly affect student motivation and learning outcomes.

The problem that is often encountered in blended learning is that not all students understand technology (Saltan, 2016). In addition, the non-fulfillment of online learning facilities provided by parents is an obstacle for students to do online learning. Even so, blended learning will make it easier for many people to access information or knowledge very easily without being hindered by time and place. Pavla et al. (2015), Blended learning is able to provide learning facilities effectively. Meanwhile according to Benson & Kolsaker (2015), Coccoli et al., (2016) blended learning does not change quickly in increasing student learning outcomes.

Blended learning as an optimization of the learning process provides learning facilities and independence from students, and does not entirely replace conventional learning with online learning (Al Aslamiyah et al., 2019). According to Surahman & Surjono (2017) Blended learning provides time flexibility so students can improve learning outcomes and be more independent. Internet connection will affect the learning process of blended learning, because the internet is a basic requirement in online learning. Law et al., (2019), students will be more optimal in carrying out the learning process and material that previously could not be conveyed can be explained through online learning. The process of submitting assignments and materials can be done easily in this way and can make good use of time. Hadriana (2019), Teachers can provide services to students without having to meet face to face. Teachers and students can obtain information or learning materials from various virtual world sources with the help of computers or the internet. Roza et al., (2017) the use of computer-based learning media students directly interact with computers individually, so that the student's experience will be different from what is experienced by other students. This ability will accommodate students with heterogeneous abilities to study in different learning climates. Furthermore, teachers and students can search, explore, analyze, and exchange information effectively and efficiently.

Wichadee (2017) factors that affect a person's ability, are external and internal factors. External factors are factors that arise and come from outside the individual, while internal factors arise from within each individual. Some of the factors that arise within the individual and are categorized as internal factors are the individual's perception and work motivation towards something. Learning motivation is the driving force for the learning process and the purpose of learning to benefit from the learning process (Hynd et al., 2000). Some students experience problems in learning which results in learning achievement not being achieved as expected. To overcome the problems experienced, it is necessary to conduct a search of the factors that influence learning outcomes including student learning motivation, where learning motivation is an absolute requirement for learning, and has a great influence in giving enthusiasm in learning. Lin et al., (2017) states that learning motivation is the tendency of students to carry out all learning activities that are driven by the desire to achieve the best learning outcomes.

Learning motivation is a unique role that is as a growing passion in each individual, and creates a sense of motivation to learn. Students who have high motivation will have great enthusiasm and energy to carry out their daily activities. Motivation for learning for each individual can be different, so there are students who just want to avoid even bad grades to avoid punishment from the teacher, and the orientation is only to get high scores, but there are also students who really want to develop their insights and knowledge. According to (Uno, 2014) motivation and learning are two related things. Learning motivation is the main thing in carrying out learning activities, so that without motivation someone will not carry out learning activities. Motivation as a driving force for someone to do something for the goals desired by students. Starting from the learning motivation that someone has the enthusiasm to be better than learning activities.

Motivation is the force that drives someone to do something to achieve a goal (Uno, 2014). Someone with high motivation will always try to carry out activities that support their performance (Herawaty, 2016). Meanwhile student motivation is a process carried out to move students so that their behavior can be directed to real efforts to achieve the goals set. (Uno, 2014). Vanslambrouck et al., (2018); Schober et al., (2012) motivation is very important in a blended learning environment, where students gain autonomy to study independently, and student motivation will increase. Based on the background above, the purpose of this study was to determine the effect of motivation on student learning outcomes in mechanical engineering drawing subjects with the application of blended learning during the COVID-19 pandemic.

METHODS

Research Design

This research is research conducted to examine events that have occurred which are then reviewed backwards to obtain factors that may influence the findings of the research (ex post facto research). The independent variable (X) in this study is student motivation, while the dependent variable (Y) is the student's learning outcomes of Mechanical Engineering Drawing. The design of this study is shown in figure 1.

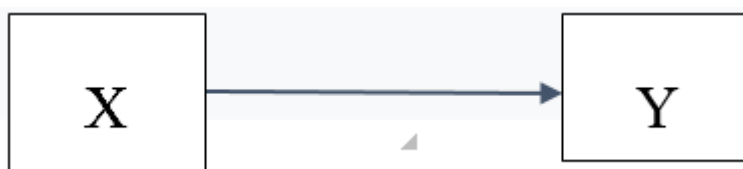


Figure 1. Research Design

Population and Sample

The population and sample in this study were all students of SMK Negeri 1 Singosari Malang who took part in Mechanical Engineering Drawing lessons in semester I of 2020—2021 as many as 70 students.

Research Instrument

The motivational instrument used in the research was a questionnaire which was distributed to the research sample, namely as many as 70 students. Questionnaire assessment was carried out using a Likert scale, which is a gradation of statements from strongly agree to strongly disagree. The scoring categories in the questionnaire are shown in table 1.

Table 1. Questionnaire Scoring Category

No	Description of Alternative Answers	Score
1	Strongly agree	4
2	Agree	3
3	Don't agree	2
4	Strongly Disagree	1

While the Mechanical Engineering Drawing assessment instrument uses a rubric according to the assignments given by the teacher. The drawing assessment score uses a lifting range of 0 – 100 in table 2.

Table 2. Questionnaire Scoring Category

No	Score	Criteria
1	88—100	Very good
2	74—87	Well
3	60—73	Enough
4	< 60	Not enough

Reliability Test

To determine internal consistency reliability, the questionnaire was piloted with 20 students in other classes and was calculated to find out the Cronbach's Alpha coefficient. The motivational questionnaire has an alpha coefficient of 0.924 indicating high questionnaire reliability. While the machine drawing tasks were not tested for reliability, because the data had been taken from secondary data.

Validity Test

The test was carried out to determine the validity of each instrument item and was obtained from the Parson Product Moment correlation test. The results of the validity test on the learning motivation instrument are valid.

Normality Test

The Kolmogorov-Smirnov test is used to find out whether the data is normally distributed. These results are the requirements of the regression analysis, complete data in table 3.

Data Analysis Technique

The data analysis technique examines the relationship between learning motivation and learning outcomes Mechanical Engineering Drawings with regression analysis.

RESULTS

Normality Test Results

Normality test is used to fulfill the requirements of regression analysis. This test is used to determine whether the regression model is feasible or not used for each variable in the study. The test results using the Kolmogorov-Smirnov method in this study are in table 3.

Table 3. Results of the Normality Test of Variable X to Y

	<i>Unstandardized Residual</i>	<i>Sig.</i>	Information
<i>Asymp. Sig. (2-tailed)</i>	0,225	0,05	Normal

From the test results of table 3, it shows a significance value of $p = 0.225 (\geq 0.05)$ it can be concluded that the data is normally distributed.

Linearity Test Results

The linearity test is used to find the equation of the independent variable regression line to the dependent variable. Based on the regression line that has been made, then the significance of the regression line coefficient and its linearity is tested. The results of the linearity test are described in table 4.

Table 4. Linearity Test Results

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Score_Mech_Drawing * Motivation	Between Groups	(Combined)	61.380	10	6.138	3.481	.001
		Linearity	38.515	1	38.515	21,842	.000
		Deviation from Linearity	22.865	9	2.541	1.441	.192
	Within Groups		105.803	60	1.763		
	Total		167.183	70			

Based on the test results above, it shows a significance value $p = 0,192 (\geq 0,05)$ it can be concluded that the linear regression model.

Heteroscedasticity Test Results

Table 5. Heteroscedasticity Test Results

Coefficients ^a						
Model	Unstandardized Coefficients			Standardized Coefficients		
	B	Std. Error		Beta	t	Sig.
1 (Constant)	-4.288	4.564			-.939	.351
Motivasi Belajar	.408	.444		.209	.918	.362
Hasil Belajar	.047	.076		.142	.623	.535

a. Dependent Variable: Abs_Res

Based on the results of the Glejser Method Heteroscedasticity Test in table 5, the influence of motivation on learning outcomes does not occur heteroscedasticity $p > 0.05$ (p motivation = 0.362, and p learning outcomes = 0.535).

Table 6. R Test Results

Model Summary ^b						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	.480 ^a	.230	.219	1.36556	1.499	

a. Predictors: (Constant), Motivation

a. Dependent Variable: Score_Mech_Drawing

Based on table 6, it can be seen that the R value obtained is 0.480. There is a relationship between motivation and learning outcomes in Mechanical Engineering drawing, which is < 0.5 . The coefficient of determination R Square 0.230 shows the magnitude of the role of motivation by 23%, while 77% is influenced by other factors.

Table 7. F Test Results

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.515	1	38.515	20.654	.000 ^b
	Residual	128.668	69	1.865		
	Total	167.183	70			

a. Dependent Variable: Score_Mech_Drawing

a. Predictors: (Constant), Motivation

Table 8. T Test Results

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients		95.0% Confidence Interval for B		
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1 (Constant)	65.734	2.197		29.923	.000	61.351	70.116
Motivation	3.102	.683	.480	4.545	.000	1.740	4.463

a. Dependent Variable: Score_Mech_Drawing

Based on the results of the F test and T test in Tables 7 and 8, it can be described as follows, The results of the analysis for the F test = 20,564, and t test = 4.545, $p = 0.000 < 0.05$. That is, there is an influence between motivation on the learning outcomes of mechanical engineering drawing.

DISCUSSIONS

Learning motivation is an intrinsic driving factor that becomes an engine for someone to continue learning. Motivation is found in the ideals or aspirations of students who are expected to be able to learn and understand learning objectives and be able to actualize themselves (Triarisanti & Purnawarman, 2019). Gopalan et al., (2017), motivation has an influence on student learning behavior, which encourages increased enthusiasm and persistence in learning. In particular, passion, enthusiasm and taste. Enjoyment in learning can generate high motivation so that students will have a lot of energy to carry out learning activities and in the end will be able to get achievements. Reiss, (2012) divides motivation into intrinsic and extrinsic, and both are influenced by several factors such as the level of student self-awareness of the needs that drive behavior/action and awareness of the learning objectives to be achieved. The elements that influence learning motivation are ideals, student abilities, student conditions, student environment, and other elements in teaching and learning. Asifa & Haider (2013), Hulu (2020) states that there is an increase in student learning outcomes by motivating learning. Triarisanti & Purnawarman (2019), states that intrinsic factors (interest, motivation, and self-confidence) and extrinsic factors (teachers, curriculum) influence learning outcomes.

Research from Bahri & Corebima, (2015) states that students who have learning motivation will pay attention to the lesson, read the material, so that they understand the content and use different learning strategies. In addition, students will also be involved in learning, curiosity, finding relevant sources to discuss certain topics, and achieving certain task objectives. Gasco et al., (2014) motivation plays an important role in learning because it will determine academic achievement. Student motivation and the use of learning strategies in the classroom are important in improving student learning outcomes. Therefore, the teacher must be creative in determining the learning model of learning can increase student motivation to improve learning outcomes that can be achieved optimally. Junita et al., (2018), learning achievement is always associated with student learning outcomes. While learning achievement is a benchmark to determine student success in the learning process at a certain time and is expressed in the form of grades. Students who have high learning achievement can be said to have succeeded in learning. Learning achievement is a combination of abilities, soft skills, interests, talents, facilities, motivation, educator abilities, attention, study habits, and also the learning environment are interconnected and influence the behavior patterns of each student. Previous research was conducted to compare learning motivation in the two approaches, teaching and findings revealed that the blended learning approach resulted in more active learning and motivation compared to the traditional approach.

With regard to academic achievement in relation to motivation, the findings show that motivation has a positive influence on student learning outcomes (Peng & Fu, 2021). Many recent studies have consistently shown that increased student motivation has a strong correlation with academic success. There is a consensus that when students are highly motivated, students will spend more time investigating and exploring unknown knowledge, be more interested, pursue their passions, and try harder to achieve academic goals. Usually students who have a high level of motivation can achieve high academic success, as well as students who have a low level of motivation will also have low academic achievement. (Akgündüz & Akinoglu, 2017), this is of course except for special circumstances. These findings explain the importance of motivation in the learning process.

CONCLUSION

The conclusion that can be drawn from the results of this study, first is that learning motivation can be expressed through students' preferences for certain subjects. Every student always has the learning motivation. Therefore, teachers must be able to generate student learning motivation. Teachers must be able to make students happy in learning. With the motivation that arises, students will try to do better in learning, and get good learning results. Elements that influence motivation in learning include: soul aspirations, student abilities, student conditions, student environmental conditions, dynamic elements in learning, and teacher efforts in learning.

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