



Effect of blended learning, motivation, study hour on student learning achievement

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Abstract: *This research aims at determining the effect of blended learning, motivation, lesson hour on student achievement. The research method used is a survey method, with data collection techniques using a questionnaire. The population in this study were students of the Health and Recreation Physical Education Study Program, with a total of 221 UNY students and 188 UPM students. The data analysis technique used regression test. The results showed that (1) There was a significant influence between blended learning on the motivation of UNY and UPM students, (2) There was a significant influence between blended learning on the learning hours of UNY and UPM students, (3) There was a significant influence between blended learning on study hours of YSU and UPM students, (3) There is a significant influence between blended learning on the learning motivation of UNY and UPM students. There is a significant influence between blended learning on learning hours for both UNY and UPM students, (4) There is an influence between blended learning on student learning achievement even though it is weak, this shows that learning achievement is influenced by other variables not studied. Whereas for UPM there is a significant effect, but for the learning achievement variable it is influenced by other variables that are not researched, (5) There is a combined effect of blended learning, motivation, and study hours on UNY and UPM students, but the learning achievement variable is influenced by other factors or variables not studied.*

Keywords: *blended learning, motivation, study hour, learning achievement*

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INTRODUCTION

The development of science and technology in various fields create a lot of changes, especially in improving the quality of education. Many factors affect the development of education in the future, one of which is the rapid development of information technology. The development of technology in global era has significantly changes, it is marked by the emergence of fierce competition in obtaining jobs that demand competence in mastering technology. At the beginning of the emergence of computerized technology, limited human resources were the main factors that hindered interaction between humans and computers (Sucipto & Widiyanto, 2016, p. 179). While the most important component in the learning process both conventionally and by utilizing technology is HR (Rivalina, 2005, p. 133).

Globalization has changed these dynamics, sometimes in powerful ways. In this context, the reformation in the field of education and learning need to be carried out continuously, it is a process that never stops. Competency-based education is an example of the results of thus reformation with the aim of improving the quality of education and learning. Developing and supporting students' technological competencies is a key element of schools (Selwyn & Husen, 2010). Education must also be able to deliver each individual to survive, be competitive, independently in a dynamic life and move fast in competition (Sucipto & Widiyanto, 2016, p. 128). Another factor in the success of education is the factor of educators, teachers, lecturers, are educational staff and participate in providing education (Pambudi & Suharjana, 2018, p. 49). As a teacher, he must be able to be a good introduction to knowledge for his students, have innovation and be able to follow technological developments. In order for learning to be effective, a teacher must be able to manage the class well (Ningrum & Sukoco, 2017, p. 172). The



development of information, science, technology, art, culture is so rapid that it requires the readiness of all parties to be able to adapt to all existing conditions (Setyawan & Lumintuarso, 2015, p. 209).

Concerning with the development of existing technology, people can assess the internet for learning with the use of E-learning. Internet enable learning combines teaching methods and technology as a means of learning. E-learning is an effective learning process that is produced by combining digital material delivery which consists of support and services in learning. In learning in the 21st century, e-learning is a new form of pedagogy that supports the implementation of learning designed by lecturers or teachers. E-learning has the advantage that learning can be done flexibly, interactively. Blended learning or also known as hybrid learning is one example of e-learning that applies learning by combining online learning methods with face-to-face in the classroom directly. The use of the right method is an absolute necessity for a learning goal. The more suitable the method chosen in the learning process, the more effective the learning objectives will be (Prasetyo & Sukarmin, 2017, p. 14).

Blended learning is not fully implemented online which replaces face-to-face interaction in class but it can be applied to complement material that has not been conveyed in learning. Teachers use internet access to provide information or study materials for students. Asynchronous and synchronous communication is used by lecturers so that students can communicate with each other. Asynchronous communication is defined as instructions or communications that take place at different times and at different locations (Fenton & Watkins, 2010: p.233). While synchronous is communication that occurs in real time.

There are three factors that influence student learning success: motivation, communication and blended learning design King & Cerrone Arnold, (2012, p. 44). In addition, research by Herawati, Afriyati, Habibah, & Pratiwi, (2020, p. 40) states that blended learning is effective in reducing learning saturation in lectures. Therefore, many schools and universities implement blended learning because of its advantages. The trend towards a mixed learning system will increase (Graham, 2006, p. 7). However, the success of implementing blended learning depends on several factors such as learning design. Blended learning must have a learning design that is attractive to users, easy to understand and able to facilitate interaction between students. This will have an influence on students' motivation to learn. In addition, the ability to manage blended learning with internet support is very important. A teacher must be able to manage blended learning independently, be able to operate easily and not experience internet problems. However, the learning outcomes of blended learning can still be debated because the success of blended learning from the side of users, managers and results does not occur automatically but is influenced by many factors (Yick, Yip, Au, Lai, & Yu, 2019). In addition, the hours of deep learning also affect the understanding of the material presented in blended learning. Based on the explanation above, this study discuss the effect of blended learning, motivation, study hours on students' achievement.

METHOD

This research belongs to quantitative research. The research method used is the survey method. Survey research method is an investigation conducted to obtain certain facts from existing symptoms and to look for factual deficiencies. This study is a descriptive study, with the aim of describing the effect of blended learning, motivation, study hours on student achievement. The type of data used is quantitative data. The population in this study were the students of the PJKR FIK UNY Study Program and Bachelor Students of Physical Education, Putra Malaysia University (UPM). The determination of the sample in this study used a random sample (Cluster sampling). The study, which was conducted at UNY, had 221 research subjects with 80 women and 141 men, with a percentage of 36.19% female subjects and 63.81% male subjects. As for the UPM, there were 112 research subjects with 28 women and 84 men, with a percentage of 25% female subjects and 75% male subjects.

In order to measure students' motivation and learning hours this research employed a questionnaire. Meanwhile, learning achievement was gained from the course grade that applied blended learning. Further, the data that has been obtained in this study was analyzed. Data analysis in this study used descriptive statistics and inferential statistics with the help of computer programs. The results of descriptive statistical analysis point to the organization of the data. The data obtained were tabulated on each variable to find the average value, standard deviation, mode, median, minimum value and maximum value of each variable. The statistical test in this study used the Path Analysis test.

RESULT AND DISCUSSION

Percentage Of Uny Research Subjects

The research subject involved in this research was 221 participants, consisted of 80 women and 141 men, with a percentage of 36.19% female subjects and 63.81% male subjects.

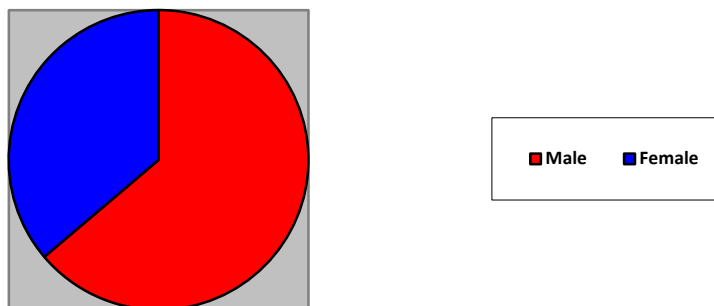


Figure 1. Percentage of UNY research subjects

Path Analysis Model 1

Tabel 1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.754 ^a	0.569	.565	.33007	1.880

A. Predictors: (Constant), Study hours, Blended Learning

B. Dependent Variable: Motivation

Tabel 2. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.216	.136		8.926	.000
	Blended Learning	.407	.044	.502	9.342	.000
	Study hour	.216	.033	.348	6.472	.000

A. Dependent Variable: Motivation

Path Coefficient Model I, it show's that the significance value of the two variables, $X_1 = 0.000$ and $X_2 = 0.000$ is smaller than 0.05. These results concluded that Regression Model I, namely variables X_1 and X_2 have a significant effect on Y . Thus, the path diagram:

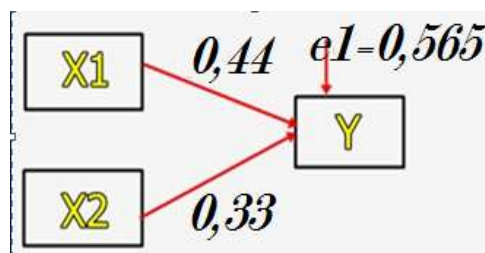


Figure 2. Path Analysis Model I

Description :

X_1 = Blended Learning (X_1)

X2 = Study hours (X2)
 Y = Motivation (Y)

Path Analysis Model II

Tabel 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.239 ^a	.57	.044	.11880	1.521

A. Predictors: (Constant), Blended Learning, Study hours, Content attraction
 B. Dependent Variable: Learning achievement

Tabel 4. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.608	.049		73.364	.000
	Motivation	-.122	.038	-.678	-3.182	.002
	Study hours	.011	.012	.072	.896	.371
	Blended Learning	.103	.044	.526	2.364	.008

Path Coefficient Model II in the Coefficients table section, it is known that the significance value of the three variables, X1 = 0.008, X2 = 0.371 and Y = 0.02 is smaller than 0.05. These results conclude that Regression Model II, the variables X1, X2 and Y have a significant effect on Z. Meanwhile for the value of $e_2 = (1-0.57) = 0.655$. Thus the path diagram:

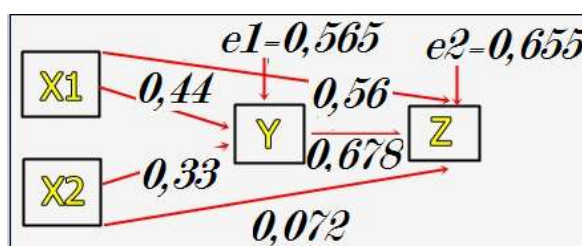


Figure 3. Path Analysis Model II

Description:

X1 = Blended Learning (X1)
 X2 = Study hour (X2)
 Y = Motivation (Y)
 Z = Learning achievement (Z)

The Steps of Testing Hypotheses And Conclusions

The following is a description of the stages of hypothesis testing and conclusions. Analysis of the effect of x1 on y: it has been found that the significance value of x1 is 0.000 <0.05. This shows that there is a direct significant effect of X1 on Y. Analysis of the effect of X2 on Y: the results show that the significance value of X2 is 0.000 <0.05. From these results it can be concluded that X2 has a direct significant effect on Y. Analysis of the influence of X1 on Z: the significance value of X1 is 0.008 <0.05. This shows that there is a direct significant effect of X1 on Z. Analysis of the influence of X2 on Z: the significance value of X2 is 0.371 > 0.05. This shows that X2 has an indirect significant effect on Z. Analysis of the influence of Y on Z: shows that the significance value of Y is 0.002 <0.05. This shows that there is a direct effect of yYon Z. Analysis of the influence of X1 through y on Z: the direct effect

of X1 on Z is 0.56. The results showed that the indirect effect of X1 through Y on Z was the multiplication of the beta value of x1 to y with the beta value of y to z: $0.44 \times 0.65 = 0.286$. The total value of the influence data given by X1 on Z is $0.56 + 0.286 = 0.846$. The direct influence value is 0.56 and the indirect effect is 0.286. This shows that the value of the indirect effect is greater than the value of the direct effect, this result shows that X1 on Y indirectly has a significant effect on Z. Analysis of the influence of X2 through y on z: it is known that the direct effect given by x2 on z is 0.072. While the indirect effect of x2 through y on z is the multiplication of the beta value of x2 to y with the beta value of y to z: $0.33 \times 0.072 = 0.024$. Then the total effect given by X2 to Z is the direct effect plus the indirect effect: $0.072 + 0.024 = 0.095$. Based on the calculation results above, the direct influence value was 0.072 and the indirect effect was 0.024, which means that the indirect effect value was greater than the direct influence value, this result indicated that X2 through Y indirectly has a significant effect on Z although it is weak.

The Percentage Of Malaysia Research Subjects (Upm)

The research involved 112 research subjects, consist of 28 women and 84 men, with a percentage of 25% female, and 75% male.

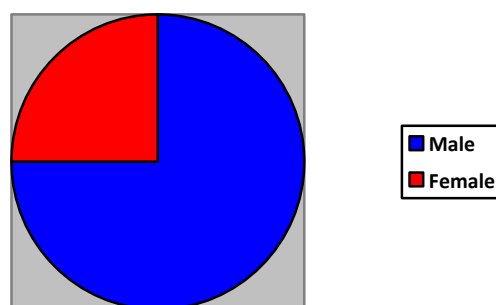


Figure 4. Percentage of research subject UPM

Path Analysys Model 1

Tabel 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877 ^a	0.77	0.767	0.26576

A. Predictors: (Constant), Study hours X2, Blended Learning X1

B. Dependent Variable: Motivation Y

Tabel 6. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.317	0.148		2.138	0.034
	Blended Learning X1	0.621	0.036	0.664	17.102	0
	Study hours X2	0.283	0.031	0.359	9.252	0

a. Dependent Variable: Motivation Y

Path Coefficient Model I show's that the significance value of the two variables, $X1 = 0.000$ and $X2 = 0.000$, is smaller than 0.05. It can be concluded that the regression model, variables $X1$ and $X2$ have a significant effect on Y . Meanwhile, the value of $e1$ can be obtained with the use of formula $e1 = (1-0.77) = 0.479$. Thus, the path diagram:

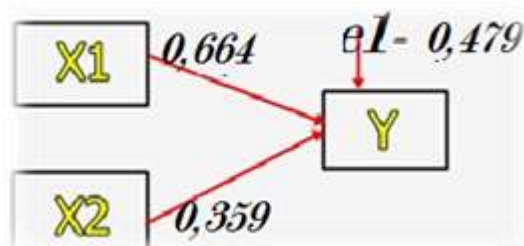


Figure 5. Path Analysis Model I

Description:

X1 = Blended Learning (X1)

X2 = Study hours (X2)

Y = Motivation (Y)

Path Analysys Model 2

Table 7. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.778 ^a	.605	.594	.23895

a. Predictors: (Constant), Study hours X2, Blended Learning X1, Motivation Y

Tabel 8. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.580	.173		9.153	0.000
	Blended Learning X1	.300	.072	0.469	4.176	0.000
	Motivation Y	.192	.091	0.283	2.111	0.037
	Study hours X2	.048	.046	0.089	1.046	0.298

Path Coefficient Model II, it was known that the significance value of the three variables, $X1 = 0.00$, $X2 = 0.037$ and $Y = 0.037$ was smaller than 0.05. The variables $X1$, $X2$ and Y have a significant effect on Z . The value of R^2 or R Square was 0.60, this indicated that the contribution of $X1$, $X2$ and Y to Z is 60% while the remaining 43% is a contribution from other variables not examined. Meanwhile for the value of $e2 = (1-0.60) = 0.774$. Thus, the path diagram:

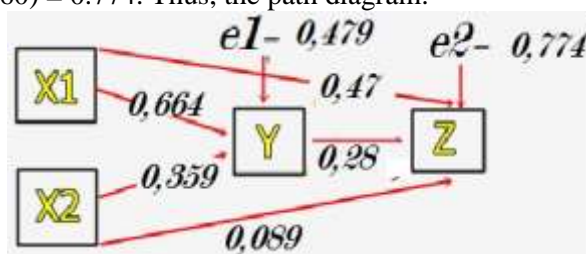


Figure 6. Path Analysis Model II

X1 = Blended Learning (X1)

X2 = Study Hours (X2)

Y = Motivation (Y)

Z = Learning Achievement

The Steps Of Testing Hypotheses And Conclusions

The following is the stage of testing the hypothesis and making conclusions in this study with the subject of UPM Malaysia students. Analysis of the effect of X1 on Y: the significance value of X1 is $0.000 < 0.05$. This shows that X1 has a direct significant effect on Y. Analysis of the effect of X2 on Y: the significance value of X2 is $0.00 < 0.05$. This shows that there is a direct significant effect of X2 on Y. Analysis of the influence of X1 on Z: the significance value of X1 is $0.00 < 0.05$. This shows that there is a direct significant effect of X1 on Z. Analysis of the influence of X2 on Z: the significance value of X2 is $0.29 > 0.05$. This shows that there is a significant indirect effect of X2 on Z. Analysis of the influence of Y on Z: the significance value of Y is $0.037 < 0.05$. Analysis of the Effect of X1 through Y on Z: the direct effect of X1 on Z is 0.47. While the indirect effect of X1 through Y on Z is the multiplication between the beta value of X1 to Y with the beta value of Y to Z: $0.664 \times 0.28 = 0.185$. Then the total effect given by X1 to Z is the direct effect plus the indirect effect: $0.47 + 0.185 = 0.655$. These results indicated that X1 through Y directly has a significant effect on Z. Analysis of the influence of X2 through Y on Z: it was known that the direct effect given by X2 to Z was 0.089. While the indirect effect of X2 through Y on Z was the multiplication between the beta value of X2 against Y with the beta value of Y against Z: $0.359 \times 0.089 = 0.031$. Then the total effect given by X2 to Z was the direct effect plus the indirect effect: $0.089 + 0.031 = 0.12$. Based on the results of the calculations above, the direct influence value was 0.089 and the indirect effect was 0.031, which means that the direct influence value was greater than the indirect effect value, these results indicated that X2 through Y directly has a significant effect on Z.

DISCUSSION

The effect of blended learning on student learning motivation. Based on the results of research with the subject of UNY and UPM students, it was found that a significance value of $0.000 < 0.05$ was obtained on learning motivation. This shows that blended learning on students' learning motivation has a significant influence. It shows that there is a direct effect of blended learning on student learning motivation, according to research that has been carried out by (Syarif, 2013, p. 234). In addition, research on the effectiveness of e-learning models on Algorithm and Programming lectures shows that there are differences in student learning motivation between blended learning models and conventional models of 5,782 and differences in understanding levels of 9,935 and there is an increase in learning motivation due to blended learning models on average. the average increase is 11,705 and there is an average increase in student understanding of 30,288 (Sarah Bibi, 2015, p. 74). This shows an increase in student learning motivation due to the application of blended learning.

There is a direct influence of study hours on student motivation. Based on the results of research with UNY and UPM students, the significance value of study hours was $0.00 < 0.05$. It shows that there was a direct significant effect of study hours on student motivation. If the individual wants to excel, then he will give his best effort through the energy of achievement (Blegur & Mae, 2018, P. 31), this can be seen from the student's study hours.

The effect of blended learning on student achievement. The significance value of the data from UNY students was $0.008 < 0.05$. There was a direct significant effect of blended learning on student achievement. Meanwhile, the significance value from UPM was $0.00 < 0.05$. There was a direct significant effect of blended learning on learning achievement. This is in line with the results of Utami's research (2018, p. 42) which used experimental research methods with a randomized control group pretest-posttest design. The study showed that the learning outcomes of the experimental group were higher than those of the control groups. So, it can be concluded that blended learning model contributes more to student achievement.

The effect of study hours on student achievement. From UNY student data, it was obtained a significance value: $0.371 > 0.05$. Meanwhile, for UPM students, a significance value was $0.29 > 0.05$. There was a significant effect of study hours on learning achievement for UNY and UPM students. Study hours are related to the continuity of the learning process, where the learning process is important in producing achievements (Putra & Sugiyanto, 2016, p. 179).

The effect of motivation on student achievement. The data that has been obtained from UNY shows the significance value of $0.002 < 0.05$. There was a direct significant influence of motivation on student achievement. Meanwhile, for UPM students, a significance value of $0.037 < 0.05$ was obtained. There was a direct significant effect of motivation on student achievement. The concept that discusses

desire, drive, will and interest is motivation. As stated in Syaokani, Subekti, & Fatoni, (2020, p. 122) that a person who shows displays characteristics such as having high enthusiasm and passion to do something, and trying to achieve achievement. Motivation is an impulse that is closely related to how to do something well to achieve success (Dahlan, Hidayat, & Syahrudin, 2020, p. 136). Therefore, the higher a person's motivation, the more influential it is on student achievement.

The effect of blended learning through motivation on student achievement. The significance value of UNY students was 0.56. It means the direct effect given by blended learning on student achievement was 0.56. While the indirect effect of blended learning through motivation on student learning achievement was the multiplication between the beta values of blended learning on motivation and the beta value of motivation on student achievement was $0.44 \times 0.65 = 0.286$. So, the total effect given by blended learning on student achievement was the direct effect plus the indirect effect was $0.56 + 0.286 = 0.846$. Meanwhile, the data obtained from UPM students showed a significant value of the direct influence given by blended learning on learning achievement of 0.47. As stated (Syahrudin, Saleh, & Saleh, 2019, p. 94), that in the learning process the teacher's role greatly influences the results of the learning process itself. In this case, through blended learning, the teacher plays a role in increasing the motivation of students to produce good learning achievements.

The effect of study hours through motivation on learning achievement. Based on the calculations in this study, data has been obtained that the subject of UNY students is known to have an indirect influence value greater than the direct influence value, these results indicate that indirectly learning hours through motivation have a significant effect on learning achievement even though it is weak. While the subject of upm students means that the value of direct influence is greater than the value of indirect influence, these results indicate that learning hours directly through motivation have a significant effect on learning achievement. This shows that there is an effect of study hours through motivation on learning achievement, although there are direct and indirect effects for the two research subjects.

CONCLUSION

Based on the results of the research, it can be concluded that (1) There is a significant effect between blended learning on motivation for both UNY and UPM students, (2) There is a significant effect between blended learning on study hours for both UNY and UPM students, (3) There is a significant effect between blended learning on study hours for both UNY and UPM students, (4) There is effect between blended learning on UNY students' learning achievement although it is weak, this shows that learning achievement is influenced by other variables that was not examined. As for UPM, there is a significant effect but for the learning achievement variable it is influenced by other variables not examined, (5) There is a multiple influence between blended learning, motivation, and study hours for UNY and UPM students, however the learning achievement variable is influenced by other factors that was not examined in this study. Therefore, further research is needed to find out more about other variables that affect blended learning on learning achievement.

Blended learning, motivation, and study hours have an influence on student achievement. Interesting blended learning content can increase student learning motivation. Students can also determine learning, can remember the time and study time with more flexible mixed learning. Thus, blended learning, motivation and study hours have an influence on student learning outcomes in sports. Further research is needed to find out more about other variables that affect blended learning on learning achievement.

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