

The Influence of Technology Determinism and Technology Literacy on Student Learning Outcomes (On MA Daarul Hikmah Pamulang)

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ABSTRACT

The latest technological developments cause impacts in all fields. One of them is a change in social behavior. The purpose of this study is to determine technological determinism and technological literacy on student learning outcomes at MA Daarul Hikmah Pamulang. The method used is descriptive method with an associative approach. The sampling technique used was proportional random sampling using the method of saturated sampling technique with a sample of 78 respondents. The analysis tool uses validity test, reliability test, classic assumption test, regression analysis, correlation coefficient analysis, coefficient of determination analysis and hypothesis testing. The results of this study are technological determinism that has a positive and significant effect on student learning outcomes by 38.6%. Hypothesis testing is obtained $t_{count} > t_{table}$ or $(6.907 > 1.992)$, so H_0 is rejected and H_1 is accepted meaning there is a positive and significant influence between technological determinism on student learning outcomes at the MA Daarul Hikmah Pamulang Office. Technology literacy has a positive and significant effect on student learning outcomes by 39.8%. Hypothesis testing is obtained $t_{count} > t_{table}$ or $(7.091 > 1.992)$ so that H_0 is rejected and H_2 is accepted meaning that there is a positive and significant influence between technology literacy on student learning outcomes. A simultaneous test of technological determinism and technological literacy has a positive and significant effect on student learning outcomes with an influence contribution of 48.4%, while the remaining 51.9% is influenced by other factors. Hypothesis testing obtained the value of $F_{count} > F_{table}$ or $(40.435 > 2.730)$, thus H_0 is rejected and H_3 is accepted. This means that there is a positive and significant effect simultaneously between technological determinism and technology literacy on student learning outcomes in MA Daarul Hikmah Pamulang

Keywords: Technology determinism; technology literacy; student learning outcomes.

INTRODUCTION

The latest technological developments cause impacts in all fields, one of which is a change in social behavior (Pebriana, 2017; Sarkawi, 2016; Witarsa, Mulyani, Urhananik, & Haerani, 2018). Technology brings so many changes and advances in all fields. The world of education is

also affected by this so that behavior in the world of learning is slowly undergoing change by making more use of technology in learning activities. Technology brings so many changes and advances in all fields. The world of education is also affected by this so that the behavior in the world of learning is slowly changing with more utilizing technology in learning activities (Fauzi & Tambunan, 2016; Purnomo, 2008; Riyana, 2015; Syarifuddin, 2016; Yaumi, 2018). Technological determinism is put forward by (McLuhan, 2011) in 1962 in his writing *The Gutenberg Galaxy: The Making of Typographic Man*. The idea of this theory is regarding the focus on change, that changes that occur in various ways of communication will also shape the civilization and human existence itself. Technology can print individuals to determine ways of thinking, behaving in society and technology ultimately directs humans to move from one technological age to another. For example, from tribal communities who do not yet know the letters to people who use printed communication equipment, to people who use electronic communication equipment. People who use traditional tools and methods to get the job done, with a touch of technology make everything efficient. McLuhan thinks that human culture is shaped by how humans communicate. At least, there are several stages that appear. First, innovation in communication technology results in cultural change, especially the one that has the most impact is communication culture. Second, changes in the types of communication ultimately shape the interconnectedness of human life. Third, as McLuhan said that Humans form the tools to communicate, and finally the communication tools that humans use ultimately shape or influence human life itself (Sunarsi, 2018).

Technology literacy is a combination of cognitive, affective and psychomotor skills in understanding, interpreting and using technology properly (Akbar & Anggraeni, 2017; Fitriani, 2019; Muliyadi, 2010; Syarifuddin, 2014). Technology literacy is also called technology with the ability to master and use technology (Juditha, 2013; Saman, Handayanto, & Sunaryono, 2019; Setyaningsih, 2017). Educators use technology teaching and learning activities; making learning tools, teaching materials, presentation activities, administering and reporting student learning outcomes. Not only that, but the use of technology is also used by students in learning the material delivered by the teacher. Information search through search sites from smart gadgets, understanding material by recording moving pictures (videos), playing online games, making knowledge simulations using technology, using learning applications and so on are forms of the use of technology which is currently a student culture. There is a striking change between student learning activities in the past that have not been touched by technology, and today which is greatly facilitated by technology (Ahmad Esa, Baharom Mohamad, & Siti Nasrah Mukhtar, 2007; Aslindawaty, 2017; Aziz, 2017; Salam, Zunaira, & Niswaty, 2016). MA Daarul Hikmah Pamulang students have a tendency to not be separated from the device as one of the technologies they use to socialize and carry out daily activities. Their learning outcomes are still not optimal because they are too passive in learning and prefer to play gadgets rather than learning.

METHOD

The type of data used is quantitative with primary data sources by distributing questionnaires which are then carried out tabulation and feasibility analysis as well as secondary data from the various scientific literature. The population in this study were MA Daarul Hikmah Pamulang students, amounting to 355 students. Sampling was used Slovin formula technique with an error rate of 10% to obtain a sample of 78 students. The instrument testing uses validity

and reliability tests. From the validity and reliability test stated valid and reliable, this is evidenced by the value of $r_{\text{count}} > r_{\text{table}}$, likewise, the instrument used is appropriate and feasible to be forwarded to the next test. Testing for normality using Kolmogorov Smirnov obtained significance greater than 0.50 and thus declared normal. Multicollinearity testing obtained tolerance values <1 and VIF <10 so that it was concluded there was no interference with multicollinearity. Autocorrelation testing obtained the value of Durbin-Watson at an interval of 1.550-2.460, thus this regression model does not have autocorrelation. Heteroskedastisitas test with the Glejser test obtained a significance value greater than 0.05 so it was concluded that there was no interference with heteroscedasticity.

RESULT AND DISCUSSION

Descriptive Analysis

The criteria of the object under study are based on respondents' responses to the question items about technological determinism variables (X1), technology literacy (X2) and student learning outcomes (Y) as follows:

Table 1
Descriptive Score of Respondents Answers

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Technology Determinism (X1)	78	32	47	38.21	3.899
Technology Literacy (X2)	78	30	49	38.91	4.423
Student Learning Outcomes (Y)	78	31	47	39.35	3.618
Valid N (listwise)	78				

Data on technological determinism obtained a minimum variance score of 32 and a maximum score of 47 and a rating mean score of 38.21 and a standard deviation level of 3.899. Technological literacy data obtained the results of a minimum variance score of 30 and a maximum score of 49 and a rating mean score of 38.91 and a standard deviation level of 4.423. Student learning outcomes data obtained results of a minimum variance score of 31 and a maximum score of 47 and a rating mean score of 39.35 and a standard deviation level of 3,618.

Verification Analysis

Verification analysis is intended to determine the magnitude of the influence and analyze the significance of the influence. In this analysis carried out on the influence of two independent variables on the dependent variable. partially or simultaneously

This multiple regression test is intended to find out how much influence X1 and X2 variables have on the Y variable. In this study technological determinism (X1) and technology literacy (X2) on student learning outcomes (Y). The following are the results of processed regression data with SPSS version 26 which can be seen in the following table:

Table 2
Results of Multiple Regression Processing Variables Technology Determinism (X1) and Technology Literacy (X2) Against Student Learning Outcomes (Y)

Model	Coefficients ^a		Standardized Coefficients Beta	t	Sig.
	Unstandardized Coefficients B	Std. Error			
1 (Constant)	11.512	3.127		3.682	.000
Technology Determinism (X1)	.375	.086	.404	4.337	.000
Technology Literacy (X2)	.347	.076	.425	4.557	.000

a. Dependent Variable: Student Learning Outcomes (Y)

Based on the results of the regression calculations in the above table, the regression equation $Y = 11.512 + 0.375X1 + 0.347X2$ can be obtained. A constant value of 11,512 means that if the determinism variables of technology (X1) and technological literacy (X2) are absent then there are student learning outcomes (Y) of 11,512 points. Value of 0.375 is interpreted if the constant is constant and there is no change in the technology literacy variable (X2), then every 1 unit change in the technological determinism variable (X1) will result in changes in student learning outcomes (Y) of 0.375 points. A value of 0.347 is interpreted if the constant is constant and there is no change in the technological determinism variable (X1), then every 1 unit change in the technology literacy variable (X2) will result in a change in student learning outcomes (Y) of 0.347 points.

The coefficient of determination analysis is intended to determine the percentage of the contribution of influence between the independent variables on the dependent variable both partially and simultaneously), in this study the technological determinism variable (X1) and technology literacy (X2) on student learning outcomes (Y). Here are the results of the calculation of the coefficient of determination, as follows:

Table 3

Partial Determination Coefficient Analysis Results Between Technological Determinism (X1) Against Student learning outcomes (Y)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.621 ^a	.386	.378	2.854

a. Predictors: (Constant), Technology Determinism (X1)

Based on the test results in the table above, an R-Square value or determination of 0.386 is obtained, this shows that the contribution of influence between technological determinism on student learning outcomes is 38.6%, while the remaining 61.4% is influenced by other factors not examined.

Table 4

Results of Partial Determination Coefficient Analysis Between Technology Literacy (X2) Against Student Learning Outcomes (Y)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.631 ^a	.398	.390	2.825

a. Predictors: (Constant), Technology Literacy (X2)

Based on the test results in the table above, an R-Square value or determination of 0.398 is obtained, this shows that the contribution of influence between technology literacy on student learning outcomes is 39.8%, while the remaining 60.2% is influenced by other factors not examined.

Table 5
Simultaneous Determination Coefficient Analysis Results Between Technological Determinism (X1) and Technology Literacy (X2) Against Student Learning Outcomes (Y)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.720 ^a	.519	.506	2.543

a. Predictors: (Constant), Technology Literacy (X2), Technology Determinism (X1)

Based on the test results in the table above, the R-Square value or determination of 0.519 is obtained, this shows that the contribution of influence between technological determinism and technology literacy simultaneously on student learning outcomes is 51.9%, while the remaining 48.1% is influenced by other factors not examined.

To test the hypothesis of technological determinism variables (X1) and technology literacy (X2) on student learning outcomes (Y), it is performed with a statistical test t (partial test).

The results of data processing using SPSS version 26, with the following results:

Table 6
T-Test Results Variable Determinism Technology (X1)

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	t
1	(Constant)	17.336	3.203		5.412
	Technology Determinism (X1)	.576	.083	.621	6.907

a. Dependent Variable: Student Learning Outcomes (Y)

Based on the test results in the above table, the value of $t_{count} > t_{table}$ or $(6.907 > 1.992)$ is also strengthened by the value of p value $< Sig.0.05$ or $(0.000 < 0.05)$. Thus, H_0 is rejected and H_1 is accepted, this shows that there is a positive and partially significant effect between technological determinism on student learning outcomes

Table 7
T-Test Results Variable Technology Literacy (X2)

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	19.265	2.850		6.760	.000
Technology Literacy (X2)	.516	.073	.631	7.091	.000

a. Dependent Variable: Student Learning Outcomes (Y)

Based on the test results in the table above we get the value of $t_{\text{count}} > t_{\text{table}}$ or $(7.091 > 1.992)$, it is also strengthened by ρ value $< \text{Sig}.0.05$ or $(0,000 < 0.05)$. Thus, H_0 is rejected and H_2 is accepted, this shows that there is a positive and partially significant effect between technology literacy on student learning outcomes.

To test the effect of technological determinism variables and technology literacy simultaneously on student learning outcomes in MA Daarul Hikmah Pamulang performed with the F statistical test (simultaneous test) with a significance of 5%.

Table 8

Simultaneous Hypothesis (F-Test Results)

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	522.802	2	261.401	40.435	.000 ^b
	Residual	484.852	75	6.465		
	Total	1007.654	77			

a. Dependent Variable: Student Learning Outcomes (Y)

b. Predictors: (Constant), Technology Literacy (X2), Technology Determinism (X1)

Based on the test results in the above table, the calculated $F_{\text{count}} > F_{\text{table}}$ or $(40.435 > 2.730)$ is also strengthened by the ρ value $< \text{Sig}.0.05$ or $(0,000 < 0.05)$. Thus, H_0 is rejected and H_3 is accepted, this shows that there is a positive and significant effect simultaneously between technological determinism and technological literacy on the learning outcomes of MA Daarul Hikmah Pamulang students.

CONCLUSION

Based on the results of research technology determinism has a positive and significant effect on student learning outcomes with a magnitude of influence of 38.6%. Hypothesis testing obtained $t_{\text{count}} > t_{\text{table}}$ or $(6.907 > 1.992)$. Technology literacy has a positive and significant effect on student learning outcomes with a magnitude of influence of 39.8%. Hypothesis testing obtained $t_{\text{count}} > t_{\text{table}}$ or $(7.091 > 1.992)$. Technological determinism and technological literacy have a positive and significant effect on student learning outcomes with a regression equation $Y = 11.512 + 0.375X_1 + 0.347X_2$. The higher the technological determinism and technological literacy, the student learning outcomes will also increase. The amount of influence is 51.9% while the remaining 48.1% is influenced by other factors. Hypothesis testing obtained the value of $F_{\text{count}} > F_{\text{table}}$ or $(40.435 > 2.730)$, this was also strengthened with a probability of $0,000 < 0.05$. Thus H_0 is rejected and H_3 is accepted. This means that there is a positive and significant effect simultaneously between technological determinism and technology literacy on student learning outcomes in MA Daarul Hikmah Pamulang

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