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THE INFLUENCE OF TECHNOLOGY ADAPTATION, NUMERACY LITERACY, AND STUDENT CONDITIONS ON INDEPENDENT CURRICULUM LEARNING

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Keyword

Technology Adaptation, Numeracy Literacy, Student Conditions, Independent Curriculum Learning

Abstract

The transformation of education in the era of society 5.0 is the existence of an independent learning curriculum. This transformation can also be seen in the presence of various policies in the independent learning curriculum. The implementation of independent curriculum learning can run well and smoothly influenced by various factors. The aim of the study was to examine whether there was any effect of technological adaptation, numeracy literacy, and students' conditions on independent curriculum learning. Quantitative research with a correlational research design, while the instrument in this study was a questionnaire using the Google form platform. The population in this study were students at SMK Muhamamdiyah 3 Gemolong who had implemented independent curriculum learning with a sample of 56 respondents. The data analysis technique used is multiple regression analysis technique. From the analysis of existing data, the following research results are obtained: 1) technological adaptation has a significant effect on independent curriculum learning as indicated by the t value of 3.182; 2) numeracy literacy does not have a significant effect on independent curriculum learning as indicated by the t-value of -0.936; 3) the condition of the students has a significant effect on the independent curriculum learning indicated by the t value of 2.38; 4) technological adaptation, numeracy literacy, and students' conditions have a significant effect on learning the independent curriculum together with a percentage of 36.7%.

INTRODUCTION

The Indonesian education system often experiences curriculum changes, accompanied by changes in the policies of the Minister of Education (Asri, 2017). The curriculum is a nation's philosophy of life, what path a country's education will take in the future. It is said that educational programs are planned systematically, and the curriculum has an important role for students, because the curriculum must function as a guideline in the implementation of education (Huda, 2017). Adaptation to the post-Covid-19 learning transition has resulted in a new curriculum called the independent learning curriculum. This independent learning curriculum focuses on forming the profile of Pancasila students (Malikah et al., 2022). Berbagai faktor yang menjadi penentu keberhasilan kurikulum merdeka belajar, antara lain: kesiapan guru dalam literasi, penguasaan teknologi dan skill (Eli Sasmita, 2022); socialization (Yunita, A. Zainuri, Ibrahim, A. Zulfi, 2023); human resource readiness (Wulandari et al., 2022); student conditions, implementation of literacy in schools, teacher preparation, school administration, and use of technology (Mariati, 2021). This independent curriculum learning prioritizes output and provides time flexibility to understand concepts and develop students' abilities so that students

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must be independent, self-reliant and able to explore a topic, theme or issue without barriers between subjects (Hamdi et al., 2022) with its main characteristics being project-based, focused on essential material, and flexibility for teachers (Wiguna & Tristaningrat, 2022).

Adaptation is a way of surviving by adapting to changes or new circumstances that occur around us (Darwanto et al., 2022). Technology is simply the study of how to change one object into another object to gain added value from the object and benefit the order of human life (Mu'min, 2019) So it can be concluded that technological adaptation is a way of survival to change one object into another object to gain added value for the order of human life. Technology is one of the determining factors in the level of success in learning the independent curriculum. The limitations of LCDs, computers or laptops and the less than optimal use of mobile phones are obstacles in the learning process (Mohammad Nasrullah et al., 2022). The use of mobile phones is very effective in learning economics in class. Gadgets help students in doing assignments and completing the lack of material delivered by the teacher (Jatmika et al., 2022). Therefore, humans, especially those involved in the world of education, are obliged to always adapt to technology (Lestari, 2018) because the implementation of technology in the world of education can be used for skills and competencies, learning tools, learning resources and supporting learning resources (Mu'min, 2019).

An individual's ability to process information, either by writing or reading, which is useful for life skills (Prijowuntato & Widharyanto, 2022) yang diperoleh dari lingkungan keluarga, skeolah dan masyarakat (Wendy Dian Pratiana, Sutama, 2021). Facts in the field show that numeracy literacy skills are said to be still low. The level of literacy and numeracy skills of children in Indonesia is relatively low with percentage values of 70% and 72% (Putrawangsa & Hasanah, 2022). In addition, reading awareness among students is still low and literacy has not been adopted by teachers as part of school culture (Syah et al., 2019). Literacy development also requires individuals to develop and adapt in all aspects related to education because numeracy literacy can be implemented through schools, families and communities (Han et al., 2017).

A student is a person or individual who develops his or her potential through formal education (Umam, 2020). Each student has different potential such as talents, interests, needs, learning motivation, so teachers must understand the characteristics of students (Janawi, 2019). Students have various characteristics, including: physical, socio-emotional, moral, cultural and intelligence development (Nurhamida, 2018). A good understanding of the characteristics of students will certainly have a positive impact on students and direct teachers to understand the needs desired individually (Sulkifli, 2021).

The background above, the researcher formulated the problem, namely whether technology adaptation, numeracy literacy, and student conditions have an effect on independent curriculum learning. Thus, this study was conducted to determine whether or not there is an influence between technology adaptation, numeracy literacy, and student conditions on independent curriculum learning at SMK Muhammadiyah 3 Gemolong

METHOD

Quantitative research type with correlational research design. Correlational is a research design that aims to see the relationship between each variable (Sugiyono, 2020). The location of the research was SMK Muhammadiyah 3 Gemolong, Sragen Regency with a population of 85. The validity and reliability tests involved 29 students, the rest were research samples. The independent variables are technology, numeracy literacy, student conditions, the dependent variable is independent curriculum learning. In obtaining data, researchers used a Google form using a Likert scale of 1 to 5. Validity and reliability tests are used to test the validity of the data. After being valid and reliable, it is continued with the distribution of questionnaires. The collected data is then analyzed using prerequisite tests and hypothesis tests. For prerequisite tests using

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normality tests, linearity tests, regression significance tests, and multicollinearity tests. Hypothesis tests use correlation and regression tests. Tests are carried out to find the correlation index, determination index and regression line equation

RESULTS

Data Description

SMK Muhammadiyah 3 Gemolong consists of 3 areas of expertise, namely accounting, fashion design and visual communication design, with the distribution of the number of students being shown in table 1.

Table 1. Number of Students Based on Field of Expertise

No.	Name	Amount	Prosentase
1.	Akuntansi	8	14,3%
2.	Tata Busana	32	57,1%
3.	Desain Komunikasi Visual	16	28,6%

Based on table 1, the largest number of respondents came from the Fashion Design department at 32 or 14.3%, followed by the Verbal Communication Design department at 16 or 57.1%, while the lowest number of respondents came from the Accounting Department at 8 or 28.6%.

Data related to the number of students based on gender can be seen in table 2.

Table 2. Number of Students by Gender

Jurusan	Jumlah	Prosentase
Laki-laki	4	7,1%
Perempuan	52	92,9%

Based on table 2, male students are 4 or 7.1%, while the number of female students is 52 or 92.9%. This is also influenced by the majors available at SMK Muhammadiyah 3 Gemolong, namely Accounting, Fashion Design and Verbal Communication Design, there is no engineering major where this major is more in demand by boys.

Normality Test

Variables X and Y need to be seen whether the distribution is normal or not, for that a normality test is needed, where the researcher uses the Kolmogorov Smirnov significance level of 5%. The results of the normality test can be seen in table 3.

Table 3. Normality Test

Kolomogorove-smirnove	Asymp.Sig	Kriteria	Keterangan
0,093	0,200	>0,05	Berdistribusi normal

Table 3 data shows that the Asymp.Sig value is 0.200 > 0.05 which indicates that the data is normally distributed. If the results show a significance value < 0.05 then it indicates that the data is not normally distributed.

Linearity Test

Linear or non-linear relationship between two variables using linearity test, which is a prerequisite for moving to linear regression. The decision of this linear test can be seen from its

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significance value, if the significance value is > 0.05 then there is a linear relationship between the two variables. The results of the linearity test can be seen in table 4.

Table 4. Linearity Test

Variabel	F	Sig
Adaptasi Teknologi	1,491	0,162
Literasi Numerasi	1,666	0,126
Kondisi Peserta Didik	0,893	0,567

Based on table 4, it shows that the technology adaptation variable has a significant deviation from linearity value of 0.162, because the value of 0.162> 0.05, it is stated as linear. The numeracy literacy variable has a significant deviation from linearity value of 0.126, because the value of 0.126> 0.05, it is stated as linear. The student condition variable has a significant deviation from linearity value of 0.567, because the value of 0.567> 0.05, it is stated as linear. It can be concluded that there is a linear relationship between the technology adaptation variable, numeracy literacy and student conditions with the independent curriculum learning variable and is suitable for regression testing.

Multicollinearity Test
Independent variables before making a regression model need to be known whether the variables have a high correlation or not, then a multicollinearity test is needed. The multicollinearity test can be seen from the tolerance value and VIF value. The results of the multicollinearity test can be seen in table 5.

Table 5. Multicollinearity Test

Variabel	Tolerance	VIF
Adapatasi Teknologi (X1)	0,655	1,527
Literasi Numerasi (X2)	0,688	1,453
Kondisi Peserta Didik (X3)	0,651	1,537

Based on the data in table 5, for the technology adaptation variable (X_1) the VIF value is 1.527 <10.0, the tolerance value is 0.655>0.10; the numeracy literacy variable (X_2) the VIF value is 1.453 <10.0, the tolerance value is 0.688>0.10; the student condition variable (X_3) the VIF value is 1.537 <10.0, the tolerance value is 0.651>0.10. It can be concluded that each variable does not experience multicollinearity, there is no perfect relationship between independent variables so that the regression test can be continued

Heteroscedasticity Test
Heteroscedasticity test is a test to assess whether there is inequality of residual variance for all observations in a linear regression model. The basis for decision making is if the significance value is > 0.05 then it can be concluded that the data does not experience heteroscedasticity. If this assumption is not met, then the regression model is declared invalid as a forecasting tool. The results of the heteroscedasticity test can be seen in table 6.

Table 6. Heteroscedasticity Test

Coefficients[a]

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Model		Unstandardized Coefficiens		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	4,162	2,531		1,644	,106
	X1	-,032	,079	-,069	-,409	,684
	X2	,127	,114	,182	1,115	,270
	X3	-,085	,072	-,198	-1,178	,244

Table 6 shows that the variable of technology adaptation (X_1) has a significance value of 0.684 > 0.05, the variable of numeracy literacy (X_2) has a significance value of 0.270 > 0.05, the variable of student condition (X_3) has a significance value of 0.244 > 0.05. So, the three variables have significance values of all > 0.05 so that there is no heteroscedasticity, so the heteroscedasticity test is fulfilled.

F Test

This F test is used to test whether the independent variables have a significant effect or not simultaneously (together) on the dependent variable. The decision is made if the significance value is <0.005 then it is concluded that the independent variables have a significant effect simultaneously on the dependent variable. The SPSS output results are seen in table 7.

Table 7. F Test

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig
1	Regression	198,864	3	66,288	10,029	,000[b]
	Residual	343,690	52	6,609		
	Total	542,554	55			

a. Dependent Variabel: Y
b. Predictors: (Constant), adaptasi teknologi, literasi numerasi, kondisi peserta didik

Based on table 7, it is obtained that the significance value is 0.000. This shows that the variables of technology adaptation, numeracy literacy and student conditions simultaneously have a significant effect on independent curriculum learning because the significance value is 0.000 <0.05.

T Test

The t-test or partial significance test is a test to determine how much influence each independent variable has on the dependent variable. The results of the SPSS processing for the t-test can be seen in table 8.

Table 8. T Test

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13,687	4,140		3,306	,002
	Adaptasi Teknologi	,409	,129	,434	3,182	,002
	Literasi Numerasi	-,174	,186	-,125	-,936	,353

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Kondidi Peserta Didik	,282	,119	,326	2,380	,021

a. Dependent Variable: Y

The basis for this t-test decision is if the sig. value <0.05, then the dependent variable is significantly influenced by the independent variable. The results of the SPSS processing shown in table 8 obtained the technology adaptation variable with a significance value of 0.002 <0.05, so it is stated that the technology adaptation variable has a significant effect on the independent curriculum learning variable. The numeracy literacy variable has a significance value of 0.353> 0.05, so it is stated that the numeracy literacy variable does not have a significant effect on the independent curriculum learning variable. While the student condition variable obtained a significance value of 0.021 <0.05, so it is stated that the student condition variable has a significant effect on independent curriculum learning.

Table 8 also provides information that the multiple linear regression equation is: Y = 13.687 + 0.409 - 0.174 + 0.282. It can be assumed that when technology adaptation, numeracy literacy and student conditions = 0, then independent curriculum learning = 13.687. Every time the technology adaptation increases in value by 1, the independent curriculum learning increases by 0.409, while numeracy literacy increases in value by 1, the independent curriculum learning decreases by 0.174, and every time the student condition increases in value by 1, the independent curriculum learning increases by 0.282.

Coefficient of Determination Test

The results of the Determination Coefficient Test are used to see how much influence technology adaptation, numeracy literacy and student conditions have on independent learning curriculum learning. The test results can be seen in table 9.

Table 9. Coefficient of Determination Test

Model Summary				
Model	R	R Square	Adjust R Square	Std. Error of the Estimate
1	,605[a]	,367	,330	2,571

a. Predictors: (Constant), X3, X2, X1

Table 9 shows that the Adjust R Square value is 0.330. This result indicates that the variables of technology adaptation, numeracy literacy and student conditions have an influence or contribution of 33.3% to the independent curriculum learning process, other variables outside the study have an influence of 66.7% on the independent curriculum learning process.

DISCUSSION

The Influence of Technology on Independent Curriculum Learning at SMK Muhammadiyah 3 Gemolong

The results of data analysis from the technology adaptation variable, the calculated t value is 3.182 > t table of 0.67906 (see table 8), meaning that the adaptation variable has a positive effect on independent curriculum learning. This shows that the higher the influence of technology adaptation, the higher the level of independent curriculum learning. In this digital era, individuals are continually required to have the ability to adapt to technology, especially in the field of education which is currently in the process of adapting a new curriculum and requires the application of technology in learning (Darwanto et al., 2022). The progress of technological innovation forces technological adaptation to be able to survive in the era of rapid globalization (Kurnia Santosa, Ria Anggraini, 2022). Dharma's research shows that digital literacy has an

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impact on teacher performance (Dharma, 2022). The importance of technology adaptation needs to be understood by illustrating its application in the learning process. This is also supported by Syah who stated that teachers must also adapt to technology (Syah et al., 2019). Another relevant research result is that the use of technology in education will increase the effectiveness of teaching and learning activities (KBM) (Ratheeswari, 2018; Sacramento et al., 2021).

The Influence of Numeracy Literacy on Independent Curriculum Learning at SMK Muhammadiyah 3 Gemolong

The results of data analysis on the numeracy literacy variable prove that the t-value is -0.936 <t table of 0.67906 (see table 8), meaning that there is no influence on learning the independent curriculum. This shows that the lower the level of numeracy literacy, the lower the influence on learning the independent curriculum. The same thing applies to the opinion (Anisa et al., 2021) namely, the literacy level of students is still low because it is influenced by the lack of awareness of reading interest in the students themselves as well as the ability to reason or critical thinking which is still low. Darwanto stated that the reality in the field shows that the level of numeracy literacy skills of students is still low (Darwanto et al., 2022). This is caused by the implementation of literacy that has been carried out by students not achieving the intended goals due to the lack of literacy support from families and the community so that the interpretation of numeracy literacy cannot be mastered (Meliyanti et al., 2021).

Research (Nudiati, 2020) which shows knowledge of numeracy literacy is in the range of 68.6% compared to digital literacy with a score of 100%. This shows that understanding of numeracy literacy is included in the low category and is directly proportional to the existing implementation. Thus, it can be illustrated that the low level of numeracy literacy can affect the course of independent curriculum learning. Students who rarely or never apply literacy while at school will be a factor inhibiting the achievement of independent curriculum learning. It can be said that independent curriculum learning requires students to be independent in learning, while student independence is obtained from self-regulation and student discipline (Purwaningsih & Herwin, 2020).

The Influence of Student Conditions on Independent Curriculum Learning at SMK Muhammadiyah 3 Gemolong.

The results of the data analysis prove that the variable of student conditions has a positive effect on independent curriculum learning. It can be seen from the calculated t value of 2.380> t table 0.67906 (see table 8). This can be interpreted that the higher the level of student conditions, the higher the influence on independent curriculum learning. This is in line with research conducted by (Erstad & Voogt, 2018) that learning must be adjusted to the learning needs of students. Learning is structured by considering the development and achievements of students so that learning is more meaningful. In addition, learning must uphold the development of competencies and characters of students adjusted to the learning context and oriented towards the future (Wiwi Uswatiyah, 2021).

In line with research (Hamdi et al., 2022) the formation of knowledge and skills must be carried out by the students themselves. Therefore, students must carry out various activities, think actively, form concepts, and understand what they are learning. In addition, students must be able to adapt and interact in the school environment so that students become more active and creative, learning becomes more meaningful because it is obtained through students' own experiences and students are free to learn. The experience they gain for existing learning is used to solve problems and make decisions. Thus, learning that is tailored to the needs of students will affect the level of success of independent curriculum learning.

The Influence of Technology Adaptation, Numeracy Literacy and Student Conditions on Independent Curriculum Learning at SMK Muhammadiyah 3 Gemolong

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The r^2 value obtained from the variables of technology adaptation (X_1), numeracy literacy (X_2) and participant conditions (X_3) on independent curriculum learning (Y) is 36.7%. It can be stated that the variables of technology adaptation (X_1), numeracy literacy (X_2) and participant conditions (X_3) on independent curriculum learning (Y) simultaneously or together provide a contribution to independent curriculum learning of 36.7%, while other variables outside the three independent variables contribute 63.3%. It can be interpreted that there is a significant simultaneous influence between the variables of technology adaptation, numeracy literacy and participant conditions on independent curriculum learning. This means that H0 is rejected and Ha is accepted. While Ha is: there is an influence of technology adaptation, numeracy literacy, and participant conditions on independent curriculum learning.

Research (Qurtubi, 2021) concluded that the learning outcomes outlined in the independent curriculum learning are able to combine knowledge, attitudes, and skills to achieve and strengthen and improve student competencies. So all aspects related to the success of the independent curriculum will be very influential, such as the abilities and conditions of students, literacy levels and the ability to adapt to technology. Research (Qurtubi, 2021) concluded that learning outcomes outlined in independent curriculum learning are able to combine knowledge, attitudes, and skills to achieve and strengthen and improve student competence. So all aspects related to the success of the independent curriculum will be very influential, such as student abilities and conditions, literacy levels, and the ability to adapt to technology. The condition of these students can use the PRA method, namely the lecture method, demonstration, practice and mentoring (Isbandi, 2009). The PRA model has been implemented by Hernawan when conducting community service in Malaysia. The results obtained are: 1) increasing literacy-numeracy and understanding of Indonesian culture from students; 2) empowering students from cognitive and religious aspects can be implemented well so that it has a positive impact on the atmosphere of student learning (Sulistyanto et al., 2023)

CONCLUSION

The conclusions from this research are: 1) Technology has a significant effect on independent curriculum learning; 2) Numeracy literacy does not significantly influence independent curriculum learning; 3) The condition of students has a significant effect on independent curriculum learning; 4) Technology, numeracy literacy and students' conditions simultaneously have a significant influence on independent curriculum learning. Based on the conclusion, although numeracy literacy does not have a significant effect on independent curriculum learning, it simultaneously has a significant effect on independent curriculum learning. For future researchers, they can carefully consider the variables to be studied, the large number of respondents, including the variation or character of the respondents themselves.

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