LEARNING RESOURCES DIGITALIZATION FOR ELEMENTARYELEMENTARY SCHOOL STUDENTS

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ABSTRACT
This study aims to determine the effect of using gadgets and theparental consent to the digitalization of learning resources for elementary school students. The research method uses the associative quantitative approach which aims to determine the relationship between two or more variables. The research sample was 10478 respondents from superior accredited elementary schools in Jakarta, Bogor, Depok, Tangerang and Bekasi. The research was conducted from October to November 2022. The data are collected by the means of questionnaires, and analyzed with covariance-based Structure Equation Modeling (CB-SEM). Model evaluation is carried out through two stages of testing, namely testing the measurement model with Confirmatory Factor Analysis (CFA) and testing the overall fit of the model with Absolute Fit Indices, Incremental Fit Indices, and Persimonious Fit Indices. Both tests produce acceptable values when compared to reference values. Thus the overall SEM model fits the sample data. Testing the structural model shows that the use of gadgets has a direct effect, while the parental consent has an indirect effect through the use of gadgets on the digitalization of learning resources for elementary school students.

Keywords: Digitalization; Learning resources

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INTRODUCTION

A preliminary study conducted at elementary schools with superior accreditation in the greater Jakarta area found that parents stated that their children's school bags were heavy because the number of subjects per day was large and on average each subject required at least 3 books. The physical development of students can be disrupted by carrying too much weight. Schools need to find a way so that the heavy burden of school bags does not interfere with the physical growth of students.

The problems above seem to have been resolved with the Covid-19 pandemic, where many learning resources use digital forms because learning is carried out remotely and learning communication media mostly use conference media such as zoom, teams, gmeet. Learning resources are found to be transferred in digital form to facilitate distribution and efficiency. The positive impact of the Covid-19 pandemic has been felt by the world of education including both teachers and students at all levels of education who are increasingly skilled at using digital technology through applications on gadgets.

Gadgets are used in various activities such as learning, assessment, gamification, and storing learning resources in the form of e-books. In addition, gadgets are also used as learning media to make learning more interesting. Learning

becomes more active, effective and fun and teachers and students know the application of information technology with the demands of an increasingly sophisticated era (Fitriansyah, n.d.). With more interesting methods of learning, students' learning motivation is expected to increase.

Research conducted at the upper education level shows that gadgets are used as learning infrastructure on a more massive basis, but not for social media. Instructors continue to try new ways to optimize the use of gadgets in learning, and to increase the learning motivation (Wali & Omaid, 2020). However, at the lower education level, namely junior high, research has found no significant effect of gadgets on student learning motivation. Collaboration between school counseling teachers and parents is needed to increase students' awareness regarding the use of gadgets to increase learning motivation (Sudiyono & Pgri, 2021).

However, there are concerns about the negative impact on physical and mental health that children cannot be separated from gadgets and always want to use them continuously, causing disruption to eye health and social relations. The root cause of the emergence of negative impacts to children is their lack of self control. Therefore it is important that the parents introduce control mechanism for their children. It is recommended that families set time limits for children to use gadgets at home (Ariston & Frahasini, 2018).

Especially at the basic education level, other problems emerge. The students are felt to be too young to bring gadgets to school. Therefore the use of learning resources in the form of e-books and utilizing gadgets requires positive support by the parents. In addition using digital learning resources could help to solve the problem that the number of books that children currently carry to school is too heavy.

With the problems above, we want to know the effect of using gadgets and parental consent in using gadgets on digitizing learning resources.

METHODS

The research design/method uses the associative quantitative approach which aims to determine the relationship of two or more variables. This study uses survey methods, factor analysis and path analysis techniques. The results of the quantitative research were obtained from the parents of elementary school students who answered to the distributed questionnaire. The nature of the quantitative evaluation is formal, objective, rigorous, deductive approach, systematic strategy to produce problem solving and improve knowledge. Quantitative research conducted with systematic observation and description can be used for the purpose of finding the relationship between the independent variable (predictor) and the dependent variable (outcome). In this study, structural equation modeling (Structural Equation Modeling) was used to find the relationship between variables. In this study, covariance-based SEM will be used.

Variables in path analysis consist of exogenous or independent variables and endogenous or dependent variables. The independent variables (X) are gadget utilization (X) and parental consent (Z). The dependent variable (Y) is the digitalization of learning resources.

Based on the approach used, the research constellation can be described as follows:
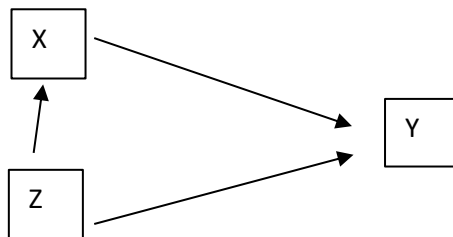
Population

The study population was parents of superior accredited private elementary school students in Jakarta, Bogor, Depok, Tangerang and Bekasi.

Sample

The research sample was 10478 parents of superior accredited private elementary school students in Jakarta, Bogor, Depok, Tangerang and Bekasi.

Data Collection

Data collection techniques using questionnaires.

Data Analysis

Data analysis techniques used structural equation modeling software (Structure Equation Modeling) or SEM with Analysis of Moment Structures (AMOS) software. SEM-based data analysis techniques are covariance-based SEM (CB-SEM) and partial least square-based SEM (PLS-SEM). In this study, covariance-based SEM analysis (CB-SEM) was used. The analysis process consists of a measurement model and a structural model.

Instrument

The dependent variable, namely the digitalization of learning resources, consists of 3 indicators. The independent variables are the use of gadgets consisting of 4 indicators and the parental consent consisting of 3 indicators.

Table 1. Research Instrument

Element	Indicator	Item number question	Question	Polar
Learning resources digitalization (Y)	Schoolbag load	1	Does your child carry a lot of books every day so that the school bag becomes heavy?	Yes/No
	Type of reading	2	Your child prefers to read from… - Printed book - - E-books	Optional
	Approval to go digital	3	Do you agree that printed books are replaced with e-books?	Yes/No
Function (X)	Learning	4	Should gadgets be used for learning?	Yes/No
	Assessment	5	Should gadgets be used for assessment?	Yes/No
	Gamification	6	Should gadgets be used for gamification (games in learning)?	Yes/No
	Storage	7	Should gadgets be used to store e-books?	Yes/No
Parental consent (Z)	Approval using gadget	8	Do you allow children to bring gadgets to school?	Yes/No

Element	Indicator	Item number question	Question	Polar
	Utilization of gadgets Age/class limit for bringing gadgets	9	In what grades will children be allowed to bring gadgets to school? - 1 - 2 - 3 - 4 - 5 - 6	Optional
	Reason	10	The reason for not allowing gadgets is… - Limited funds - Health - Not a priority - Not yet mature	Optional

Stages of analysis

The stages of CB-SEM analysis include 5 steps, namely model specification, model identification, model estimation, model evaluation and model modification or re-specification.

RESULTS AND DISCUSSION

The process of analyzing the measurement model and structural model is done in one go with the AMOS software. The results of the analysis through the AMOS software are shown in Figure 1 below:
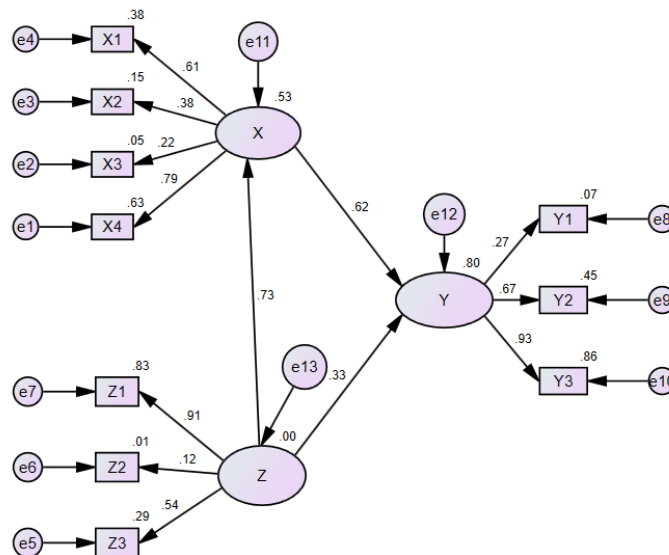

Figure 1: AMOS output results

The structural equation model is used to test the effect of a variable on latent variables with several assumptions that must be strictly met, including the number of samples between 200 - 400 for indicators of 10 - 15 (Jonathan, 2010). This study uses

a very large number of samples and the number of indicators for each variable ≥ 3, in accordance with the requirements of the model test, so that the suitable estimation method is Asymptotically Distribution Free (ADF). This estimation method does not require the data to be normally distributed.

Measurement model testing

Testing the measurement model through Confirmatory Factor Analysis (CFA) is used to test whether the indicator variables are truly significant reflecting the construct or latent variables to be measured. The CFA indicator is seen from the value of the loading factor. The following table is the loading factor value for each variable.

Table 2. The value of the loading factor for each indicator

Element	Indicator	Loading factor value
Learning resources digitalitation(Y)	Schoolbag load	0,27
	Type of read	0,67
	Approval go to digital form	0,93
The use of gadget (X)	Learning	0,61
	Assessment	0,38
	Gamification	0,22
	Storage	0,79
Parental consent (Z)	Approval using gadget	0,91
	Utilization of gadgets Age/class limit for bringing gadgets	0,12
	Reason	0,54

CFA is obtained through a convergent validity test which is seen through the value of the loading factor for each construct indicator. From the results of the analysis it was found that the indicators of school bag load, assessment, gamification, age/class limit for carrying gadgets did not show latent constructs because the loading factor value was <0.5. School bag load is not an indicator that determines the digitalization of learning resources. Assessment and gamification have a low loading factor, presumably because respondents do not understand assessment and gamification using gadgets. The age/class limit for bringing gadgets is also not an indicator that influences respondents giving permission to bring gadgets to school.

Testing the overall fit of the model (Overall Fit Model or Goodness of Fit Model)

The next stage of model testing is overall model fit, in which the AMOS output is able to produce Absolute Fit Indices, Incremental Fit Indices, and Persimonious Fit Indices.

Table 3. Comparison of Model Fitment Size Values with Reference Values

Overall Fit Model	Model Fit Size	Value	Reference Value
Absolute Fit Indices	GFI	1,000	>0,90
	RMSEA	0,054	≤ 0,08
Incremental Fit Indices	AGFI	0,962	≥0,90
	TLI	0,950	≥0,90
	NFI	0,963	≥0,90
	CFI	0,964	>0,90
	IFI	0,964	>0,90
	RFI	0,948	>0,90
Persimonious Fit Indices	PNFI	0,685	>0,6
	PCFI	0,686	>0,6
	PGFI	0,582	>0,5

Based on the comparison table 3 above it is said that the SEM model as a whole fits the sample data.

Structural model testing

The structural model test or the significance test based on the direct effect test obtained the results as in the following table:

Table 4. The value of the direct effect compared to the reference value at the level of significance 5%

Direct Effect	Critical Ratio (CR)	P-Value	Reference CR at 5% significance level
X → Y	45,511	0,000	> 1,96
Z → Y	20,472	0,000	> 1,96
Z → X	15,485	0,000	> 1,96

Based on table 4 where the CR value is > 1.96, the use of gadgets has a direct effect on the digitization of learning resources, parental permission has a direct effect on the digitization of learning resources and parental permission has a direct effect on the use of gadgets. The indirect effect of parental consent on digitizing learning resources through mediating or intervening variables in the use of gadgets by calculating the value of Sab with the Sobel formula and the value of t is as follows:

Direct Effect			Indirect Effect (Z→X→Y)	
	Estimate	S.E	S.E or S_{ab}	t value
Z → X	0,493 (a)	0,011 (S_a)	0,232	2,19
X → Y	1,031 (b)	0,040 (S_b)		

The t value as an indirect effect value is 2.19, which is greater than 1.96, so parental permission has an indirect effect through the use of gadgets on digitizing learning resources.

CONCLUSION

Research on digitizing learning resources for elementary school students produces the following conclusions: (1) The use of gadgets has a direct influence on the digitization of learning resources in schools.(2) Parental consent has a direct influence on digitizing learning resources in schools. (3) Parental consent has an indirect effect through the use of gadget on digitalization of learning resources.

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