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PLS-SEM ANALYSIS OF SOCIAL ENVIRONMENT'S IMPACT ON MATHEMATICS DIGITAL LITERACY

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ABSTRACT

The rapid development of technology makes us have to be able to adapt well. Using the internet as a medium for activities is an unavoidable part. Therefore, it is necessary to learn about the ability to use the internet in activities called digital literacy. Digital literacy is a basic skill that students must have. It is no exception in the field of mathematics as one of the absolute sciences taught at every level of education. Therefore, researchers are interested in examining digital literacy in the field of mathematics. This research in general is still very rarely done, therefore it requires an in-depth understanding of theoretical studies to see the factors that influence digital literacy skills in the field of mathematics. The lack of sample size and the relativity of adequacy in fulfilling assumptions encourage the use of PLS-SEM as an alternative in analyzing the model formed. In this study, Explanatory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) are still used to build a framework and test the structural model to be formed. In addition, the method used gives researchers the freedom to express curiosity about the problem at hand. The results obtained show that the final model can be said to be good. Mathematics digital literacy skills are influenced by several main variables that are interrelated. These variables start from the carrying capacity of schools and families. These two variables will then have an impact on the readiness of teachers and students in the community to succeed or support mathematics digital literacy skills. School readiness and family support are the main keys in succeeding or improving digital math literacy skills.

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1. INTRODUCTION

The rapid progress of the development of communication and information technology has had a huge impact on all aspects of life. Along with this, society is required to be able to improve its abilities in terms of using technology. This activity is a form of self-improvement effort to improve quality and professionalism. Therefore, digital literacy skills are very important in living the digital era. On the other hand, it is in line with [1] which states that in efforts to build a digital literacy culture, it is necessary to involve the active role of the community side by side. The skills in question are one of the supports for effective and efficient technology-based interaction in various learning situations throughout life [2].

The beginning of 2020 was a big test for the Indonesian nation where the Covid-19 pandemic occurred which changed all forms of systems in place, including the education system. The issuance of the Minister of Education and Culture's Circular Letter number 96962/MPK.A./HK/2020 concerning online learning and working from home in the context of the spread of Covid-19 [3], has changed the higher education system. This has an impact on the higher education delivery system which must implement an online education system. In this case, digital literacy is very necessary practically and must also be mastered. According to [4] stated that in implementing online learning during the Covid-19 pandemic there were several impacts experienced by students, namely the learning system which was considered still confusing; students are more passive and considered less creative and productive, besides that there is an accumulation of information or concepts among students which are considered less useful; students experience stress. However, this is actually considered to improve students' digital literacy skills. On the other hand, [5] states that in general the literacy culture in Indonesia in the context of literacy culture in higher education is still considered low. In addition, [6] there is a gap in understanding between students who use digital media and those who interact directly. Study programs are required to be innovative and able to introduce new courses, which focus on supporting the development of digital literacy and working with digital technology [7]. In addition, [8] states that critical skills, operational skills, visual learning styles, collaborative learning styles and learning systems increase digital literacy. The social environment is a place where interaction activities between various groups take place with all systems, both values and norms, either directly or indirectly. In line with this, [9] states that the social environment is all the people and atmosphere of places that have an influence, either directly or indirectly. In general, the social environment has an impact on social behavior. According to [10], the important role of social touch throughout life is considered, with special attention to infancy and childhood, a period during which social touch and its neural, behavioral and physiological contingencies contribute to reinforcement-based learning and impact various developmental trajectories. The environment has a major influence on the lives of living creatures. In the social and humanitarian context, the environment can be interpreted as everything that is around and influences human life [11]. According to [12], the social environment can consist of people, both individuals and groups around humans

Along with the development of technology, the social environment, which was originally formed naturally around humans, has now shifted to the digital environment. Individuals and organizations turn to digital-based solutions to overcome the bad problems that arise due to digitalization. In the digital world, complexity and digital solutions present new opportunities and challenges [13]. One such challenge is digital literacy. Digital literacy itself is one of the basic literacy skills that Indonesian people must have in general [14]. Digital literacy was initially introduced by [15] who stated that digital literacy is the ability to understand and use information in various forms from a very wide range of sources accessed via computer devices. In practice, the use of digital media as a form of digital literacy can be influenced by various needs for information. What must be emphasized is experience in using digital literacy. This can be interpreted as meaning that experience in communicating via digital media is an activity that must be developed, thereby increasing understanding of digital literacy skills [16]. Mathematics is a field of natural science that plays a very important role in the development of science. However, it is considered a difficult lesson. This is in line with [17] which states that mathematics course material at college level can be said to be difficult to learn because the material presented is abstract. Therefore, it is important to examine the context of digital literacy, especially in the field of mathematics in higher education.

This research aims to examine the influence of the environment on students' digital literacy skills in mathematics. This was done to determine the factors that significantly influence students' digital literacy abilities in the field of mathematics in terms of their social environment. Interest in environmental factors is based on the fact that students have their own social environment. On the other hand, advances in internet-based technology and the importance of mathematics require students to be able to understand and use the information they access. This behavior is related to the use and application of computer devices connected to the internet or what is often called social media. The analysis method used is Partial Least Square-Structural Equation Model (PLS-SEM). According to [18] PLS-SEM has become a good multivariate analysis technique in social and applied sciences. Further states [19] that PLS-SEM is a covariance-based alternative that provides flexibility to researchers both in data requirements, model complexity, and relationship specifications. Small sample size is the most prominent reason for using PLS-SEM [20]. In addition, the lack of studies related to the understanding of digital literacy in mathematics makes researchers interested in developing theories related to factors that influence the ability of digital literacy in mathematics. therefore, Explanatory Factor Analysis (EFA) testing is used to provide an overview of the construct model that may be generated. furthermore, the resulting model description model will be modeled with PLS-SEM and Confirmatory Factor Analysis (CFA) testing. Thus, it is hoped that the results of this study will be able to provide an overview of the readiness of students or all parties involved in the world of education in preparing and improving the digital literacy skills of their students.

2. RESEARCH METHODS

2.1 Study of Determining Sample Number and Variables

This research generally aims to build a model that is relevant to the problem being faced. The lack of information related to the topics discussed makes researchers try to solve the problems in the model. The procedures carried out in determining variables are based on the needs and limitations in building the model. The Exploratory Factor Analysis (EFA) method is used to build variables that will be used in the model. EFA is useful in describing the joint variability of measured variables to investigate potential latent variables that aim to reveal unknown relationship patterns [21]. Based on a literature study conducted, it states that the sample size used in EFA testing states the sample size for EFA is 100-250, according [22] the sample size used is 300, while according to [23] it is 500. On the other hand, the variable description of the starting point used in this research is the social component consisting of family, school and community which is in accordance with [24] and [25]. According [26] states that the family environment is the main social condition that is responsible for the formation of an individual's personality, affection, behavior, attention, guidance, health and home atmosphere. Society is a group of people who come together and are characterized by relationships with each other and have an awareness of the existence of individuals [27]. The educational environment is all forms of situations and conditions in which pupils or students undergo learning processes and activities [28] So far, analysis of the dimensions that influence digital literacy can be said to be very rarely carried out. Meanwhile, [29] states that digital literacy is influenced by several factors such as the use of online media, academic grades, the roles and responsibilities of parents or family as well as reading intensity. Based on the study carried out, a total of 47 factors were obtained which cover all the variables to be tested. Variables generally include the implementation of digital literacy in the social environment as well as digital mathematics literacy skills that must be possessed.

The sample of this study amounted to 200 respondents. The method used in the research is survey method with snowball sampling technique. The choice of technique is based on the existence of a population that is difficult to find. In other words, this method is widely used when researchers or evaluators do not know much about the research population or evaluation. The survey method was carried out using snowball sampling which was carried out via electronic messages assisted by Google Form. The reason for choosing the survey method is in accordance with [30] which states that the sample you want to reach, namely students, is difficult to reach directly, especially through conventional surveys, and this is an innovative method that is worth using [31]. In line with this, the variables used are the variables used using a Likert scale. The reasons for this are in line with [32] which states that the Likert scale is a scaling method that is widely applied to measure instruments and is applied as one of the most basic psychometric tools and is often used in other fields. Next, the survey was carried out using an instrument that had been prepared containing 47 factors.

2.2 Mathematical Model

Generally, three models in path analysis for PLS-SEM. The inner model shows the relationship between latent variables, the outer model shows the relationship between manifest variables and latent variables, and the weight relationship shows the estimated value of latent variables.

2.2.1 Structural Model (Inner Model)

The relationship between latent variables formed by the substance of the theory is described by a structural model, also known as an internal model. This model is also used to predict causal relationships, or cause-and-effect relationships, between latent variables or variables that cannot be measured directly. The model formed is as follows:

$$\boldsymbol{\eta} = \boldsymbol{\beta}\boldsymbol{\eta} + \boldsymbol{\Gamma}\boldsymbol{\xi} + \boldsymbol{\zeta} \tag{1}$$

where

$\boldsymbol{\eta}$: random vector of endogenous latent variables with size $m \times 1$
$\boldsymbol{\beta}$: coefficient matrix of endogenous latent variables of size $m \times m$
$\boldsymbol{\Gamma}$: coefficient matrix of exogenous latent variables of size $m \times n$
$\boldsymbol{\xi}$: random vector of exogenous latent variables of size $n \times 1$
$\boldsymbol{\zeta}$: random error vector of size $m \times 1$

2.2.2 Measurement Model (Outer Model)

A model that explains how latent variables and their indicators interact with each other. The purpose of this model is to explain how latent variables and their indicators interact with each other. The model formed is as follows:

$$\boldsymbol{y} = \boldsymbol{\Lambda}_{\boldsymbol{y}}\boldsymbol{\eta} + \boldsymbol{\varepsilon} \tag{2}$$

$$\boldsymbol{x} = \boldsymbol{\Lambda}_{\boldsymbol{x}}\boldsymbol{\xi} + \boldsymbol{\delta} \tag{3}$$

where

$\boldsymbol{y}$: the indicators for endogenous latent variables with size $p \times 1$ and p is number endogenous variables
$\boldsymbol{x}$: the indicator for the exogenous latent variables with size $q \times 1$ and q is number exogenous variables
$\boldsymbol{\Lambda}_{\boldsymbol{y}}$: the loading matrix between endogenous variables and its indicators with size $p \times m$ with m is number of indicators of endogenous variables.
$\boldsymbol{\Lambda}_{\boldsymbol{x}}$: the loading matrix between an exogenous variable and its indicators with size $q \times n$ with n number of indicators of exogeneous variables.
$\boldsymbol{\varepsilon}$: error measurement vector of the endogenous variable indicators with size $p \times 1$
$\boldsymbol{\delta}$: measurement error vector of exogenous variables indicators with size $p \times 1$

2.2.3 Weight Relation

Weight relationships are also referred to as weights that connect the inner model and outer model to estimate exogenous and endogenous latent variables. The weight relationship shows the relationship of variance values between indicators and their latent variables, so it is assumed that the mean is equal to 0 and the variance is equal to 1 eliminate the causality constant. For i denotes the index along i to b and j denotes the number of endogenous latent variables, the model formed is as follows:

$$\hat{\boldsymbol{\eta}} = \sum_{k} \boldsymbol{w}_{ki}\boldsymbol{x}_{ki} \tag{4}$$

$$\hat{\boldsymbol{\xi}} = \sum_{k} \boldsymbol{w}_{kb}\boldsymbol{x}_{kb} \tag{5}$$

where

$\hat{\boldsymbol{\eta}}$: estimator endogenous latent variable $\boldsymbol{\eta}$
$\hat{\boldsymbol{\xi}}$: estimator latent variables $\boldsymbol{\xi}$
$\boldsymbol{w}_{\boldsymbol{ki}}$: $\boldsymbol{k}$ weights used to estimate endogenous latent variables $\boldsymbol{\eta}$

$\boldsymbol{w_{kb}}$: $\boldsymbol{k}$ weights used to estimate exogenous latent variables $\boldsymbol{\xi}$
$\boldsymbol{x_{ki}}$: indicator for endogenous latent variables
$\boldsymbol{x_{kb}}$: indicator for exogenous latent variables

2.3. Data Suitability Assessment

In this research, two criteria for assessing data suitability were carried out. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity were chosen. The two statistics chosen are considered to be the basic statistics used in research. For $\boldsymbol{i}$ denotes the index along $\boldsymbol{i}$ to $\boldsymbol{b}$ and $\boldsymbol{j}$ denotes the number of endogenous latent variables The equations used in the calculations are as follows:

$$\boldsymbol{KMO_j = \frac{\sum_{i\neq j}\sum_j R_{ij}^2}{\sum_{i\neq j}\sum_j R_{ij}^2 + \sum_{i\neq j}\sum_j U_{ij}^2}} \qquad (6)$$

where
$\boldsymbol{R_{ij}^2}$: the squared correlation matrix
$\boldsymbol{U_{ij}^2}$: the partial covariance matrix.

The KMO test is meant to measure the suitability of data for factor analysis. In other words, it tests the adequacy of sample size for each variable in the model and for the whole model [33]. In this study, the normality test as a pre-requisite test was not carried out considering that the scale used in the test was a Likert scale. Determination of the KMO value in this study is based on [34] which states that a value of $\boldsymbol{0.80 \leq KMO \leq 0.90}$ can be interpreted as useful. In addition, the use of the Bartlet test which aims to show the orthogonality of the matrix is used in the hope of showing that the matrix in question has deviant variability compared to the identity matrix [35]. By determining $\boldsymbol{H_0}$, there is orthogonality in the variables used with an error rate ($\boldsymbol{\alpha}$) of 5%, the Bartlett's Test of Sphericity is as follows:

$$\boldsymbol{\chi^2 = -\left(n - 1 - \frac{2p+5}{6}\right) ln|R|} \qquad (7)$$

here
$\boldsymbol{p}$: the number of variables
$\boldsymbol{n}$: the total sample size,
$\boldsymbol{R}$: the correlation matrix,

with the rejection area $\boldsymbol{H_0}$ if $\boldsymbol{\chi^2 \geq \chi^2_{(\alpha,v)}}$ with $\boldsymbol{v}$ being the degrees of freedom.

2.4. Factor Extraction

In this research, factor extraction will be carried out which is defined as the minimum factors used for factor extraction. What is used is Explanatory Factor Analysis (EFA) which is defined as a variable reduction technique that indicates the number of latent constructs accompanied by an underlying factor structure based on a set of variables [36]. In general, the goal to be achieved is testing the latent constructs that are the basis of this set of variables, so that the factors that influence the response to be observed can be estimated. In line with this, Measure of Sampling Adequacy (MSA) is a process for reducing factors that are not in accordance with the factor analysis solution for selection purposes [37]. The formula used in determining MSA in [38] is as follows:

$$\boldsymbol{MSA_j = \frac{\sum_{i\neq j} R_{ij}^2}{\sum_{i\neq j} R_{ij}^2 + \sum_{i\neq j} U_{ij}^2}} \qquad (8)$$

where
$\boldsymbol{R_{ij}^2}$: the squared correlation matrix
$\boldsymbol{U_{ij}^2}$: the partial covariance matrix.

The initial value used in this research is 0.50. The selection made is based on [39] which provides a minimum value of 0.50. In addition, the factors obtained at the initial stage of initial extraction are sometimes difficult to interpret because of cross loading with many factors that are correlated with other factors.

Therefore, there is a main approach used in factor rotation, namely orthogonal factor solutions. In this research, varimax will be used as an orthogonal rotation method. After the EFA is carried out, the Confirmatory Factor Analysis (CFA) procedure will be carried out. Confirmatory factor analysis is one of the techniques used in analyzing the goodness of a measurement model which aims to determine the number of factors and their direct relationships [40]. Carrying out CFA requires an a priori strategy where the hypothesized factor structure will be assessed using an evaluation of the suitability of the empirical data model (or simulation). Apart from that, in this research, Cronbach Alpha and Average Variance Extracted (AVE) values are also considered as statistics that function to provide an evaluation regarding the quality of the criteria.

2.5. Best Model Analysis

Determining the best model in this research is based on several statistical values. The statistics used are the Normed Fit Index (NFI) which refers to the model evaluation value by comparing the Chi-square value of the model with the null model or the same independence model [41]. The NFI value estimated based on (Generalized Least Square) GLS can show the best measure, namely a value close to 1, while the NFI value based on Maximum Likelihood (ML) may show a value that is not the same (i.e. less than 0.9) [42]. In line with that, another statistic, namely Standardized Root Mean Square Residual (SRMR), was also used in this research. The size of the value is adjusted to [43] namely less than 0.1 and more than 0.08.

3. RESULTS AND DISCUSSION

3.1. Data Suitability Assessment and Factor Extraction

The initial stage carried out in this analysis process is to carry out the KMO test and Bartlett's Test of Sphericity adjusted to the criteria indicators in sub-chapter 2.3. The results obtained show that the KMO value produced for the total of 47 variables used is 0.793. As an initial test in EFA, this is considered sufficient for retesting to reduce the impact of variability in the formation of covariance. Furthermore, based on the initial test of Bartlett's Test of Sphericity, the p-value was obtained, namely $0.00 < 0.05$, which indicates that there is no orthogonality which can be interpreted as meaning that there is a relationship between the variables used. Based on the MSA value for the initial detection model, it can be described that the diagonal matrix value of the anti-image obtained ranges from 0.612 to 0.931, which indicates that the process can proceed to factor extraction. In this case, factor extraction is carried out by taking the limit value for the initial value, namely 0.50 using the varimax approach and orthogonal rotation. The results obtained are as follows:

Table 1. Rotated Component Matrix

	Component					
	1	**2**	**3**	**4**	**5**	**6**
X19	0.855					
X20	0.849					
X18	0.800					
X21	0.780					
X22	0.762					
X23	0.730					
X24	0.714					
X29	0.698					
X27	0.572					
X32		0.864				
X33		0.849				
X31		0.786				
X35		0.688				
X34		0.631				
X3			0.825			
X5			0.782			
X7			0.632			
X9			0.630			

	Component					
	1	**2**	**3**	**4**	**5**	**6**
X6			0.608			
X47				0.768		
X46				0.731		
X41				0.679		
X42				0.603		
X44				0.588		
X11					0.718	
X13					0.685	
X12	0.527				0.680	
X14					0.546	
X1						0.859
X2						0.518

Based on **Table 1**, it can be seen that the indicators used can be grouped into 6 latent variables. The results obtained show that the KMO value is 0.893 and Bartlett's Test of Sphericity shows a p-value of $0.00 < 0.05$. These results indicate that the procedure can be continued and is considered feasible for further modeling into further structural modeling procedures. Next, adjustments to the latent variable terms based on CFA were carried out and based on the logical meaning of the variables accompanied by a literature study carried out. The basis for determining latent variables is through either theoretical studies or similarities in the meaning of the words used. This is done to facilitate the clustering of factors into latent variables. The factor clustering carried out is described as follows:

Table 2. Clustering Indicators into Latent Variables

Latent Variable	Indicator	Indicator Description
Readiness to implement digital literacy in society	X18	Increase the frequency of reading digital literacy reading materials every day in the community
	X19	Increase in the number of digital literacies reading materials read by the public
	X20	Active participation of communities, institutions or agencies in providing digital literacy reading materials in the community
	X21	Increase the number of public facilities that support digital literacy
	X22	Increasing the number of digital literacy activities in society
	X23	Increasing active community participation in digital literacy activities
	X24	Increasing digital literacy training that is applicable and has an impact on society
	X27	Increase the understanding of the community around you regarding internet use and related government policies
	X29	Increase the number of digital literacy training that is applicable and has an impact on society
Digital literacy activities	X32	Question and answer activities, discussions, or internet-assisted assignment work
	X33	Search for learning resources, videos, images related to the desired topic that you are studying with the help of the internet
	X31	Internet-assisted communication to discuss problems
	X35	Search for information related to the desired topic by using the internet
	X34	Use of digital technology in presenting work results
Supporting capacity of the educational environment in implementing digital literacy	X3	Availability of the number and variety of digital-based reading materials and teaching aids in the educational environment
	X5	Activities in the educational environment have optimally utilized technology and information
	X7	Presentation of information in the educational environment using digital media
	X9	Socialization of school or campus policies regarding the use and utilization of information and communication technology in the educational environment
	X6	Support for the number of facilities and infrastructure for digital literacy in the learning environment

Latent Variable	Indicator	Indicator Description
Mathematics digital literacy skills	X47	Ability to operate mathematical programs or applications
	X46	Ability to interpret or interpret output from mathematical programs or applications
	X41	Skills related to making videos on mathematics topics
	X42	The ability to interpret (give meaning) to equations or formulas that you encounter
	X44	Ability to understand data processing results such as tables, graphs, histograms or other data presentations that you access online
Family support capacity in implementing digital literacy	X11	Increase in the number and variety of digital reading materials at home within a certain period of time
	X13	Frequency of reading digital materials every day in the family environment
	X12	Sufficient digital reading materials for each family member
	X14	There is access for family members to use the internet wisely
Supporting capacity of educators in implementing digital literacy	X1	Implementation and use of digital literacy in learning activities by educators
	X2	The level of understanding of educators in using digital media and the internet

3.2 Modeling Analysis

In this research, several stages of modeling procedures were carried out that had to be carried out. In general, the procedure carried out goes through three stages, namely checking factor loadings, hypothesis testing, and determining the goodness of fit model. The steps taken are intended to ensure that the modeling procedure runs more systematically in order to obtain the best model. In the process of checking factor loadings, it is because the explanatory procedures must be carried out honestly that researchers do not know the relationship between latent variables. Repeated experiments on the relationship between latent variables are carried out in stages based on the logical pattern of the direction of the relationship, the significance value of the relationship, and the measure of goodness. Outer loading is a table that shows the correlation between indicators and latent variables based on the direction of the relationship in the model formed. The outer loading of the best model that can be produced is presented as follows:

Table 3. Outer Loading in Model

Factor	Family support capacity in implementing digital literacy	Supporting capacity of the educational environment in implementing digital literacy	Supporting capacity of educators in implementing digital literacy	Digital literacy activities	Mathematics digital literacy skills	Readiness to implement digital literacy in society
X11	0.892					
X12	0.929					
X13	0.911					
X14	0.796					
X18						0.878
X19						0.856
X20						0.857
X23						0.781
X24						0.811
X27						0.715
X29						0.808
X2			0.846			
X3			0.847			
X31				0.829		
X32				0.856		
X33				0.859		

Factor	Family support capacity in implementing digital literacy	Supporting capacity of the educational environment in implementing digital literacy	Supporting capacity of educators in implementing digital literacy	Digital literacy activities	Mathematics digital literacy skills	Readiness to implement digital literacy in society
X34				0.717		
X35				0.805		
X41					0.850	
X43					0.861	
X44					0.822	
X46					0.711	
X47					0.794	
X5		0.832				
X6		0.793				
X7		0.857				
X9		0.764				

Based on **Table 3**, it can be seen that the lowest factor loading in the model is 0.711. Several studies show that according to **[44]** states that the outer loading must be more than 0.708, apart from that according to **[45]** states that an outer loading of more than 0.50 can be considered as a good measure. Thus, the model can be said to have appropriate criteria for the hypothesis testing process. On the other hand, quality criteria were also obtained which were used to assess the validity and reliability of the latent variables (Construct Reality and Validity) used. The criteria used in this research are the Cronbach-alpha value and the Average Variance Extracted (AVE) value. Cronbach-alpha and Average Variance values respectively explain the reliability and validity used. The Cronbach-alpha and AVE values obtained will be presented in **Table 4** as follows:

Tabel 4. Construct Reality and Validity

Latent Variable	Cronbach's Alpha	Average Variance Extracted (AVE)
Mathematics digital literacy skills	0.868	0.655
Supporting capacity of the educational environment in implementing digital literacy	0.828	0.660
Digital literacy activities	0.872	0.664
Readiness to implement digital literacy in society	0.916	0.667
Supporting capacity of educators in implementing digital literacy	0.604	0.716
Family support capacity in implementing digital literacy	0.905	0.780

Based on **Table 4**, it can be seen that the minimum Cronbach Alpha value obtained is 0.604. According to **[46]** states that a Cronbach Alpha value of 0.60 to 0.70 is still acceptable. Furthermore, regarding the AVE value obtained, it shows that the drinking value is 0.655. According to **[47]** states that convergent validity is possible if the AVE value is more than 0.05. Thus, the reliability and validity of the constructs obtained can be accepted. The model of the impact of the social environment on digital literacy abilities which is formed based on the resulting construct variables is presented in the following figure:

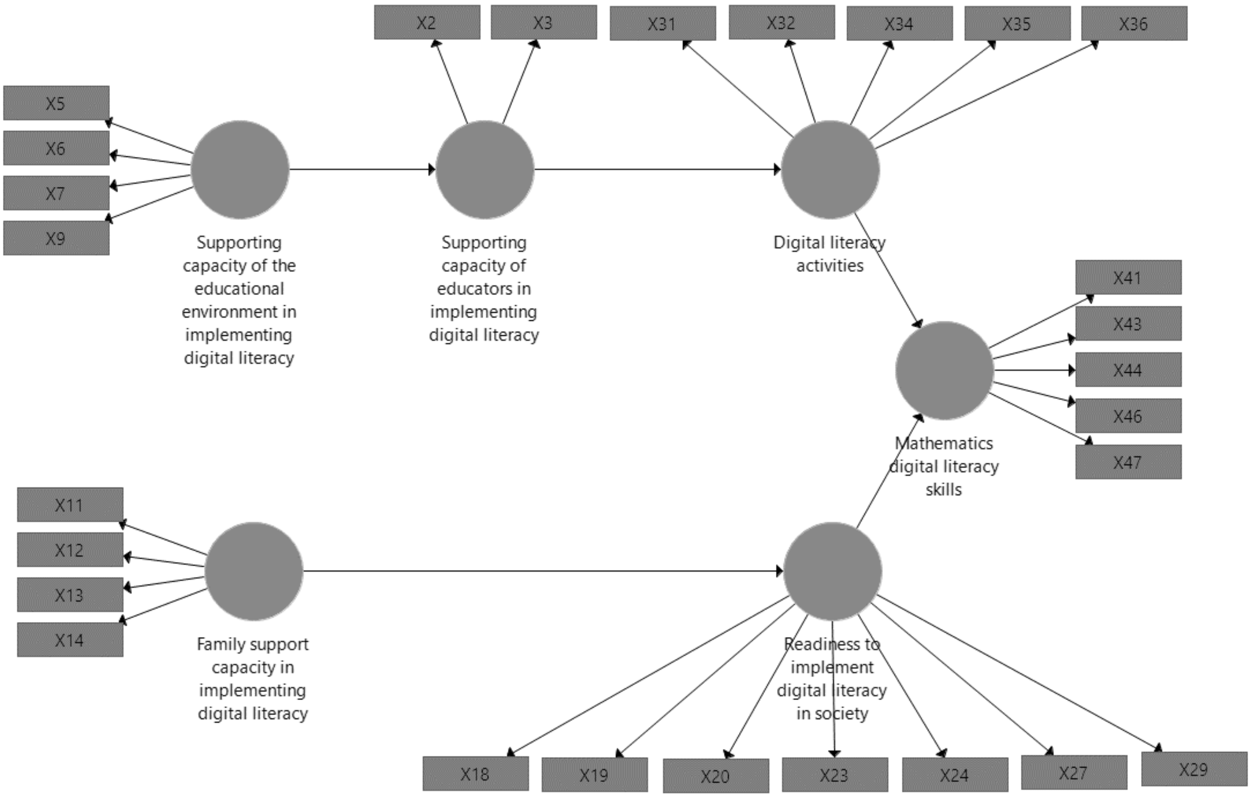

Figure 1. **Model of the impact of the social environment on digital mathematics literacy abilities**

Next, hypothesis testing is carried out to see the influence between each latent variable used. Simple testing can be interpreted to see whether there is a significant influence between latent variables or constructs used in the model. The test results are presented as follows:

Table 5. Path Coefficient Test Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	*P* Values
Readiness to implement digital literacy in society towards digital mathematics literacy skills	0.300	0.307	0.073	4.092	0.000
Digital literacy activities carried out on digital mathematics literacy skills	0.590	0.589	0.082	7.163	0.000
Supporting capacity of educators in implementing digital literacy towards digital literacy activities carried out	0.392	0.394	0.102	3.847	0.000
The supporting capacity of the educational environment in implementing digital literacy on the supporting capacity of educators in implementing digital literacy	0.678	0.685	0.074	9.108	0.000
Family support capacity for readiness in implementing digital literacy in society	0.746	0.752	0.051	14.555	0.000

Based on Table 5, it can be seen that there is a significant influence between the supporting capacity of the educational environment in implementing digital literacy and the supporting capacity of educators in digital implementation. Furthermore, educators' support for digital literacy skills will have a significant influence on students' literacy activities, which in turn will influence their digital mathematics literacy abilities. On the other hand, the family's supporting capacity influences the readiness for digital implementation in society, which in turn will also influence their digital mathematics literacy abilities. Thus, in general it can be said that digital mathematics literacy abilities are influenced by two main variables, namely the school's and family's supporting capacity. These two variables will further impact the readiness of both teachers and the community to succeed or support digital mathematics literacy skills.

4. CONCLUSIONS

Based on the explanation that has been carried out, it can be concluded that the explanatory factor analysis procedure carried out produces a good model fit. Apart from that, based on reliability and validity measures, namely Cronbach Alpha and Average Variance Extracted (AVE) values, the resulting model can also be said to be good. In general, it can be said that digital mathematics literacy abilities are influenced by several main interrelated variables. These variables start with the supporting capacity of the school and family. These two variables will further impact the readiness of both teachers and students in the community to succeed or support digital mathematics literacy skills. School readiness and family support are absolutely the keys to success or improving digital mathematics literacy skills.

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