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The Effect of Mathematical Literacy, Motivation and Student's Independence toward Mathematical Problem Solving Ability

Rina Meilani[*1], Saleh Haji[2] & Mestika Sekarwinahyu[2]

[1]Master's Program in Mathematics Education, UPBJJ Palembang, Indonesia

[2]Master's Program in Mathematics Education, Universitas Bengkulu, Indonesia

Abstract: Students' ability to solve mathematical problems is still low, students often experience obstacles in understanding problems so that they are less precise in choosing and using solving strategies from non-routine problems. There are many factors that influence this, so the purpose of this study is to assess several factors such as the influence of mathematical literacy on mathematical problem solving abilities, the effect of learning motivation on mathematical problem solving skills, the influence of independence on mathematical problem solving skills and the influence of mathematical literacy, motivation, and independence of the ability to solve mathematical problems. The method used is a quantitative method by making SMAN 1 Indralaya the object of research. The results of this study include mathematical literacy, learning motivation, learning independence and have a positive and significant effect on mathematical problem-solving abilities and the ability of the independent variables in this study to affect the dependent variable by 20.2%, while the remaining 79.8% is explained by variables other than variables independent in research.

Keywords: mathematical literacy, motivation, independence, problem solving.

Abstrak: *Kemampuan pemecahan masalah matematika siswa masih rendah, siswa sering mengalami hambatan dalam memahami permasalahan sehingga kurang tepat dalam memilih dan menggunakan strategi penyelesaian dari soal non-rutin. Ada banyak faktor yang mempengaruhi hal tersebut sehingga tujuan dari penelitian ini untuk menilai beberapa faktor seperti pengaruh literasi matematika terhadap kemampuan pemecahan masalah matematika, pengaruh motivasi belajar terhadap keterampilan pemecahan masalah matematika, pengaruh kemandirian terhadap keterampilan pemecahan masalah matematika dan pengaruh literasi matematika, motivasi, dan kemandirian terhadap kemampuan pemecahan masalah matematis. Metode yang digunakan adalah metode kuantitatif dengan menjadikan SMAN 1 Indralaya sebagai objek penelitian. Hasil penelitian ini meliputi literasi matematika, motivasi belajar, kemandirian belajar berpengaruh positif dan signifikan terhadap kemampuan pemecahan masalah matematika dan kemampuan variabel independen dalam penelitian ini mempengaruhi variabel dependen sebesar 20,2%, sedangkan sisanya sebesar 79,8% dijelaskan oleh variabel lain selain variabel independen dalam penelitian*

Kata kunci: *literasi matematika, motivasi, kemandirian, pemecahan masalah.*

▪ INTRODUCTION

Mathematics is a field of study that plays an important role in the world of education and problem solving in everyday life (Anderha & Maskar, 2021; Engelbrecht, Llinares, & Borba, 2020; Li & Schoenfeld, 2019; Sinaga, Parhusip, Tarigan, & Sitepu, 2021). Learning mathematics in high school must equip students with the ability to think logically, systematically, analytically, critically and creatively in several conditions of solving mathematical problems (Yunita & Irma, 2018). This mathematical problem solving can be interpreted as an integral part of learning mathematics (Li &

Rina Meilani
*Email: rinameilani82@gmail.com

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Schoenfeld, 2019; Siagian, Saragih, & Sinaga, 2019; Zhang, Zhao, & Kong, 2019). By solving problems, students gain experience by applying existing knowledge and skills. Therefore, students must have problem solving skills and be trained to solve various existing problems both directly and through mathematical problems (Anansi Sabu Jaghu, 2019). With solving this problem, of course, it can help children to develop critical thinking skills and an optimistic attitude, which are important in learning mathematics (Mairing, 2017). Obstacles in problem solving, namely students often experience obstacles in understanding problems by not implementing appropriate solving strategies, strategies that are not fixed can certainly reduce students' abilities in solving mathematical problems where students are more likely to be unable to work, plan and solve mathematical problems properly (Adelia, Sinaga, & Nasution, 2020; Setiawan, Pujiastuti, & Susilo, 2021)

To improve problem-solving abilities, students are required to read and understand texts or better known as mathematical literacy, so that higher mathematical literacy skills will increase problem-solving abilities in mathematics (Sirait, Hartoyo, & Suratman). Mathematical literacy itself is one of the skills measured in the Program for International Student Assessment (PISA) study chaired by the Organization for Economic and Social Development (OECD) (Farida et al., 2021; Rizki & Priatna, 2019). The PISA test is an international assessment every three years to measure the ability of 15 year olds in reading, math, and science (Fan & Popkewitz, 2020; Hasibuan, Fauzi, & Mukhtar, 2019; Sholikah & Pertiwi, 2021; Sjøberg & Jenkins, 2022) . The results of the 2018 PISA test survey put Indonesia in the sixth rank from the bottom, namely 74, with reading ability with a score of 371 in rank 74, math ability with a score of 379 in rank 73 and science ability with a score of 396 in rank 71 (Hewi & Shaleh, 2020) . It is proven that Indonesian children have difficulty solving PISA questions because the questions are non-routine and problem solving. Where it shows that students' difficulties in solving PISA problems lie in understanding questions, linking aspects of the real world to mathematical models, performing mathematical operations, and interpreting mathematical model results into real life Haji & Zamzaili (2018).

The low PISA results have led to a new policy as an effort by the government to increase student literacy by changing the national exam to a Minimum Competency Assessment (Sariningsih, Kadarisma, & Ristiana, 2022). The assessment in this AKM is grouped into two categories, namely Literacy and Numeracy. Counting is one of literacy in mathematics (Adelia et al., 2020). Minimum Competency Assessment is an assessment of the basic skills needed by all students to develop their own abilities and contribute positively to society (Fauziah, Sobari, & Robandi, 2021; Rohim, Rahmawaati, & Ganestri, 2021). In addition to mathematical literacy, motivation can improve students' ability to solve mathematics (Kudisyah, Novarina, & Lukman, 2017). Motivation is an encouragement that arises from a person's internal and external stimulation to want to do activities better than before (Abramovich, Grinshpan, & Milligan, 2019; Mahaputra, Saputra, & Rizky Mahaputra, 2021; Werdhiastutie, Suhariadi, & Partiwi, 2020). If it is related to learning, then the essence of learning motivation is encouragement from within or outside of students who are learning to make changes in behavior (Hamzah B. Uno, 2016). The results of research from Lestari, Amrullah, Kurniati, & Azmi (2022), it is known that for every 1% increase in learning motivation, the value of students' problem solving abilities increases by 0.598, and

through the analysis of the coefficient of determination, the contribution of the effect of learning motivation on problem solving abilities is 15, 7%.

Another factor that also influences students' ability to solve mathematics is Learning Independence. Learning independence is the will that is instilled in students to learn to foster initiative and maximize self-potential by actively learning without relying on the help of other parties (Kania, 2022; Kurnia Bungsu, Vilardi, Akbar, & Bernard, 2019; Malmia et al., 2019). Independent learning can be seen from students' positive attitudes towards learning both inside and outside the classroom. However, in this case students tend not to pay attention to the teacher who is explaining during the learning process and have an impact on a lack of ability about solving mathematical problems because students take actions imitating or cheating (Haji & Ilham Abdullah, 2015).

Related to solving mathematical problems, there are several studies that have been conducted by researchers including research conducted by Davita & Pujiastuti (2020) where researchers describe problem-solving abilities by conducting a gender-based review by making class XII students of SMA Negeri 1 Wanasalam as research objects, Researchers using quantitative methods and data analysis techniques to collect data by means of test methods with high, medium and low categories. The results of this study show that the average number of female students is around 80.23 and that of male students is 74.57 (Davita & Pujiastuti, 2020). In the next study, the researcher conducted research on the mathematical problem solving abilities of junior high school students assembling SPLDV material which was reviewed based on early mathematical ability (KAM) by analyzing it. For the continuity of the research, the researcher used a descriptive method with instruments in the form of test questions describing mathematical abilities ranging from 5 questions. The results of this study indicate that students have difficulty working on question number 5 and lack mastery of indicator 4, namely checking the correctness of answers (Purnamasari & Setiawan, 2019).

Based on these factors and the two studies were to examine related understanding of mathematical problem solving, researchers conducted research related to the effect of mathematical literacy, motivation and independence of students on mathematical problem solving abilities. In this case the researcher made observations on 29 students from class XI IPA 3 by giving two questions about linear programming. The purpose of this research was to find out whether there was an effect of mathematical literacy, motivation and student learning independence on math solving abilities in SMAN 1 Indralaya. This study also aims to analyze the effect of mathematical literacy, motivation and learning independence on mathematical problem solving abilities in SMAN 1 Indralaya.

▪ METHOD

Participants

This research is quantitative research. Quantitative research is a study which refers to the number and size or it can be said that it is a problem-solving method that is arranged systematically and collects various field results data in the form of a series or collection of numbers (Djafar, Yunus, Dj Pomalato, & Rasid, 2021; Rahman, 2016). In this study, SMAN 1 Indralaya as the object of research. With a population of 355 students and the sample taken is 188 students using Simple Random Sampling, namely a random and purely coincidental sampling technique so that the quality of the sample is

not affected because each member has the same opportunity to be selected in the sample or to be precise without regard to strata in the population (Bhardwaj, 2019; Ramezan, Warner, & Maxwell, 2019).

Research Design and Procedures

This research was conducted at SMAN 1 Indralaya. In this study, several mathematical literacy tests, motivational questionnaires, academic autonomy questionnaires, and mathematical aptitude tests were carried out. In this case there are four variables, namely three independent variables and one dependent variable. The variable of mathematical literacy is given the symbol X1, the variable of motivation to learn is given the symbol X2, the independent learning variable is given the symbol X3 and the problem solving ability variable in mathematics is given the symbol Y. The steps of this research are: 1) arrange the research instrument grid, 2) compiling questionnaires and test questions based on these grids, 3) determining the criteria for assessing the instrument, 4) validating the questionnaire and test questions by the supervisor and 6 validators, 5) conducting research instrument tests on class X students of SMA Negeri 1 Indralaya Utara who totaling 38 people, 6) Analyzing the test results to determine the validity, reliability, discriminating power and level of difficulty of the test kits, as well as knowing the validity and reliability of the questionnaire, the collected data were obtained from the test results which were analyzed using Microsoft Excel Help 7) giving questionnaires and tests to research samples, 8) manage and analyze the results of questionnaires and tests.

Mathematical knowledge tests in this study were used to collect quantitative data in the form of students' ability to solve knowledge questions. The researcher used 3 descriptive questions on the mathematics knowledge test which are variations of PISA questions at levels 4, 5 and 6 with documentation on a system of two-variable linear equations. From the test results it can be concluded that sentence 1 is valid with a correlation coefficient of 0.89 with a very high degree, sentence number 2 is valid with a correlation coefficient of 0.84 with a very high degree, and question number 2 is valid with a correlation coefficient of 0.84 with a very high degree tall. number 2 has a correlation coefficient value of 0.84 with a very high category. Number 3 is invalid with a correlation coefficient of -0.35. Then test the reliability, difficulty level and discriminant ability for questions 1 and 2. The calculation results obtained a reliability coefficient of 0.56 higher than the tr table of 0.32 so it can be concluded that the test is reliable. The difficulty test of item number 1 is 0.22 with the difficulty criteria, and item 2 has a difficulty of 0.039 with the difficulty criteria, while the result of the discriminating ability test number 1 is 0.625 with the difficulty criteria. Both and number 2 have a difficulty level of 0.039 with difficult criteria. power of 0.225 with modification criteria. The study motivation questionnaire in this study was used to collect quantitative data in the form of student learning motivation. The learning motivation questionnaire used is the result of a revised research questionnaire by Zega (2020) and Hayani (2021). The results of the validity test of learning motivation which consisted of 25 questions were distributed to 38 students of SMA Negeri 1 Indralaya Utara. These entries were declared valid with a total of 18 questions. The results of the reliability test for dynamics alpha 0.807 are in the range of 0.80 <rxy <1, which is declared very reliable.

Instrument

Mathematical competency tests in this study were used to collect quantitative data of students' mathematical problem solving abilities. The researcher uses three essay questions which contain documentation of a system of linear equations for two variables. The criteria for evaluating the mathematical aptitude test based on G. Polya's assessment consist of 4 steps to solving the problem. 1) understand the problem 2) make a plan to solve the problem. it's built. 3) implementation of the settlement plan; and 4) process review. From the calculation results, question number 1 has a low category correlation coefficient of 0.27 and is invalid, question number 2 has a very high category correlation coefficient of 0.85 and is valid, and question number 3 has a large category correlation coefficient. is 0.67. Based on the results of the reliability test, the level of difficulty and power of questions number 2 and 3 showed a reliability factor of 0.45 higher than the r-table of 0.32, so it can be concluded that the test is reliable. The difficulty level of item 2 is 0.158 with difficult criteria and item number 3 has a difficulty level of 0.103 with difficult criteria, while the results of the discriminating power test for item 2 are 0.5 with good criteria and item 3 has a strength discriminating power of 0.37 with the criterion Enough. After testing and based on data analysis on mathematical problem solving ability tests, questions 2 and 3 were used as research instruments, because they met the criteria for use as measuring instruments in research.

Data Analysis

The Partial Least Square (PLS) method, which is a powerful analytical technique because it is not based on many assumptions, is used to analyze data using SmartPLS version 3. Indicators with category, ordinal, interval, and ratio scales can be used in the same model; the data also need not be regularly multivariate distributed, and the sample size need not be large. The PLS technique tests the hypothesis in two stages, namely testing the external model and the internal model. Demonstrating the accuracy and reliability of each representation of each variable, the outer model test is used. The inner model test is used to test the relationship between the variables and the given hypothesis. By testing the value of the Path Coefficient on the inner model test, the hypothesis is tested. If the P-Values is less than 0.05, then the hypothesis is accepted.

▪ RESULT AND DISSCUSSION

Based on the results of several tests, the following is the result of how the influence of mathematical literacy, motivation and student independence on the mathematical problem solving abilities of SMAN 1 Indralaya students. In this case the general description of mathematical ability is in the range $x < 2 > 66$ in a class with 118 respondents or 62.77% which means high student learning motivation. The description of student learning independence lies in the learning period $x > 61.17$ with a total of 115 opinions or 61.17% which means that student independence in learning is superior. The description of problem solving abilities is in the range of $2.67 \leq X < 9.33$ with a total of 100 respondents or 53.19% which means the average student's mathematical literacy.

SmartPLS 3.0 dan Partial Least Square (PLS) used in the hypothesis testing. The following is a schematic model of the test:

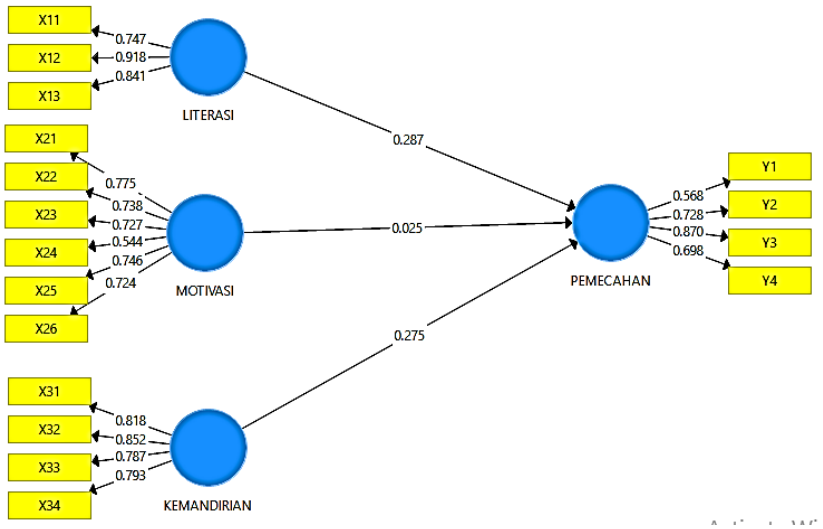

Figure 1. Outer model

The Outer Model test was conducted to prove the validity and reliability of all measures for each variable.

Convergent Validity

To test convergent validity the value of outer loading or loading factor is used to evaluate convergent validity. If outer loading value is > 0.7 an indicator is declared to meet convergent validity in the good category. The outer loading value between 0.5 - 0.6 is considered sufficient to meet the convergent validity requirements (Ghozali, 2014: 39). The following is the outer loading value of each indicator in the research variable. Before explaining the outer loading value, there are 4 Variables consisting of mathematical literacy with three indicators covering X11, X12 and X13 with outer loading ranging from 0.747 – 0.918. Motivation with 6 indicators includes X21, X22, X23, X24, X25 and X26 with outer loading ranging from 0.544 – 0.775. Independence with 4 indicators including X31, X32, X33 and X34 with outer loading ranging from 0.787 – 0.818. Solving mathematical problems with 4 indicators Y1, Y2, Y3 and Y4 with outer loading ranging from 0.568 – 0.870. Based on this information, it can be said that all existing indicators are proven to be practicable or valid with the aim of being able to be used in research and thus suitable for use in further analysis related to the research to be carried out.

Discriminant Validity

The discriminant validity test uses the cross loading value. An indicator is declared to meet discriminant validity if the cross loading value on the variable is the largest compared to other variables (Ghozali, 2014: 39-40). The following is the cross loading value for each indicator:

Table 1. Cross loading for each indicators

Indicators	Variable

	Mathematical literacy	Motivation	Students' Independence	Math Problem Solving
X11	**0.747**	0.164	0.185	0.220
X12	**0.918**	0.132	0.181	0.357
X13	**0.841**	0.142	0.132	0.268
X21	0.162	**0.775**	0.631	0.280
X22	0.143	**0.738**	0.462	0.206
X23	0.119	**0.727**	0.597	0.172
X24	0.114	**0.544**	0.262	0.160
X25	0.080	**0.746**	0.657	0.190
X26	0.067	**0.724**	0.563	0.114
X31	0.152	0.659	**0.818**	0.238
X32	0.182	0.586	**0.852**	0.356
X33	0.118	0.661	**0.787**	0.224
X34	0.172	0.571	**0.793**	0.284
Y1	0.120	0.147	0.169	**0.568**
Y2	0.185	0.258	0.265	**0.728**
Y3	0.347	0.239	0.277	**0.870**
Y4	0.281	0.161	0.281	**0.698**

Based on Table 1, it shows that compared to the Cross-Load value of every other variable, each statement of the search variable has the highest cross-load value in the variable that makes it. Based on the results obtained, it can be stated that the indicators used in this study have good Discriminant Validity in compiling their respective variables. In addition to observing the Cross Loading value, Discriminant Validity can also be known through other methods, namely by looking at the Average Variant Extracted (AVE) value for each indicator, it is required that the value must be > 0.5 for a good model (Ghozali, 2014: 40).

The Average Variant Extracted (AVE) score consists of 4 variables including Mathematical Literacy with an AVE value of 0.703, Motivation with an AVE value of 0.509, Independence with an AVE value of 0.661 and Mathematical Problem Solving with an AVE value of 0.524. From the data itself it can be seen that the AVE values for each variable are all > 0.5. Therefore, each variable can be said to have good Discriminant Validity.

Composite Reliability

Composite reliability is the part that is used to test the reliability value of an indicator on a variable. In this case a variable can be declared to meet Composite Reliability if it has a value > 0.6 (Ghozali, 2014:43). In this test there are 4 variables

including Math Literacy with a Composite Reliability value of 0.876, Motivation with a Composite Reliability value of 0.860, Independence with a composite reliability value of 0.886 and Math Problem Solving of 0.812. From the test data it can be seen if the Composite Reliability value of all research variables is > 0.6. These results indicate that each variable meets composite reliability so that it can be concluded that all variables have a high level of reliability.

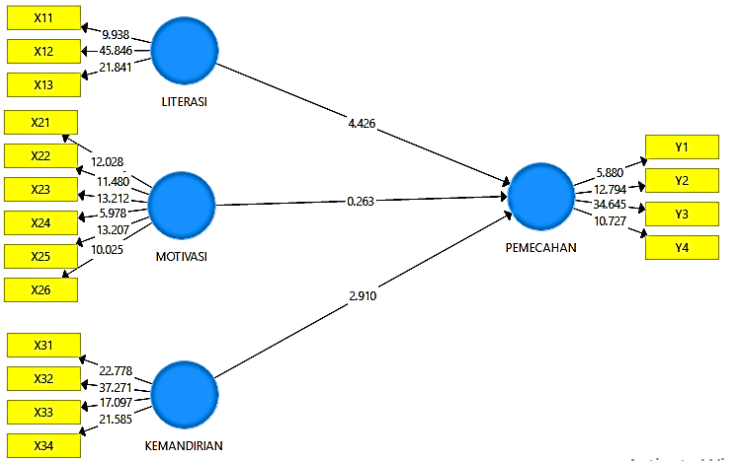

Figure 2. Inner model

Inner Model tests are used to test the relationship between variables and predetermined assumptions. This study discusses the results of the path coefficient test, quality indexes test and hypothesis testing.

Path Coefficient Test

Evaluation of the path coefficient is used to show how strong the effect or influence of the independent variable is on the dependent variable. While the determination coefficient (R-Square) is used to measure how much the endogenous variables are influenced by other variables. Chin said the R2 result of 0.67 and above for endogenous latent variables in the structural model indicated the effect of exogenous variables (which influenced) on endogenous variables (which were influenced) was included in the good category. Meanwhile, if the result is 0.33 – 0.67 then it is included in the medium category, and if the result is 0.19 – 0.33 then it is included in the weak category (Ghozali, 2014:42).

Based on the inner model scheme that has been shown in Figure 2 above, it can be explained that the largest path coefficient value is indicated by the effect of mathematical literacy on problem solving ability of 4.426. Then the second biggest influence is the effect of independence on problem solving abilities of 2.910 and the smallest influence is shown by the effect of motivation on problem solving abilities of 0.263. Based on the description of these results, it shows that all variables in this model have a path coefficient with a positive number. This shows that the greater the value of the path coefficient on one independent variable on the dependent variable, the stronger the influence between the independent variables on the dependent variable.

Goodness of Fit Index

This test is carried out to see whether the path model made is included in a good path model. In measuring a good path model, it must fulfill the predetermined value requirements, namely NIF > 0.90 or SRMR value < 0.08. And in this study the value used is SRMR <0.08. Based on Table 2, it is known that the result of the SRMR value is 0.075 which indicated a good fit model.

Tabel 2. Output quality indexes

	Model Saturated	Model Estimasi
SRMR	0.075	0.075

Hypothesis test

Based on the data processing that has been done, the results can be used to answer the hypothesis in this study. Hypothesis testing in this study was carried out by looking at the T-Statistics values and P-Values. The research hypothesis can be declared accepted if the P-Values <0.05 (Yamin & Heri, 2011: 54). The following are the results of hypothesis testing obtained in this study through the inner model:

Tabel 3. Path coefficienst

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Independence -> Problem Solving	0.275	0.257	0.094	2.910	0.002
Literacy -> Problem Solving	0.287	0.296	0.065	4.426	0.000
Motivation -> Problem Solving	0.025	0.058	0.094	0.263	0.396

From the table it can be seen that the value of the original sample, if the original sample is positive, then the direction of influence is positive, and vice versa. So, from the direction of influence it is obtained that the independence variable has a positive and significant effect on problem solving abilities. If the capacity of the independent variable increases, the problem solving ability increases. Likewise, the mathematical literacy variable has a positive and significant effect on problem solving abilities. If the variable capacity of mathematical literacy increases, problem solving abilities increase. Meanwhile, the motivational variable has a positive and insignificant effect on problem-solving abilities.

Tabel 4. T-statistics and p-values

Hypothesis	Correlation	T-Statistics	P-Values	Results
H1	Independence -> Problem Solving	4.426	0.000	Acceptable

H2	Literacy -> Problem Solving	0.263	0.396	Reject
H3	Motivation -> Problem Solving	2.910	0.002	Acceptable

Based on the data presented in table 4 above, it can be seen that of the three hypotheses proposed in this study, two can be accepted because each effect shown has a P-Values <0.05 and one is rejected because the influence shown has a P value -Values > 0.05. So that it can be stated that the two independent variables to the dependent have a significant influence, namely mathematical literacy and independence, one independent variable to the dependent does not have a significant effect, namely motivation.

The influence of the independent variables jointly on the dependent variable can be seen from testing the coefficient of determination, with the intention of measuring the model's ability to explain how much influence the independent variables simultaneously (simultaneously) affect the dependent variable which can be indicated by the value of adjusted R - Squared (Ghozali, 2016). The coefficient of determination shows the extent to which the contribution of the independent variables in the regression model is able to explain the variation of the dependent variable. The coefficient of determination can be seen through the value of R-square (R2) in the Model Summary table. The results of testing the coefficient of determination are shown in the following table:

Tabel 5. R-square

	R Square	**R Square Adjusted**
Y	0.202	0.189

Based on the test results for the coefficient of determination in table 5, the adjusted R-square value is 0.202 (20.2%). This means that the ability of the independent variables in this study affects the dependent variable by 20.2%, while the remaining 79.8% (1 - 0.202) is explained by variables other than the independent variables in the study. To find out whether all the independent variables, namely mathematical literacy, motivation and independence, have an effect on the dependent variable, namely problem-solving ability or not, a simultaneous significant test was carried out using SPSS with the results shown in the following table;

Tabel 6. Analysis of variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	293.958	3	97.986	10.824	.000[b]
	Residual	1665.717	184	9.053		
	Total	1959.676	187			
a. Dependent Variable: Pemecahan Masalah						
b. Predictors: (Constant), Kemandirian Belajar, Literasi Matematika, Motivasi Belajar						

Based on the table above, it can be seen that the significance value is 0.000 (smaller than 0.05), which means that the independent variables, namely mathematical literacy, motivation and independence, have an effect on the dependent variable, namely the ability to solve problems jointly affect the ability to solve mathematical problems. Thus, the fourth hypothesis of this study (H4) is accepted.

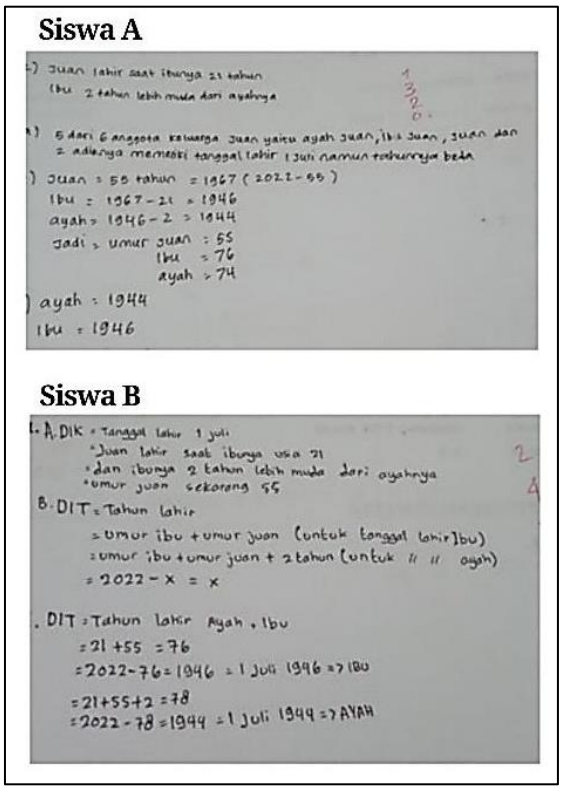

Figure 3. Students' answer for question number 1

Student A writes down some of what is known and does not write down what is asked from the problem. Student A makes a solution plan that is correct but incomplete, student writes a solution plan by looking for the year Juan was born first but it is not complete with a follow-up plan in determining the year Juan's father and mother were born. After that, students did the calculations using the correct procedure but were not complete until the final result was the year Juan's father and mother were born, and student B did not check the results. While the results of student B's answers show that he understands the problem in full, student B writes down what is known and what is asked of the questions. The problem-solving plan written by student B according to the procedure and leads to the correct solution. Student B does the calculations using the correct procedure but is incomplete until the final result is the year Juan's father and mother were born, and student B does not check the results.

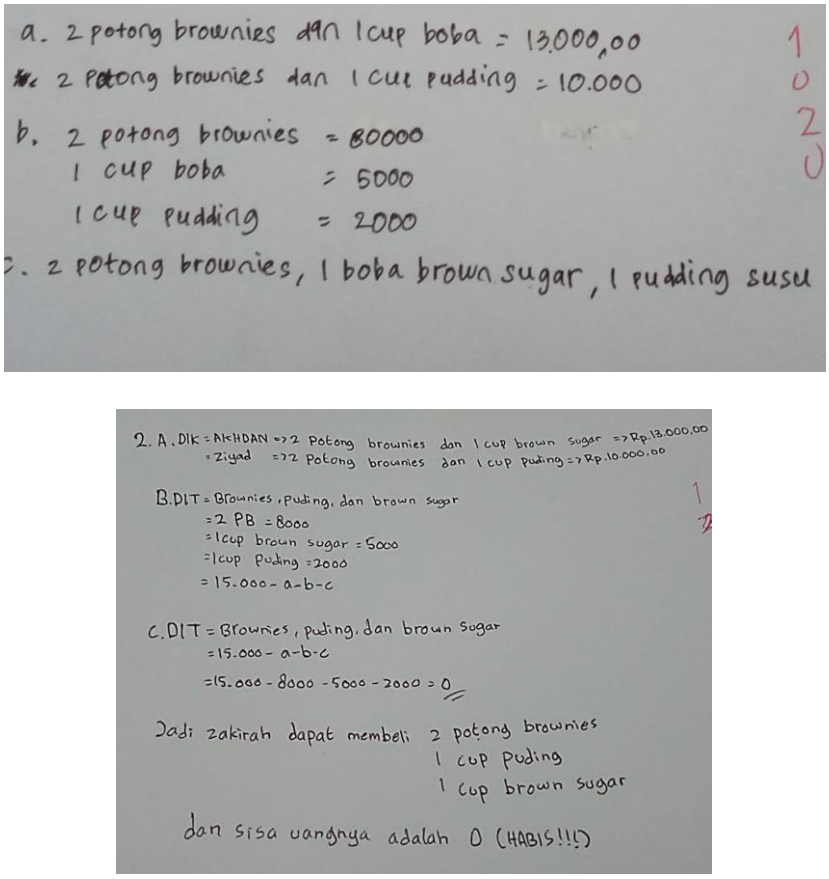

Figure 4. Students' answer for question number 2

Student A writes down some of what is known and does not write down what is asked from the problem. Student A did not plan the correct solution, student did the calculations but the steps were incomplete, and student B did not check the results. The results of student B's answers show that he misinterpreted some of the questions, he only wrote down what was known from the questions and did not write down what was asked from the questions. The problem-solving plan written by student B according to the procedure and leads to the correct but incomplete solution. Student B does the calculations but with an incomplete procedure until the final result is in the form of the number of brownies, pudding and boba that Zakirah can buy. There is an examination of the results carried out by student B but it is incomplete.

▪ CONCLUSION

Based on the research that has been carried out by the researcher, several conclusions can be drawn which from this study mathematical literacy, motivation and learning independence can significantly influence the increase in the ability to solve mathematical problems in class X students, SMA Negeri 1 Indralaya. The influence of these three factors certainly really has a good impact on students in solving mathematical problems. This is evident from the results of a problem-solving test conducted by students of class X, Indralaya 1 Public High School. So to improve math problem solving skills based on these 3 factors teaching staff need to plan lessons that will help students become more independent students and improve their literacy in

mathematics. Educational institutions or schools also need to develop initiatives to increase students' mathematical literacy levels so that the results of the Minimum Competency Assessment accurately represent real-world conditions.

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