

## ANALYSIS OF MATHEMATICAL LITERACY AND CREATIVITY: IMPLEMENTATION OF HABITS OF MIND AND SELF ESTEEM STRATEGIES IN STUDENTS

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### Abstract

The purpose of this study is to determine the influence of MHM learning strategies on mathematical literacy and mathematical creative thinking reviewed from the self-esteem of students at SMP Negeri 5 Bandar Lampung in grade VIII. This study uses the analysis of the two-way manova test with the level of.  $\text{sig} = 0,05$  In the results of the manova test, the score for the mathematical literacy test was obtained so that it was rejected, it can be interpreted that there is a significant influence between MHM and conventional learning strategies, in the creative thinking test it has a value so it is rejected, which means that there is a significant influence between MHM and conventional learning strategies. In  $p - \text{value} = 0,000$   $H_0 p - \text{value} = 0,000$   $H_0$  self-esteem and literacy, there is a significant influence because of  $\text{value } p - \text{value} < 0,05$ , namely, while  $0,040$  self-esteem with creative thinking has a value which is rejected can be interpreted as a significant influence. When viewed simultaneously, there is a significant influence between the mathematical literacy test and mathematical creative thinking with the value  $0,041$   $H_0$   $0,007$  and  $0,003$  which of the value  $< 0,05$  is rejected  $H_0$ .

Keywords: Mathematical Literacy Skills, Mathematical Creative Thinking Skills, MHM Learning Strategies, Self Esteem

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### 1. Introduction

Education is a long-term process that requires constant improvement to keep up with the rapid development of technology. Currently, the curriculum still has many shortcomings. One of the main problems in education is the lack of encouragement for students to develop mathematical literacy and creative thinking. The application of mathematical principles in everyday life requires the ability to analyze, formulate problems, find solutions, and express situations in mathematical terms. Literacy includes important skills for the 21st century generation, such as creative thinking, problem-solving, innovation, and independence, but not all of these skills are effectively applied (Anwar, 2018). In the learning process of students, in addition to reading mathematics, there are other skills that are very important, namely the ability to be creative in metamathematics. Learning trains and solves problems. OECD Programs International Student Assessment (PISA) conducted a study to assess students' literacy skills, in 2018 Indonesia was ranked 72<sup>nd</sup> (Nurwahid, 2022).

The learning process is key to achieving educational goals, which aims to develop students' mathematical creativity through various problem-solving techniques (Anggoro et al., 2019). Students who have creative literacy can apply these abilities in daily life. Creative thinking increases mental acuity and independence in developing ideas (Saputra,

2009). Low mathematical creativity among students has the potential to result in inadequate mathematical understanding and performance (Haki et al., 2019). With many variations in solving a problem, students can be more creative in thinking (Setiyawan, 2019). In addition to mathematical literacy and creative thinking skills, students' self-esteem also plays an important role in mathematics learning.

Students who have good literacy and creativity can find concepts to solve problems in daily life as well as develop other mathematical ideas. Conversely, low literacy and creativity can result in poor mathematical understanding and performance in learning. The educational aspect must include not only cognitive development, but also the affective aspect, namely Self-esteem (Anggoro et al. 2021). Self-esteem reflects students' assessment of themselves, including a sense of pride and usefulness reflected in their attitudes (Setani, and Pujiastuti, 2017). Students' literacy and creativity are low, this can be seen from the low self-esteem of students, which has an impact on their ability to express mathematical ideas or ideas in learning. Thus, self-esteem can affect the learning process of students Based on the pre-research that has been carried out at SMP Negeri 5 Bandar Lampung, the results of the literacy and mathematical creativity tests are as follows:

**Table 1.** Results of the Mathematical Literacy Ability Test and Mathematical Creative Thinking Ability of Students in Grade VII of SMP Negeri 5 Bandar Lampung

It	Class	Number of Students	Student Grade (X)			
			Mathematical Literacy		Mathematical Creative Thinking	
			$0 \leq x < 75$	$75 \leq x \leq 100$	$0 \leq x < 75$	$75 \leq x \leq 100$
1	VII. 1	32	26	6	26	6
2	VII. 2	31	31	0	28	3
3	VII. 3	32	27	5	32	0
4	VII. 4	32	25	7	24	8
5	VII. 5	30	30	0	25	5
Sum		157	139	18	135	22
Percentage		100%	88,53%	11,46%	85,98%	14,01%

Source: Mathematical Literacy Test Score for State Junior High School 5 Bandar Lampung

Based on table 1, the results of mathematical literacy skills show that only 18 students (11.46%) meet the KKM criteria, while 139 students (88.53%) have not met the criteria. For mathematical creative thinking skills, 22 students (14.01%) met the KKM, while 135 students (85.98%) did not meet these criteria. One of the factors that causes low student scores is the lack of self-esteem. The low literacy and mathematical creative thinking skills of students have an impact on the student learning process.

Based on the results of observations and interviews with Mrs. Haryani S. Pd as an educator of mathematics subject in grade VII of SMP Negeri 5 Bandar Lampung, that if the learning process is ongoing, students still do not play an active role. He also said that there are several factors that cause students to lack enthusiasm in learning mathematics, one of which is because students are still weak in understanding the material given, many students are still not focused, not interested and many students think that learning mathematics is difficult learning and the learning process is still using the conventional model. Students only pay attention to what is given or said by the educator, educators do

not get students used to developing mathematical creative thinking skills, and students are not used to doing habits of mind.

This research is related to the previous research, namely on increasing disposition with MHM strategies (Herman and Turmudi, 2019), mathematical literacy with the MHM approach (Suwaibah, 2020), assisted by the Bimbelbee Multimedia application with the Synectics learning model (Azizah, 2023) influence self esteem and burnou (Lianita, 2022), improving problem-solving skills and self esteem with Humanistic learning PMR-based (Rista, et al., 2020), problem-based MHM learning strategies for students' creativity (Mahmudi and Sumarmo, 2015). The researcher wanted to find out the influence of literacy and mathematical creativity on the learning strategy of MHM (Mathematical Habits of Mind), by considering the student's self-esteem. This research is entitled "The Influence of MHM Learning Strategies on Literacy and Mathematical Creative Thinking Skills Reviewed from Students' Self-Esteem." Researchers are interested in this topic based on relevant previous research.

## **2. Theoretical Background**

### **2.1 Definition of Learning Strategies**

According to Prawira, strategy is a way to do something to achieve certain goals, or a fixed activity plan to contain predetermined goals (Mangkut and Syafri, 2003). According to Djamarah, strategy is a general pattern of a learning activity that carried out by educators and students to achieve the goals that have been determined (Djamarah and Zain, 2006). Learning has been done since we are in the womb until the hereafter. According to Oemar Hamalik, learning is a change in behavior that is relative to the former thanks to fatigue and experience. Therefore, we as humans will not be separated from the so-called education. Howard L. Kingskey said that learning is the process by which (behavior in the broader sense) is originated or changed through practice or training (Muslem, 2024). In other words, strategy is how we teach students to achieve a specific goal (Sudjana and Suwariyah, 1991). It is concluded that a learning strategy is an activity or activity carried out by educators and students in the learning process in order to get good learning results.

### **2.2 MHM Learning Strategies**

MHM Strategy (Mathematical Habits of Mind) It is a key thing that can be developed in the classroom during the learning process, especially in mathematics subjects (Hayat et al., 2019). This is supported by the statement of Mark, et al. that "mathematical habits of mind in the middle grades is essential for students who are making the critical transition from arithmetic to algebra" (Ario, 2015).

Mathematical habits of mind It is a step in developing students' mathematical creativity by training or getting students used to thinking. According to Millman and Jacobbe, the strategy Habits of Mind That is, exploring mathematical ideas, reflecting on the truth of mathematical problem answers, identifying strategies in problem solving, generalizing, formulating mathematical questions, constructing example problems (Heris et al., 2021). Activities that can be carried out in the MHM learning strategy are: 1) exploring mathematical ideas, 2) reflecting on the suitability of solutions or problem-solving strategies, 3) finding and applying the right problem-solving method for the problem, 4) formulating questions, 5) constructing examples.

### 2.3 Mathematical Literacy Skills

Literacy is a person's ability to read and write in English, namely literacy (Kamalin, 016). "Mathematics literacy as the knowledge to know and apply the basic mathematics in our daily lives" Mathematical literacy as knowledge that has the purpose of knowing and applying mathematics in daily life (Ojose, 2011). According to Darf Assement Framework PISA 2021 (OECD, 2018) mathematical literacy is the ability possessed by a person to think mathematically to apply, and understand in solving a problem (Vebian, 2019).

Hara, Bolstad, and Jensen argue that mathematical literacy is the ability of individuals to formulate, use, and interpret mathematics (Surat, 2018). According to Rindi Antika, there are indicators of mathematical literacy skills adapted from QAUSAR General Rubric Level 3 components, namely: 1) identifying facts and formulating problems, 2) strategies used at the problem-solving stage, 3) carrying out calculations based on certain rules or formulations, 4) affirming or drawing conclusions from a case based on a number of observed data (Hartono et al., 2021).

### 2.4 Mathematical Creative Thinking Ability

Thinking is a mental activity that a person experiences when faced with a problem that must be solved. Suryabrata explained that thinking is a process that can describe a path to a goal (Nichen and Anugraheni, 2018). A person will assume that when faced with a situation that requires a solution, the person will build a relationship based on some information obtained and see it as understanding, giving an opinion based on the knowledge gained (Dilla et al., 2018). In mathematics learning, the ability to think creatively is referred to as the ability to think creatively mathematically (Abidin and Afrilianto, 2018).

According to siswono, creative thinking ability is a person's ability to use various possible solutions to solve a problem with a focus on the suitability, quantity and variety of answers (Firdausi and Asikin, 2018). A person who has creativity is someone who has a high sense of curiosity, has a lot of mathematical ideas, is confident and likes challenging things (Heris, 2018). The indicators of mathematical creative thinking ability according to munandar are: 1) Fluency (smoothness), 2) Flexibility (flexibility), 3) Original (authenticity), 4) Elaboration (elaboration)

### 2.5 Self Esteem

Self esteem is a dimension of self-concept. In simple self esteem That is an assessment of one's self-worth which is expressed through the attitude of the individual (Setani and Pujiastuti, 2017). Higher self-esteem makes it easier to adapt to his environment. According to Rosenbreg, self esteem is a positive orientation or negative a person to himself or can be interpreted as a A thorough evaluation of how a person value himself (Fadillah, 2012). Guindon argues that self esteem It is part of the attitude of self-evaluation and is an effective assessment of self-concept based on self-acceptance as well as a feeling of pride (Setyani and Atamimi, 2011).

The world of psychology, meaning self esteem is self-esteem and is defined as a person's way of judging themselves, both positively and negatively (Widyarini, 2009). The factors that affect the level of self esteem Each person is as follows:

- 1) Assessment of one's own ability in mathematics
  - a) Demonstrate confidence in one's mathematical abilities

- b) Highlight if individuals have confidence in their ability to solve a math problem
- 2) Assessment of self-achievement in mathematics
  - a) Recognizing the potential and weaknesses of individuals in mathematics
  - b) Showing pride in themselves for getting success in math lessons
- 3) Students' assessment of their usefulness in mathematics
  - a) Demonstrate confidence that they will be useful to friends and family in math
- 4) Assessment of one's own goodness in mathematics
  - a) Show a positive attitude towards the mathematics learning process
  - b) Demonstrate seriousness in solving math problems
  - c) Show a desire to learn mathematics without the influence of others.

### 3. Methods

In this study, the method used is a quantitative method. The object of this study is grade VII students at SMP Negeri 5 Bandar Lampung. By using Techniques cluster random sampling, which is a method of sampling that is carried out randomly through a lottery from all class populations. In this research, the population sampled was class VIII.1 as the control class and VIII.2 as the experimental class. The instruments in this study are tests and questionnaires. The test in this researcher is used to find out mathematical literacy data and mathematical creativity. The questionnaire in this study is used to find out self esteem owned by students who contain several statements with the answers to each statement item containing a scale of 4, namely: Strongly Agree (SS), Agree (S), Disagree (TS), Strongly Disagree (STS). The data analysis technique in this study uses Two Way Manova, this analysis is an analysis of multivariate which involves two dependent variables. Manova can be interpreted as a testing technique through statistics of median value similarity or mean vectors of several populations (Azies, 2019).

The two-way manova test aims to test together the influence of independent variables and dependent variables. This two-way manova test was used to see the influence of two treatment factors and the interaction of the two factors on more than one response. aims to determine the influence of dependent variables on independent variables by using SPSS Statistics version.20.

**Table 2.** Operational Definition of Variables

Variable	Definition	Indicators	Question Items	Scale	Data Source
MHM (Mathematical Habits of Mind) (X <sub>1</sub> )	Learning strategies that familiarize students with mathematical thinking with several activities	1. Operating mathematical ideas 2. reflect on the suitability of the solution or problem-solving strategy 3. find and implement the right troubleshootin	Learning modules	Learning modules	Grade VII students of SMP Negeri 5 Bandar Lampung

		g method for this problem 4. formulating questions 5. constructing an example			
Self Esteem (X <sub>2</sub> )	Self esteem is an assessment of oneself about self-worth expressed through the attitude of the individual.	1. Assessment of one's ability in mathematics 2. Assessment of self-achievement in mathematics 3. Student assessment of his or her usefulness in mathematics 4. Assessment of one's own goodness in mathematics	26	Likert	Grade VII students of SMP Negeri 5 Bandar Lampung
Mathematical Literacy (Y <sub>1</sub> )	The ability of a person to think mathematically to formulate, apply, and interpret in solving problems in various contexts that exist in the real world.	1. Identify facts and formulate problems 2. strategies used at the problem-solving stage 3. carry out calculations based on certain rules or formulas 4. confirm or draw conclusions from a case based on a number of observed data	7	Likert	Grade VII students of SMP Negeri 5 Bandar Lampung
Mathematical Creative Thinking (Y <sub>2</sub> )	A person's ability to use a variety of possible solutions to solve a	1. Fluency 2. Flexibility 3. Original (Originality/Novelty) 4. Elaboration	7	Likert	Grade VII students of SMP Negeri 5 Bandar Lampung



	problem with a focus on the suitability, quantity, and variety of answers				
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#### 4. Results and Discussion

##### 4.1 Validity Test

**Table 3.** Validity Test Results

Variable	$r_{hitung}$	$r_{tabel}$	Condition	Accessibility	Reliability
Self Esteem ( $X_2$ )	0.543	0.316	$r_{hitung} > r_{tabel}$	Valid	Reliable 0.8166
	0.227	0.316	$r_{hitung} < r_{tabel}$	Invalid	
	0.437	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.493	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.474	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.363	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.2119	0.316	$r_{hitung} < r_{tabel}$	Invalid	
	0.443	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.449	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.549	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.319	0.316	$r_{hitung} < r_{tabel}$	Invalid	
	0.470	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.618	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.503	0.316	$r_{hitung} > r_{tabel}$	Vaid	
	0.519	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.195	0.316	$r_{hitung} < r_{tabel}$	Invalid	
	0.426	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.402	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.404	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.290	0.316	$r_{hitung} < r_{tabel}$	Invalid	
	0.552	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.424	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.331	0.316	$r_{hitung} < r_{tabel}$	Invalid	
	0.462	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.570	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.431	0.316	$r_{hitung} > r_{tabel}$	Valid	
Mathematical Literacy ( $Y_1$ )	0.832	0.316	$r_{hitung} > r_{tabel}$	Valid	Reliable 0.8394
	0.899	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.443	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.883	0.316	$r_{hitung} > r_{tabel}$	Valid	

Mathematical Creative Thinking (Y <sub>2</sub> )	0.900	0.316	$r_{hitung} > r_{tabel}$	Valid	Reliability 0.73019
	0.898	0.316	$r_{hitung} > r_{tabel}$	Valid	
	-0.176	0.316	$r_{hitung} < r_{tabel}$	Invalid	
	0.773	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.638	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.882	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.279	0.316	$r_{hitung} < r_{tabel}$	Invalid	
	0.725	0.316	$r_{hitung} > r_{tabel}$	Valid	
	0.328	0.316	$r_{hitung} < r_{tabel}$	Invalid	
	0.713	0.316	$r_{hitung} > r_{tabel}$	Valid	

From table 3, it can be said that it is valid if it is  $< 0.05$  with a significant level. It can be seen that in the validity test  $r_{hitung} > r_{tabel}$  of the self-esteem questionnaire, it can be seen that there are 6 items of statements that are declared invalid because. In the validity test of the mathematical literacy test, it can be seen that there is 1 item of statements that is declared invalid because of the score, while in the creative thinking test there are 2 items of questions that are declared invalid because of the score. In the reliability test, there is a value so that it can be concluded that it is reliable and has consistency that will be used to measure samples and take test data and questionnaires during research.  $r_{hitung} < r_{tabel}$   $r_{hitung} < r_{tabel}$   $r_{hitung} < r_{tabel}$   $r_{hitung} > r_{tabel}$

#### 4.2 Difference Test and Difficulty Test

**Table 4.** Results of the Difference Power Test

Mathematical literacy skills					Mathematical creative thinking skills				
It Question Items	Differentiation	Info	Difficulty level	Info	No question item	Differentiation	Info	Difficulty level	Info
1	4.39	Excellent	0.188	Difficult	1	3.36	Excellent	0.213	Difficult
2	7.22	Excellent	0.505	keep	2	3.75	Excellent	0.241	Difficult
3	6.34	Excellent	0.511	keep	3	6.08	Excellent	0,383	Keep
4	6.58	Excellent	0.394	keep	4	2.15	Excellent	0,175	Difficult
5	7.39	Excellent	0.494	keep	5	6.68	Excellent	0,413	Keep
6	6.87	Excellent	0.463	keep	6	2.20	Excellent	0,186	Difficult
7	1.69	Excellent	0.163	Difficult	7	6.24	Excellent	0.466	Keep

The results of table 4 show that the discriminating power test in the mathematical literacy and mathematical creative thinking ability test questions shows that all question items are classified as very valuable. The results of the difficulty level test in the mathematical literacy and mathematical creative thinking test that 7 items of the



mathematical literacy ability test got various results from easy, moderate, and difficult levels. Questions with the medium category are numbers 2, 3, 4, 5, and 6, while with the difficult category are numbers 1, and 7. In the mathematical creative thinking ability test questions, there is a level of difficulty with a moderate category, namely at numbers 3, 5, and 7, while with difficult theories, namely numbers 1, 2, 4, and 6, by paying attention to the level of difficulty in the question items obtained from the empirical data of this research, it is known that the questions given to students are diverse, namely from the easy level, moderate to difficult.  $0,70 < DP \leq 0,1000, 30 < p \leq 0,700, 00 < p \leq 0,30$   $0,30 < p < 0,700, 00 < p < 0,30$

#### 4.3 Normality Test

**Table 5.** Results of the Normality Test

Tests of Normality				
	Type	Kolmogorov-Smirnova		
		Statistics	Df	Sig.
Literasi_Matematis	Control Classes	.134	30	.179
	Experimental Classes	.139	30	.146
Berpikir_Kreatif_Matematis	Control Classes	.133	30	.187
	Experimental Classes	.149	30	.089
Angket_Self_Esteem	Control Classes	.094	30	.200*
	Experimental Classes	.107	30	.200*

Based on table 5, it can be concluded that under the normality test with a significance level as large as obtained, it is not enough to reject. So it can be concluded that the data of each sample comes from a normally distributed population.  $5\% sig > 0,05H_0$

#### 4.4 Homogeneity Test

**Table 6.** Homogeneity Test Results

Test of Homogeneity of Variance					
		Levene Statistic	df1	DF2	Sig.
Literasi_Matematis	Based on Mean	1.263	1	58	.266
	Based on Median	.924	1	58	.340
	Based on Median and with adjusted df	.924	1	55.736	.341
	Based on trimmed mean	1.277	1	58	.263
Berpikir_Kreatif_Matematis	Based on Mean	.293	1	58	.590
	Based on Median	.169	1	58	.683
	Based on Median and with adjusted df	.169	1	55.111	.683
	Based on trimmed mean	.297	1	58	.588
Angket_Self_Esteem	Based on Mean	.001	1	58	.970
	Based on Median	.004	1	58	.950
	Based on Median and with adjusted df	.004	1	57.788	.950
	Based on trimmed mean	.001	1	58	.974

Based on the results of the homogeneity test from table 6, it was obtained that the value of the sig on mathematical literacy ability was as large as , mathematical creative thinking was equal to and 0.2660.590the student's Self Esteem was equal to , where, and therefore there was not enough reason to refuse. So it can be concluded that the ability of mathematical literacy, mathematical creative thinking, and 0.9700.266 > 0,050.590 > 0,050.970 > 0,05 $H_0$  students' self-esteem questionnaire has a homogeneous variance.

#### Analytical Test (Two Way Manova)

**Table 7.** results of SPSS Multivariate Tests

Multivariate Tests <sup>a</sup>						
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.997	4853.556b	2.000	32.000	.000
	Wilks' Lambda	.003	4853.556b	2.000	32.000	.000
	Hotelling's Trace	303.347	4853.556b	2.000	32.000	.000
	Roy's Largest Root	303.347	4853.556b	2.000	32.000	.000
Type	Pillai's Trace	.878	114.771b	2.000	32.000	.000
	Wilks' Lambda	.122	114.771b	2.000	32.000	.000
	Hotelling's Trace	7.173	114.771b	2.000	32.000	.000
	Roy's Largest Root	7.173	114.771b	2.000	32.000	.000
Angket_Self_Esteem	Pillai's Trace	.976	1.964	32.000	66.000	.011
	Wilks' Lambda	.262	1.908b	32.000	64.000	.014
	Hotelling's Trace	1.911	1.851	32.000	62.000	.019
	Roy's Largest Root	1.033	2.130c	16.000	33.000	.033
Model*Angket_Self_Esteem	Pillai's Trace	.764	2.268	18.000	66.000	.008
	Wilks' Lambda	.356	2.402b	18.000	64.000	.005
	Hotelling's Trace	1.469	2.530	18.000	62.000	.004
	Roy's Largest Root	1.184	4.340c	9.000	33.000	.001

Based on table 7 Based on the results of the calculation in table 4.19, the result is obtained that in the learning model, the value of the sig in Wilk's Lambda is 0.000 at the significance level and F in the test is significant. Therefore, for each and every rejection. Therefore, it can be concluded that there are differences in the results of mathematical literacy and mathematical creative thinking skills in students who get MHM and conventional learning strategies. The results of the learning strategy are that each ability test tested can be known through tests between subjects or variables. In the self-esteem questionnaire line  $\alpha < 0,05\alpha_{ij} \neq 0i = 1,2j = 1,2$  of students in the Effect pool of the Multivariate Wilk's Lambda test, a sig value of which means that it has a significance level and the price of F in the significant test. Therefore, the hypothesis for each is rejected. It can be concluded that there are differences in the results of mathematical literacy and mathematical creative thinking skills in students who have high, medium, and low  $0,014\alpha < 0,05H_{0B}:\beta_{ij} = 0i = 1,2,3j = 1,2$  levels of self-esteem. The results of self-esteem are found in each ability test that can be found through tests between subjects or variables.

In the interaction line between the learning model and the students' self-esteem questionnaire in the Effect column of the wilk's lambda test, a sig value of which means

that it has a significance tariff and the F price in the test is significant. Therefore, the hypothesis for each is rejected. This shows that there is an influence between MHM learning strategies and  $0.005a < 0,05H_{0B}: (\alpha_i\beta_j)_{ij} = 0, i = 1,2,3, j = 1,2$  self-esteem on mathematical literacy and mathematical creative thinking skills, the influence of MHM learning strategies and students' self-esteem has a test of ability that can be found through tests between subjects or variables. Someone who has creativity will always be careful in making a decision to be made. Students who have less activeness will be one of the factors that affect the lack of activity in the learning process and will result in a lack of student creativity in the learning process.

Mathematical literacy is a person's skill to know and apply mathematics in daily life. The purpose of this study is to find out how the shift in mathematical literacy and student creativity is affected by the impact of the habits of mind strategy on students' self-esteem. In addition to using a questionnaire to measure the self-esteem of students who are the research sample, which is reviewed using a test to measure students' mathematical literacy and creativity. In the learning process, this strategy requires students to know the influence on students' mathematical literacy skills and creativity, which is different from classes that use conventional learning models. In the experimental class, students are more enthusiastic and more confident in conveying what they feel, either in the form of suggestions, criticisms, or questions that they do not understand.

The learning process of the control class that uses the conventional learning model in knowing the influence on mathematical literacy skills and mathematical creative thinking skills is quite well done, it's just that some students look more bored, bored and most students are confused or not focused when the teacher explains the material, many students chat when the teacher explains even in the classroom during the learning process. There are several students who are playing UNO, so the material that has been explained by the teacher makes many students not understand the material explained. Therefore, it can be seen that the mathematical literacy and mathematical creative thinking skills of students are less than optimal compared to students who use MHM learning strategies.

## 5. Conclusion

From the results of the research and the discussion of the results of the hypothesis test from the statement, it can be concluded:

- 1) There is an influence of MHM learning strategies and conventional learning models on mathematical literacy and mathematical creative thinking skills
- 2) There is an influence of self-esteem (high, medium and low) on mathematical literacy and mathematical creative thinking.
- 3) There is an influence between MHM learning strategies, conventional learning models and students' self-esteem simultaneously on mathematical literacy skills and mathematical creative thinking skills
- 4) There is an influence of MHM learning strategies and conventional learning models on mathematical literacy and mathematical creative thinking skills partially
- 5) There was an influence of self-esteem (high, medium and low) on literacy and mathematical creative thinking skills partially.
- 6) There is an influence between MHM, conventional and self-esteem learning strategies (high, medium and low) simultaneously on mathematical literacy skills and mathematical creative thinking skills partially.

Based on the analysis and conclusions that have been presented by the researcher, the researcher suggests the following:

- 1) Students are expected to be more confident in expressing opinions or suggestions during the group learning process or discussion or during the individual learning process
- 2) Students are expected to be able to apply or use MHM learning strategies in other mathematics materials, not only in SPLDV materials
- 3) For future researchers who want to use the habits of mind research strategy, they are expected to see and analyze other mathematical abilities possessed by students.

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