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The Effect of Perceptions of The Mathematics Social Values on The **Attitude of Respecting Mathematics**

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Abstract. One of the important to consider in supporting successful learning is the perception of values and respect. The purpose of this study was to determine the effect of perceptions of mathematics social value on the attitude toward respecting mathematics. This type of research is quantitative research. The sample of this research was 65 students in one semester of the mathematics education study program at the Islamic University of Malang. The data collected in this research is the result of a questionnaire on the perception of mathematics social values and attitudes toward respecting mathematics. The questionnaire in this study consisted of five statements about mathematics social values and four statements about the attitude of respecting mathematics. The results of the questionnaire were analyzed by correlation test and regression test with SPSS. The results showed that there was a correlation between perceptions of mathematics social values and attitudes toward respecting mathematics. The results also show that the perception of mathematics social value has a positive effect on student attitude toward respecting mathematics in learning mathematics 55.2%. This influence is generally due to positive perceptions of the social values of mathematics. Thus learning is expected to instill social values of mathematics so that the attitude of respecting mathematics increases and ultimately increases student achievement in mathematics.

Keywords: Values, Respect, Thinking Disposition, Learning Mathematics.

INTRODUCTION

All aspects of life are influenced by human values, including learning mathematics is also influenced by human values towards mathematics. These human values give respect and meaning to life, whereas individuals who have these human values have a myriad of goodness (Akan, 2021). The results showed that belief in mathematics values had a significant effect on mathematical ability (Almerino et al., 2019). The results also show that the values education can increase the moral maturity and human values of students in study groups (Akan, 2021). The results of other studies show that picture books with value content affect the acquisition of children's positive social values (Akyol, 2021). The results of other studies show that achievement and well-being scores are significant predictors of learning (Calışkan et al., 2020). These values can affect interactions in the classroom (Hunter, 2021). Values in education can ensure the future of a country (Mentis et al., 2019). Education about values allows students to work hard, be honest, be virtuous, solidarity, successful. be and cooperative (Nermin, 2021). Values are included in the curriculum of many countries in the world as a component of the curriculum (Sahin, 2021). The results of other studies show that values have a positive effect on responsibility, social justice, politeness, open-mindedness, honesty, and helpfulness (Pala & Yildiz, 2021). Values can direct beliefs and appropriate behavior or life goals (Saruhan et al., 2021). Thus, it can be concluded that the importance of values in education is a predictor of success in learning, increasing moral maturity, and increasing good attitudes possessed by students.

The researchers divide values into six, namely theoretical, economic, beauty, social, political, and religious values (Akan, 2021). In the context of mathematics education, Lim and Ernest classify values into epistemological values, socio-cultural values, and personal values (Dede et al., 2021a). Bishop categorizes three types of values delivered in mathematics education, namely: general education values, mathematics scores, and mathematics education values (Dede et al., 2021b). The value of education is related to the values of the general public (such as obedience, honesty, and integrity). Mathematics grades are values generated by mathematicians who grew up in different cultures and reflect the nature of mathematical knowledge (Dede et al., 2021b). The values of mathematics education are values that reflect the pedagogical aspects of school mathematics and the trend of norms and practices of learning mathematics (Dede et al., 2021b). Furthermore, Bishop uses four cultural dimensions in the value of mathematics, namely ideological, sentimental, sociological, and technological (Dede et al., 2021b). This study only uses a sociological component, which is related to the meaningfulness or usefulness of mathematics in everyday life (Ernest, 1991). Where the sociological value of mathematics in this study is defined as the usefulness of

mathematics in everyday life. When these social values are considered in mathematics, then important things about the application of mathematics in life come to mind.

The importance of human values in everyday life and also in education causes researchers to be interested in researching these values. Previous research examined the existence of a positive relationship between grades and student morale maturity (Akan & Tatık, 2021). Previous research found that teacher candidates' perceptions of the values of responsibility in teaching differ by gender, grade level, and academic achievement status (Çetin et al., 2021). Previous research has shown that male teachers have lower perceptions of the value of education (Demir et al., 2021a). Previous research has shown that building a relationship between awareness and high sensitivity about personal underlying values has important potential to resolve conflict (Ergen, 2019). Previous research has shown that media literacy education contributes positively to values (Kafadar, 2021). Previous research has shown that one of the professional values of elementary school teachers is student recognition and individual-centered education (Karabacak & Korkmaz, 2021). Previous research examined principals' perceptions of values in schools which showed that principals had diverse values (Niekerk & Botha, 2017). Previous research discussed teacher opinions about values which showed that active learning, role models, and collaboration with families would be effective in value education (Sahin, 2019).

In addition to the studies mentioned above, research on values is also carried out in the context of mathematics education. Previous research investigating the values in mathematics education described by primary school teachers showed that there was no significant difference between teachers' mathematics education scores regarding gender and length of study (Haciomeroglu, 2020). Previous research investigating the values of mathematics education showed that the highest ratings according to students were practice, family, respect, and persistence (Hunter, 2021). Previous research investigated the potentially emerging value of hands-on teaching (Jakopovic & Gomez-Johnson, 2021). Previous research tested the relationship between grades and life skills which showed a positive correlation (Tran et al., 2021). Previous research shows that there are four variables that have a significant effect, namely parental attention, socialization, media, and self-actualization, while three variables that have no effect, namely consumerism, economic status, and family harmony on behavioral deviations (Yudhar et al., 2021).

From the previous research, it can be seen that no one has researched the effect of social values of mathematics on the attitude of respecting mathematics. Researchers suspect that if someone understands a certain value, then he will appreciate it. For example, someone who knows the value of creativity, then he will appreciate work. Thus, the purpose of this study was to determine the effect of students' perceptions of the social value of mathematics attitudes of respecting mathematics. on Therefore, the hypotheses of this research are H0 = there is no effect of the perception mathematics social value on the attitude of appreciating mathematics; Ha = there is a significant effect of the perception mathematics social value on the attitude of respecting

mathematics.

METHOD

This type of research is quantitative research. The sample of this study consisted of 65 students of the mathematics education study program in one semester at the Islamic University of Malang. This is because the perception of first-semester students about the value of mathematics is an interesting phenomenon to study. The sample selection technique in this study was carried out using a random sampling technique. This is because there are no specific criteria in determining the research sample. The predictor variable in this study is the value of mathematics (X), while the dependent variable in this study is appreciation (Y). The measurement of these two variables uses the Likert scale. Where the Likert scale is used to measure a person's attitude or response. Indicators of predictor variables and dependent variables can be seen in Table 1.

Table 1. Indicators of Predictor and Dependent Variables

Variables	Indicators					
Predictor variables:	 Mathematics can help solve everyday problems 					
Mathematics social I need mathematics mastery for my future life						
value	 Mathematics is meaningful for other subjects 					
	 I better understand questions related to daily activities 					
	 I need mathematics in daily activities 					
Dependent variable:	 By studying mathematics, I become more careful in calculations 					
Appreciation of	 By studying mathematics, I can express statements clearly. 					
mathematics	 By studying mathematics, it is easier for me to understand statements. 					

The instrument of this research is a questionnaire to determine students' perceptions of the value of mathematics and student appreciation. This questionnaire consists of five statements about the mathematics social value and four statements about the attitude of respecting mathematics which was developed from the indicators in Table 1. Each statement uses the choices Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). Each of these options was given a score of 4, 3, 2, and 1 for positive statements, while for negative statements a score of 1, 2, 3, and 4. perception of value and appreciation score.

Quantitative data analysis in this study was carried out in two stages. The first stage is to collect scores of perceptions about the social value of mathematics and the value of respect for mathematics. The second step is to analyze the correlation and regression between the two variables. Correlation analysis uses Pearson's product-moment correlation, while regression analysis uses linear regression with SPSS. The level of significance of the results of correlation and regression testing in this research was 5%. Therefore, the test results criteria are accepted if the value of Sig. < 0.05. Thus there is a correlation and there is a significant effect of the perception of the social value of mathematics on respect for mathematics.

RESULTS AND DISCUSSION

Result

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The correlation test results of mathematics social values with the attitude of respect mathematics variables can be seen in Table 2. The results of the regression test can be seen in Table 3. and Table 4. Based on Table 2. it can be seen that the results of the Sig. (2-tailed) is 0.000 < 0.05, which means it can be concluded that there is a significant correlation between the perception of the mathematics social values variable and the attitude of respecting the mathematics variable. From Table 3. can be seen that the score of the effect of perception of the mathematics social values on the attitude of respecting mathematics can be seen from the R Square value, which is 0.552. This value means that the effect of perception mathematics social value on the attitude of respecting mathematics is 55.2% and the other 44.8% is influenced by other factors not identified in this study. From Table 4 it can be seen that the value of Sig. of values of 0.000 < 0.05. It can be concluded that H0 is rejected and Ha is accepted, that is, there is a significant effect of perceptions mathematics social values on the attitude of respecting mathematics.

Table 2. Correlation Test Results

	Values	Appreciate
Pearson Correlation Sig. (2-tailed)	1	.743 ^{**} .000
Ν	65	65
	Pearson Correlation Sig. (2-tailed) N	ValuesPearson Correlation1Sig. (2-tailed)65

**. Correlation is significant at the 0.01 level (2-tailed).

Model	R R Square		Adjusted R Square Std. Error of the Estimate				
1	.743 ^a	.552	.545	6.304			
Due d'acteurs (Constant) Malana							

Table 3. Model Summary of Linear Regression Test Results

a. Predictors: (Constant), Values

Table 4. Coefficients^a of Linear Regression Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		В	Std. Error	Beta		
1	(Constant)	22.733	6.979		3.257	.002
	Values	.731	.083	.743	8.812	.000

a. Dependent Variable: Appreciate

From Table 4. it can be seen that the constant value of the Unstandardized Coefficients is 22.733. This means that if there is no perception score about mathematics social value, then the attitude of respecting mathematics score is 22.733. The regression coefficient is 0.731, which means that for every 1% addition to the level of perception mathematics social values, the attitude of respecting mathematics will increase by 0.731. It can also be said that the perception of mathematics social values has a positive effect on the attitude of respecting mathematics. Thus the regression equation between the predictor variable (X) and the dependent variable (Y) can

be seen in equation (1)
$$Y = 22.733 + 0.731X(1)$$

For example, for someone who has a low perception score about mathematics social values (e.g. 40), then by using equation (1), the score from the attitude of respecting mathematics is 51.973. Meanwhile, for someone who has a high perception score about mathematics social values (e.g. 95), then by using equation (1), the attitude of respecting mathematics score is 92.178. It can be said that the higher the student's perception of mathematical social values, the higher the attitude of respecting mathematics values will be.

Discussion

The results of this research generally develop the results of previous research on the theory of mathematical values and the mathematics education values (Dede et al., 2021a; 2021b; Haciomeroglu, 2020; Hunter, 2021; Jakopovic & Gomez-Johnson, 2021; Tran et al., 2021; Yudhar et al., 2021) by showing that the perception of the mathematics social values has a positive effect on attitudes in respecting mathematics by 55.2%. A common factor in this influence is the perception of the positive value of mathematics in everyday social activities. Several factors cause the mathematics social values to have a positive effect on student attitudes in respecting mathematics.

The first factor is the perception of the positive social value of mathematics that can help solve everyday problems. The results of previous studies show that teachers have positive mathematics education values by being aware of the theoretical nature of mathematics that cannot be separated from everyday activities (Haciomeroglu, 2020). The results of this study extend the results of previous studies by showing that perceptions of the positive value of mathematics affect the attitude of respecting mathematics. Thus, it is hoped that the teacher or lecturer will provide positive values from mathematics in helping to solve daily problems so that students can appreciate mathematics and then study diligently to master mathematics.

The second factor is the perception of the importance of mathematics for its future. Someone who has a positive value for his future, then he will be serious about achieving that future. Similarly, when a student has a positive value that mathematics is important for his future, then the student will study seriously. This also causes a person to love what he does because it is important for his future. The results of previous studies showed that students perceive respect, love, and integrity as the most important values for students (Saruhan et al., 2021). The results of this study develop the results of previous studies by showing that positive values for mathematics that are useful for their future make students appreciate mathematics. Therefore, teachers or lecturers should link mathematics with future values that will be achieved by students.

The third factor is the social value that mathematics is useful for other subjects. Everything that is considered useful, will be carried out with great care and earnestness. Including the perception that mathematics is useful for other subjects, students will like mathematics. The results showed that the value that immediately emerged was when more mathematics and a direct teaching environment were involved (Jakopovic & Gomez-Johnson, 2021). The results of other studies also show that values are conceptualized as standards used by individuals to determine actions and are considered to influence individual behavior, reasoning, and perceptions (Fyffe & Hay, 2021). The results of this study extend the results of previous studies by showing that perceptions of the usefulness of mathematics make someone appreciate mathematics. Thus, teachers or lecturers are expected to convey the benefits of mathematics for other subjects.

The fourth factor is the perception of the positive value of social mathematics that requires mathematics in everyday activities. The results of previous studies showed that the values of mathematics education that scored high were practice, family, respect, and perseverance, while the values of accuracy and usefulness were rated as least important (Hunter, 2021). The results of this study extend the results of the study by showing that the perception of the positive value of mathematics social needed in life makes students appreciate mathematics.

From the various research results, researchers recommend teachers or lecturers to have a role in increasing the positive values of mathematics in every mathematics learning. The first role is as a coach. The results of previous research indicate that teachers have the task of fostering values and occupy a key position in achieving educational success (Nermin, 2021). The second role is to have a positive value in itself. The results of previous studies show that teachers give positive meaning to the concept of the value and adopting national values can increase the values of students (Tural, 2018). The third role is to use biographies to instill value. The results show that biographical-based value education is a successful practice for value learning, creates а pleasant teaching environment, and positively influences students' attitudes towards the value of tolerance (Taş & Minaz, 2019). The fourth role is to provide examples of the application of mathematics in

everyday life. The results showed that the things are done by students mostly adopted what was done by teachers (Setiawan, 2020c; Setiawan et al., 2020) including solving math problems (Setiawan, 2020a, 2020b, 2022).

CONCLUSIONS AND SUGGESTIONS

The purpose of this study, namely to determine the effect of perceptions of mathematics social values on the attitude of respecting mathematics. The results showed that the perception of mathematics social values was correlated with the attitude of respecting mathematics. The results also show that the perception of mathematics social values has a positive effect on the attitude of respecting mathematics by 55.2%. Factors causing this positive influence, in general, are positive perceptions of the mathematics social value. This positive perception is that mathematics helps solve everyday problems, mathematics is important for the future, mathematics is useful for other subjects, and mathematics is needed in everyday activities.

Recommendations to teachers or lecturers are to instill these social values of mathematics in learning mathematics. The roles of teachers or lecturers in instilling these values include: as coaches, having positive values in themselves, using biographies in instilling values, and providing examples of the application of values in mathematics. Thus, it is expected that students have a high appreciation of mathematics subjects so that they can improve their achievements in learning mathematics. The recommendation for further research is to conduct qualitative research on the analysis of student mathematics awards based on the level of student's perceptions of the social values of mathematics. The results of this study will be useful in increasing students' perceptions of the social values of mathematics...

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