The Effect of Giving *Rewards* and *Punishment* To Students' Interest In Learning In Mathematics Subjects Class IV Muhammadiyah 31 Medan Elementary School

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Abstract

One aspect that plays an important role in life is education, especially in learning mathematics, where students first avoid it and think that mathematics is difficult, so this makes students' interest in learning decrease. The aim of this research is to find out the influence of giving rewards and punishment on students' interest in learning in mathematics subjects. The research method used in this research uses a quantitative approach with the instrument used, namely SPSS 25 for Windows, while the data collection technique uses a questionnaire and data analysis uses the classic assumption test. The research results show that 1) Rewards and punishments simultaneously influence students' interest in learning by 92 percent; 2) Compensation influences interest rates significantly, as shown by the sign value of 0.003 being less than 0.05; and 3) Compensation significantly influences students' interest in learning, as shown by the mark value of 0.002 which is less than 0.05. The punishment variable is the most influential in terms of its significance value. It can be concluded that the rewards and punishments given by teachers or educators to students influence their interest in learning mathematics subjects.

Keywords: reward, punishment, interest in learning, mathematics.

INTRODUCTION

One aspect that plays an important role in life is education. Based on the National Education System Law (UU No. 20, 2003), education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and State.

Learning is assistance provided by educators so that the process of acquiring knowledge and knowledge, mastering skills and behavior, and forming attitudes and beliefs in students can occur.(Mudjiono., 2020) In other words, learning is an activity of a person related to the process of obtaining a change. An effective learning process is not only the teacher who actively conveys the subject matter, but also active students in the learning process, actively asking questions and actively expressing their opinions and arguments. Without these two things the

learning process will run improperly. Learning will feel tense and boring. Boring learning will make students' interest in learning decrease (Fathoni, 2018).

A student's interest in learning can grow due to several things. Whether it is stimulation from within or from the environment around students, both from a pleasant learning environment, the methods used by teachers in teaching, giving *rewards* and *punishments* (Hia & Lisma, 2022).

Ahmad Susanto argues "As the definition of learning can be defined as a process by which an organism changes its behavior as a result of experience (Susanto, 2018). In other terms, learning behavior is controlled by *rewards,* so that in practice, giving *rewards* and giving *punishments (*punishment) is used by teachers as reinforcement, stimulus in educating students. (Sadulloh, 2018).

Reward is giving something to another person as an award or memento or souvenir. the purpose of the *reward* is as a tool to educate children so that children can feel

happy because their actions or work are reward*ed*. Generally, children know that their work or actions that cause them to get rewards are good. (Purwanto, 2019).

In addition to rewards, punishment is an unpleasant educational tool. In the world of education, *punishment is* often interpreted as an educational effort that is used to correct and direct children in the right direction, not the practice of punishment and torture that stifles creativity (Yanuar, 2017).

This research was conducted at SD Muhammadiyah 31 Medan, from the results of observations it was found that students' interest in learning mathematics was still lacking because students first avoided and considered that math was difficult, lack of mastery of formulas and how to calculate and also a less conducive classroom atmosphere such as many students were busy, chatting with their friends, students tended not to pay attention to the teacher, students were lazy to learn during the learning process.

Giving *rewards is* intended to make children more active in their efforts to work and do better. *Punishment is* given by teachers to students because students make violations or mistakes. *Punishment* will make students regret their wrong actions.

Rewards for behavior can include words such as "good luck" and "great", attractive letters and symbols, praise, gifts, out-of-class activities, teacher prayers, physical interaction, cards and certificates, and achievements. Meanwhile, *punishments* that can be given can be in the form of reprimands and warnings not to repeat them again.

This is in accordance with research conducted by Pramudya Ikranagara (2014) with the title "Giving *Reward* and *Punishment* to Improve Student Discipline in Social Studies Learning Class V SD Negeri 1 Kejobong Purbalingga. The same thing is also shown as well as in research conducted by (Sihaloho et al., 2022) where the results showed that giving *rewards* and *punishments had a* positive and significant effect on learning achievement. The difference between previous research and the author's research is that researchers use increasing students'

interest in learning mathematics by giving *rewards* and *punishments*.

This research is important to do to provide additional insight or knowledge for educators or readers about overcoming students' declining interest in learning.

Based on the above review, the researcher is interested in conducting research on "The Effect of *Reward* and *Punishment* on Interest in Learning Mathematics of Grade IV Students of SD Muhammadiyah 31 Medan".

RESEARCH METHODS

This research uses a quantitative approach with Ex-Post Facto methodology, which is research conducted to investigate an event and consider factors that might cause it (Riduwan, 2018). This study also uses a quantitative approach, taking into account the numbers that can be used as an accurate basis for measuring research results (Sugiyono, 2019).

To get good research results, researchers need to do the following: 1) Problem formulation 2) Hypothesis 3) Grouping data 4) Data collection 5) Data analysis 6) Interpretation of results.

Data collection techniques in this study used instruments, questionnaires and interviews. Data analysis conducted in this study using a comparison of the value of the dependent variable is carried out between groups of subjects on the basis of factors that are of concern. This can be done with the T-test analysis technique, independent or ANOVA, the analysis begins with the calculation of the average value or mean and standard deviation to find out between groups descriptively (Riduwan, 2018).

The place of research conducted was in class IV of SD Muhammadiyah 31 Medan. While the population and samples in this study were grade IV students of SD Muhammadiyah 31 Medan with a total of 56 students. Research activities in reaching the entire object in this case were not carried out. In this study, the authors used a random sampling sample, namely the technique of determining the sample by randomization. The sample was chosen because it had homogeneous characteristics that were taken randomly. In this study, researchers took the

object of research, namely class IV B, which amounted to 25 students. In addition, the instrument used in this study was SPPS 25 *for windows* to process the data that had been obtained, while the data collection method in this study used a questionnaire. On the other hand, the data analysis method uses classical assumption tests such as (normality, linearity, and multicollinearity tests), after that multiple linear regression analysis and hypotheses.

RESULTS AND DISCUSSION
Results

Before going to the data analysis stage, a test step called the validity test is required. The validity test functions to measure the feasibility of the questions in the research questionnaire. It is said to be feasible if the validity test results are declared valid. In measuring the level of validity, a comparison of the value of r count and r table is carried out by paying attention to the significance value. If r count on each question item is greater than r table, it can be said to be valid. The Validity Test results can be shown in the following table:

1. Validity and Reability Test

The results of the instrument validity experiment are as follows:

Table 1
Questionnaire Validity Test Results

No.	Variabels	Item	r- Count	r-Table	Description
1	*Reward* (X1)	X1.1	0,740	0,4044	Valid
		X1.2	0,542	0,4044	Valid
		X1.3	0,803	0,4044	Valid
		X1.4	0,742	0,4044	Valid
		X1.5	0,552	0,4044	Valid
		X1.6	0,626	0,4044	Valid
		X1.7	0,843	0,4044	Valid
		X1.8	0,739	0,4044	Valid
		X1.9	0,795	0,4044	Valid
		X1.10	0,617	0,4044	Valid
2	*Punishment* (X2)	X2.1	0,667	0,4044	Valid
		X2.2	0,787	0,4044	Valid
		X2.3	0,749	0,4044	Valid
		X2.4	0,891	0,4044	Valid
		X2.5	0,908	0,4044	Valid
		X2.6	0,700	0,4044	Valid
		X2.7	0,826	0,4044	Valid
		X2.8	0,836	0,4044	Valid
		X2.9	0,748	0,4044	Valid
		X2.10	0,722	0,4044	Valid
3	Learning Interest (Y)	Y1.1	0,826	0,4044	Valid
		Y1.2	0,866	0,4044	Valid
		Y1.3	0,848	0,4044	Valid
		Y1.4	0,849	0,4044	Valid
		Y1.5	0,871	0,4044	Valid
		Y1.6	0,935	0,4044	Valid
		Y1.7	0,898	0,4044	Valid
		Y1.8	0,937	0,4044	Valid
		Y1.9	0,965	0,4044	Valid
		Y1.10	0,941	0,4044	Valid

The validity test of a question item can be seen in the SPSS output, which compares the calculated value with the table value. According to (Iskandar, 2018) Statement items that have r count> r table are declared valid and can be used. Meanwhile, question items that have r count < r table are declared invalid and cannot be used (can be replaced or discarded).

All indicators for the variables of reward, punishment, and interest in learning are all valid and can be used as metrics, as their rcount is greater than the rtable, which is 0.4044. However, the rehabilitation test results are next:

Table 2
Reliability Test Results

Variables		Cronbach's Alpha	N of Items	Description
Dependent	a. *Reward*	0.898	10	Reliabel
	b. Punsihment	0.928	10	Reliabel
Idependent	Minat Belajar	0,972	10	Reliabel

Source: SPSS 25 Output Results

The variable is said to be good if it has a Cronbach's Alpha value> from 0.6 (Priyatno, 2017).

The results of the reliability experiment show that the *reward* variable has a

Cronbach's Alpha value of 0.898> 0.6, for the *punishment variable it* has a Cronbach's value of 0.928> 0.6 and the learning interest variable with a Cronbach's Alpha value of 0.972> 0.6 so that each variable in the study is realizable for research.

2. Classical Assumption Test Results

a. Normality Test

The normality test was tried to see whether the data was fairly distributed or not. The results of the normality test are as follows:

Table 3
Normality Test

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Unstandardized Residual	.134	25	.200[*]	.958	25	.378

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Based on table 3, it can be seen that the significance value in the Shapiro Wilk test is 0.378, this shows that the significance value is more than 0.05, which means that the data is normally distributed.

b. Multicollinearity Test

The multicollinearity test results are next. It is used to ascertain whether there is a large or good relationship between the independent variables as well as the independent variables in the regression experiment.

Table 4
Multicollinearity Test

Coefficients[a]

Model		Collinearity Statistics		Description
		Tolerance	VIF	
1	(Constant)			
	X1.Total	.160	6.262	No Multicollineariy
	X2.Total	.160	6.262	No Multicollineariy

a. Dependent Variable: Y.Total

From the results of table 4, it can be seen that all independent variables have a VIF value of less than 10, so it can be concluded that there are no symptoms of multicollinearity in this research model.

3. Multiple Linear Regression Test

The results of a linear regression experiment, as stated by Sunyoto (2016:47), are as follows: "The purpose of regression analysis is to determine the magnitude of the influence of the independent variable (X) on the dependent variable (Y)".

Table 5
Multiple Linear Regression Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	-7.576	3.183	
	X1.Total	.607	.185	.474
	X2.Total	.578	.164	.509

a. Dependent Variable: Y.Total

From Table 7, the values can be reviewed as follows:
1) Constant: -7,576
2) Job encouragement: 0,607
3) Work discipline: 0,578

The above outcomes are put into a multiple linear regression meeting to recognize the next meeting:

$$Y = -7{,}576 + 0{,}607_1 + 0{,}578_2$$

Explanation:
1) The constant -7.576 proves that if the number of independent variables is considered consistent, students' desire to learn will increase.
2) The number 1 of 0.607 with a positive bond direction proves that if the *reward* increases, the desire to learn mathematics will increase by 0.607, assuming that the other independent variables are considered consistent.
3) A value of 2 as high as 0.578 indicates that if work discipline increases, interest in learning math will increase by 0.578 with the assumption of variance.

4. Hypothesis Test

a. Partial Effect Test

Here, the dependent variable is considered fixed, or consistent, as a result of which the effect of 2 independent variables on the dependent variable is measured. The results of the partial effect experiment are as follows:

Table 6
Hypothesis Test t

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	7.576	3.183		-2.380	.026
	X1.Total	.607	.185	.474	3.279	.003
	X2.Total	.578	.164	.509	3.518	.002

a. Dependent Variable: Y.Total

Table 6 shows that the significance number for the effect of *reward* (X1) on interest in learning (Y) is 0.003, indicating significant <0.05, and the t_{count} is 3.279> from t_{tabel} 1.7139 so that the research results show that there is an effect of *reward* on interest in learning. While the significance number for the effect of *punishment* (X2) on interest in learning (Y) is 0.002, indicating significant <0.05, and the t_{count} is 3.518> from t_{tabel} 1.7139 so that the research results show that there is an effect of punishment on the interest in learning mathematics of fourth grade students of SD Muhammadiyah 31 Medan.

b. Simultaneous Effect Test

This test tries to recognize the effect of 2 independent variables simultaneously on the dependent variable:

Table 7
Simultaneous Effect Test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.963[a]	.926	.920	2.11759

a. Predictors: (Constant), X2.Total, X1.Total

b. Dependent Variable: Y.Total

As shown in the data in table 9, the simultaneous use of *rewards* and punishments had an impact of 0.920, or 92%, on students' interest in learning mathematics.

Table 8
F test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1220.897	2	610.448	111.043	.000[b]
	Residual	120.943	22	5.497		
	Total	1341.840	24			

a. Dependent Variable: VAR00019

b. Predictors: (Constant), VAR00018, VAR00017

It is possible that rewards and punishments together have an impact on students' interest in learning when the significance figure is 0.000 which is very small from 0.05, as shown in table 10.

Discussion

1. The effect of *rewards* on student interest in learning

The results of the information work prove that, with a significance figure of less than 0.05, rewards are one of the aspects that influence the decrease or increase in students' desire to learn. This conclusion comes from the results of the assumption calculation and proves that rewards have an important effect on students' willingness to learn.

According to Djamarah (2019: 182) a reward is "giving something to another person as an award or memento / souvenir". *Reward* is a way to please and excite students' learning, the awards received will be a trigger and stimulate students to be more enthusiastic in learning. When using the *reward* method, it is necessary to understand several strategies so that *rewarding* can be effective and right on target. According to Asmaun Sahlan (2018: 60) there are several strategies in providing *rewards* including: 1) Establishing a *reward*

procedure 2) Find out what prizes are interesting 3) Adjust to the behavior standards that have been achieved 4) Distribute prizes fairly 5) Give prizes at the right time.

The purpose of giving gifts (*rewards*) according to Marno and Idris, (2018: 133), namely: 1) Increase student attention in the teaching and learning process 2) Generate, maintain and increase student learning motivation 3) Direct the development of student thinking towards divergent thinking 4) Control and modify less positive student behavior and encourage productive behavior.

Rewards should be given to encourage students to learn more as motivation from outside sources. Educators should tailor *rewards* to student performance (Syamsiyah et al., 2021). so as not to cause materialism and ignore the purpose of the gift itself.

The learning process to arouse students' interest in learning, educators must take actions such as giving praise, signs of appreciation, gifts and respect. This educator's action means encouraging learners to learn and a strengthening of interest in learning. Giving gifts is one of the extrinsic motivations in which learning activities begin and continue based on an impulse, which is not absolutely related to the learning activity itself. So the *reward* for an action will strengthen the motive behind the action.

These results are in line with the results of research (Chen, 2023) which states that giving *rewards* affects student interest in learning.

2. The effect of *punishment* on student interest in learning

The results of data processing prove that, with a significant number very small than 0.05, punishment affects one of the components when students' interest in learning decreases or increases. The conclusion of the hypothesis calculation shows that punishment significantly affects students' learning motivation.

According to previous research (Ayuningtyas, 2019; Jailani et al., 2023; Syamsiyah et al., 2021), According to previous research, punishment can increase students' interest in learning. Students can be punished if they break the agreed rules.

According to Purwanto (2019: 186) *punishment* is suffering given or inflicted intentionally (parents, teachers, etc.) after an offense, crime or mistake. Furthermore, Fadjar (2015: 202) also argues that punishment is an educational effort to correct and direct students in the right direction, not the practice of punishment and torture that stifles creativity. The same thing is also conveyed by Sardiman (2016: 94) that *punishment is a* form of negative reinforcement which becomes a motivational tool if given appropriately and wisely in accordance with the principles of punishment.

Interest is a very important factor in learning. When students are given *rewards* and *punishments*, students have a high interest in learning so that they are more energized and energized in the classroom, and a situation is created that can encourage students to be diligent in learning. This is in accordance with the opinion expressed by Djamarah (2019: 191) that when students have a great interest in learning, it will result in high achievement, on the contrary, lack of interest in learning will result in low achievement.

Research results (Iqbal et al., 2013) which state that *punishment* affects student interest in learning

3. Giving *rewards* and *punishments* simultaneously affects student interest in learning.

According to previous research (Ayuningtyas, 2019; Jailani et al., 2023; Syamsiyah et al., 2021), According to previous research, punishment can increase students' interest in learning. Students can be punished if they break the agreed rules. According to Jamala (Ayuningtyas, 2019),

punishment must be judicious. In the theory of punishment, punishment is carried out to correct or eliminate mistakes or prevent others from making the same mistake. This fits with the philosophy of correction. Because it is educational, it is very efficient in learning. It fits with the purpose of learning, which is to cultivate the actions and attitudes of students according to the dream. The procedure of appreciation and reward urges enthusiasm to practice, makes students always active in class, and avoids students who violate or disobey. The results of the hypothesis prove that the provision of *rewards* and *punishments* simultaneously affects the interest in learning, this is evidenced by the significant test result of 0.000 <0.05. In other words, punishment and *punishment* can cause anxiety, prevent students from breaking the rules, and increase their interest in learning if used regularly and wisely.

Raihan's research results. (2019). Shows the application of *Reward* and Punishment can increase student interest in learning.

CONCLUSION

Giving rewards and punishments to students can increase motivation in developing, reviving, maintaining, and increasing their interest in learning in Mathematics. The positive impact of rewards will encourage them to repeat or get rewards again, while punishments can help correct behavior that is not in accordance with the norms. The results of research on fourth grade students of SD Muhammadiyah 31 Medan showed that the application of rewards and punishments had a significant effect on interest in learning Mathematics. Based on the research results that have been stated, the conclusion that can be obtained is that partially rewarding has an effect on the learning interest of fourth grade students of SD Muhammadiyah 31 Medan. Partially, there is an effect of *punishment* on students' interest in learning and simultaneously *reward* and *punishment* affect the interest in learning of fourth grade students of

Muhammadiyah 31 Medan. The magnitude of the effect of *reward* and *punishment* on student interest in learning is 92%, the rest is influenced by other variables not examined in this study such as learning discipline, learning motivation and so on. Seeing this, both teachers and schools have an interest in trying to implement learning by using rewards and punishments. In order to stimulate or generate interest in learning in students so that the success of learning activities is maximized.

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