The Contribution of Parental Assistance and Learning Interest to Mathematic Learning Outcomes of Grade V in Elementary School Students

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ABSTRACT

Learning outcomes are influenced by two factors, internal factor and external factor. One of the external and internal factors are parental assistance and learning interest. The aims of this study to measure the contribution of parental assistance and learning interest towards fifth grade student’s mathematics learning outcomes. This study was an expost facto research with document recording and questionnaires for the data collection method. The sample for this study was 178 sample and used proportional random sampling as the sampling technique. The data in this study analyzed with linier regression analysis. The result of this study showed that parental assistance contributed 2.3% to mathematics learning outcomes, learning interest contributed 3.2% to mathematics learning outcomes, parental assistance and learning interest contributed 4% to mathematics learning outcomes. The contribution of parental assistance and learning interest to mathematics learning outcomes shows that parental assistance and learning interest have an effect on the mathematics learning outcomes of fifth grade students.

Keywords: Parental Assistance, Learning Interest, Mathematic

1. INTRODUCTION

The end of the learning process will result in a change of students behavior. The learning process allows students to be active in developing all the potentials that exist in themselves so that they have the necessary abilities [1]. Nureva & Mariyana [2] explained that learning outcomes are an impact of the learning process in the form of improved understanding of knowledge or other behavioral changes.

One of the subjects taught in school is mathematics. Mathematics is a knowledge that hones logic in studying numbers [3]. Siagian [4] said that the process of thinking by reason and producing knowledge is referred as learning mathematics. [5] explained, mathematic learning outcomes is the ability achieved by students in understanding mathematics lessons and the outcomes is expressed in the form of scores or numbers. This is in line with the opinion [6] which reveals that the results of learning mathematics is the ability of students in remembering and understanding the material of mathematics subjects.

External factors that affect learning outcomes include family factors, school factors, and community factors [7]. While internal factors that affect learning outcomes are students physiological and psychological factors. Psychological factors are interest, motivation, intelligence, talent, and learning independence. Salsabila & Puspitasari [8] also revealed that some external factors that affect learning outcomes are the school environment, family environment, and community environment.

In 2020, Indonesian government began implementing a distance learning policy where students begin to learn from home [9]. The policy causes teachers are no longer to be able to observe the course of learning directly and the role of the teacher is expected to be replaced by parents at home. Parents become figures who implement the lesson that planned by teachers during the home study [10]. Of course, this policy has an impact not only on the teacher's relationship with students but also the relationship of parents with their kids are also has an impact to student learning outcomes later. As one of the external factors that affect learning outcomes, family is the closest and main learning environment for students. Yulianingsih et al., [11] explained that in the process of
distance learning that is enforced now, parents have a role to participate in children's learning.

According to Adhe et al., [12] parental participation is shown by providing motivation, being a good role model, creating and establishing communication with children, recognizing children's difficulties while learning, providing children's needs, and guiding their children. Parents also have an obligation to assist children in learning and doing tasks during the implementation of distance learning [13]. Ardiyana et al., [14] explained that parents have a role to play in assisting their children in learning by controlling, instructing, guiding. Parents also act as motivators [15]. [16] also explained that the forms of assistance that parents can do in the learning process include providing learning facilities, providing motivation, observing learning activities, supervising the use of children's learning time, recognizing children's learning difficulties, and helping children in overcoming their learning difficulties. In addition, parents also play a role in helping to learn, explain, and provide study material explanations and provide responses or reciprocity in their participation in children learning process at home [11]. Parents who are actively involved in children's learning activities will produce positive developments in the child's learning process.

The importance of the role of parents in assisting their children is because by assisting their children while learning, parents are able to know the difficulties experienced by their children during learning process. Parents can also know how far their children development in the learning process. Through the process of learning assistance, parents have the opportunity to guide and provide counseling so that the children's learning outcomes are able to be maximized. As revealed by Apriliana [17] which defines parental assistance as an effort to assist parents in helping develop the best potential for their children. This is also in accordance with Rahmita et al. [18], which explains that parental assistance as a way of parents in disciplining children by doing things such as supervision, habituation, and setting an example and good model for their children.

The importance of the role of parents in assisting children to learn, parents are expected to be able to assist their children to learn, especially at the time the children are studying at home. Parents are expected to have patience and motivation in assisting their children to study at home. Dey Putri et al., [19] suggests that the motivation of parents is one of the factors that influence the involvement of parents in the learning process of children. Unfortunately, often parents are unable to assist their children in learning or engaging in the learning process of their children. This is caused by parents who still think that their responsibility in the education of their children is completed when the children has entered the institution and other inhibitory factors. As explained by Wardani & Ayriza [20] there are some obstacles experienced by parents in assisting their children to study at home, such as lack of learning subjects material understanding by parents, difficulty in developing children's learning interests, and not enough time to assisting their children. It is in line with the results of Wijayanti & Fauziah research [21], that parents are not be able to maximally assisting their children while studying at home due to some obstacles such as time problems, work, impatient when teaching their children, and also financially. The results of research from Astuti & Harun [22] also showed parents must face the same challenges in assisting children while studying at home.

In addition to parental assistance, the learning interest which is an internal factor can also affect students' math learning outcomes. Students who have an learning interest mathematics will have a high interest, pleasure, and curiosity so that it is easier to understand the subject matter (Rojabiyah & Setiawan, 2019). Interest is a motivation from within that gives rise to a tendency and interest in something so that there is a sense of pleasure and satisfaction in doing things related to the object. Rojabiyah & Setiawan [23] explained that the learning interest is the feeling of unforcedness from others in the learning process. In line with this definition, [24] defines the learning interest as a tendency characterized by feelings of pleasure, desire to pay attention, the existence of seriousness and motives and the emergence of goals in achieving something. Learning interest is the basis in achieving success because interest is something creating a tendency to keep an eye on learning activities [25].

Learning interest serves as a force that encourages students to interested in learning, when students are interested in learning then students will seem to be encouraged and diligent. Udayani & Wulandari [26] explained that the interest that arises from the students makes students interested and directly involved in an object. The learning interest gives rise to the willingness from within to do something consciously or unconsciously [27].

Interests may arise due to factors that affect those interests. [28] factors that affect learning interests are motivation, attitude towards teachers, family, learning facilities, and playmates. Fatmayanti & Susantri [29] explained that factors that influence learning interests come from within such as talents, needs, and physical. So it can be concluded that the learning interest arises by two factors, factors from inside and outside of the student. The emergence of learning interest can be seen from some characteristics such as those presented by Rozikin et al., [30] which explains that the learning interest is characterized by feelings of pleasure, student interest, student attention, and student involvement in following the learning process.

In fact, students' learning interest is still low, especially in maths lessons that are often considered difficult, boring, dizzying, and unhelpful subjects in
everyday life. This assumption makes students have no learning mathematics. The results of the initial interview conducted at SD Negeri 10 Peguyangan Gugus Letkol Wisnu North Denpasar Subdistrict also showed that not all students have an interest in mathematics subjects. Students consider mathematics to be a difficult subject and get bored faster when learning mathematics. In addition to the lack of learning interest math lessons, during the distance learning process it turns out that not all students are accompanied by their parents when studying at home. The urgency in this study is that this study will help parents and teachers in maximizing the results of learning mathematics, especially in the learning process from home that is still being implemented. Based on the presentation, this study was conducted to find out the influence of learning assistance on the results of mathematics learning grade V elementary students, know the influence of learning interest on the results of mathematics learning grade V elementary students, and to know the influence of parental assistance and learning interest on the results of mathematics learning grade V elementary students.

2. METHODS

This research is an ex post facto research, it is a study that begins by doing observations on an event that is suspected as a result of free variables that have occurred, data from this study obtained based on reality so that researchers do not control the variables. The independent variables in this study are parental assistance as $X_1$ and learning interest as $X_2$ while the dependent variable for this study is mathematics learning outcomes of grade V elementary students as $Y$.

The population in this study was limited to SD Gugus Letkol Wisnu North Denpasar Subdistrict which consists of 7 elementary schools. The population in this study was 361 students. Sampling technique in this study is proportional random sampling with the determination of samples seen on the table Issac and Michael so that from the total population of 361 people with a significant of 5%, it is obtained that the number of samples are 178 students.

The data collection method used in this study is a non-test method by using document recording to collect data on mathematics learning outcomes grade V SD Gugus Letkol Wisnu North Denpasar Subdistrict and also questionnaire instruments to collect data on parental assistance and learning interests.

Indicators used in measuring parental assistance in this study are providing learning facilities, supervising the use of learning time at home, supervising children's learning activities, and recognizing learning difficulties. Meanwhile, the indicators of learning interest used in this study are the presence of feelings of pleasure, the presence of student interest, the presence of student attention, and the involvement of students in learning.

The instruments used in this study were previously tested with instrument tests with the aim of knowing whether the instrument has qualified its validity and reliability as a good instrument. The instrument tested the validity of the construct using the opinion of judgement experts and the validity of the item is tested using product moment correlation while the instrument reliability was tested using the alpha cornbach formula.

The data then analyzed using inferential statistical analysis. In this study the inferential statistical analysis used was a simple linear regression test and a multiple linear regression test as a hypothesis test. Before the hypothesis test were analyzed, a prerequisite analysis test was conducted first. The prerequisite test of analysis in this study were normality test, linearity test, multicolinearity test, and heterocedasticity test.

After the test is carried out the prerequisite analysis is continued with a hypothesis test. Hypotheses I and II were analyzed using linear regression tests while hypothesis III was analyzed using multiple linear regression tests. In this study, the hypothesis test used a significant level of 5% with testing criteria if $F_{\text{count}} < F_{\text{table}}$ then the regression coefficient is meaningless or unreal. If $F_{\text{count}} > F_{\text{table}}$ then the regression coefficient is meaningful or real. After that it is continued by calculating the coefficient of determination. The hypothesis test is performed by using the SPSS 25.0 program for Windows.

3. DISCUSSION

Data on the results of mathematics learning outcomes of grade V elementary students Gugus Letkol Wisnu North Denpasar District obtained through document recording while data on parental assistance and learning interests obtained through questionnaires distributed to samples. The questionnaire used has qualified valid and reliable. The number of items of parental assistance questionnaire are 19 items and learning interests are 15 items. Data descriptions of mathematics learning outcomes, parental assistance, and learning interests are presented in the following table below.
Furthermore, the average parental assistance data was 59.14. Based on these results, parental assistance can be determined into five theoretical scale categories and are in the good category. Meanwhile, the average learning interest data of 43.64 determined into the five theoretical scale categories was in the good category.

The results of the normality prerequisite test in this study showed that the data is normally distributed. The results of the linearity prerequisite test showed there was a significant linear relation between parental assistance (X1) and mathematics learning outcomes (Y) and there was a significant linear relation between learning interests (X2) and math learning outcomes (Y). The results of the prerequisite test of multicolerity and heterokedastisity show that there is no multicolerity and heterokedastisity. The fulfillment of prerequisite tests can be done using simple linear regression test analysis to test hypothesis I and II as well as multiple linear regression tests to test hypothesis III. The results of hypothesis I and II test using simple linear regression test and hypothesis III test using multiple linear regression test are presented in the following table.

### Table 1. Description of Data on Mathematics Learning Outcomes, Parental Assistance, and Learning Interests of Grade V Students of SD Gugus Letkol Wisnu, North Denpasar Subdistrict.

<table>
<thead>
<tr>
<th>Statistical Analysis</th>
<th>Mathematics Learning Outcomes</th>
<th>Parental Assistance</th>
<th>Learning Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>178</td>
<td>178</td>
<td>178</td>
</tr>
<tr>
<td>Maximum Score</td>
<td>98</td>
<td>73</td>
<td>54</td>
</tr>
<tr>
<td>Minimum Score</td>
<td>55</td>
<td>44</td>
<td>30</td>
</tr>
<tr>
<td>Mean</td>
<td>79.73</td>
<td>59.14</td>
<td>43.64</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.86</td>
<td>5.9</td>
<td>4.76</td>
</tr>
<tr>
<td>Varian</td>
<td>97.40</td>
<td>34.90</td>
<td>22.71</td>
</tr>
</tbody>
</table>

### Table 2. Summary of Data Analysis Results of Relation Between Variables

<table>
<thead>
<tr>
<th>Relation between Variables</th>
<th>Regression Line Equation</th>
<th>Correlation Coefficient</th>
<th>Contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>X₁ to Y</td>
<td>( \hat{Y} = a + b = 64.705 + 0.254X₁ )</td>
<td>0.152</td>
<td>2.3</td>
</tr>
<tr>
<td>X₂ to Y</td>
<td>( \hat{Y} = a + b = 6335 + 0375X₂ )</td>
<td>0.202</td>
<td>3.2</td>
</tr>
<tr>
<td>X₁ and X₂ against Y</td>
<td>( \hat{Y} = 56.786 + 0.166X₁ + 0.301X₂ )</td>
<td>0.202</td>
<td>4</td>
</tr>
</tbody>
</table>

Based on the analysis conducted, the equation of regression line X₁ against Y expressed in \( \hat{Y} = a + bX_1 = 64.705 + 0.254X_1 \) is significant and linear. It refers to linearity test and significance test where \( F_{count} = 4.17 \) \( > F_{table} = 3.89 \) with a significant level of 5% then it can be said that the regression of parental assistance to the results of learning mathematics is significant. Then, followed by linearity test with criteria if \( F_{count} < F_{table} \) then it can be said that regression X over Y is linear. The result of linearity test obtained a value of F Tuna Cocok \( (F_{count}) \) of 0.783 smaller than the value of F table with df numerator 25 and df denominator 151 at a significance level of 5% of 1.579. Then it can be said that the regression of Y to the X1 is linear.

Furthermore, based on the correlation coefficient test that has been conducted with a significance level of 5% with df = 176 obtained r table of 0.148. With the calculated r obtained by 0.152 then, r calculates the table so that the correlation value is a significant which indicates there is a positive relation between parental assistance to mathematics learning outcomes. It indicates that the more often parents assisting their children in learning, the better the results of learning mathematics outcomes obtained by their children. Then to measure the amount of contribution given by the parental assistance variable (X1) mathematics learning outcomes (Y) can be determined through the amount of coefficient of determination, the coefficient of determination obtained through the results of the analysis is 0.023 so that the amount of contribution provided by the parent's assistance to mathematics learning outcomes is 2.3%, while for the remaining 98.7% is caused by other variables not studied in this study.

The results of this study are in line with what is presented by Apriliana [17] which states that children will produce positive learning development if parents play a role in assisting their children to learn. Parwati et al [7] explained that parents must have a good relationship with their children, this relationship means as a guiding in succeeding the continuity of the child's learning. Yulianingsih et al., [11] also stated that parental assistance has a function to provide support and psychological satisfaction to the child so as to build the child's happiness in learning, minimizing saturation and learning disorders of the child.
The results of this study support the findings of research conducted by Indah & Nadziroh [31] that the higher the parental assistance, the higher the student’s learning outcomes. This study analyze the relation between parental learning assistance to the thematic learning outcomes of citizenship education content of grade V elementary school Gugus 7 Ponjong Gunung Kidul. The result of this study obtained a calculated $r$ of $0.565 > r$ table of 0.235. Based on this, it can be concluded that $r$ count is higher than $r$ table, which means there is a significant and positive relationship between parental assistance and the learning outcomes of grade V elementary students of Gugus 7 Ponjong Gunung Kidul.

In addition, the findings in this study are reinforced by the results of Kurniati research, et. al. [13] which states that parents have role to assist their children learning at home in the process of distance learning to produces good results of their learning outcomes.

Parental assistance is one of the external factors that affect students’ learning outcomes. The learning assistance provided by parents to the child makes parents know the difficulties experienced by the child and how far of their children learning development. This will make it easier for parents to take action involving themselves to help their children to learn such as providing guidance if the child has difficulties. Thanks to the optimal learning assistance by parents students can maximize their potential so as to achieve better learning outcomes. Parents are expected to have patience and strong motivation to be educators who accompany children to learn at home in order to have a positive influence on students in carrying out the learning process.

### 3.1. Contribution of Learning Interest to Mathematics Learning Outcomes

Based on the analysis conducted, the equation of regression line $X_2$ against $Y$ stated $a + b = 63.35 + 0.375$ is significant and linear. It refers to linearity test and significance test where $F_{count} = 5.97 > F_{table} = 3.89$ with a significant level of 5% then it can be said that the regression of variables of learning interest to mathematics learning outcomes is significant. Then, followed by linearity test with criteria if $F_{count} < F_{table}$ then it can be said that regression $X$ over $Y$ is linear. The result of the linearity test obtained a value of $F$ Tuna Cocok ($F_{count}$) of 1.57 smaller than the value of $F$ table with df numerator 22 and df denominator 154 at the level of significance 5% of 1.611. Then it can be said that the regression of $Y$ to the $X_2$ is linear.

Furthermore, based on the correlation coefficient test that has been conducted with a significance level of 5% with df = 176 obtained $r$ table of 0.148. With $r$ calculation obtained by 0.181 then, $r_{calculate} > r_{table}$ so that the correlation value is sigifikan which indicates there is a positive relationship between the learning interest to the results of learning mathematics. It indicates that the higher the learning interest students, the better the results of learning mathematics obtained by the child. Then to measure the amount of contribution given by the variable learning interest ($X_2$) to mathematics learning outcomes ($Y$) can be determined through the amount of coefficient of determination, the coefficient of determination obtained through the results of the analysis is 0.032 so that the amount of contribution provided by the parents to the results of mathematics learning is 3.2%, while for the remaining 96.8% is caused by other variables that are not studied in this study.

The results of this study are in accordance with Khodijah [32] which explains that with students learning interest are encouraged to learn something and achieve maximum results. This is caused by interest is part of the psychology that plays a role in encouraging students to achieve their desired goals. Sirait [24] stated that the learning interest has an influence on the learning process because interest is the main factor that determines the activeness of students because if students are interested then students will learn as well as possible.

The results of this study support the findings of research conducted by Nureva & Mariyana, [2] which states that the higher the learning interest, the higher the student learning outcomes. This study discusses the relationship between learning interest in mathematics learning outcomes of grade IV SDN 3 Jatimulyo. The result of this study was obtained by criteria calculated $r$ value of $0.918 > r$ table of 0.235. So it can be stated that $r$ count is higher than the $r$ table then there is a relation between the learning interest and the mathematics learning outcomes of grade IV elementary students SD Negeri 3 Jatimulyo. The results of this study are also reinforced by the results of research conducted by Handayani [33] where the findings are $r_{count} = 2.044$ and sig = 0.044 < 0.05 then there is a significant influence between the learning interest on the achievement of mathematics students.

As one of the internal factors that influence learning outcomes, learning interest has a role to encourage students’ desire to learn. High learning interest can increase students’ interest in the learning process. The interest will encourage students to get involved and pay attention to what is learned so that students can follow the learning process well and get good results as well. Giving students an understanding that learning can make progress can help build an learning interest in students. Considering that students are expected to have an interest in math lessons in order to follow the learning process well.
3.2. Contributions of Parental Assistance and Learning Interests to Mathematics Learning Outcomes

Based on the analysis conducted, the equation of regression lines X1 and X2 against Y stated \( \hat{Y} = 56,786 + 0,166X_1 + 0,301X_2 \) is significant and linear. It refers to linearity test and significance test where \( F_{\text{count}} = 3,785 > F_{\text{table}} = 3.04 \) with a significant level of 5% then it can be said that the regression of parental assistance variables and learning interest to mathematical learning outcomes is significant.

Furthermore, based on the correlation coefficient test that has been conducted with a significance level of 5% with \( df = 176 \) obtained \( r_{\text{table}} \) of 0.148. With the calculated \( r_{\text{count}} = 0.202 > r_{\text{table}} \) so that the correlation value is a significant which indicates there is a positive relation between parental assistance and learning interest to mathematics learning outcomes. It indicates that the higher the parental assistance and the students learning interest, the better the results mathematics learning outcomes obtained by the child. Then to determined the amount of contribution given by the parental assistance (X1) and the learning interest (X2) to mathematics learning outcomes (Y) can be determined through the amount of coefficient of determination, the coefficient of determination obtained through the results of the analysis is 0.04 so that the amount of contribution provided by parental assistance and learning mathematics to mathematics learning outcomes is 4%, while for the remaining 96% is caused by other variables that are not studied in this study.

The results of this study support the findings of a study conducted by Anwar [34] which explained that there is a significant positive influence between parental attention and learning interest to mathematics learning outcomes with a value of \( r_{\text{count}} = 0.725 \) greater than the table \( r_{\text{value}} = 0.2441 \). This indicates that parental attention and interest in learning are factors that influence students mathematics learning outcomes.

Students who get assistance from parents and have a learning interest in math subjects will have a sense of enthusiasm in learning and follow the lessons well also supported by parents by providing guidance and attention both in terms of learning facilities, time and learning activities and guidance when experiencing difficulties. Based on this, parental assistance and learning interests can have a positive influence in maximizing the achievement of mathematical learning outcomes.

4. CONCLUSION

Based on the results of statistical analysis in this study, it can be concluded that there is a significant influence between parental assistance and learning interest to mathematics learning outcomes of grade V elementary students. The higher the parental assistance, the higher the learning outcomes obtained by students. In addition, the results in this study also showed that the higher the learning interest, the higher the students mathematical learning outcomes. During the implementation of the learning process at home, parents have a role to assist their child's learning. The contribution made parental assistance to the mathematics learning outcomes shows that parental assistance during students studying at home is quite important. In addition to assist learning, parents also play a role in developing students learning interest at home. This is because, there is a contribution of learning interest to mathematics learning outcomes. The parental assistance and the high learning interest of children will produce optimal math learning results.

The suggestions that can be given based on the findings in this study are: 1) parents are expected to be able to support the learning process of children at home both in providing attention by providing supporting learning facilities and infrastructure, supervising the use of children's learning time and activities, and recognizing children's learning difficulties. 2) Teachers and parents are expected to pay more attention to the development of students' learning interests by providing interesting math learning so that students build their interest in math subjects. 3) More research is needed on the factors that influence the results of other mathematics studies to contribute thinking and information in the world of education.

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