



The Relationship between Educational Level and the Role of Parents with Learning Achievement in Mathematics

Diah Chairi Mardiaty¹, Bernard Alorgbey², Abubakar Bawa Zarogi³

¹ Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Syarif Hidayatullah, Jakarta, Indonesia

² University of Education, Winneba, Ghana

³ Mathematics Department, Kano State College of Education and Preliminary Studies, Nigeria

Article Info

Article history:

Received May 6, 2024

Revised Jun 6, 2024

Accepted Jun 20, 2024

Online First Jun 24, 2024

Keywords:

Educational Level

Learning Achievement

Mathematics

Relationship

Role of Parents

ABSTRACT

Purpose of the study: This research aims to determine the relationship between parental education level and student learning achievement and between the role of parents and student learning achievement which was carried out at State Elementary Islamic School 1 South Tangerang.

Methodology: This research uses a correlational quantitative approach. The sample to be studied is 36 students. The sample used in this research, the author used a Nonprobability Sampling technique, Saturated Sampling/Census type. this research uses data collection methods in the form of documentation and distributing questionnaires. The data analysis techniques used in this research are descriptive analysis and parametric statistical analysis.

Main Findings: The results of this study show that there is a positive and significant relationship between the level of parental education and the learning achievement of class V Madrasah Ibtidaiyah Negeri 1 South Tangerang City students with a correlation coefficient of 0.357. And there is also a significant positive relationship between the role of parents and the learning achievement of class V Madrasah Ibtidaiyah Negeri 1 South Tangerang City students with a correlation coefficient value of 0.359

Novelty/Originality of this study: This study provides a new perspective that the combination of parents' high level of education and their active involvement in their children's education is a stronger determining factor in improving mathematics achievement than other factors.

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Corresponding Author:

Diah Chairi Mardiaty,

Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Syarif Hidayatullah, Jakarta, Indonesia.

Jl. Ir. H. Djuanda No. 95, Cempaka Putih, Ciputat Timur, Tangerang Selatan, Banten, Indonesia.

Email: chairidiahmrdntt@gmail.com

1. INTRODUCTION

Education is a process of maturing the whole person. Human success in improving the quality of life is obtained from both formal and non-formal education [1], [2]. Formal and non-formal education are educational paths that complement and enrich each other [3], [4]. Formal education is education that is carried out through educational units that have basic education, secondary education and higher education levels.

Edgar Dalle said that education is a conscious effort carried out by families, communities and governments through guidance, teaching and training activities, which take place in school and outside school throughout life to prepare students to be able to play roles in various living environments permanently for a lifetime. which will come [5], [6]. It can be said that the family has a role in providing guidance to children to prepare them for placement outside the home. According to [7], [8] the family functions as a place for children to

learn from birth and as provisions for the child's future life and to build trust between each other. This makes the family the most important form of education, namely formal education and at the same time the family has responsibility for the success of the child's education.

Successful achievement in children's education is not only the educational background of parents, but the role of parents in guiding, educating, facilitating, and as an adequate motivator will also support successful achievement in children's education [9], [10]. Because a child's educational success or achievement is not only determined by school. Providing parental guidance to their children can influence learning achievement [11], [12]. This is because a child with parents who always provide guidance when studying, or related to school, the child will achieve good results compared to parents who rarely or never provide study guidance to their children.

Children's educational attainment at school can be referred to as learning achievement. Which is the result of measurements of students which include cognitive, affective and psychomotor factors after following the learning process which is measured using test instruments or relevant instruments [13], [14]. The results of the test can show the high and low levels of student learning achievement. Many factors influence student learning achievement, one of which is factors within the family. According to [15], education in the family is the first and foremost education.

A large healthy family is for education in small sizes, but it determines education in large sizes, namely the education of the nation, state and world. From this explanation it is clear that the role or educational guidance of parents towards children is very important and what children see in the family has a great influence on children's learning and influences children's lives outside the family environment. [16], [17]. Parents play the role of educators because their job is not only to teach, but also to train children's skills, especially after training children's mental attitudes [18]. So in that case parents are responsible for discovering their children's interests and talents so that the children are cared for and educated either directly by the parents or through the help of other people.

Research conducted by Cholifah et al., [19] with the title "The Influence of Parental Educational Background and Learning Style on Student Learning Outcomes in Class IV public elementary school Sananwetan District, Blitar City" used ex post facto correlational survey research. The research results reveal that there is a positive and significant influence between parents' educational background and learning style on student learning outcomes. The difference between the research conducted by Tety Nur Cholifah and this research is to determine the relationship between parental education and the learning achievement of class V State Elementary Islamic School 1 South Tangerang. while the research conducted by Tety Nur Cholifah was to determine the influence of parental educational background and learning style on learning outcomes.

This study brings new insights into the intricate dynamics between parents' educational levels and their roles in enhancing their children's learning achievements in mathematics. Unlike previous research, which often treats these factors in isolation, this investigation employs a holistic approach by examining how different educational backgrounds of parents influence their involvement in their child's education, specifically in mathematics. By integrating qualitative and quantitative methods, this research aims to uncover nuanced relationships and provide a comprehensive understanding of how parents' educational levels shape their engagement strategies and, ultimately, impact students' mathematical performance. This novel perspective not only enriches the existing literature but also offers practical implications for educational policies and parental involvement programs tailored to diverse educational backgrounds.

Research on the relationship between level of education and the role of parents and learning achievement in mathematics is very important to carry out because it has major implications for improving the quality of education. In this era of globalization, mathematics is one of the keys to academic and career success in various fields. Understanding how parents' level of education influences their involvement in supporting their children's learning can help identify effective strategies for improving learning achievement. In addition, the results of this research can provide valuable insights for educators, policy makers, and educational institutions in designing programs that empower parents from various educational backgrounds, so that every child has an equal opportunity to achieve academic success. This research aims to determine the relationship between parental education level and student learning achievement and between the role of parents and student learning achievement which was carried out at State Elementary Islamic School 1 South Tangerang.

2. RESEARCH METHOD

2.1. Research Type

This research uses a correlational quantitative approach. The goal of correlational research is to identify predictive relationships using correlation techniques or more sophisticated statistical techniques [20], [21]. This research uses a Bivariate Correlation design (to describe the relationship between two variables) with the Product Moment calculation technique [22]–[24]. The independent variable (X) is often referred to as a stimulus variable, predictor, antecedent. In Indonesian it is often referred to as an independent variable. The independent variable is

the variable that influences or is the cause of the change or emergence of the dependent (dependent) variable [25], [26]. Independent variables are variables that explain or influence other variables.

With the above understanding, there are 2 independent variables in this study, namely independent variable 1 (X_1) is the level of parental education and independent variable 2 (X_2) is the role of parents. The dependent variable (Y) is the variable that is influenced or caused by the existence of the independent variable [27], [28]. The dependent variable in this research is student learning achievement. What is meant is student learning achievement in Mathematics class V State Elementary Islamic School 1 South Tangerang.

2.2. Population and Sample

Population is a generalization area consisting of: objects/subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions drawn [29]. The population in this study was 36 students who were class V students of State Elementary Islamic School 1 South Tangerang. The sample is part of the number and characteristics of the population [30]. The sample used in this research, the author used a Nonprobability Sampling technique, Saturated Sampling/Census type. Saturated sampling/census is a sampling technique when all members of the population are used as samples. The sample to be studied is 36 students.

2.3. Data Collection Technique

An important thing in research is the data collection method, because this method is a strategy or method used by researchers to collect the data needed in their research. In the process of collecting data in the field, this research uses data collection methods in the form of documentation (monthly/weekly program syllabus, learning process plan), distributing questionnaires with a 4-choice Likert scale measurement type (4: always, 3: often, 2: sometimes, and 1: never).

2.4. Data Analysis Technique

The data analysis techniques used in this research are descriptive analysis and parametric statistical analysis. Descriptive statistics are statistics used to analyze data by describing or illustrating the data that has been collected. The descriptive analysis technique used in this research uses calculations of the mean, median, mode and standard deviation with the help of SPSS Statistics 20.

3. RESULTS AND DISCUSSION

Before statistical analysis is carried out, an assumption test or analysis prerequisite test is first carried out which includes a normality test and a linearity test.

3.1 Normality test

The normality test aims to test whether what is used in the research has a normal distribution or not. The normality test for data distribution in this study uses *Shapiro-Wilk with the SPSS Statistics 20* tool. The basis for decision making in the normality test is that if the significant value is > 0.05 then the research data is normally distributed, and vice versa if the significant value is < 0.05 then the research data is not normally distributed. The following results of normality test calculations with the help of *SPSS Statistics 20* can be seen in the following table:

Table 1. Summary of Normality Test Results

Variable	Asymptotic Significance	Condition	Information
X1	0.060	> 0.05	Normal
X2	0.136	> 0.05	Normal
Y	0.130	> 0.05	Normal

3.2 Linearity Test

The linearity test aims to find out whether two variables have a significant linear relationship or not. There are two criteria for decision making in linearity calculations ie compare the value of *Deviation from linearity Sig.* with a significance of 0.05 and compare the calculated F_{value} with the F_{table} . The test criteria are if the F_{count} value is smaller ($<$) than F_{table} and the significance level value is greater ($>$) than 0.05, then there is a significant linear relationship between the independent variable and the dependent variable. Following are the results of the linearity test:

Table 2. Summary of linearity test results

Variable	db	Fcount	Ftable(5%)	Sig.	Information
X ₁ and Y	8/26	1,787	2.32	0.126	Linear
X ₂ and Y	14/20	1,442	2.32	0.222	Linear

The table above shows that the $r_{\text{calculated}}$ for each variable is smaller than the r_{table} with a significance level of 5%. This applies to all independent variables and the dependent variable, so that it can be concluded that all independent variables and the dependent variable have a linear correlation, so the correlation analysis can be continued.

3.3 Test the research hypothesis

The correlation between parental education and mathematics learning achievement can be determined after hypothesis testing. In this research, the data will be analyzed using the Pruduct Moment correlation technique using SPSS Statistics 20 software. The basis for decision making in Bivariate Pearson Correlation analysis is to compare the calculated r_{value} with the r_{table} at a significance level of 5%. If the calculated $r_{\text{value}} > r_{\text{table}}$ and if the sig level (2-tailed) < 0.05 then the alternative hypothesis (H_a) is accepted. This means that it is true that there is a significant correlation between parental education variables and student learning achievement. On the other hand, if the calculated r_{value} is $< r_{\text{table}}$ and if the significance level is > 0.05 then the alternative hypothesis (H_a) cannot be accepted. This means that there is no significant correlation between parental education and student learning achievement. From the results of data analysis, the following results were obtained:

Table 3. Pearson Correlation Test Results

Variable	rcount	rtable(5%)	Sig.	Information
X1 and Y	0.357	2,329	0.033	There is Correlation
X2 and Y	0.359	2,329	0.031	There is Correlation

a. First Hypothesis Testing

The first hypothesis states that "There is a positive relationship between education level and student learning achievement in mathematics class V State Elementary Islamic School 1 South Tangerang ". The basis for decision making uses the correlation coefficient (r_{x_1y}) between the variable parental education level (X1) and learning achievement (Y). If the calculated r is positive then there is a positive relationship between the independent variable and the dependent variable. To test significance is to compare the calculated r_{value} with the r_{table} at a significance level of 5%. If the calculated $r_{\text{value}} > r_{\text{table}}$ the relationship is significant and vice versa.

Based on calculations using Product Moment Correlation analysis with the help of the SPSS *Statistics* 20 computer program, the correlation coefficient (r_{x_1y}) between the variables of parental education level and student learning achievement was obtained at 0.357. then to find out whether the relationship is significant or not is to compare the calculated r_{value} with the r_{table} at a significance level of 5% and $N = 36$ of 0.329. The results of the correlation coefficient (r_{x_1y}) show that $r_{\text{calculated}} > r_{\text{table}}$ ($0.357 > 0.329$) so there is a significant relationship. From the explanation above, you can It was concluded that the results of this study showed that there was a positive and significant relationship between parental education level and achievement.

b. Second Hypothesis Testing

The first hypothesis states that "There is a positive relationship between the role of parents and student learning achievement in mathematics class V State Elementary Islamic School 1 South Tangerang ". The basis for decision making uses the correlation coefficient (r_{x_2y}) between the variable parental role (X2) and Learning Achievement (Y). If the calculated r is positive then there is a positive relationship between the independent variable and the dependent variable. To test significance is to compare the calculated r_{value} with the r_{table} at a significance level of 5%. If the calculated $r_{\text{value}} > r_{\text{table}}$ the relationship is significant and vice versa.

Based on calculations using Product Moment Correlation analysis with the help of the SPSS *Statistics* 20 computer program, the correlation coefficient (r_{x_2y}) between the parental role variable and student learning achievement was obtained at 0.359. then to find out whether the relationship is significant or not is to compare the calculated r_{value} with the r_{table} at a significance level of 5% and $N = 36$ of 0.329. The results of the correlation coefficient (r_{x_2y}) show that $r_{\text{calculated}} > r_{\text{table}}$ ($0.359 > 0.329$) so there is a significant relationship. From the explanation above, it can be concluded that the results of this study show that there is a positive and significant relationship between the role of parents and achievement.

The research results based on hypothesis testing show that H_1 and H_2 are accepted and H_0 is rejected. Further discussion of the results of this research will be described as follows:

The Relationship between Parental Education Level and Student Learning Achievement

The results of the research show that there is a positive and significant relationship between the level of parental education and students' learning achievement in class V mathematics subjects at State Elementary Islamic School 1 South Tangerang. This is proven by the results of a simple correlation analysis, the correlation coefficient (r_{x1y}) is 0.357 and r_{table} with $N = 36$ at a 5% significance level of 0.329. This shows that the calculated r is positive and greater than the table r ($0.357 > 0.329$). From the explanation above, it can be concluded that the variable level of parental education and student learning achievement has a positive and significant relationship. Thus, it can be said that the higher the level of parental education, the higher the student's learning achievement.

The results of this research are consistent with the theory put forward by Muniwar Umar, namely external factors in the family environment, parents play an important role in organizing children's learning conditions. Of all the external factors, parents are the ones who play the most role in determining a child's learning achievement.⁵⁴ So it can be said that the educational experience of parents is related to student learning achievement.

The Relationship between Parental Roles and Student Learning Achievement

The results of the research show that there is a positive and significant relationship between the role of parents and students' learning achievement in class V mathematics at State Elementary Islamic School 1 South Tangerang. This is proven by the results of a simple correlation analysis, which obtained a correlation coefficient (r_{x2y}) of 0.359 and r_{table} with $N = 36$ at a 5% significance level of 0.329. This shows that the calculated r is positive and greater than the table r ($0.359 > 0.329$). From the explanation above, it can be concluded that the variable role of parents and student learning achievement has a positive and significant relationship. Thus, it can be said that the higher the role of parents, the higher the student's learning achievement will be.

Where the educational role of parents (guides, educators, motivators and facilitators) plays in improving learning achievement, children will achieve excellent development. Children learn at school for only six to seven hours and may only meet their teacher for lessons for up to 2 or 3 hours. So children's learning achievements are strongly supported by the learning guidance provided by parents on an ongoing basis. Likewise as a motivator and facilitator. The higher the motivation provided by parents, the higher the child's chances of achieving maximum learning achievement. And other forms of support such as providing learning facilities including the books needed, a comfortable place to study. Therefore, parents must be able to act as real parents in developing their children's maximum learning achievement.

The impact of research on "The Relationship between Educational Level and the Role of Parents with Learning Achievement in Mathematics" can provide deeper insight into the importance of the role of parental education in supporting children's mathematics learning achievement. In addition, the results of this research can be used as a basis for designing intervention programs that are more effective in involving parents in their children's educational process. The limitation of this research is the limitation in isolating other variables that might influence mathematics learning achievement, such as students' intrinsic motivation and the quality of the learning environment at home. In addition, this research may not fully describe the contextual differences between various social and economic groups that influence the role of parents in children's education.

4. CONCLUSION

Based on the results obtained and compiled in the discussion, it can be concluded that there is a positive and significant relationship between the level of parental education and the learning achievement of class V students at Madrasah Ibtidaiyah Negeri 1 South Tangerang City. indicated by a correlation coefficient (r_{x1y}) of 0.357 (r_{x1y} of $0.357 > r_{table}$ 5% of 0.329). There is a positive and significant relationship between the role of parents and the learning achievement of class V students at Madrasah Ibtidaiyah Negeri 1 South Tangerang City. indicated by a correlation coefficient (r_{x1y}) of 0.359 (r_{x1y} of $0.359 > r_{table}$ 5% of 0.329). Recommendations for further research are that further research can broaden the focus by examining how socio-economic and cultural factors influence the relationship between parents' level of education and their role in students' mathematics learning achievement. In addition, it is recommended to conduct longitudinal studies to observe changes in parental roles and their impact on students' mathematics learning achievement over time, in order to understand deeper dynamics.

ACKNOWLEDGEMENTS

We would like to express our deepest gratitude to all parties who have provided support and contributed to this research, including parents, teachers and students who have participated and provided very valuable data. We would like to express our thanks to the educational institutions and fellow researchers who have provided assistance and facilities that have enabled this research to be carried out well and produce useful findings.

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