The Impact of Strengthening Character Education Based on Tri Hita Karana on Mathematics Learning Outcomes for Fourth-Grade Students

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Abstract

This research is motivated by students' low curiosity and behavior when learning mathematics. This is reflected in the unsatisfactory learning outcomes and the need for more motivation among students towards the subject. This study investigates and analyzes the strong influence of strengthening character education based on Tri Hita Karana on the significant improvement of mathematics learning outcomes of fourth-grade elementary school students. This research is an ex-post facto type, correlating the strengthening of character education based on Tri Hita Karana as the independent variable (X) and mathematics learning outcomes as the dependent variable (Y). The population of this study consists of 273 students, and the sample used in this research is 111 students obtained through cluster random sampling technique. Data collection is conducted using questionnaires and tests, and the data are analyzed using descriptive and inferential statistical analysis methods. The analysis process involves testing the prerequisite assumptions, including normality and linearity tests. Hypothesis testing is performed using simple regression analysis. The simple regression analysis results show a calculated value of $r = 0.673$, while the tabulated value at a significance level of 5% is 0.195. It indicates that the calculated value of $r (0.673)$ is greater than the tabulated value (0.195), indicating a significant positive correlation between the strengthening of character education based on Tri Hita Karana and the mathematics learning outcomes of fourth-grade elementary school students. Therefore, it can be concluded that the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted.

Keywords: Character Education, Tri Hita Karana, Mathematics Learning Outcomes

1. INTRODUCTION

Education is a formal or informal process that involves the transfer of knowledge, skills, values, and attitudes to individuals to develop their potential and prepare them to participate actively in social, economic, and cultural life (Febriyanti, 2021; Syaparuddin & Elihami, 2019). Education is important in forming knowledge and forming students' character (Daheri et al., 2022; Kiska et al., 2023). However, in the current era of rapid technological development, forming individual character is becoming a greater concern (Ananda et al., 2022).
The rapid development of smartphones and the widespread spread of social media have changed human lifestyles (Ainiyah, 2018; Fatmawati, 2020). Outside influences and incompatible lifestyles are starting to influence people's lives along with the spread of social media. Lifestyles, trends, and external influences imitated by the younger generation can change their character and trigger moral degradation (Abidin et al., 2021; Giri, 2020). The younger generation needs adequate education to survive the current technological developments and prevent this.

The development of technology, which is currently developing more rapidly and is starting to spread throughout the world, has become one of the challenges for education in Indonesia because, apart from the positive impacts obtained, the negative impacts cannot be avoided. One of the negative impacts of globalization is information technology, which all parties increasingly easily access, which can cause moral degradation in students (Kurniawan, 2015; Ma’ruf & Syamsudin, 2021). To prevent moral degradation in the younger generation, strengthen the character education (Agustiana & Hasbi Asshidiqi, 2022; Sahruli et al., 2017). Strengthening Character Education is an educational movement in schools supported by the Ministry of Education and Culture to strengthen student character through community participation and collaboration between schools, families, and society (Ahmadi et al., 2020; Anshori, 2017). In addition, according to Presidential Regulation Number 87 of 2017, Strengthening Character Education is an educational movement that is responsible for strengthening the character of students through the harmonization of ethics, deep spirituality, moral integrity, appreciation of arts and culture, academic excellence, and kinesthetic abilities that play an active role as citizens, with the support of community participation and collaboration between schools, families, and society as part of the National Mental Revolution Movement (Arsyad et al., 2020; Pantiwati et al., 2020). Some character values emphasized in education are religious, honest, tolerant, disciplined, hardworking, creative, independent, democratic, curious, polite, friendly or communicative, love of peace, love of reading, care for the environment, social care, and responsibility.

It is different from the reality in the field related to the implementation of Strengthening Character Education, which still needs to run optimally. Strengthening Character Education implemented in elementary schools, especially in fourth grade, has not shown satisfactory results. Based on the results of interviews with elementary schools in fourth grade, it is known that the attitudes of fourth-grade students in learning activities do not reflect the character values applied at school. Changes in the learning system during the pandemic were one of the factors causing this phenomenon. During the COVID-19 pandemic, distance learning conditions caused students to experience learning loss in cognitive, affective, and psychomotor skills. Online learning during the pandemic causes learning to become less controlled and results in students' ethical and moral collapse due to the lack of implementation of strengthening character education (Barseli et al., 2020; Santika, 2020). Apart from that, the lack of parental supervision of children during online learning also impacts students' lack of focus on learning, especially in mathematics subjects.

Based on the results of fourth-grade observations in elementary schools, it was found that students' attitudes still did not reflect character values. These attitudes include causing noise in class, cheating, not following school rules and regulations in mathematics learning activities, always playing around during learning, not bringing writing equipment and low student curiosity in learning mathematics. Students need more interest and curiosity in mathematics to improve their learning outcomes. Learning outcomes are the final goal of learning activities and the changes experienced by students after they experience the learning process. Based on the written test assessment documents using score intervals in the Independent Curriculum, which were studied from 10 classes, the average was 41% - 65%.
and 1 class was 66% - 85%. It means that students' learning outcomes in grade four still need to be higher and need further action.

According to Jean Piaget, elementary school students are still entering the concrete operational development stage (Nuryati & Darsinah, 2021; Simanjuntak & Siregar, 2022). So, students at this concrete operational stage also need figures who can be used as role models or examples to develop their character. In this condition, it is hoped that teachers will be able to recognize and understand the characteristics of students when providing mathematics learning in elementary schools through implementing strengthening character-based education. In this case, the solution that can be offered is to link Strengthening Character Education with the concept of Tri Hita Karana.

The basis for carrying out this research is to determine how much Tri Hita Karana-based character education influences students' mathematics learning outcomes. Tri Hita Karana is local wisdom and a way of life for the Balinese people which contains values that can be applied in character education, especially in elementary schools, which are timeless with the aim that the implementation of Strengthening Character Education can be understood more quickly by children (Ketut Susiani et al., 2022; Yasa et al., 2022). Strengthening Character Education based on Tri Hita Karana aims to improve the quality of education implementation and outcomes, which leads to the formation of student's character as a whole and balanced. So, the Tri Hita Karana concept can become the basic foundation of character education for elementary school students, especially students from Bali. By the concept of concrete operational development, according to Jean Piaget, to what extent can Tri Hita Karana-based character education influence students' mathematics learning outcomes?

Based on the statement above, it is deemed necessary to carry out further research ex post facto, which is carried out with variations in facts or events that have occurred without any treatment or experiment to determine the relationship between strengthening character education through integrating Tri Hita Karana with student mathematics learning outcomes. It is hoped that the results of this research will be useful for analyzing the relationship between strengthening Tri Hita Karana-based Character Education and the mathematics learning outcomes of fourth-grade elementary school students so that character education can be further improved not only to improve mathematics learning outcomes but also to produce graduates with noble morals. Character education aims to produce the next generation with noble morals so that national education goals are achieved, and students will become disciplined individuals so that the learning process will run smoothly and learning outcomes can be achieved. Therefore, research was conducted to investigate and analyze the strong influence of strengthening Tri Hita Karana-based character education on the significant increase in mathematics learning outcomes of fourth-grade elementary school students.

2. METHODS

The type of research carried out is ex-post facto. The word ex-post facto comes from the Latin word that means from after the fact, which indicates that research is carried out with variations in facts or actual events that have occurred without any treatment or experiment, which can later be helpful as valuable information for decision making in the field of education. Expost facto is an approach to research subjects that examines what the research subject has naturally without any effort to provide treatment (Musa et al., 2021). Based on this view, it can be concluded that ex-post facto research examines a subject without any treatment of the variables being studied because there is a natural connection.

The population of this study was the fourth grade of elementary school, with a total of 273 students. The sampling technique was carried out randomly using a lottery to determine the sample. The results of the drawing were class IVA at SD Negeri 1 Banyuasri (29
students), class four at SD Negeri 3 Banyuasri (20 students), class four at SD Negeri 4 Banyuasri (31 students), and class IVB at SD Lab Undiksha (31 students). This research has two variables: the independent variable and the dependent variable. The independent variable in this research is strengthening Tri Hita Karana-based character education, symbolized as X, and the dependent variable is mathematics learning outcomes, symbolized as Y.

The data in this research are descriptive data and inferential data. The data in question is the main data obtained through distributing instruments, namely in non-tests, to find information about the variables that need to be studied. The data collection technique used in this research was a Likert scale questionnaire. In this Likert scale technique, answer categories are provided for the respondent to choose after their statement by placing a check mark (✓) or mark (●) on the choice. Apart from that, data collection was also carried out by systematically recording documents and interviews with fourth-grade teachers. The following is a grid table for the THK-based character values instrument developed in Mathematics learning, shown in Table 1.

### Table 1. Tri Hita Karana-based Character Values Instrument Grid in Mathematics Learning

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Indicator</th>
<th>Question Items</th>
<th>Total Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>Discipline</td>
<td>Understand agreed concepts and rules in mathematics</td>
<td>1,3</td>
<td>4,2</td>
</tr>
<tr>
<td></td>
<td>Be organized and orderly in using mathematical concepts</td>
<td>5,7</td>
<td>6,8</td>
</tr>
<tr>
<td>Honest</td>
<td>Demonstrate a trustworthy attitude in words and actions carried out</td>
<td>9,11</td>
<td>10,12</td>
</tr>
<tr>
<td></td>
<td>during the mathematics learning process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communicative</td>
<td>Able to communicate given mathematics assignments both orally and in</td>
<td>13,15</td>
<td>14,16</td>
</tr>
<tr>
<td></td>
<td>writing so that listeners understand what is being conveyed by the speaker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creative</td>
<td>Able to work on material questions in short and long ways in learning</td>
<td>17,19</td>
<td>18,20</td>
</tr>
<tr>
<td></td>
<td>mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curiosity</td>
<td>Exploring information in solving mathematical problems</td>
<td>21,23</td>
<td>22,24</td>
</tr>
<tr>
<td>Independent</td>
<td>Try to do math problems yourself</td>
<td>25,27</td>
<td>26,28</td>
</tr>
<tr>
<td>Hard work</td>
<td>Careful, diligent, and thorough in working on explicit and implied</td>
<td>29,31</td>
<td>30,32</td>
</tr>
<tr>
<td></td>
<td>mathematics problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility</td>
<td>Demonstrate a good attitude of responsibility for carrying out obligations</td>
<td>33,35</td>
<td>34,36</td>
</tr>
<tr>
<td></td>
<td>that should be carried out in the mathematics learning process</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>

The data in this research were analyzed descriptively and inferentially. Descriptive analysis is intended to describe or provide an overview of data collected without the aim of making conclusions that apply to the general public. In this case, descriptive data analysis includes (1) giving a score, (2) looking for the highest and lowest classes, (3) determining the number of classes, (4) calculating the length of the class interval, (5) create a frequency distribution table, and (6) calculate the mean (Me), median (Me), mode (Mo), and standard...
deviation. Next, for the inferential analysis, a prerequisite test is carried out, which includes a normality test and a linearity test. Then, a hypothesis test is carried out using the Pearson Product Moment correlation formula or a simple regression test to determine whether there is a relationship between Tri Hita Karana-based character values and class mathematics learning outcomes. Four in elementary school are symbolized by the dependent variable (Y) and the independent variable (X) based on the calculated r and its significance value.

3. RESULTS AND DISCUSSION

Results
To obtain data about strengthening Tri Hita Karana (THK) based character education for students using a questionnaire. The Tri Hita Karana-based Character Values Questionnaire for Students was analyzed descriptively to provide a data overview of discipline, honesty, communication, creativity, curiosity, independence, hard work, and responsibility. Based on the data obtained through the questionnaire, it can be seen that the average score for understanding Tri Hita Karana-based character values is 84.68, 83.00 for the median, 75.00 for mode, 17.64 for the standard deviation, 44.00 for a minimum score, and 44.00 for the minimum score. 115.00 for the maximum score presented in Table 2.

<table>
<thead>
<tr>
<th>Interval</th>
<th>Strengthening Character Education Based on Tri Hita Karana</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Midpoint (X_i)</td>
</tr>
<tr>
<td>44 – 52</td>
<td>48</td>
</tr>
<tr>
<td>53 – 61</td>
<td>58</td>
</tr>
<tr>
<td>62 – 70</td>
<td>66</td>
</tr>
<tr>
<td>71 – 79</td>
<td>75</td>
</tr>
<tr>
<td>80 – 88</td>
<td>84</td>
</tr>
<tr>
<td>89 – 97</td>
<td>93</td>
</tr>
<tr>
<td>98 – 106</td>
<td>102</td>
</tr>
<tr>
<td>107 – 115</td>
<td>111</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>

Based on Table 2, it was then analyzed descriptively to obtain an average score of 84.68, a median of 83, and a mode of 75. It is known that the quality of the THK-based character education strengthening variable obtained an average score of 84.68, a median of 83, and a mode of 75, which is at an interval of 82.5≤X<97.5. It means that strengthening Tri Hita Karana-based character education is rated as good. Students’ mathematics learning outcomes are taken from the formative chapters of even semester mathematics subjects, which are analyzed descriptively. Based on the data obtained, it can be seen that the average value for mathematics learning outcomes is 86.27, 86.00 for median, 80.00 for mode, 8.50 for standard deviation, 61.00 for minimum score, and 100.00 for maximum score presented in Table 3.

<table>
<thead>
<tr>
<th>Interval</th>
<th>Strengthening Character Education Based on Tri Hita Karana</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Midpoint (X_i)</td>
</tr>
<tr>
<td>61 – 65</td>
<td>63</td>
</tr>
<tr>
<td>66 – 70</td>
<td>68</td>
</tr>
<tr>
<td>71 – 75</td>
<td>73</td>
</tr>
</tbody>
</table>
The data in Table 3 of the frequency distribution was then analyzed descriptively to obtain a mean of 86.27, a median of 86, and a mode of 80. It is known that the quality of the students' mathematics learning outcome variables obtained an average score of 86.27, which is in the interval $75 \leq X \leq 100$. It means that students' mathematics learning outcomes are rated as very good. The Pearson Product Moment Correlation Test or simple regression test was carried out to determine whether there was a relationship between Tri Hita Karana-based character values and fourth-grade mathematics learning outcomes. However, prerequisite tests, including normality and linearity tests, were carried out to draw hypotheses. The results of a simple correlation test between Tri Hita Karana-based character values variables and students' mathematics learning outcomes are presented in Table 4.

Table 4. Product Moment Correlation Test Results

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Strengthening Character Education Based on Tri Hita Karana</th>
<th>Mathematics Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthening Character Education Based on Tri Hita Karana Pearson Correlation</td>
<td>1</td>
<td>0.673**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>N</td>
<td>0.000</td>
</tr>
<tr>
<td>Mathematics Learning Outcomes</td>
<td>Pearson Correlation</td>
<td>0.673**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>N</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.05 level (2-tailed)

Based on Table 4, the correlation coefficient is 0.673, and the significant value is 0.000. The correlation coefficient obtained is 0.673. It can be seen from the correlation coefficient interpretation table in the interval 0.60 – 0.799 that the level of relationship between the two variables is in the strong category. Then, with a significance level of 0.000 < 0.05 and $r_{count} (0.673) > r_{table} (0.195)$ at a significance level of 5%, it can be concluded that there is a positive and significant relationship between strengthening THK-based character education and mathematics learning outcomes of fourth-grade elementary school students. From the results, then from the analysis of the large correlation coefficient, the large coefficient of determination is also obtained, namely $R^2 = 0.452$ or a contribution of 45.2%. The mathematics learning outcome variable is determined by strengthening Tri Hita Karana-based character education with a contribution of 45.2%, and other factors influence the remaining 54.8%.

Discussion

Based on Tri Hita Karana (THK) and the mathematics learning outcomes of fourth-grade elementary school students. The analysis results show that the relationship level between the two variables is in the strong category, with a correlation coefficient of 0.673. It
indicates that the stronger Tri Hita Karana-based character education strengthens in mathematics learning, the more the students' mathematics learning outcomes also tend to increase.

This research indicates a link between Tri Hita Karana-based character education values and mathematics learning outcomes, especially in the cognitive aspect (Karma, 2023; Sari & Wulandari, 2022). It is in line with the statement that all students can foster harmony in discipline as one of the applications of high character education, namely seeking a harmonious relationship with God, with fellow humans, and with the natural environment by their respective obligations, then the students' character will become strong in facing the world in today's modern era (Gitatenia et al., 2020; Supratman et al., 2023). Discussion of other research findings also states that the character values contained in the Tri Hita Karana concept as a universal philosophy are relevant to be applied in various activities and learning activities to strengthen students' character. So, the results of this research can be used as a reference regarding the habit of Tri Hita Karana to improve students' cooperation character and will have a positive impact on themselves and the school environment (Emalasari & Wulandari, 2022; Susanti et al., 2022).

One of the strengths of this research is the use of powerful statistical analysis methods to test hypotheses and measure relationships between variables. Using the correlation coefficient and coefficient of determination, this research provides solid empirical evidence regarding the relationship between strengthening Tri Hita Karana-based character education and student mathematics learning outcomes. Apart from that, this research also took samples from fourth-grade elementary school students, which is the initial stage in character formation and student academic development, so the results of this research can make an important contribution to the discussion of character education at the elementary school level.

This research contributes to understanding the importance of strengthening Tri Hita Karana-based character education in mathematics learning. The research results show that strengthening character education can help students solve problems, communicate, understand concepts, experience good values, and apply them in everyday life. Thus, this research provides a strong foundation for schools and teachers to integrate Tri Hita Karana-based character education in the mathematics curriculum so that it can improve student learning outcomes. This research implies that strengthening Tri Hita Karana-based character education in mathematics learning significantly benefits students. As role models, teachers can shape students' character through their teaching and personality. Parents also have an important role in helping shape children's character at home by providing strengthening character education. With this understanding, teachers and parents can work together to create a learning environment that supports student character development.

Although this study provided significant results, several limitations need to be noted. This research was only conducted on fourth-grade elementary school students, so the generalization of the results needs to be limited to the same population. In addition, this study did not include other factors that could influence student learning outcomes, such as family environment and motivation factors. Therefore, further research can involve these factors to understand better the relationship between strengthening Tri Hita Karana-based character education and mathematics learning outcomes. Future research could involve a larger sample and a higher education level to obtain wider generalizations. In addition, research can involve other factors influencing student learning outcomes, such as family environment, motivation, and learning styles. Qualitative research methods can be used to gain deeper insight into students' experiences in strengthening character education based on Tri Hita Karana and its impact on their learning outcomes.
4. CONCLUSION

Based on the research results, it can be concluded that there is a positive and significant relationship between strengthening character education based on Tri Hita Karana (THK) and the mathematics learning outcomes of fourth-grade elementary school students. This research reveals that the higher Tri Hita Karana-based character education strengthens in mathematics learning, the more students' mathematics learning outcomes tend to increase. These results align with previous research, which shows that the character values contained in the Tri Hita Karana concept are very relevant in forming student characters. This research provides an important contribution to understanding the importance of strengthening Tri Hita Karana-based character education in mathematics learning, with the implication that teachers and parents can play an active role in shaping students' character through a learning environment that supports character development.

5. REFERENCES


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