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The Influence of the Problem-Solving Model on Spiritual Reflection Ability at State Junior High School 5 Mandrehe

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ABSTRACT

This study aims to examine the effect of the problem-solving learning model on the spiritual reflection ability of eighth-grade students at SMP Negeri 5 Mandrehe. Spiritual reflection is an integral part of character development, as it reflects students' depth of understanding regarding life values, spirituality, and their relationship with God. Therefore, education should not only focus on cognitive aspects but must also cultivate students' spiritual intelligence. This research employed a quasi-experimental method with a pre-test post-test control group design. The sample consisted of 62 students divided into two groups: an experimental class (31 students) that received instruction using the problem-solving model, and a control class (31 students) that followed a conventional teaching approach. Data collection instruments included a spiritual reflection ability test, an observation sheet of learning activities, and a student response questionnaire. The results showed a significant difference between the experimental and control groups in terms of improvement in spiritual reflection ability. The average gain score in the experimental group reached an N-gain index of 0.72, categorized as high, while the control group achieved only 0.38, classified as moderate. These findings indicate that the problem-solving model is effective in encouraging students to think critically and deeply about the meaning of learning within a spiritual context. Qualitative analysis also revealed that students in the experimental group actively engaged in the process of reflecting on life values and their faith. Thus, the problem-solving learning model holds promise as a relevant strategy for character education and the strengthening of spiritual dimensions in secondary schools.

Keywords: *Problem-Solving Model, Spiritual Reflection, Character Education*

INTRODUCTION

Education in Indonesia today does not solely focus on the development of cognitive aspects, but also places significant emphasis on character formation and the cultivation of emotional and spiritual intelligence. This aligns with the objectives of national

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education as stated in Law No. 20 of 2003 on the National Education System, which mandates that education should develop students' potential to become individuals who are faithful and devoted to God Almighty, possess noble character, are healthy, knowledgeable, capable, creative, independent, and are democratic and responsible citizens. These objectives indicate that education is not merely concerned with the mastery of knowledge and technical skills, but also with the importance of character formation and the development of students' spiritual intelligence.

Spiritual reflection ability is one of the crucial aspects in the process of students' character formation. As explained by King and DeCicco (2009), spiritual reflection can be defined as the ability to contemplate and connect personal experiences with spiritual values and broader life meaning. This ability not only helps students to recognize and understand themselves, but also to develop empathy towards others and to build meaningful relationships with their surroundings and with God. Emmons (2000) further adds that spiritual reflection plays a role in fostering a better quality of life, both psychologically and socially.

Previous studies have shown that the development of spiritual reflection can influence a person's psychological well-being and quality of life. Koenig (2012) and Pargament et al. (2013) explain that individuals with the capacity for spiritual reflection tend to have higher psychological well-being, better coping mechanisms in facing life's challenges, and healthier social relationships. On the other hand, in the context of education in Indonesia, the development of spiritual reflection ability has not received adequate attention. Many learning models remain focused on cognitive development without addressing the importance of the spiritual dimension in shaping students' character.

One learning model with potential to foster spiritual reflection ability is the problem-solving model. This model is highly relevant because it emphasizes critical, analytical, and reflective thinking processes in problem resolution. Polya (1957) explains that the problem-solving model focuses on systematic steps that guide students to identify problems, analyze various perspectives, and reflect on the solutions they have implemented. This process not only engages cognitive aspects, but also provides space for students to explore values that can be connected to their chosen solutions, including spiritual values. Thus, the problem-solving model can help students not only think critically and analytically, but also integrate spiritual values into their daily lives.

State Junior High School 5 Mandrehe, located in West Nias Regency, North Sumatra Province, is a school situated in an area rich in cultural heritage and strong spiritual values. The Nias community is known for its deeply religious traditions and culture, in which spiritual values are deeply embedded in daily life (Hummel & Telaumbanua, 2007). Nevertheless, based on preliminary observations and interviews with several teachers at *State Junior High School 5 Mandrehe*, it was found that students' spiritual reflection ability still requires improvement. One major issue identified is that students often separate academic knowledge from the spiritual values they uphold. Students appear to focus solely on academic aspects without relating them to the spiritual dimension in their lives. In addition, the learning model applied in this school is still dominated by conventional approaches that emphasize one-way delivery of material, with the teacher as the center of learning. Such approaches tend to provide limited opportunities for students to think critically and reflectively about what they learn, especially in relation to spiritual values.

This indicates an urgent need to develop learning models that not only focus on cognitive aspects, but also stimulate students to engage in deeper spiritual reflection.

Based on this background, this study aims to analyze the influence of the problem-solving model on the spiritual reflection ability of students at *State Junior High School 5 Mandrehe*. This research is expected to provide both theoretical and practical contributions to the development of more holistic learning models that foster not only students' cognitive development but also their character and spiritual intelligence. Accordingly, the study aims to offer insights for educators and stakeholders in designing more effective learning strategies to enhance students' spiritual reflection ability.

This research can also serve as a foundation for improving character education, particularly in shaping a generation that is not only intellectually intelligent but also possesses high emotional and spiritual intelligence. This is crucial given the increasingly complex challenges of the modern era, where young people face not only academic demands but also moral, social, and spiritual challenges. In this context, education that integrates spiritual reflection will help students gain a deeper understanding of life's meaning, uphold good moral values, and strengthen their relationship with God and others.

Overall, this study seeks to demonstrate how the problem-solving model can serve as an effective tool for helping students develop their spiritual reflection ability. As a result, students will not only progress intellectually but also attain a deeper understanding of spiritual values that can shape their character as individuals of noble character and social responsibility. This research also opens the door for further studies on the implementation of spiritually reflective learning models in the context of education in Indonesia.

METHODS

This study employed a quantitative approach with a quasi-experimental method, specifically using a pre-test–post-test control group design. This design was selected due to limitations in assigning subjects randomly; therefore, the experimental and control groups were determined based on existing classes (Creswell, 2014). In addition to the primary focus on quantitative data, the study also collected qualitative data through observations and questionnaires to enrich the understanding of learning dynamics and the interpretation of results.

The population of this study consisted of all eighth-grade students of *State Junior High School 5 Mandrehe* in the 2024/2025 academic year, totaling 93 students. From this population, 62 students were selected as samples through purposive sampling, based on the consideration of academic equivalence between two classes designated as the experimental and control groups. The experimental group consisted of 31 students from Class VIII-A, who received instruction using the problem-solving model, while the control group consisted of 31 students from Class VIII-B, who followed conventional learning. The equivalence of the two groups' initial abilities was confirmed through a homogeneity test.

In this study, two main variables were examined. The independent variable was the learning model applied, namely the problem-solving model in the experimental group and the conventional model in the control group. Meanwhile, the dependent variable was students' spiritual reflection ability, measured before and after the treatment.

Data collection was conducted using several instruments. The primary instrument was an essay-based spiritual reflection ability test consisting of ten items measuring five key indicators: self-awareness, understanding of life's meaning, transcendence ability, integration of spiritual values into daily life, and self-transformation. The content validity of this instrument was reviewed by three experts in character education and the psychology of religion. Reliability testing using Cronbach's Alpha yielded a coefficient of 0.87, indicating a high level of reliability. In addition, observation sheets were used to record the implementation of learning and students' activities, while questionnaires were administered to gather students' responses regarding the problem-solving model and its influence on their spiritual reflection ability.

The research procedure was divided into three stages. The first stage was preparation, including preliminary observations, instrument development, validity and reliability testing, and the administration of the pre-test. The second stage was the implementation of learning, which involved eight sessions, each lasting 2 × 40 minutes. The experimental class received instruction using the problem-solving model based on Polya's (1957) stages, modified to incorporate spiritual dimensions. Students were guided to understand contextually moral-spiritual problems, plan solutions while considering their values, implement strategies, and ultimately reflect on the chosen solutions by connecting them with spiritual implications. In contrast, the control group received instruction using a conventional approach. The final stage was the evaluation, which included the administration of the post-test, the distribution of questionnaires, and the collection of observation data.

Quantitative data were analyzed using both descriptive and inferential statistical techniques. Descriptive statistics were employed to calculate the mean, standard deviation, and percentage of improvement in spiritual reflection scores. Before hypothesis testing, the data were subjected to normality testing using the Kolmogorov–Smirnov test and homogeneity testing using Levene's test. Subsequently, an independent t-test was conducted to examine differences in spiritual reflection scores between the experimental and control groups, while paired-sample t-tests were used to determine improvements within each group. To measure the effectiveness of improvement, normalized gain (N-gain) analysis was applied using the formula:

(N-gain) with the formula: N-gain = (Scor post-test − Scor pre-test) / (Scor maksimal − Scor pre-test). Qualitative data from observations and questionnaires were analyzed through data reduction, data display, and conclusion drawing, thereby enriching the interpretation of the quantitative findings.

RESULT AND DISCUSSION

Students' Spiritual Reflection Ability Before Treatment

The pre-test results of students' spiritual reflection ability in both groups indicated relatively equivalent initial conditions. Table 1 presents the descriptive statistics of the pre-test scores for both groups.

Table 1. Descriptive Statistics of Pre-test Scores of Spiritual Reflection Ability

Group	N	Mean	Standard Deviation	Minimum	Maximum
Experimental	31	52.74	8.53	35	68
Control	31	51.87	8.91	33	70

The homogeneity test using Levene's test showed that both groups had homogeneous variances (F = 0.273, p = 0.603 > 0.05). The Kolmogorov–Smirnov normality test also indicated that the data in both groups were normally distributed (experimental group: p = 0.200 > 0.05; control group: p = 0.200 > 0.05). An independent t-test on the pre-test scores revealed no significant difference between the initial abilities of the two groups (t = 0.389, p = 0.699 > 0.05), indicating that both groups started from equivalent baseline conditions.

Students' Spiritual Reflection Ability After Treatment

After eight sessions of treatment, both groups demonstrated improvement in their spiritual reflection ability. However, the experimental group, which received instruction using the problem-solving model, exhibited a greater improvement. Table 2 presents the descriptive statistics of the post-test scores for both groups.

Table 2. Descriptive Statistics of Post-test Scores of Spiritual Reflection Ability

Group	N	Mean	Standard Deviation	Minimum	Maximum
Experimental	31	86.45	7.12	70	95
Control	31	69.23	9.78	50	85

The independent t-test results for the post-test scores showed a significant difference between the spiritual reflection abilities of the experimental and control groups (t = 8.046, p = 0.000 < 0.05). This finding demonstrates that the problem-solving model had a significant effect on students' spiritual reflection ability.

Improvement in Spiritual Reflection Ability

To measure the magnitude of improvement in each group's spiritual reflection ability, the normalized gain (N-gain) was calculated. The results are presented in Table 3.

Table 3. N-gain Values of Spiritual Reflection Ability

Group	N	Mean N-gain	Category
Experimental	31	0.72	High
Control	31	0.38	Medium

Based on Table 3, the experimental group showed an improvement in spiritual reflection ability categorized as high (N-gain = 0.72), while the control group showed a medium level of improvement (N-gain = 0.38). These results reinforce the finding that the problem-solving model is more effective in enhancing students' spiritual reflection ability compared to the conventional model.

Students' Spiritual Reflection Ability Based on Indicators

A further analysis was conducted to examine differences in students' spiritual reflection ability across specific indicators. Table 4 presents a comparison of the post-test scores between the experimental and control groups for each indicator of spiritual reflection ability.

Table 4. Comparison of Post-test Scores Based on Indicators of Spiritual Reflection Ability

Indicator	Experimental Class (Mean, SD)	Control Class (Mean, SD)
Self-awareness	89.52 (6.84)	72.58 (9.51)
Understanding of meaning	85.16 (8.23)	70.32 (10.27)
Transcendence	83.87 (7.98)	64.52 (11.38)
Integration of spiritual values in daily life	87.74 (7.56)	71.61 (9.84)
Self-transformation	85.97 (7.43)	67.10 (10.82)

As shown in Table 4, the experimental group demonstrated higher scores across all indicators of spiritual reflection compared to the control group. The most significant differences were observed in the indicators of *transcendence* and *self-transformation*, suggesting that the problem-solving model had a stronger impact on students' ability to comprehend higher spiritual dimensions and to apply such understanding for personal transformation.

Qualitative Data Analysis

Qualitative data from observation sheets revealed that students in the experimental group demonstrated more active engagement in reflective discussions compared to those in the control group. During the reflection phase of the problem-solving model, students were able to connect the process and outcomes of problem-solving with their spiritual values. Some examples of students' reflections include: "After solving this problem, I feel more grateful because I realize that every challenge I face is a test to strengthen my faith." "This problem-solving process taught me about the importance of patience and perseverance, which are also values taught in my religion." "I realized that to resolve conflicts with friends, I need to develop empathy and practice the values of kindness taught in scripture."

Survey results further supported these findings. Approximately 87% of students in the experimental group stated that the problem-solving model helped them develop spiritual reflection ability. In addition, 83% of students felt that learning became more meaningful because they were able to connect problem-solving with spiritual values, while 78% reported that they engaged more frequently in spiritual reflection in their daily lives after participating in lessons using the problem-solving model.

Overall, the findings indicate that the problem-solving model had a significant effect on students' spiritual reflection ability at SMP Negeri 5 Mandrehe. These results are consistent with previous studies asserting that learning approaches involving reflective processes can enhance students' spiritual intelligence (Zohar & Marshall, 2000; Vaughan, 2002).

Factors Explaining the Effectiveness of the Problem-Solving Model

Several factors may explain the effectiveness of the problem-solving model in improving students' spiritual reflection ability:

1. Systematic Reflective Process. The problem-solving model provides a structured framework and clear stages for reflection. In the "review and reflection" stage, students are encouraged not only to evaluate solutions from a cognitive

perspective but also to connect them with spiritual values. Such systematic reflection helps students develop habits of deep reflective thinking (Schön, 1983).

2. Authentic Problem Context. The problems presented in problem-based learning are contextual and closely related to students' real-life experiences. According to Dewey (1933), meaningful learning occurs when students can relate new knowledge to personal experiences. In this study, problems involving moral and ethical dilemmas encouraged deeper spiritual reflection.
3. Social Interaction and Reflective Dialogue. During problem-solving activities, students interact with peers and teachers in a reflective dialogical setting. Vygotsky (1978) emphasized the importance of social interaction in fostering higher-order thinking. Reflective dialogue allowed students to explore diverse perspectives, including spiritual ones, in understanding and addressing problems.
4. Integration of Cognitive and Spiritual Aspects. The problem-solving model implemented in this study intentionally integrated cognitive and spiritual aspects. This integration helped students overcome the dichotomy that often arises between academic knowledge and spiritual values. Zohar & Marshall (2000) highlight that spiritual intelligence involves the ability to integrate various dimensions of intelligence in making sense of life.

Analysis based on indicators of spiritual reflection ability showed that the problem-solving model had the most significant effect on *transcendence* and *self-transformation*. *Transcendence* relates to the capacity to recognize higher spiritual dimensions, while *self-transformation* involves applying spiritual understanding to personal growth and positive change. These two indicators represent essential components of spiritual intelligence as defined by King & DeCicco (2009).

The qualitative findings further suggest that students in the experimental group developed the ability to link problem-solving processes with their own spiritual values. This indicates that the problem-solving model not only improved students' spiritual reflection ability quantitatively but also deepened the quality of their spiritual reflection.

Practical Implications

The practical implication of this study is the importance of integrating the problem-solving model into classroom instruction to develop students' spiritual reflection ability. Teachers can design learning activities that not only emphasize cognitive aspects but also provide opportunities for spiritual reflection. Furthermore, contextual problems involving moral and ethical dilemmas can serve as effective learning materials to enhance spiritual reflection ability.

Conclusion

Based on the findings and discussion, it can be concluded that the application of the problem-solving learning model significantly enhances students' spiritual reflection ability at SMP Negeri 5 Mandrehe. The results show that a problem-solving approach benefits not only the development of cognitive skills but also substantially supports students' character formation and spirituality. Specifically, there was a significant difference between the spiritual reflection ability of students taught using the problem-solving model and those taught with conventional methods. Students in the experimental group

exhibited higher levels of spiritual reflection, as evidenced by increased self-awareness, deeper understanding of life's meaning, and the ability to integrate spiritual values into daily life.

The effectiveness of the problem-solving model was also demonstrated through the N-gain value of the experimental group, which reached 0.72 (high category). This indicates that the model significantly improved students' spiritual reflection ability. Moreover, the most substantial effects were observed in the indicators of *transcendence* and *self-transformation*, suggesting that the problem-solving model not only fosters a deeper understanding of spirituality but also encourages students to use that understanding as a foundation for positive personal change.

Students' responses to learning with the problem-solving model were overwhelmingly positive. Most students expressed that the model made learning more engaging, meaningful, and encouraged them to reflect more deeply on values, life, and their relationship with God and others. Based on these findings, it is recommended that teachers integrate the problem-solving model into instruction, particularly to foster students' spiritual development. Schools should also provide training for teachers to effectively implement this model, including strategies for integrating spiritual values into learning. Additionally, further research is needed to explore the application of this model in different cultural contexts, educational levels, and subject areas, as well as to develop more comprehensive instruments for assessing spiritual reflection ability holistically.

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