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The Effectiveness of the Numeracy Conversation Learning Model in Enhancing Educational Report Card Outcomes through the Strengthening of Students' Numeracy Competence at SDN 3 Plampang

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Abstract
Low numeracy skills among students remain a major challenge in efforts to improve educational quality and school performance, as reflected in the Education Report Card indicators. This issue is also observed at State Elementary School 3 Plampang, where many students continue to experience difficulties in comprehending and applying mathematical concepts in real-life contexts. Addressing this challenge requires the implementation of instructional models that encourage active student participation and meaningful learning experiences. One potential approach is the Numeracy Talk Model, which emphasizes mathematical discussions, communication, collaboration, and contextual problem-solving activities. This study employed a quantitative approach using an explanatory research design. The study population comprised 124 students at State Elementary School 3 Plampang during the 2025/2026 academic year. A total of 62 students from Grades IV, V, and VI were selected as the research sample through a total sampling technique. Data were collected using numeracy achievement tests (pre-test and post-test), observation sheets, documentation, and questionnaires. The collected data were analyzed using descriptive and inferential statistical techniques, including normality testing, homogeneity testing, linear regression analysis, and the Sobel test, with the support of SPSS software. The findings showed that the implementation of the Numeracy Talk Model descriptively contributed to improvements in students' numeracy skills, as indicated by the increased mean scores and learning outcomes in the experimental group. However, the regression analysis demonstrated that the Numeracy Talk Model did not have a statistically significant effect on students' Education Report Card achievement (Sig. = 0.521 > 0.05). Conversely, students' numeracy competence was found to have a significant effect on Education Report Card achievement (Sig. = 0.029 < 0.05). Furthermore, the Sobel test results indicated that numeracy competence did not significantly mediate the relationship between the Numeracy Talk Model and Education Report Card achievement. This study concludes that the Numeracy Talk Model has not yet produced a significant direct impact on students' Education Report Card achievement at State Elementary School 3 Plampang. Nevertheless, numeracy competence was identified as an important determinant contributing to improvements in Education Report Card achievement. Therefore, schools and teachers are encouraged to continuously develop students' numeracy skills through active, interactive, communicative, and contextual learning approaches, supported by sustainable numeracy-oriented programs to improve the overall quality of education.

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1. INTRODUCTION

Numeracy is a fundamental component of primary education curricula that plays a crucial role in developing students' logical thinking abilities, problem-solving skills, and practical life competencies (National Council of Teachers of Mathematics, 2021). Beyond the ability to perform basic calculations, numeracy encompasses the capacity to interpret

data, understand graphical representations, evaluate quantitative information, and apply mathematical reasoning to solve problems in real-life contexts.

In Indonesia, numeracy competence remains a major concern among education experts due to students' limited ability to understand and apply mathematical concepts in everyday situations. The results of the Programme for International Student Assessment (PISA) have frequently indicated that Indonesian students' mathematics performance remains below the average level of OECD countries. This condition does not merely reflect students' weaknesses in computational skills but also highlights fundamental issues in mathematics instruction, which has traditionally emphasized memorization of formulas and procedural exercises rather than conceptual understanding, mathematical reasoning, and problem-solving skills.

Educational researchers argue that low numeracy achievement is closely associated with students' reading literacy skills. Many students encounter difficulties when solving contextual problems presented in the form of mathematical narratives because they are unable to translate real-world situations into appropriate mathematical representations. Furthermore, teachers' readiness to implement contemporary numeracy-oriented learning approaches remains uneven across educational settings. A considerable number of teachers continue to rely on conventional instructional practices that prioritize obtaining correct answers rather than encouraging students' reasoning processes, mathematical communication, and reflective thinking. Inequalities in educational quality among regions, limited learning facilities, and weak reading cultures further exacerbate numeracy challenges in Indonesia.

The Indonesian government has implemented various initiatives to improve students' numeracy competence, including the Minimum Competency Assessment (Asesmen Kompetensi Minimum/AKM) and the National Numeracy Movement. These policies aim to transform the orientation of education from merely mastering subject content toward developing higher-order thinking skills and the ability to apply knowledge in authentic contexts. However, educational scholars emphasize that improving numeracy cannot be achieved solely through curriculum reform or assessment transformation. Sustainable improvement requires comprehensive efforts involving teacher professional development, early literacy and numeracy habituation, and the implementation of contextual learning approaches that are relevant to students' daily experiences.

The condition of numeracy achievement in West Nusa Tenggara (Nusa Tenggara Barat/NTB) reflects similar challenges at the national level, particularly regarding students' ability to understand and apply mathematical concepts in everyday life. Various educational evaluations reveal that many students in NTB still experience difficulties in solving reasoning-based and contextual mathematical problems, especially in areas with limited access to educational resources. Experts suggest that these challenges are influenced by several factors, including unequal reading literacy levels, inadequate learning facilities, and instructional approaches that remain dominated by memorization and procedural practices. Nevertheless, local governments and schools in NTB have initiated various programs to strengthen numeracy through the implementation of AKM, teacher training programs, and contextual learning based on local environments to gradually enhance students' critical thinking and problem-solving abilities.

Similarly, numeracy development in Sumbawa remains a significant educational challenge, particularly in relation to students' ability to interpret reasoning-based questions and apply mathematical knowledge in real-world situations. This condition is influenced by several factors, including unequal access to education, limited literacy culture, and teaching practices that still emphasize basic calculation procedures and

memorization. Teachers have reported that many students experience difficulties in understanding mathematical word problems and connecting abstract mathematical concepts with authentic situations. However, educational institutions and local authorities have begun strengthening numeracy through teacher capacity-building programs, contextual mathematics instruction, and integrated literacy–numeracy initiatives to support the development of students' critical thinking skills in Sumbawa.

At the primary school level, students' academic achievement is strongly influenced by their foundational understanding of mathematical concepts, particularly number operations, measurement concepts, and contextual problem-solving abilities. The Ministry of Education and Culture (2022) reported that the average mathematics achievement of Indonesian elementary school students remains below the minimum competency standard, particularly in regions characterized by high poverty levels and limited educational access.

Preliminary observations at State Elementary School 3 Plampang (SDN 3 Plampang), located in a rural area of Sumbawa Regency, indicate similar challenges. Internal school data (2023) reveal several important conditions: (1) approximately 68% of students obtained mathematics scores below the minimum mastery criterion (KKM); (2) the overall average report card score was 70.2, which was considerably lower than the provincial average achievement of 78.5; and (3) parental involvement in teaching and learning activities remained relatively low, with only 35% of parents actively participating in supporting students' learning processes (Educational Report Card Report, 2023).

These conditions raise concerns that inadequate numeracy skills may contribute to declining learning motivation, limited parental engagement, and reduced opportunities for students to successfully continue their education at more competitive secondary levels. Therefore, innovative instructional approaches are required to address students' numeracy difficulties, particularly in rural primary school contexts.

One potential approach to improving this condition is the implementation of the Numeracy Talk Model (NTM). The Numeracy Talk Model is an interactive instructional approach that integrates open mathematical dialogue, visual representations, and manipulative activities to develop students' conceptual understanding through contextual learning experiences. Previous studies in Indonesia (Sutrisno & Hadi, 2019; Prasetyo et al., 2020) and internationally (Clements & Sarama, 2018) have demonstrated that dialogue-based learning interventions can enhance several aspects of mathematics learning, including: (1) students' active engagement in the learning process, reflected through increased on-task participation; (2) conceptual understanding through verbal explanations supported by concrete representations; and (3) intrinsic motivation, as students perceive that their ideas and perspectives are valued during classroom discussions.

Despite these promising findings, most previous studies have been conducted in urban educational settings or at the junior secondary school level, with limited samples and insufficient investigation of psychological mediating factors (such as self-efficacy) and rural geographical contexts. Consequently, further empirical investigation is needed to examine the effectiveness of interactive numeracy-based learning models in improving elementary students' mathematical understanding, particularly in underrepresented rural areas.

According to Han and Susanto (2017), numeracy refers to an individual's ability to utilize numbers, symbols, and fundamental mathematical concepts to solve practical problems across various real-life situations. Numeracy extends beyond computational

skills and includes the ability to comprehend information presented through tables, graphs, and statistical data, as well as to make informed decisions based on quantitative information.

Therefore, this study is expected to provide significant contributions to improving the quality of primary education, particularly by strengthening numeracy as a fundamental pillar of students' academic achievement. Specifically, this research aims to examine the effectiveness of the Numeracy Talk Model in enhancing students' numeracy competence at SDN 3 Plampang and to provide empirical evidence regarding the implementation of contextual and interactive mathematics learning approaches in rural educational settings..

2. RESEARCH METHODS

This study was conducted from April to June 2026 at State Elementary School 3 Plampang (SDN 3 Plampang), Plampang District, Sumbawa Regency, Indonesia. The research site was selected based on preliminary observations indicating that students' numeracy skills require further improvement to support the enhancement of numeracy achievement as reported in the school's Education Report Card. Furthermore, SDN 3 Plampang represents a diverse student population and provides an appropriate context for implementing innovative learning models, particularly the Numeracy Talk Model.

This study employed a quantitative approach using an experimental research design to examine the effectiveness of the Numeracy Talk Model in improving Education Report Card achievement through strengthening students' numeracy skills. The research variables consisted of the Numeracy Talk Model as the independent variable (X), students' numeracy ability as the mediating variable (Z), and numeracy achievement in the Education Report Card as the dependent variable (Y). Data were collected through tests, questionnaires, observations, and documentation. The research instruments employed a four-point Likert scale consisting of Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). Data analysis was conducted using descriptive and inferential statistics, including normality tests, homogeneity tests, paired sample t-tests, and improvement analysis using the normalized gain (N-Gain) test. Statistical analyses were performed using statistical software such as SPSS and SmartPLS.

The population of this study comprised all students enrolled at SDN 3 Plampang during the 2025/2026 academic year, totaling 124 students. A population refers to the entire group of individuals possessing characteristics relevant to the objectives of a study (Saunders et al., 2019). The research sample was determined using a non-probability sampling technique through total sampling. According to Field (2018), a sample represents a subset of a population selected for analysis and serves as the basis for drawing research conclusions. Meanwhile, Babbie (2021) explains that non-probability sampling is a sampling technique in which not all members of the population have an equal opportunity to be selected. The sample consisted of 62 students from Grades IV, V, and VI. These grade levels were selected because students at this stage have developed stronger reading comprehension, ability to understand instructions, and numerical reasoning skills compared with students in lower grades.

The research variables were operationally defined as follows. The Numeracy Talk Model (X) consisted of indicators including active discussion, understanding of numeracy problems, collaboration, confidence in expressing opinions, and the application of numeracy skills in daily life, based on Vygotsky's (1978) social learning theory. Students' numeracy ability (Z) included indicators of number concept understanding, data interpretation, contextual problem-solving, the use of symbols/tables/graphs, and the

application of numeracy in real-life situations, referring to the OECD numeracy framework through PISA (2019). Meanwhile, numeracy achievement in the Education Report Card (Y) included improvements in numeracy assessment results, school achievement completion levels, enhancement of students' competencies, alignment with Education Report Card indicators, and the contribution of learning processes to educational quality improvement (Ministry of Education, Culture, Research, and Technology, 2022).

The data collected in this study were quantitative data in the form of pretest scores, posttest scores, learning observation results, and numeracy achievement indicators from the Education Report Card. Sugiyono (2019) defines quantitative data as numerical data that can be analyzed using statistical procedures. The data sources consisted of primary and secondary data. Primary data were obtained directly from students through tests and classroom observations, while secondary data were obtained from school documents, reports, and supporting archives (Arikunto, 2013; Creswell, 2014).

The data analysis procedure was conducted through several stages. First, descriptive statistical analysis was applied to describe the characteristics of the research data, including mean scores, maximum values, minimum values, and improvements in students' numeracy abilities (Sugiyono, 2019). Subsequently, a normality test was conducted to determine whether the data distribution met the assumptions required for parametric analysis (Ghozali, 2018). Hypothesis testing was performed using a paired sample t-test to compare students' numeracy abilities before and after the implementation of the Numeracy Talk Model. According to Walpole (2012), a paired sample t-test is used to analyze differences between two related measurements obtained from the same subjects. The research hypothesis was accepted when the significance value was lower than 0.05 ($p < 0.05$).

Prior to implementation, the research instruments underwent validity and reliability testing to ensure that they accurately and consistently measured the intended research variables. Instrument validity was assessed through content validity and empirical validity. Content validity was established through expert judgment to evaluate the alignment between instrument indicators and theoretical constructs. Meanwhile, empirical validity was examined using Pearson Product Moment correlation analysis. According to Sugiyono (2022), a valid instrument is a measurement tool capable of accurately assessing the intended construct. Instrument reliability was tested using Cronbach's Alpha coefficient to determine the internal consistency of the measurement instruments. Arikunto (2019) stated that a reliable instrument produces relatively consistent measurement results when applied under similar conditions. Instruments that met the validity and reliability criteria were subsequently used as research data collection instruments.

3. RESULTS AND DISCUSSION

This section explains the research results and provides a comprehensive discussion. The discussion can be divided into several subchapters.

3.1. Research Results

Before conducting data analysis, the research instruments were first evaluated through validity and reliability testing to ensure that the instruments were capable of measuring the research variables accurately and consistently. A valid instrument indicates its ability to measure the intended construct, while a reliable instrument demonstrates consistency of measurement results when applied under relatively similar conditions (Sugiyono, 2022). The instrument testing procedure was conducted systematically,

beginning with the validation and reliability assessment of the numeracy test instrument. After the instrument was confirmed to meet the required criteria, it was administered as a pretest to both the experimental and control groups. Subsequently, the experimental class received treatment through the implementation of the Numeracy Talk Model, whereas the control class received conventional learning activities. Following the intervention, both groups were administered a posttest. The collected data were then analyzed using descriptive statistics, normality testing, homogeneity testing, and hypothesis testing procedures.

The validity test was conducted to determine the extent to which each test item was able to measure students' numeracy abilities according to the predetermined indicators. The validity analysis employed Pearson Product Moment correlation assisted by IBM SPSS Statistics. The instrument was tested on 31 respondents, and the validity criterion was determined by comparing the calculated correlation coefficient (r calculated) with the critical value (r table) at a 5% significance level. With 31 respondents, the obtained r table value was 0.355. An item was considered valid when the r calculated value exceeded the r table value (r calculated > r table).

The validity test results showed that out of 20 numeracy test items, 19 items met the validity criteria, while one item was categorized as invalid. The highest correlation coefficient was obtained by items number 10 and 11, with an r calculated value of 0.849, indicating a strong relationship between these items and the measured numeracy construct. Meanwhile, item number 20 obtained the lowest correlation coefficient of 0.276, which was lower than the critical value of 0.355. Furthermore, the significance value of item number 20 was 0.133 (>0.05), indicating that the item did not significantly contribute to measuring students' numeracy abilities. Therefore, item number 20 was excluded, and the remaining 19 valid items were considered appropriate for use as research instruments.

Reliability testing was subsequently performed to determine the internal consistency of the numeracy instrument. Reliability refers to the degree to which an instrument produces consistent measurement results when applied repeatedly under similar conditions. According to Sugiyono (2022), an instrument is considered reliable when the Cronbach's Alpha coefficient exceeds 0.70. The reliability analysis showed that the instrument obtained a Cronbach's Alpha value of 0.947. This value is substantially higher than the recommended minimum threshold, indicating that the numeracy test instrument possessed a very high level of internal consistency.

The high Cronbach's Alpha coefficient (0.947) indicates that the items within the instrument had strong interrelationships in measuring students' numeracy abilities. Therefore, the instrument was considered capable of generating stable and consistent data and was appropriate for measuring numeracy competence in both the experimental and control groups.

Descriptive statistical analysis was conducted to provide an overview of students' numeracy achievement before and after the implementation of the learning intervention. The analysis included minimum scores, maximum scores, mean scores, standard deviations, and score ranges. The results showed that the experimental class obtained an average pretest score of 53.77, with a minimum score of 30 and a maximum score of 75. After implementing the Numeracy Talk Model, the average posttest score increased significantly to 81.61, with scores ranging from 60 to 100. This indicates an improvement of 27.84 points in the experimental group.

In comparison, the control class obtained an average pretest score of 49.19, with a minimum score of 25 and a maximum score of 75. After conventional learning activities,

the average posttest score increased to 75.32, with a minimum score of 40 and a maximum score of 94. The control group experienced an improvement of 26.13 points. Although both groups demonstrated improvement, the experimental class achieved a higher posttest mean score (81.61) compared with the control class (75.32). Furthermore, the experimental class reached the highest score of 100, while the control class achieved a maximum score of 94.

The analysis of score distribution also revealed differences between the two groups. The standard deviation of the experimental class decreased from 13.845 during the pretest to 10.613 during the posttest, indicating that students' numeracy abilities became more evenly distributed after the implementation of the Numeracy Talk Model. Similarly, the control class experienced a decrease in standard deviation from 12.254 to 11.450; however, the reduction was smaller than that observed in the experimental class. Regarding score range, the experimental class showed a decrease from 45 to 40, suggesting reduced achievement gaps between high- and low-performing students. Conversely, the control class experienced an increase in range from 50 to 54, indicating greater variation in students' achievement after learning activities.

Overall, the descriptive findings indicate that the Numeracy Talk Model contributed to improving students' numeracy performance. This improvement was reflected in the increased average scores, higher maximum achievement, and more balanced distribution of students' scores in the experimental group compared with the control group.

Prior to conducting hypothesis testing, assumption tests were performed to ensure that the data met the requirements for parametric statistical analysis. The normality test was conducted to determine whether the pretest and posttest data from both the experimental and control groups followed a normal distribution. The Shapiro–Wilk test was applied using IBM SPSS Statistics, with the decision criterion that data are normally distributed when the significance value (Sig.) is greater than 0.05 (Ghozali, 2018). The results indicated that the significance values for the experimental pretest, experimental posttest, control pretest, and control posttest were 0.077, 0.330, 0.342, and 0.065, respectively. All significance values exceeded the threshold of 0.05, indicating that the data were normally distributed. Therefore, the assumption of normality was fulfilled, allowing further analysis using parametric statistical procedures.

Furthermore, a homogeneity test was conducted to determine whether the variance of posttest scores between the experimental and control groups was equivalent. The analysis employed Levene's Test for Equality of Variances. The results showed an F value of 0.033 with a significance value of 0.857. Since the significance value was greater than 0.05 (0.857 > 0.05), the variances of the two groups were considered homogeneous. This finding indicates that the differences observed between the experimental and control groups were not caused by unequal data variability but were more likely associated with the learning treatment provided during the research process.

3.3 Discussion

3.2.1 The Effect of the Numeracy Talk Model on Education Report Card Achievement

Hypothesis testing was conducted using regression analysis to examine the effect of the Numeracy Talk Model on students' Education Report Card achievement. The regression results showed that the Numeracy Talk Model did not have a significant direct effect on students' achievement. This was indicated by the significance value of 0.521 (>0.05), with an R Square value of 0.007, meaning that the model contributed only 0.7% to explaining variations in students' Education Report Card achievement. Therefore, the

first hypothesis (H1), stating that the Numeracy Talk Model significantly affects Education Report Card achievement, was rejected.

The insignificant effect suggests that the implementation of the Numeracy Talk Model alone was not sufficient to directly improve students' overall achievement indicators reflected in the Education Report Card. Although descriptive analysis showed an increase in students' numeracy scores after implementing the model, the statistical regression analysis indicated that the contribution of the model toward broader educational achievement was still limited.

From a theoretical perspective, Sanjaya (2016) explains that the effectiveness of a learning model is highly dependent on teachers' ability to design, implement, and evaluate the learning process. A learning model can produce optimal outcomes when students actively engage in learning activities through discussion, exploration, and problem-solving. Similarly, Trianto (2014) emphasizes that effective learning models should create interactive, meaningful, and student-centered learning environments that enable students to construct knowledge independently.

However, the findings of this study indicate that the Numeracy Talk Model had not yet achieved optimal implementation effectiveness. Several factors may explain this result, including limited instructional time, variations in students' readiness, and insufficient student engagement during numeracy discussions. Some students may still rely heavily on teacher explanations rather than actively constructing mathematical understanding through discussion activities. In addition, the very low contribution value ($R^2 = 0.007$) indicates that other factors, such as students' learning motivation, parental support, learning environment, and prior numeracy competence, may play a more dominant role in determining Education Report Card achievement.

This finding is consistent with Sari and Wahyuni (2022), who found that innovative learning models do not always produce significant improvements in learning outcomes when they are not supported by student readiness, effective classroom management, and consistent implementation. Therefore, in this study, the Numeracy Talk Model cannot yet be considered the primary determinant of students' Education Report Card achievement at SDN 3 Plampang.

3.2.2 The Effect of Numeracy Competence on Education Report Card Achievement

The second hypothesis examined the influence of students' numeracy competence on Education Report Card achievement. The regression analysis revealed a significant relationship between numeracy competence and students' achievement, as indicated by a significance value of 0.029 (<0.05). The obtained R Square value was 0.077, indicating that numeracy competence contributed 7.7% to variations in students' achievement. Therefore, H2, which states that numeracy competence significantly influences Education Report Card achievement, was accepted.

The findings demonstrate that students with stronger numeracy competence tend to achieve better academic outcomes. According to the OECD (2018), numeracy competence refers to an individual's ability to formulate, apply, and interpret mathematical concepts across various real-life contexts. Numeracy is not limited to computational skills but also involves reasoning, interpreting quantitative information, and solving contextual problems. Similarly, the National Council of Teachers of Mathematics (NCTM, 2000) emphasizes that effective mathematics learning should develop problem-solving abilities, logical reasoning, mathematical communication, and conceptual connections.

In the context of this study, students with higher numeracy competence were more capable of understanding learning materials, applying systematic problem-solving

strategies, and connecting mathematical concepts with real-life situations. These abilities enable students to perform better in assessments and contribute positively to their Education Report Card achievement. Conversely, students with limited numeracy competence may experience difficulties in interpreting numerical information, understanding mathematical concepts, and solving analytical problems, which may negatively affect their learning outcomes.

This result supports previous findings by Lestari and Yuliana (2023), who reported that numeracy competence significantly influences elementary students' learning achievement. Furthermore, Rahmawati et al. (2022) demonstrated that numeracy skills play an important role in improving students' academic performance, particularly in subjects requiring logical and analytical thinking abilities. Thus, numeracy competence represents an essential factor in improving students' educational achievement.

3.2.3 The Mediating Role of Numeracy Competence in the Relationship between the Numeracy Talk Model and Education Report Card Achievement

The mediation analysis was conducted to examine whether numeracy competence mediated the relationship between the Numeracy Talk Model and students' Education Report Card achievement. The Sobel test produced a calculated Z value of -1.51, which was lower than the critical Z value of 1.96 at the 0.05 significance level. Since $|Z| = 1.51 < 1.96$, the indirect effect was statistically insignificant. Therefore, H3, stating that numeracy competence mediates the effect of the Numeracy Talk Model on Education Report Card achievement, was rejected.

According to Baron and Kenny (1986), a mediation effect occurs when the independent variable significantly influences the mediator, the mediator significantly influences the dependent variable, and the independent variable also significantly affects the dependent variable. If one of these relationships is not statistically significant, the mediation pathway cannot be established. In this study, although numeracy competence significantly affected Education Report Card achievement, the Numeracy Talk Model did not significantly influence Education Report Card achievement, and the relationship between the learning model and numeracy competence was insufficient to produce a significant indirect effect.

Hayes (2018) further explains that mediation effects require sufficiently strong and statistically stable relationships among variables. When the initial relationship between variables is weak, the mediator cannot effectively bridge the relationship between the independent and dependent variables. Therefore, numeracy competence in this study functioned as an independent predictor of achievement rather than as a mediating mechanism between the Numeracy Talk Model and Education Report Card achievement.

This finding is consistent with Widodo et al. (2021), who argued that not all cognitive variables automatically function as mediators, particularly when the relationship between the independent variable and mediator is weak or inconsistent. Consequently, the improvement of students' achievement in this study was primarily associated with their numeracy competence rather than through the indirect mechanism of the Numeracy Talk Model.

4. CONCLUSION

Based on the results of data analysis and the comprehensive discussion presented in the previous sections, this study concludes that the Numeracy Talk Model did not have a significant effect on students' Education Report Card achievement at SDN 3 Plampang. This finding was indicated by the significance value of 0.521, which was greater than 0.05, and an R Square value of only 0.007 (0.7%). These results suggest that the implementation

of the Numeracy Talk Model has not yet provided a direct and significant contribution to improving students' overall learning achievement. Although the model was designed to enhance students' participation and numeracy learning experiences, its implementation alone was insufficient to influence broader achievement indicators reflected in the Education Report Card.

Furthermore, the study revealed that students' numeracy competence had a significant effect on their Education Report Card achievement at SDN 3 Plampang. This was demonstrated by the significance value of 0.029, which was lower than 0.05, and an R Square value of 0.077 (7.7%). These findings indicate that students with stronger numeracy competence tend to achieve better learning outcomes. Numeracy skills, including the ability to understand mathematical concepts, interpret information, and solve contextual problems, play an important role in supporting students' academic performance. Therefore, strengthening students' numeracy competence is an essential factor in improving educational achievement.

However, the mediation analysis showed that numeracy competence did not function as a mediating variable between the Numeracy Talk Model and Education Report Card achievement. This conclusion was supported by the Sobel test results, which produced a calculated Z value of -1.51, lower than the critical Z value of 1.96 at the 0.05 significance level. These findings indicate that the effect of the Numeracy Talk Model on students' achievement did not occur indirectly through numeracy competence. Instead, numeracy competence contributed independently to students' learning outcomes rather than serving as an intermediary mechanism linking the Numeracy Talk Model to Education Report Card achievement.

Overall, this study demonstrates that students' numeracy competence represents a more direct and significant factor influencing educational achievement compared with the implementation of the Numeracy Talk Model alone. Therefore, future efforts to improve numeracy-based learning should focus not only on adopting innovative instructional models but also on strengthening students' foundational numeracy skills, increasing active engagement, and implementing contextual learning strategies to achieve more optimal educational outcomes.

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