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Development of Math Corner Learning Media to Enhance Elementary Students' Understanding of Mathematical Concept

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Abstract

Students' low mathematical conceptual understanding and the limited use of concrete and interactive learning media in mathematics instruction have become significant challenges in elementary education. This study aimed to develop a Math Corner and examine its feasibility and effectiveness in improving mathematical conceptual understanding among fifth-grade students at MI NU Mafatihul Ulum Sunggingan Kudus. The study employed a Research and Development (R&D) method using the Borg and Gall model, consisting of ten stages, ranging from preliminary study to product dissemination and implementation. The developed product was a Math Corner equipped with learning media, including the Number Flipbook, Fraction Game Book, and PAFELA (Factors and Multiples Board). Data collection techniques included observation, interviews, documentation, validation questionnaires, and pretest–posttest assessments. Data were analyzed quantitatively and qualitatively through expert validation, the Wilcoxon Signed Rank Test, and N-Gain analysis. The findings revealed that the Math Corner was categorized as highly feasible based on validation results from material experts, media experts, and educational practitioners. Furthermore, the implementation of the Math Corner proved effective in improving students' mathematical conceptual understanding, as indicated by the increase in mean scores from 53.61 in the pretest to 89.44 in the posttest. The Wilcoxon test result showed a significance value of $0.000 < 0.05$, while the N-Gain score of 0.77 was categorized as high. The findings indicate that the novelty of this study lies in the development of an integrated Math Corner combining concrete, visual, and manipulative learning media to support students' mathematical conceptual understanding. This study implies that Math Corner can serve as an innovative and effective alternative for improving mathematics learning, particularly in facilitating students' understanding of abstract mathematical concepts in Islamic elementary schools.

Keywords: : *Math Corner, Learning Media, Mathematical Conceptual Understanding, Islamic Elementary School, Research and Development.*

INTRODUCTION

Mathematics is one of the fundamental subjects taught continuously from elementary education to higher education. Mathematics learning plays an important role in developing students' logical, analytical, critical, and systematic thinking skills while also serving as a foundation for the mastery of science and technology. Therefore,

mastery of mathematical concepts at the Islamic elementary school (Madrasah Ibtidaiyah/MI) level is an essential aspect in developing students' mathematical thinking abilities for subsequent stages of education (Susanto, 2013).

Nevertheless, the reality of classroom learning indicates that students' understanding of mathematical concepts remains relatively low. Mathematics is often perceived as a difficult subject due to its abstract nature, symbolic representation, and procedural characteristics, which tend to generate negative attitudes toward mathematics learning. This condition affects students' ability to meaningfully understand and apply mathematical concepts in different situations (Radiusman, 2020). The problem of low mathematical ability among Indonesian students is also reflected in the results of international assessments. Data from the Programme for International Student Assessment (PISA) indicate that many Indonesian students have not yet achieved the minimum level of mathematical competency, particularly in reasoning, conceptual understanding, and problem-solving in real-life contexts (OECD, 2023).

In elementary schools, mathematics learning is still frequently dominated by conventional approaches emphasizing procedural memorization rather than conceptual exploration through meaningful experiences. Teachers also encounter limitations in learning media and instructional facilities that support active and activity-based mathematics learning. As a result, students often experience difficulties in understanding abstract mathematical concepts, which eventually affects their learning outcomes and motivation (Arsyad, 2017).

Mathematical conceptual understanding is an essential foundation in mathematics learning because it enables students not only to perform computational procedures but also to understand the meaning, relationships, and applications of mathematical ideas. Students with strong conceptual understanding are generally more capable in solving problems, connecting mathematical representations, and applying concepts in different contexts. The National Council of Teachers of Mathematics (NCTM, 2000) emphasizes that conceptual understanding is one of the primary goals of mathematics instruction. Similarly, (Van de Walle, et al., 2019) explain that mathematics learning becomes more meaningful when students are provided with opportunities to interact with concrete and visual representations of mathematical concepts.

Recent studies have further emphasized that concrete and manipulative mathematics media play a significant role in improving elementary school students' conceptual understanding. Learning experiences supported by visual and hands-on mathematical media help students understand abstract concepts more meaningfully



while also increasing their engagement and motivation in mathematics learning (Nurhaswinda et al., 2026; Rozy et al., 2025).

Based on preliminary observations conducted at MI NU Mafatihul Ulum Sunggingan Kudus, it was found that fifth-grade students' understanding of mathematical concepts remained relatively low. Daily assessment results indicated that approximately 50% of students scored below the Minimum Learning Achievement Criteria (KKTP). This condition was influenced by low learning interest, limited availability of concrete learning media, and the absence of mathematics laboratory facilities that could support students' direct exploration of mathematical concepts.

Several previous studies have demonstrated the effectiveness of mathematics learning media in improving students' conceptual understanding and learning outcomes. (Barus et al., 2024) found that the use of a mathematics teaching aids corner significantly improved students' understanding of mathematical concepts. Likewise, (Annisa et al., 2021) reported that a mini mathematics laboratory positively affected students' mathematics achievement. Other previous studies also suggested that interactive and manipulative learning media could increase students' motivation, participation, and conceptual understanding in mathematics learning (Mayer, 2009; (Van de Walle et al., 2019). However, most previous studies have focused on single instructional media or digital interventions, while limited attention has been given to the development of integrated mathematics learning corner that combines various concrete and manipulative learning media, particularly in the context of Islamic elementary schools (Madrasah Ibtidaiyah). Furthermore, studies specifically examining the development of Math Corner to improve fifth-grade students' mathematical conceptual understanding remain relatively limited.

Therefore, this study addresses the existing gap by developing an integrated Math Corner designed to support students' mathematical conceptual understanding through concrete, visual, and interactive learning experiences. Math Corner is a classroom-based mathematics learning space equipped with teaching aids, educational games, worksheets, and visual mathematics media intended to facilitate enjoyable and meaningful mathematics learning.

The development of Math Corner is theoretically relevant to the cognitive characteristics of elementary school students, who are still in the concrete operational stage and require direct experiences to understand abstract concepts (Piaget & Inhelder, 1969). Moreover, the exploration-based and socially interactive learning environment provided through Math Corner aligns with Vygotsky's social constructivist theory, which



emphasizes scaffolding, collaboration, and social interaction in supporting students' cognitive development (Vygotsky, 1978). Thus, integrating concrete, visual, and manipulative learning experiences within Math Corner is expected to facilitate students' mathematical conceptual understanding more effectively.

Based on the foregoing discussion, this study aims to develop Math Corner as a mathematics learning medium that is valid, practical, and effective in improving fifth-grade students' understanding of mathematical concepts at MI NU Mafatihul Ulum Sunggingan Kudus. The novelty of this study lies in the development of an integrated Math Corner combining multiple concrete, visual, and manipulative mathematics learning media within a structured learning environment to improve students' mathematical conceptual understanding. This study is expected to contribute to the development of innovative mathematics learning media at Madrasah Ibtidaiyah level while also serving as an alternative learning approach that is more concrete, interactive, and meaningful.

METHODS

This study employed a Research and Development (R&D) approach using the Borg and Gall development model. The R&D method was selected because it aims to develop and evaluate the effectiveness of an educational product through systematic and continuous development stages (Gall, M. D. et al., 2007). The product developed in this study was a Math Corner as a mathematics learning medium to improve fifth-grade students' understanding of mathematical concepts in Islamic elementary schools (Madrasah Ibtidaiyah).

The study was conducted at MI NU Mafatihul Ulum Sunggingan Kudus during the 2025/2026 academic year, involving fifth-grade students as research subjects. The selection of the research site was based on preliminary observations indicating that students' understanding of mathematical concepts remained low, as reflected in learning evaluation results, most of which were below the Minimum Learning Achievement Criteria (MLAC), as well as the limited availability of concrete learning media to support mathematics instruction.

The development procedure in this study followed the Borg and Gall model, which consists of ten stages, namely:



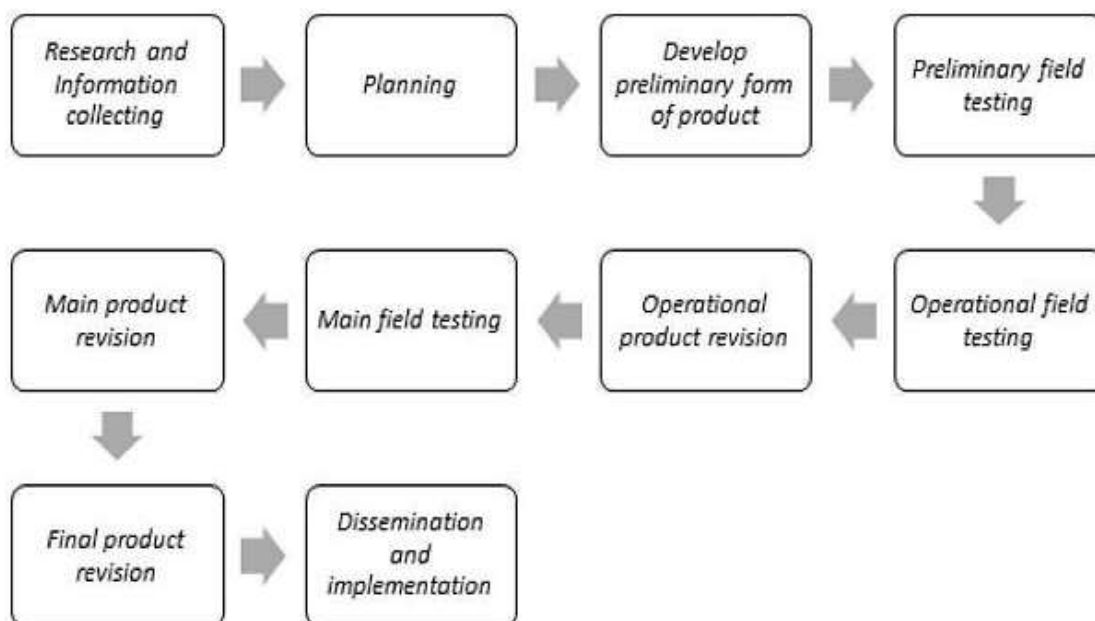


Figure 1. Stages of the Borg and Gall Development Model (1983)

At the research and information collecting stage, the researcher conducted observations, interviews, and needs analysis to identify problems in mathematics learning at MI NU Mafatihul Ulum Sunggingan Kudus, particularly those related to students' low understanding of mathematical concepts and the limited availability of concrete learning media. The planning stage involved formulating development objectives, determining the mathematics materials to be used, and designing the initial prototype of the Math Corner.

The initial product development stage resulted in a Math Corner prototype consisting of mathematics manipulatives, activity worksheets, mathematics information boards, and user guidelines tailored to whole numbers, fractions, and Least Common Multiple (LCM) and Greatest Common Divisor (GCD) materials for Grade V in the Merdeka Curriculum. The initial product then underwent validation and preliminary field testing to obtain feedback from subject matter experts, media experts, educational practitioners, and students, as the basis for product revision.

Furthermore, the revised product was re-evaluated through main field testing and operational field testing to determine the feasibility and effectiveness of the Math Corner in improving students' understanding of mathematical concepts. The final stage involved revising the product based on implementation results before proceeding to wider dissemination and application of the product (Borg & Gall, 1983).



Data collection techniques included observation, interviews, documentation, validation questionnaires, and mathematical concept understanding tests in the form of pretests and posttests. The test instruments were developed based on indicators of mathematical concept understanding referring to the standards of the National Council of Teachers of Mathematics (NCTM), including the ability to define concepts, identify examples and non-examples, represent concepts, connect concepts, and apply concepts in problem-solving (NCTM, 2000).

Data analysis was conducted using both quantitative and qualitative approaches. Expert validation data were analyzed using feasibility percentages to determine the validity level of the product. Meanwhile, the effectiveness of the Math Corner was analyzed using a One-Group Pretest–Posttest Design by comparing students' abilities before and after the treatment (Creswell, J. W., 2015). The Wilcoxon Signed Rank Test was employed because it is appropriate for analyzing differences between two paired datasets that are not normally distributed (Sugiyono, 2022). In addition, improvements in students' understanding of mathematical concepts were analyzed using N-Gain scores to determine the effectiveness level of Math Corner implementation in mathematics learning (Hake, 1999).

RESULTS AND DISCUSSION

Results

This study produced a learning product in the form of a Math Corner developed to improve fifth-grade students' understanding of mathematical concepts at MI NU Mafatihul Ulum Sunggingan Kudus. The product was developed using the Borg and Gall Research and Development (R&D) model through stages of preliminary research, planning, product development, validation, revision, testing, and product implementation. The resulting Math Corner consisted of several mathematics learning media, namely the Number Flipbook, Fraction Game Book, and PAFELA (Factor and Multiple Board), complemented by mathematics information boards, teaching aids, activity worksheets, and user guidelines.

1. Development Rationale and Feasibility of Math Corner Product

The development of the Math Corner learning media was initiated based on a problem mapping conducted during the preliminary study at MI NU Mafatihul Ulum Sunggingan Kudus. The findings revealed that students experienced difficulties in understanding mathematical concepts, particularly on topics involving numbers,



fractions, factors, and multiples. Mathematics learning tended to rely on conventional explanations and textbooks, while the use of concrete and interactive learning media remained limited. As a result, students often perceived mathematics as abstract and difficult to understand, which affected their conceptual understanding and learning outcomes.

Considering the characteristics of elementary school students who are in the concrete operational stage, mathematics instruction requires learning experiences supported by visual, manipulative, and contextual media. Therefore, the development of the Math Corner learning media became essential to provide students with a more engaging and meaningful learning environment. The Math Corner was designed as an integrated mathematics learning space equipped with several learning media, including the Number Flipbook, Fraction Game Book, and PAFELA (Factors and Multiples Board), to facilitate students' conceptual understanding through concrete and interactive activities. Based on this rationale, the feasibility of the developed Math Corner product was subsequently evaluated through expert and practitioner validation.

The feasibility of Math Corner product was evaluated through validation by subject matter experts, media experts, and educational practitioners (fifth-grade teachers). The validation covered aspects of content accuracy, media appearance, readability, ease of use, and suitability for instructional implementation. The validation results indicated that all developed products were categorized as highly feasible, suggesting that they are appropriate for use in mathematics learning at the Madrasah Ibtidaiyah level.

Table 1. Recapitulation of Product Validation Results by Experts

No.	Evaluated Product	Validator	Obtained Score	Maximum Score	Percentage	Category
1	<i>Number Flipbook</i>	Subject Matter Expert	45	50	90%	Highly Feasible
2	<i>Fraction Game Book</i>	Subject Matter Expert	43	50	86%	Highly Feasible
3	<i>PAFELA (Factor and Multiple Board)</i>	Subject Matter Expert	45	50	90%	Highly Feasible
4	<i>Number Flipbook</i>	Media Expert	42	50	84%	Highly Feasible
5	<i>Fraction Game Book</i>	Media Expert	41	50	82%	Highly Feasible
6	<i>PAFELA</i>	Media Expert	41	50	82%	Highly Feasible



	<i>(Factor and Multiple Board)</i>					Feasible
7	<i>Number Flipbook</i>	Educational Practitioner	49	50	98%	Highly Feasible
8	<i>Fraction Game Book</i>	Educational Practitioner	48	50	96%	Highly Feasible
9	<i>PAFELA (Factor and Multiple Board)</i>	Educational Practitioner	48	50	96%	Highly Feasible

In the subject matter expert validation, the Number Flipbook obtained a percentage score of 90%, the Fraction Game Book achieved 86%, and PAFELA obtained 90%, all of which were categorized as highly feasible. Furthermore, the media expert validation results showed that the Number Flipbook achieved a percentage score of 84%, while both the Fraction Game Book and PAFELA obtained 82%, categorizing as highly feasible. Meanwhile, the educational practitioner validation results indicated that the Number Flipbook achieved a percentage score of 98%, whereas the Fraction Game Book and PAFELA each obtained 96%, demonstrating that the media are practical for use in mathematics learning. Overall, the validation results indicate that the Math Corner fulfills the aspects of content validity, media quality, and practical usability, making it suitable for use as a mathematics learning medium in fifth-grade Madrasah Ibtidaiyah classrooms.

2. Effectiveness of Math Corner in Improving Students' Understanding of Mathematical Concepts

The effectiveness of the Math Corner was analyzed using a One-Group Pretest-Posttest Design by measuring students' mathematical concept understanding before and after the implementation of the learning media. The descriptive analysis results indicated an improvement in students' learning outcomes following the use of the Math Corner. The mean pretest score was 53.61 with a standard deviation of 8.542, whereas the mean posttest score increased to 89.44 with a standard deviation of 4.501. In addition, the minimum score increased from 35 to 85, while the maximum score improved from 70 to 95.





Figure 2. Pretest and Posttest Results

The normality test results using the Shapiro–Wilk test revealed that the pretest data obtained a significance value of 0.030, while the posttest data obtained a significance value of 0.000. Since the significance values of both datasets were lower than 0.05 ($p < 0.05$), the data were considered not normally distributed. Therefore, hypothesis testing was continued using the non-parametric Wilcoxon Signed Rank Test.

Table 2. Non-Parametric Statistical Test (Wilcoxon Signed Rank Test)

Descriptive Statistics							
	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles	
						25th	50th (Median) 75th
Pretest	18	53.61	8.542	35	70	50.00	55.00 55.00
Posttest	18	89.44	4.501	85	95	85.00	90.00 95.00

Table 2. Test Statistics

	Posttest - Pretest
Z	-3.744 ^b
Asymp. Sig. (2-tailed)	.000
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks.	

The results of Wilcoxon Signed Rank Test showed that all students experienced improvement in their learning outcomes, as indicated by positive ranks for all 18



students (100%), with no negative ranks or ties observed. The test results yielded a Z value of -3.744 and an Asymp. Sig. (2-tailed) value of 0.000 . Since the significance value was lower than 0.05 ($0.000 < 0.05$), there was a statistically significant difference between the pretest and posttest results. Thus, the implementation of the Math Corner was proven to have a significant effect on improving students' understanding of mathematical concepts. In addition, the N-Gain Score analysis revealed an average score of 0.77 (77.07%), which falls within the effective category. These findings suggest that the use of the Math Corner is effective in improving fifth-grade students' understanding of mathematical concepts.

Overall, the field data indicated that the developed Math Corner learning media met the criteria of feasibility and effectiveness in mathematics learning. The validation results from material experts, media experts, and educational practitioners confirmed that the product was highly feasible for classroom implementation. Furthermore, the findings from the pretest–posttest, Wilcoxon Signed Rank Test, and N-Gain analysis demonstrated that the implementation of the Math Corner significantly improved students' mathematical conceptual understanding. These results suggest that the Math Corner can effectively support more concrete, interactive, and meaningful mathematics learning for fifth-grade students in Islamic elementary schools.

Results

1. Development Rationale and Feasibility of the Math Corner Product

The findings of this study indicated that the developed Math Corner fulfilled the criteria of being highly feasible based on validation results from subject matter experts, media experts, and educational practitioners. In the subject matter expert validation, the Number Flipbook obtained a percentage score of 90% , the Fraction Game Book achieved 86% , and PAFELA obtained 90% , all of which were categorized as highly feasible. These findings suggest that the developed media are aligned with the Grade V mathematics learning outcomes, demonstrate sound conceptual accuracy, and are relevant to students' learning needs in understanding whole numbers, fractions, Least Common Multiple (LCM), and Greatest Common Divisor (GCD).

Meanwhile, the media expert validation results showed that the Number Flipbook obtained a percentage score of 84% , while both the Fraction Game Book and PAFELA achieved 82% , all of which were categorized as highly feasible. The high validation percentages indicate that aspects such as visual appearance, readability, layout, illustrations, and ease of use have already met the standards of effective instructional media. Visually engaging media are capable of increasing students' attention and



creating a more enjoyable learning experience, thereby supporting active engagement in mathematics learning.

The educational practitioner validation further strengthened these findings, with the Number Flipbook obtaining a percentage score of 98%, while the Fraction Game Book and PAFELA each achieved 96%, all categorized as highly feasible. These results indicate that the Math Corner is considered easy to use, practical for classroom implementation, and helpful in assisting teachers in transforming abstract mathematical concepts into more concrete forms. The high practitioner validation results demonstrate that the developed media possess a high level of applicability within authentic learning contexts at the Madrasah Ibtidaiyah level.



Figure 3. Design of the Math Corner Learning Media

The high feasibility level of the Math Corner indicates that the developed learning media fulfill the aspects of content validity, design quality, and ease of use. This finding is consistent with the view of Azhar Arsyad, who argues that effective instructional media should meet the criteria of content suitability, design clarity, readability, and ease of use in order to optimally support the learning process. Furthermore, engaging learning media can enhance students' motivation and attention during the learning process (Arsyad, 2017).

The findings are also in line with previous studies emphasizing that instructional media integrating visual and manipulative elements tend to improve students' engagement and learning readiness in mathematics classrooms. Research on mathematics corners and concrete media indicates that students become more motivated and actively involved when mathematical concepts are presented through



tangible learning experiences rather than abstract explanations alone (Mayer, 2009; Bruner, 1966).

From a cognitive development perspective, the use of Math Corner is also relevant to Jean Piaget's theory, which states that elementary school students are at the concrete operational stage, a stage in which learners more easily understand concepts through real objects, object manipulation, and direct experiences (Piaget, J., 1970). The presence of media such as the Number Flipbook, Fraction Game Book, and PAFELA enables students to visualize mathematical concepts more concretely, thereby helping to reduce the abstract nature of mathematics, which has long been a challenge in learning.

Teachers also encounter limitations in learning media and instructional facilities that support activity-based mathematics learning. The lack of concrete mathematics media often hinders students from understanding abstract concepts meaningfully (Rozy et al., 2025). Therefore, Math Corner can be regarded as a valid and practical learning medium for use in mathematics instruction at the Madrasah Ibtidaiyah level.

2. Effectiveness of Math Corner in Improving Students' Understanding of Mathematical Concepts

The findings of this study indicated that the use of Math Corner was effective in improving students' understanding of mathematical concepts. This was evident from the improvement in students' learning outcomes following the implementation of the learning media. The mean pretest score of 53.61 increased to 89.44 in the posttest, with the minimum score improving from 35 to 85 and the maximum score increasing from 70 to 95. This improvement indicates a positive change in students' ability to understand mathematical concepts after the implementation of Math Corner.

Based on the results of the Shapiro–Wilk normality test, both pretest and posttest data were found to be not normally distributed, as their significance values were below 0.05, namely 0.030 for the pretest and 0.000 for the posttest. Therefore, hypothesis testing was conducted using the non-parametric Wilcoxon Signed Rank Test. The test results showed an Asymp. Sig. (2-tailed) value of 0.000, which was lower than 0.05 ($0.000 < 0.05$). Thus, a significant difference was found between the pretest and posttest results, indicating that the implementation of Math Corner had a statistically significant effect on improving students' understanding of mathematical concepts.

The effectiveness of Math Corner was further supported by the results of the N-Gain Score analysis, which yielded an average score of 0.77 (77.07%), categorized as effective. These findings indicate that the developed learning media not only have



produced statistically significant improvements but also substantially have enhanced students' understanding of mathematical concepts. Students not only experience in improving scores but also gain more meaningful learning experiences through manipulative and exploratory activities.

The effectiveness of Math Corner can be attributed to its provision of concrete, interactive, and student-centered learning experiences. The use of media such as the Number Flipbook, Fraction Game Book, and PAFELA enable students to understand mathematical concepts through visual, manipulative, and educational game-based activities, making abstract concepts easier to comprehend. This finding aligns with Jean Piaget's cognitive development theory, which suggests that elementary school students understand concepts more effectively through concrete experiences (Piaget & Inhelder, 1969).

In addition, Math Corner-based learning also supports Lev Vygotsky's social constructivist theory, which emphasizes the importance of social interaction in the learning process. Students actively engage in discussions, explore manipulatives, and solve problems collaboratively with peers, thereby facilitating the process of independent and collaborative knowledge construction (Vygotsky, 1978). Such conditions enable students to develop a deeper understanding of mathematical concepts compared to teacher-centered learning approaches.

The findings of this study are consistent with previous research reporting that concrete and manipulative mathematics media improve students' mathematical conceptual understanding. Rozy et al. (2025) reported that concrete mathematics media positively contributed to students' conceptual understanding and problem-solving skills, while Nurhaswinda et al. (2025) found that concrete instructional media significantly improved elementary students' mathematics achievement. Therefore, the improvement in students' posttest scores in this study indicates that Math Corner has successfully facilitated more meaningful mathematics learning experiences.

These findings are consistent with the Concrete-Representational-Abstract (CRA) instructional approach, which emphasizes that students learn mathematics more effectively when concepts are introduced through concrete objects before moving toward symbolic representation. Through the use of manipulatives and visual learning activities within the Math Corner, students are able to construct mathematical meaning gradually, thereby strengthening their conceptual understanding (Witzel, 2005; Van de Walle et al., 2019). The findings of this study reinforce previous research demonstrating



that concrete and interactive learning media can improve students' understanding of mathematical concepts. Therefore, Math Corner may serve as an effective and innovative alternative learning medium for mathematics instruction at the Madrasah Ibtidaiyah level, particularly in helping students understand abstract mathematical concepts.

CONCLUSION

This study produced a learning product in the form of a Math Corner developed through a Research and Development (R&D) approach using the Borg and Gall model to improve fifth-grade students' understanding of mathematical concepts at MI NU Mafatihul Ulum Sunggingan Kudus. The development process was carried out through systematic stages of research and development, beginning with preliminary studies, planning, product development, validation, revision, testing, and product implementation. The resulting product consists of a Math Corner equipped with several learning media, namely the Number Flipbook, Fraction Game Book, and PAFELA (Factor and Multiple Board), as well as supporting learning facilities such as mathematics display boards, manipulative storage shelves, user guidebooks, and student learning areas.

The validation results by subject matter experts, media experts, and educational practitioners indicate that the Math Corner is categorized as highly feasible for use in mathematics learning at the Madrasah Ibtidaiyah level. The high validation scores demonstrate that the developed media has fulfilled the aspects of content suitability, design quality, readability, ease of use, and applicability in classroom instruction. Therefore, the Math Corner can be considered as a valid and practical learning medium to assist students in understanding mathematical concepts.

In addition to meeting feasibility standards, the implementation of Math Corner was also proven effective in improving students' understanding of mathematical concepts. This was evidenced by the increase in students' mean scores from 53.61 in the pretest to 89.44 in the posttest. Statistical analysis using the Wilcoxon Signed Rank Test showed a significance value of 0.000 (< 0.05), indicating a significant difference between students' abilities before and after the implementation of Math Corner. These findings suggest that the use of Math Corner has a significant impact on improving students' understanding of mathematical concepts.

The effectiveness of Math Corner was further supported by the N-Gain analysis result of 0.77, categorized as high, indicating that the developed media was effective in improving students' understanding of mathematical concepts. This improvement occurs because learning through Math Corner provides more concrete, visual, and



manipulative learning experiences, enabling abstract mathematical concepts to become easier to understand. Therefore, Math Corner can serve as a valid, practical, and effective alternative learning medium for mathematics instruction at the Madrasah Ibtidaiyah level, particularly in improving students' understanding of mathematical concepts.

Based on the findings of this study, several recommendations can be proposed to optimize the use of Math Corner in mathematics learning. First, for teachers and schools, Math Corner may be utilized as an innovative alternative mathematics learning medium to help students understand abstract mathematical concepts. Teachers are encouraged to implement Math Corner continuously by integrating it into various active, creative, and student-centered learning strategies in order to make the learning process more engaging and meaningful. Second, for madrasahs or elementary schools, the development of learning-corner-based facilities, such as Math Corner, should be supported through the provision of adequate facilities, conducive learning spaces, and the strengthening of a learning culture that encourages students to learn independently and collaboratively. The development of concrete learning media is also essential to support the implementation of more contextual mathematics instruction that aligns with the developmental characteristics of elementary school students.

Third, for future researchers, this study has several limitations, particularly regarding the mathematics content, which focused only on whole numbers, fractions, Least Common Multiple (LCM), and Greatest Common Divisor (GCD), as well as the limited number of research participants from a single class in one madrasah. Therefore, future studies are recommended to develop Math Corner for other mathematics topics, involve a larger number of participants, and employ more complex experimental designs to obtain more comprehensive findings regarding the effectiveness of the media on various aspects of students' mathematical abilities.

Furthermore, future research is also recommended to develop technology-based Math Corner media or integrate more diverse educational games to enhance students' learning motivation and engagement in mathematics learning. In this way, the developed learning media innovations can become increasingly adaptive to the needs of 21st-century learning and the characteristics of contemporary learners. The novelty of this study lies in the development of an integrated Math Corner that combines multiple concrete, visual, and manipulative mathematics learning media within a structured learning environment to improve students' conceptual understanding. This integrated approach contributes to mathematics learning innovation at the Madrasah Ibtidaiyah level by providing more meaningful and student-centered learning experiences.



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