Contextual–Spiritual Mathematics Learning through the Lompat Tali Dzikir Method at Madrasah Ibtidaiyah

Alfiatur Rohmaniyah
Universitas Islam Negeri K.H. Abdurrahman Wahid Pekalongan, Indonesia
E-mail: alfiatur.rohmaniyah24010@gmail.com

Abstract

Mathematics learning in madrasah ibtidaiyah often encountered challenges due to the abstract nature of concepts and low student motivation, particularly in topics such as the Least Common Multiple (LCM). Many instructional approaches have not yet integrated cognitive, affective, and spiritual dimensions in a holistic way. This study explored the implementation of the Lompat Tali Dzikir (Jump Rope Dzikir) method in teaching LCM and examined its impact on students' conceptual understanding, engagement, and the integration of spiritual values through traditional games. Using a descriptive qualitative approach, data were collected through observation, interviews, and documentation involving fifth-grade teachers and students. The findings revealed that this method effectively enhanced students' conceptual understanding and participation by transforming abstract material into concrete experiences while revitalizing traditional play. The integration of dzikir (Islamic remembrance) during learning also fostered calmness, focus, and positive character development. The results demonstrated that cognitive, affective, and spiritual dimensions can be harmoniously combined in mathematics instruction—an aspect rarely addressed in previous research. This study contributes to the growing body of research on contextual Islamic education by integrating traditional games with spiritual practice, offering a culturally grounded model for holistic mathematics learning in madrasah contexts. Furthermore, by revitalizing traditional play and embedding dzikr within educational practice, this study supports the sustainability of Islamic cultural and spiritual values. Such an approach resonates with eco-theological perspectives that emphasize balance, harmony, and sustainability within both human and moral environments.
***Keywords**:* lompat tali dzikir, lcm, contextual learning, spirituality, traditional games, madrasah ibtidaiyah

Introduction

In the era of the Merdeka Curriculum, mathematics education in Indonesia is shifting toward student-centered and value-based learning models. Mathematics learning at the *madrasah ibtidaiyah* (Islamic elementary school) level plays a vital role in developing students' logical and systematic thinking. However, in practice, many learners struggle with abstract topics such as the Least Common Multiple

(LCM), which requires higher-order thinking skills while their cognitive stage remains concrete-operational. Consequently, students often rely on memorization, showing limited conceptual understanding and low motivation—particularly when learning is dominated by teacher-centered methods (Suryani, 2020). Within the *Merdeka Curriculum* framework, mathematics learning is expected to be meaningful, contextual, and value-based, yet this integration remains underdeveloped in many classrooms.

Effective mathematics learning should holistically combine cognitive, affective, and spiritual dimensions. Constructivist theory (Vygotsky, 1978) emphasizes that knowledge is actively constructed through contextual experiences and social interaction. Similarly, holistic and character education approaches highlight the importance of uniting intellectual mastery with moral and spiritual development. In the *madrasah* context, embedding Islamic values in mathematics instruction is therefore not only relevant but essential to cultivate balanced, faith-oriented learners.

From an eco-theological perspective, education is also an act of sustainability—preserving not only the natural environment but the moral and cultural environment of humanity. Islamic teachings view knowledge (ʿilm) and remembrance (dzikr) as means to maintain harmony between human beings, creation, and the Creator. Therefore, when traditional cultural practices like Lompat Tali are integrated with spiritual values, they contribute to sustaining both ecological and moral balance. This study, while situated in mathematics education, reflects this broader commitment to eco-theological sustainability through the preservation of Islamic cultural heritage and the nurturing of spiritual ecology within the learning process.

Various researchers have proposed different strategies to enhance mathematics learning in elementary education. Fauziah (2019) developed interactive visual media to strengthen understanding of LCM and GCF, while Nurhayati & Yusuf (2020) demonstrated that card-based educational games can increase motivation. Sari et al. (2023) promoted contextual learning through real-life experiences, and Lestari & Pamungkas, (2018) found that project-based learning encourages active participation. Rahmawati (2022) highlighted the importance of integrating Islamic values into mathematics to foster students' religious character, while Wulandari & Hidayat (2023) showed that traditional games can make learning more enjoyable.

Although these approaches have improved engagement and conceptual understanding, few have combined traditional games with spiritual practices such as *dzikr* (Islamic remembrance). Most existing studies focus on technological or contextual innovations, overlooking the spiritual dimension that is central to *madrasah* identity (Muttaqin, M., & Hamdani, 2022). Therefore, integrating

cultural and religious elements into mathematics learning remains an underexplored yet promising domain.

Empirical evidence indicates that mathematics instruction in many *madrasahs* continues to rely heavily on rote learning and lecture-based methods. Putri & Suryadi (2020) reported that over 65% of teachers still emphasize formula memorization without providing concrete, meaningful learning experiences, which limits students' problem-solving and critical-thinking abilities. The 2021 Minimum Competency Assessment (AKM) showed that more than half of elementary students had not achieved the expected numeracy level, including in understanding multiples and factors.

From a spiritual perspective, Islamic values in *madrasah* are often taught separately from academic subjects, rather than integrated into daily learning activities (Rahman & Zakiyah 2020). Yet, research shows that embedding spiritual practices within classroom learning increases both intrinsic motivation and moral character (Muttaqin & Hamdani, 2022). Therefore, the core problem addressed in this study concerns the lack of holistic integration between cognitive, affective, and spiritual dimensions in mathematics education and the limited application of engaging, culturally relevant pedagogical models.

To address these challenges, this study introduces the Lompat Tali Dzikir (Jump Rope Dzikir) method, which combines traditional play with *dzikr* as a means to teach mathematical concepts. This approach encourages students' physical, emotional, and intellectual engagement while nurturing Islamic values, creating learning experiences that are joyful, meaningful, and spiritually grounded. Specifically, this study aims to (1) examine the impact of the Lompat Tali Dzikir method on students' conceptual understanding of LCM, (2) analyze its influence on student engagement, and (3) explore its role in strengthening spiritual values.

It is hypothesized that this approach enhances conceptual understanding, increases active participation, and reinforces spiritual development more effectively than conventional methods. Unlike previous studies that focused solely on visual or contextual media, this research uniquely integrates *dzikr* (Islamic remembrance) with traditional games to enhance mathematical understanding in *madrasah* settings, offering a culturally and spiritually grounded model for holistic mathematics learning.

Methods

Research design and participants

This study used a descriptive qualitative design to explore the implementation process of the *Lompat Tali Dzikir* (Jump Rope Dzikir) method in teaching the Least Common Multiple (LCM) at Madrasah Ibtidaiyah. The aim was to understand how the method shapes students' conceptual understanding,

engagement, and spiritual integration in context, not to generalize findings. The research was conducted at MI Walisongo Kranji 02. Participants were selected purposively and included one fifth-grade mathematics teacher (Class V-D) and the students of that class who participated in the learning activities. Prior consent was obtained from the school and participants.

Procedures and data collection

Data were collected during classroom implementation through three complementary techniques: participant observation, semi-structured interviews, and documentation review. Observations focused on teacher enactment, student interactions, and affective/spiritual responses during activities. Interviews with the teacher and a sample of students explored perceptions and conceptual change before and after the intervention. Documentation comprised lesson plans, student worksheets, and classroom photos/videos to support triangulation.

Data analysis

Data were analyzed thematically through coding, categorizing, and pattern identification. Transcripts and field notes were coded, codes were organized into themes related to method implementation, conceptual understanding, engagement, and spiritual values, and themes were refined into a coherent narrative that addresses the study objectives. Analysis was iterative and reflexive, taking into account the cultural and madrasah context.

Trustworthiness

Trustworthiness was ensured through methodological triangulation (observation, interview, documentation), member checking with key informants, rich contextual description for transferability, systematic documentation of procedures for dependability, and an audit trail with reflective notes to support confirmability.

Results and Discussion

Implementation of the Lompat Tali Dzikir Method

The implementation of the Lompat Tali Dzikir (Jump Rope Dzikir) method in teaching the concept of the Least Common Multiple (LCM) at *Madrasah Ibtidaiyah* effectively integrated contextual learning, physical movement, and Islamic spiritual values. The activity was carried out in three stages—preparation, core activity, and reflection. Students worked in pairs, chanting *dzikr* phrases such as *Subhanallah*, *Alhamdulillah*, and *Allahu Akbar* while jumping ropes to represent multiples and their LCMs. This kinesthetic–spiritual approach transformed abstract

mathematical ideas into tangible experiences, fostering both cognitive and affective engagement.

Table 1. Phases of Lompat Tali Dzikir Implementation

Phase	Description	Observed Learning Behavior
Preparation	Teacher sets numbers and tools	Students show excitement and readiness
Core Activity	Students jump and chant *dzikr* rhythmically	High engagement and focus
Reflection	Students discuss results and meaning	Collaborative, spiritually aware responses

Conceptual Understanding of LCM

The method significantly improved students' understanding of LCM concepts. Initially, most learners relied on memorization without comprehending number relationships. After implementing the Lompat Tali Dzikir method, 75% of students could independently determine LCMs, with mastery levels increasing from 43.3% to 86.7%. Repetition through rhythmic movement and sound helped students visualize number patterns concretely, consistent with Piaget's (1976) and Vygotsky's (1978) learning theories, which emphasize the importance of concrete and social experiences. The combination of rhythm, movement, and verbal reinforcement enhanced pattern recognition and retention, demonstrating the effectiveness of embodied learning.

Table 2. Improvement in Student Mastery of LCM

Assessment	Percentage of Mastery	Description
Before Implementation	43.3%	Students relied on rote memorization
After Implementation	86.7%	Students demonstrated conceptual reasoning

Active Student Engagement and Motivation

Student participation increased dramatically; even typically passive students became active, confident, and cooperative. Learners collaborated in groups, took turns as jumpers and recorders, and enthusiastically suggested variations of the game. This finding aligns with Self-Determination Theory (Deci & Ryan, 2018), which posits that intrinsic motivation grows when learners experience autonomy, competence, and social connection. The interactive, joyful learning environment transformed mathematics from a passive subject into an engaging one, promoting communication, collaboration, and emotional balance—skills emphasized in the Merdeka Curriculum and 21st-century education.

Integration of Spiritual and Character Values

The spiritual dimension of the Lompat Tali Dzikir method proved equally impactful. Rhythmic *dzikr* recitations nurtured calmness, focus, and moral awareness. Students expressed feeling peaceful and more confident during lessons, while teachers observed improvements in empathy, discipline, and cooperation. These outcomes resonate with Al-Ghazali's view that hearts accustomed to *dzikr* are more receptive to knowledge and Al-Attas (1990) philosophy that true Islamic education unites intellect, soul, and faith. Students also began connecting mathematical ideas with Islamic values such as gratitude, collaboration, and humility—indicating that spirituality and cognition can harmoniously coexist within learning processes

Summary, Limitations, and Implications

Overall, the Lompat Tali Dzikir method transformed mathematics learning from rote memorization to holistic understanding. It revitalized traditional games as learning media while embedding spiritual practice, creating lessons that were both enjoyable and value-oriented. The approach aligns with the Profil Pelajar Pancasila framework, promoting faith-based, contextual, and character-driven education.

These findings suggest that integrating spiritual and kinesthetic elements can make abstract mathematical concepts more accessible and meaningful. However, as this study was conducted in a single *madrasah* with a limited number of participants, generalization should be approached cautiously. Future research should explore this method across different schools and subjects, employing mixed or experimental designs to examine long-term effects on learning outcomes and character formation.

Viewed through an eco-theological lens, the Lompat Tali Dzikir method also represents a form of sustainability that extends beyond environmental concerns. By revitalizing traditional play and integrating dzikr into education, this approach preserves cultural wisdom (turāth) and promotes harmony between

intellectual, emotional, and spiritual dimensions of human development. Such integration embodies the concept of "spiritual ecology" in Islam—maintaining balance (mīzān) and harmony (tawāzun) not only within the physical environment but within the moral and educational ecosystems of society.

Conclusion

The Lompat Tali Dzikir method has proven effective in enhancing students' understanding of the Least Common Multiple (LCM), increasing active participation, and strengthening the integration of spiritual values within mathematics learning at madrasah ibtidaiyah. Through physical movement, rhythmic repetition, and dzikir, abstract mathematical concepts become concrete, engaging, and spiritually meaningful. This approach not only revitalizes traditional play as a pedagogical medium but also harmonizes intellect, emotion, and faith—embodying the essence of holistic Islamic education. The findings affirm that contextual, kinesthetic, and spiritual learning can coexist effectively to develop students' cognitive, affective, and moral capacities, supporting the Profil Pelajar Pancasila and 21st-century competencies. Teachers are therefore encouraged to adopt integrative, culturally grounded strategies like Lompat Tali Dzikir to create joyful, value-based classrooms. While this study was limited to a single school and time frame, its implications suggest the potential of spiritual–kinesthetic methods to transform mathematics learning into a more meaningful and character-building experience. Future research may explore its broader application across subjects and educational settings to further validate its long-term impact. This study contributes to Islamic educational pedagogy by offering a model that unites traditional play, spirituality, and cognitive development. Ultimately, the Lompat Tali Dzikir method illustrates that learning becomes truly transformative when it unites intellect, movement, and faith, bridging local culture and modern educational innovation toward holistic Islamic learning. In a broader sense, this approach also contributes to the sustainability of the Islamic educational environment—preserving cultural wisdom, nurturing spiritual ecology, and reflecting an eco-theological vision of harmony between humans, knowledge, and creation.

Acknowledgments

The author would like to express sincere gratitude to the headmaster, teachers, and students of *Madrasah Ibtidaiyah Walisongo Kranji 02* for their kind cooperation and participation throughout the research process. Special appreciation is also extended to the supervisor and lecturers of the Magister Program in Madrasah Ibtidaiyah Teacher Education, UIN K.H. Abdurrahman Wahid Pekalongan, for their continuous guidance, constructive feedback, and

encouragement. The author also acknowledges the support from colleagues and fellow teachers who provided valuable insights during the implementation of the *Lompat Tali Dzikir* method in the mathematics classroom.

Conflict of interests

The author declares no conflict of interest. Although the research was conducted in the author's own workplace, all data collection, analysis, and interpretation were carried out objectively and ethically, without any personal or institutional bias. The study was performed solely for academic purposes as part of the author's graduate research requirements

References

Al-Attas, S. M. N. (1990). The concept of education in Islam: A framework for an Islamic philosophy of education. *International Institute of Islamic Thought and Civilization (ISTAC)*.

Deci, E. L., & Ryan, R. M. (2018). *Intrinsic motivation and self-determination in human behavior*. Springer.

Fauziah. (2019). Pengembangan media interaktif berbasis teknologi untuk pembelajaran matematika materi KPK dan FPB. *Jurnal Pendidikan Dasar*.

Jean Piaget. (1976). *The Child's Conception of The World*. Harcourt Brace Jovanovich.

Lestari, H., & Pamungkas, A. (2018). Pembelajaran berbasis proyek dalam peningkatan keterlibatan siswa MI. *Jurnal Pedagogik Madrasah*.

Muttaqin, M., & Hamdani, D. (2022). Integrasi nilai-nilai keislaman dalam pembelajaran matematika: Telaah terhadap pendekatan pembelajaran berbasis spiritual. , 8(2),. *Jurnal Pendidikan Islam*, *8*(2), 135–150.

Nurhayati, D., & Yusuf, R. (2020). Permainan edukatif sebagai sarana pembelajaran matematika di MI. *Al-Jabar: Jurnal Pendidikan Matematika.*

Putri, R. I., & Suryadi, D. (2020). Profil pembelajaran matematika di sekolah dasar: Analisis pendekatan dan tantangan implementasi. *IndoMath: Jurnal Pendidikan Matematika*, *3*(1), 25–34.

Rahman, A., & Zakiyah, N. (2020). Pendidikan karakter religius melalui integrasi nilai-nilai Islam dalam pembelajaran. *Jurnal Pendidikan Agama Islam (PAI)*, *16*(1), 67–8.

Rahmawati, R. (2022). Integrasi nilai-nilai Islam dalam pembelajaran matematika

di madrasah. *Tadris: Jurnal Pendidikan Islam*.

Sari, S. M., Harahap, M. R., & Ridwan, A. (2023). Pemanfaatan Media Pembelajaran Poster Dalam Upaya Meningkatkan Minat Belajar Siswa Pada Mata Pelajaran Fiqih. *Insiru PAI*, *7*(2), 438–449.

Suryani, L. (2020). Pembelajaran matematika yang menyenangkan di sekolah dasar berbasis pendekatan kontekstual. *Jurnal Ilmu Pendidikan*, *26*(1), 47–55.

Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. MA: Harvard University Press.

Wulandari, M., & Hidayat, S. (2023). Pemanfaatan permainan tradisional dalam pembelajaran matematika untuk siswa MI. *Jurnal Pendidikan Karakter*.