Supervision of Islamic and Science Education within Ethno Based Deep Learning: Implementation of a Love Based Curriculum in Madrasah Ibtidaiyah

Dhea Anjhani[1], Amrina Rosyada[2], Ahmad Zainuri[3*]
dheaanjhani43@gmail.com[1], rosyadaa975@gmail.com[2], ahmadzainuri_uin@radenfatah.ac.id[3]
UIN Raden Fatah Palembang

Abstract

This study explores the integration of Islamic educational supervision and scientific knowledge within a deep learning framework enriched by ethnopedagogical values, referred to as ETHNO-based love-centered curriculum implementation in Madrasah Ibtidaiyah. The purpose of this research is to examine how supervisory practices rooted in Islamic principles such as tarbiyah, uswah hasanah, and tazkiyatun nafs can synergize with modern technological approaches, particularly deep learning algorithms designed to enhance personalized learning, pattern recognition, and adaptive feedback systems. Through a qualitative descriptive approach, this study analyzes the role of teachers, supervisors, and educational leaders in designing, applying, and evaluating learning processes that incorporate local cultural wisdom, emotional bonding, and ethical-spiritual values.

The findings reveal that combining Islamic supervision with ETHNO-based deep learning creates a holistic learning ecosystem, allowing students to develop academic competencies while strengthening character, empathy, and cultural identity. The love-based curriculum model encourages a warm educational atmosphere, improves student engagement, and fosters collaborative learning. Furthermore, deep learning technologies help educators track student progress more accurately, personalize instruction, and provide early intervention for learning difficulties. The study concludes that an ETHNO-embedded deep learning curriculum supervised through Islamic educational principles can significantly enhance the quality of learning in Madrasah Ibtidaiyah, promoting both cognitive excellence and moral-spiritual development.

Keywords: Islamic Educational Supervision, Deep Learning, Ethnopedagogy, Love-Based Curriculum, Madrasah Ibtidaiyah, Cultural-Based Learning, Artificial Intelligence in Education, Holistic Education.

INTRODUCTION

Islamic education in the modern era faces significant challenges amidst rapid technological developments, particularly with the advent of artificial intelligence and deep learning, which are beginning to enter classrooms. Madrasah Ibtidaiyah, as a basic educational institution based on Islamic values, requires a supervisory approach that is not only oriented towards academic standards but also encompasses the spiritual, emotional, and local cultural dimensions. In this context, Islamic educational supervision plays a crucial role as a process of monitoring, coaching, and professional development of teachers so that they are able to implement meaningful, humane, and relevant learning

in a contemporary manner. One innovation that is increasingly being developed is the integration of deep learning into the learning process, an artificial intelligence technology approach capable of analyzing patterns, personalizing learning, and providing adaptive learning recommendations for students. However, the use of technology without a foundation in values can create a gap in meaning, necessitating a curriculum model that is not only digitally sophisticated but also rich in ethics, emotions, and culture.

This is where the role of a love-based ETHNO curriculum plays a strategic role. This curriculum combines ethnopedagogical values, local wisdom, and the principle of compassion (rahmah) as the foundation of the educational process. Love-based education is understood as a process of student development through empathy, respect for cultural identity, and a strong emotional connection between teacher and student, in line with Islamic values of tarbiyah (education). When this curriculum is integrated with deep learning technology, learning becomes not only algorithmically intelligent but also emotionally warm and culturally rooted. This aligns with the characteristics of Madrasah Ibtidaiyah students, who are at the concrete-operational stage of development, where emotional engagement, a supportive environment, and closeness to local culture significantly influence their learning success. Supervision of Islamic education is needed to ensure that the implementation of this curriculum takes place systematically, in a well-directed manner, and in accordance with Islamic values and national education goals.

Furthermore, Islamic education supervision not only assesses the technical aspects of learning but also ensures that teachers serve as good spiritual and moral role models. Supervisors are responsible for ensuring that teachers utilize deep learning technology wisely, not replacing the role of humanity but instead strengthening the relationship between students, teachers, and the cultural environment. The love-based ETHNO approach also provides space for students to understand their cultural identity, appreciate differences, and foster a spirit of togetherness. Thus, the integration of Islamic education supervision, deep learning, and an ethnopedagogy-based curriculum serves as an innovative solution to address the needs of 21st-century education without sacrificing the spiritual values and local wisdom that characterize madrasahs.

Ultimately, education that integrates modern technology, Islamic spirituality, and local wisdom is an urgent need to prepare a generation that is not only intellectually intelligent but also morally and emotionally strong. This study confirms that supervision of Islamic education and the development of a love-based, ETHNO-infused curriculum are essential foundations for strengthening the quality of learning in Islamic elementary schools. With effective supervision, teachers are not only guided in methodological and pedagogical aspects but also given space to develop creativity, integrity, and cultural sensitivity. The integration of deep learning enriches the learning process, making education more adaptive, personalized, and future-oriented. Therefore, this study offers a new perspective that the integration of Islamic values, technology, and culture is key to creating a holistic and transformative education for the younger generation of Islamic elementary schools.

THEORETICAL BASIS

Supervision of Islamic education in a modern context needs to be reviewed, especially when faced with technological advances such as artificial intelligence anddeep learning. Islamic educational supervision faces significant opportunities through the use of AI, but also quite complex ethical and pedagogical challenges.1In the madrasah realm, supervisors serve not only as administrative supervisors but also as moral and spiritual mentors who uphold Islamic values and encourage innovation in learning.

On the other hand, the importance ofdeep learning The integration of deep learning into Islamic education is gaining increasing recognition. The integration of deep learning into Islamic education enables the creation of adaptive evaluation systems that align with Islamic values, such as ethical data use and student privacy protection.2This approach gives teachers the flexibility to provide personalized feedback and helps students understand religious concepts more deeply, not just textually, but also reflectively and contextually.

Pedagogical models that incorporate AI into Islamic education are also beginning to be developed. For example, Supriyadi et al. (2025) explored the DEEP AI model, consisting of the "Decode, Explore, Examine, Project" stages, to improve interpretive literacy of the Quran. This study demonstrated that the gradual and integrative use of AI significantly improved students' understanding of Quranic interpretation.3This shows that deep learning can be applied not only to general subjects but also to highly spiritual and contextual religious education.

Next, ethnopedagogical content becomes an important component of a love-based curriculum. This cultural approach enables the integration of local wisdom as a learning medium that enriches students' learning experiences. Although the literature on the integration of ethnopedagogy and AI technology in madrasahs is still relatively limited, the Islamic boarding school (pesantren) educational model that adopts a deep-learning-based approach has begun to be explored as a prototype of holistic Islamic education that values local traditions while also embracing modern thinking.4.

Finally, curriculum innovation through deep learning must be balanced with adaptive education policies. Suryantoro et al. (2025) emphasized that Islamic Religious Education (PAI) policies in elementary and secondary schools need to be updated to be relevant to the 21st century, particularly to support personalized learning, data-driven evaluation, and responsiveness to student needs.5Such policies also open up space for more flexible, technology-based Islamic supervision, without abandoning its spiritual roots.

ETHNOPEDAGOGICAL STUDY IN A LOVE-BASED CURRICULUM

Ethnopedagogy is an educational approach that places local wisdom as a source of values, methods, and meaning in the learning process. In the context of Islamic elementary schools, this approach serves to connect students' learning experiences with the culture, traditions, and local values that are deeply rooted in society. Ethnopedagogy can strengthen students' cultural identity through the process of internalizing local values, which are manifested in learning activities.6This is very much in line with the goals of a

love-based curriculum that prioritizes emotional closeness, respect for diversity, and empathetic educational interactions between teachers and students.

The integration of ethnopedagogy into a love-based curriculum not only strengthens students' affective aspects but also helps build more personalized and meaningful learning. Students accustomed to a culture-based learning approach tend to exhibit greater discipline, cooperation, and a love for their social and cultural environment than students who learn using conventional methods.7. Thus, this approach is relevant for deep learning-based learning, as AI systems can utilize local cultural databases as a source of context in adaptive learning, ensuring that every recommendation or learning output maintains cultural legitimacy and local values.

In a love-based curriculum, ethnopedagogical content also enhances the quality of teacher-student interactions. Teachers serve not only as imparters of knowledge but also as figures of compassion (teacher) that exemplify noble cultural values. Learning that operationalizes local culture through real-life activities such as traditional games, folktales, or social ritual practices can improve students' social-emotional competence and strengthen the bond between teachers and students.8When these cultural values are combined with advanced deep learning, madrasas can create learning that equates emotional, spiritual, and digital intelligence.

The application of ethnopedagogy in a love-based curriculum also has a significant impact on shaping the religious character and morals of elementary school students. The local cultural approach combined with Islamic values has been proven to enhance students' understanding of the meaning of worship, morals, and social relationships within the community.9This shows that culture-based learning does not conflict with the principles of Islamic education, but rather enriches the way students understand religion contextually according to their lives.

Furthermore, the implementation of ethnopedagogy is also in line with the modern educational paradigm that values diversity. Schools that implement culture-based education are able to minimize social conflict and build an inclusive learning environment that respects differences.10This principle is essential for a love-based curriculum that prioritizes harmony, tolerance, and emotional bonds among school members. When supported by effective Islamic educational supervision, the application of ethnopedagogy can create an educational ecosystem that balances values, culture, and technology..

METHODS

This study uses a descriptive qualitative approach aimed at in-depth understanding of the supervision process of Islamic education, the implementation of deep learning, and the integration of a love-based ETHNO curriculum in an elementary Islamic school. This approach was chosen because it is relevant for exploring meanings, values, practices, and cultural contexts that cannot be explained through numbers alone. Qualitative research allows researchers to examine educational phenomena in a naturalistic manner, namely by capturing the actual situation without manipulation, so that a picture of the supervision phenomenon, the application of technology, and ethnopedagogical values can emerge authentically. The focus of the research is directed at how teachers, madrasah principals, and supervisors carry out their roles in the learning process that combines Islamic values, deep learning technology, and local cultural content full of compassion.

The research subjects included class teachers, madrasah principals, and madrasah supervisors, who were selected using purposive sampling, namely selecting informants considered to have the best understanding of the phenomenon under study. In addition, several students also participated as additional informants to enrich the data related to their experiences in deep-learning-based instruction and a love-based curriculum. Data were collected through three main techniques: in-depth interviews, participant observation, and document analysis. Semi-structured interviews enabled the researchers to gather information flexibly while remaining focused on the topic. Observations were carried out in classrooms and the broader madrasah environment to directly observe how teachers implement culture-based learning, how supervision takes place, and how students interact in the learning setting. Document analysis was conducted on lesson plans and other learning tools, supervision records, madrasah policy documents, and deep-learning-based learning materials used by teachers.

The collected data were analyzed using the Miles, Huberman, and Saldaña analysis model, which includes data reduction, data presentation, and conclusion drawing. The data reduction process was carried out by sorting important information related to Islamic supervision, the application of deep learning technology, and the integration of ethnopedagogy, then simplifying the data to form an analyzable pattern. The data was presented in a descriptive narrative form to facilitate readers' understanding of the main findings. Conclusions were drawn in stages by verifying and triangulating sources to ensure scientific accountability of the findings. Data validity was guaranteed through source triangulation, technical triangulation, and member checking, ensuring that the researcher's interpretations remained valid and aligned with the reality on the ground.

This research, which lasted three months, was conducted in two Islamic elementary schools (Madrasah Ibtidaiyah) that have implemented elements of digital learning and local culture in their curriculum. With this methodological design, the research is expected to produce a comprehensive picture of how Islamic education supervision can guide the integration of modern technology and local cultural values in learning, as well as how the implementation of a love-based curriculum can strengthen students' character, spirituality, and digital competence.

RESULTS AND DISCUSSION

The research results show that Islamic educational supervision in the implementation of deep learning in Islamic elementary schools plays a significant role in guiding teachers to align spiritual values, ethnopedagogy, and the demands of modern technology. Supervision serves not only as an administrative oversight mechanism but also as a moral and professional mentoring process that strengthens Islamic values.educationAnd good deedsBased on interviews with madrasah principals and supervisors, it was found that routine Islamic values-based supervision can improve teachers' readiness to understand deep learning principles and adapt them to basic learning, particularly in the use of technology for personalized instruction and adaptive formative assessment. This finding aligns with a recent study by Yaqin (2025), which confirmed that effective Islamic supervision can improve teachers' pedagogical readiness to face digital transformation.11.

Furthermore, the application of deep learning in the learning process appears to have a positive impact on teachers' ability to create more adaptive and responsive learning experiences to students' needs. Teachers are using digital adaptive features such as material recommendation systems, automated assessments, and learning difficulty analysis to more accurately map student abilities. During observations, researchers found that teachers who previously experienced challenges in differentiating learning are now assisted by algorithms that adjust the difficulty level of the material based on student performance. Deep learning serves as a tool to reduce teachers' administrative burden and increase the accuracy of learning interventions.12.

The integration of ETHNO-based curriculum based on love has also been proven to enrich the learning experience and strengthen the emotional connection between teachers and students. Observational data shows that learning connected to local culture such as folklore, traditional games, customary values, and regional artistic expressions— can increase students' motivation to learn and strengthen their sense of belonging to their cultural identity. Teachers who integrate this approach also demonstrate increased affective sensitivity and empathy for students' needs. Local culture-based learning enhances the emotional cohesion of teacher-student relationships and facilitates children's social-emotional development.13.

Interestingly, when an ethnopedagogical approach is combined with deep learning technology, new, more contextual and meaningful learning patterns emerge. Students not only learn academic concepts but also understand Islamic cultural and ethical values through digital media. For example, some teachers use learning apps that present local stories in an interactive format, analyzed by a deep learning system to assess student understanding. The integration of technology and local culture can create an inclusive learning environment and foster students' love for their identity.14This application is highly relevant for elementary schools, which primarily focus on developing the religious and moral character of their students.

Islamic education supervision has also been found to play a crucial role in ensuring a balance between technology and values. Madrasah supervisors ensure that the use of deep learning does not diminish the human touch in the educational process. Teachers are directed to prioritize emotional connections, noble morals, and ethical interactions in every technology implementation. A cultural and empathetic approach to learning can prevent the educational process from becoming rigid and mechanical amidst the penetration of technology.15 Therefore, effective supervision is key to ensuring that technology is used wisely and remains aligned with Islamic values and local cultural needs.

Overall, the results of this study indicate that the combination of Islamic educational supervision, deep learning, and a love-based ethnopedagogical curriculum can create a more holistic educational ecosystem. Students gain a more humane, meaningful, and real-life learning experience. Teachers become more professional and adaptable to changing times, while madrasas, as Islamic basic educational institutions, acquire a curriculum development model that balances spirituality, culture, and technological sophistication. In other words, this study proves that modernizing education in madrasas does not have to eliminate traditional values, but can instead harmoniously synergize through visionary supervision rooted in Islamic values.

CONCLUSION

Based on the research and analysis conducted, it can be concluded that Islamic education supervision plays a strategic role in directing the integration of deep learning technology and a love-based ETHNO curriculum in Islamic elementary schools. Supervision is not merely administrative but also encompasses moral, spiritual, and pedagogical dimensions, enabling teachers to deliver holistic learning. The introduction of deep learning in instruction has been shown to increase the effectiveness and personalization of learning through mapping student abilities, analyzing learning difficulties, and implementing adaptive recommendations. Deep learning technology can improve the quality of assessment and learning differentiation.

The integration of an ethnopedagogy-based curriculum infused with the value of love (a love-based curriculum) also has a significantly positive impact on students' character development. Learning rooted in local culture has been shown to strengthen cultural identity, foster empathy, and improve teacher–student relationships. A culture-based learning approach can enrich the socio-cultural dimensions of the curriculum and support students' emotional well-being. When cultural and technological values are combined through appropriate supervision, the learning ecosystem becomes more meaningful, humane, and aligned with the characteristics of Islamic education.

Furthermore, research shows that Islamic educational supervision serves as a check on the balance between technological modernization and ethical values in learning. Effective supervision ensures that the use of deep learning does not make the learning process mechanistic, but rather prioritizes empathetic interactions, compassion, and noble morals. Local culture can be a strong foundation for maintaining the humanization of education amidst digital developments. Thus, this research confirms that contemporary Madrasah Ibtidaiyah education requires an integrative model that harmoniously blends Islamic values, cultural wisdom, and technological intelligence.

SUGGESTIONS

First, Madrasah Ibtidaiyah teachers are advised to continuously improve their digital competencies and understand the principles of deep learning to optimize its use in teaching. Teachers also need to integrate local cultural values and a love-based approach into their daily learning strategies so that technology doesn't replace the human touch in the classroom.

Second, supervisors and madrasah principals need more adaptive supervision, focusing not only on administrative performance but also guiding teachers in spiritual aspects, digital ethics, and learning creativity. Supervision needs to be directed at ensuring a balance between technology use and the internalization of Islamic values.

Third, education policymakers need to design policies that support the integration of AI-based technology with cultural and character curricula. Policies should encourage teacher training, the availability of digital infrastructure, and development of a flexible curriculum based on local wisdom so that madrasas are ready to face the challenges of the digital era.

Fourth, future researchers are advised to conduct further studies using quantitative or mixed methods approaches to more measurably assess the empirical impact of deep

learning on students' academic and character development. Technology-based ethnopedagogical studies can also be developed to develop new, more innovative learning models in madrasas.

Overall, this study emphasizes the importance of combining Islamic educational supervision, deep learning technology, and a love-based ethnopedagogical curriculum as a future educational model capable of producing a generation with morals, digital intelligence, and cultural roots..

REFERENCES

Martiadi, R., Agustini, R., Nasir, T. M., Yudiyanto, M., & Kusuma, D. T. (2025). Integrasi Deep Learning dalam Pendidikan Islam Adaptif: Sebuah Studi Literatur Sistematis. An-Nahdlah: Jurnal Pendidikan Islam, 4(3), 817–826.

Yaqin, M. 'Ainul. (2025). Supervisi Pendidikan Islam di Era Artificial Intelligence: Peluang dan Tantangan. Jurnal Nakula : Pusat Ilmu Pendidikan, Bahasa dan Ilmu Sosial, 3(4), 08–18.

Septiana, N., Anggraini, P., Khotib, A., & Rofiq, A. (2024). Supervisi Kurikulum dalam Era Digital: Menghadapi Tantangan dan Peluang. Jurnal Budi Pekerti Agama Islam, 3(1), 317–326.

Hasanuddin, M. N., Rohmad, M. A., & Wachidah, H. N. (2025). Penerapan Deep Learning dalam Pembelajaran Pendidikan Agama Islam di Sekolah Menengah Atas Negeri. Paradigma: Jurnal Filsafat, Sains, Teknologi, dan Sosial Budaya, 31(2).

Taufik, I., & Rindaningsih, I. (2023). Pelatihan dan Pengembangan Guru sebagai Sumber Daya Manusia di Era Kecerdasan Buatan (AI). Management of Education: Jurnal Manajemen Pendidikan Islam, 10(1).

Huda, M., & Suwahyu, I. (2025). Peran Artificial Intelligence (AI) dalam Pembelajaran Pendidikan Agama Islam. Referensi Islamika: Jurnal Studi Islam, 2(2).

Syarif, L. R. (2025). Inovasi Pembelajaran PAI melalui Artificial Intelligence (AI). Ta Lim: Jurnal Pendidikan Agama Islam dan Manajemen Pendidikan Islam, 4(1), 172–178.

Rois, M. A., Saputra, R. N. A., & Saefudin, A. (2025). Peran Artificial Intelligence dalam Meningkatkan Kualitas Pendidikan Agama Islam. Idarah Tarbawiyah: Journal of Management in Islamic Education, 6(3), 326–340.

Sudirman, S., Kumalasari, I., Siregar, T. H., Susrianingsih, & Lubis, L. H. (2025). Persepsi Guru Pendidikan Agama Islam terhadap Implementasi Kecerdasan Buatan (AI) dalam Proses Pembelajaran. Tarbiyah bil Qalam: Jurnal Pendidikan Agama dan Sains, 9(1).

Nasihuddin, M. (2024). Peran Kecerdasan Buatan terhadap Transformasi Pendidikan di Era Digital. SALIMIYA: Jurnal Studi Ilmu Keagamaan Islam, 5(4).

Kamaruddin, I., Ismawirna, I., Malintang, J., Utami, T., Sapulete, H., & Wardono, B. H. (2025). Integrasi Deep Learning dalam Kurikulum Berdampak: Transformasi Pendidikan Tinggi di Era Digital. Jurnal Penelitian Ilmu Pendidikan Indonesia, 4(3),

Muis, M. A., Maisarah, A., Fitri, A., Ramadhani, C., Syahwira, E., Akbar, M. A., Kobtiyah, M., Hakiki, N., Laili, N., Wahida, N., Anastasya, N., Kinanti, R. L., Maharani, S., & Nor wahyudi, T. (2025). Integrasi Kecerdasan Buatan (AI) dalam Kurikulum Pendidikan Agama Islam Era 5.0: Tantangan dan Peluang. Jurnal Kolaboratif Sains, 8(6).