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Integration of Deep Learning in Teaching Local Wisdom Values in Islamic Education

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ABSTRACT

This study explores applying deep learning technology to enhance the teaching of local wisdom values in Islamic education. In the artificial intelligence era, integrating its capabilities in education is on the rise, but teaching local wisdom has not yet kept up with modern technology. A qualitative approach with a literature review focused on the application of deep learning in Islamic education is addressed in this study. The survey results show that deep learning can create adaptive learning systems that tailor the materials based on students' characteristics. Such systems can enrich learners ' experiences, enhance understanding of Islamic values, and improve younger learners' character development through local wisdom, Islamic teachings, and ethics more efficiently. Other possibilities include automated analysis of students' learning behaviors for personalized instruction, easy interaction with the educational materials, and learning through experiences. Therefore, integrating deep learning technology into Islamic education could offer innovative approaches to guard and disseminate teaching local wisdom in light of modern technological advancements.

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1. INTRODUCTION

Islamic education is primarily responsible for developing learners' character and attitude by introducing local wisdom intertwined with Islamic teachings and civilization. With the advancement of technology, the challenge of sustaining Islamic education relevance becomes a bigger concern, especially when dealing with digitalization, which transforms the conventional teaching and learning methods. One of the changes that can be made in the Islamic education system is the adoption of deep learning technology, an AI that can adaptively analyze and personalize the instructional data (Mohamad & Ismail, 2024). Through deep learning, the educational procedures can be more customized to meet the requirements of the students, thus making the transmission of local wisdom values more effective and engaging.

In reviewing the implementation of deep learning in education, its uses have positive and negative implications, particularly in teaching Islamic education and local wisdom values. Some studies have shown that deep learning systems can enhance learning, particularly through adaptive systems that personalize educational material for each student (Nasir et al., 2024; Usman et al., 2024). This can be done through easy access to yellow books, corroboration, and hadiths, and students can interact with the text on different levels through artificial intelligence-based analysis. Some scholars argued that the application of deep learning in Islamic education has to be scrutinized in the Islamic ethical paradigm regarding preserving traditional values. (X.-Y. Wu, 2024), argues that although AI and profound learning offer ways to increase learning efficiency, a well-structured instructional design framework must guide the implementation. Without such frameworks, there is a danger of excessive adaptation and dependence on machines, diminishing the role and authority of the human educator (Weng et al., 2023).

According to Shan Wang in his systematic review, it was revealed that the deep learning approach in education enables more adaptive and in-depth learning, primarily through the use of artificial intelligence (AI) in personalizing teaching materials (Wang et al., 2024). Meanwhile, Maisyanah et al. directed the application of deep learning to the teaching of Islamic education, especially in the learning of the yellow books and the interpretation of the Al-Qur'an, with positive results in helping students' understanding contextually (Maisyanah et al., 2024). However, the focus of this study is still limited to textual Islamic content and has not touched on aspects of local wisdom values. On the other hand, Sanjani highlighted the importance of integrating local wisdom values such as cooperation, deliberation, and tolerance in Islamic education to strengthen students' character and cultural identity (Sanjani et al., 2024). However, the learning approach is still conventional and has not adopted the deep learning pedagogical framework that emphasizes deep understanding, critical reflection, and the meaning relationship between contexts. Luqmi's research offers an AI-based intelligent learning approach for Islamic education in madrasas. However, the learning content still focuses on *fiqh*, *aqidah*, and worship without exploring local values based on community culture (Luqmi et al., 2024). In the context of Islamic education, this debate is increasingly relevant because Islamic education does not only focus on the transfer of knowledge, but also on aspects of morality, spirituality, and manners, which are difficult to teach through artificial intelligence.

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Another study highlights the harmony between the concept of ijtihad and the use of technology in Islamic education. According to Saputro et al., Islam accepts the development of science, as long as technology is used for the benefit of the people (Saputro et al., 2024). This is reinforced by the concept of *maqashid sharia* (the objectives of sharia), which emphasizes the need to protect religion, soul, mind, descendants, and property (Nur et al., 2020). In this context, the application of deep learning in Islamic education can be considered as part of maintaining reason (*hifzh al-aql*) on the condition that technology is used wisely and does not replace the role of teachers in shaping students' characters. A study by Chen highlighted the challenges in implementing an adaptive learning system based on deep learning. They stated that although deep learning can optimize data analysis and learning personalization, this technology still has limitations in understanding non-cognitive aspects such as moral and social values (Chen et al., 2020). In the context of Islamic education, this is a matter of debate because the values of local wisdom in Islam are often instilled through direct interaction between teachers and students, not just through the material presented.

From the perspective of Islamic education, Mujahid's research emphasizes that technology can only be a tool in education. Still, the role of ulama, kyai, and teachers remains a significant factor in the success of Islamic education. Most Islamic learning traditions in Indonesia, such as in Islamic boarding schools and madrasas, still rely on the sorogan and bandongan methods, where students learn directly from teachers through verbal interaction and in-depth discussions (Mujahid, 2021). If deep learning is applied in Islamic education, this learning model must be maintained with a blended learning approach combining technology and traditional methods. According to the theory of constructivism, learning, which emphasizes that learning occurs through direct experience, can be associated with deep learning in Islamic education (Silalahi et al., 2022; Ferianto et al., 2024). With this approach, deep learning can be used to build learning simulations based on Virtual Reality (VR) and Augmented Reality (AR), allowing students to experience Islamic history immersively. However, criticism of this approach comes from Sweller (1988) in the Cognitive Load theory, which states that if the instructional design is inappropriate, technology can burden students with excessive information, reducing learning effectiveness (Skulmowski & Xu, 2022). From several of these studies, no integrative research has combined three important elements: the deep learning approach, the content of local wisdom values, and the context of Islamic education. This research gap opens up a vast space for the development of Islamic learning models that are not only adaptive and contextual, but also able to instill local values as part of the Islamic character of students.

This debate shows that the integration of deep learning in Islamic education must be carried out with a balanced and measured approach. The application of technology must also consider Islamic principles and must not usurp the functions of teachers in guiding the students' character. Hence, pragmatic approaches to policy implementation must be devised to ensure that deep learning can synergize with Islamic education and that local wisdom values are honored and preserved. Although the application of deep learning in imparting local wisdom values in Islamic education still has various issues to address. The major hindrances to its application are the absence of adequate technological facilities in Islamic educational institutions, the small cadre of educators proficient in AI, and the sociomoral side of artificial intelligence. On the other hand, the concepts of *ijtihad* and *tajdid* orient Islam towards the constructive use of science and

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technology. Therefore, finding ways to apply deep learning effectively in the Islamic education system is crucial while ensuring that the principles of Islam and local culture are respected.

This research contributes significant novelty within Islamic education, particularly about incorporating deep learning in teaching local wisdom values. The main novelty lies in the combination of two aspects that are rarely explored simultaneously: the application of artificial intelligence (AI) technology in Islamic education and the emphasis on teaching local wisdom values that are contextual and traditional. Deep learning, which is known for its ability to adapt learning materials according to the needs of individual students, has not been widely applied in the context of Islamic education that emphasizes moral, spiritual, and social values.

This research opens opportunities to create a more personalized learning model (adapted to each individual) without reducing Islamic values and local culture, the characteristics of Islamic education in Indonesia. This leads to excess teaching that is out of sync with the times and the younger generation, which is tech-savvy. This research aims to bridge the gap between technology and tradition and demonstrate how technology can enhance Islamic values and local wisdom in a context where Islamic principles guide human relationships without replacing the role of teachers and educators as moral agents. Therefore, this study focuses on how deep learning can be incorporated. It is expected that after knowing the potential, challenges, and strategies of implementing deep learning, Islamic education can continue to adapt to the times without losing its true identity. Besides, this research will provide approaches that integrate conventional yellow book learning and Islamic boarding schools with deep learning technology to create a future-oriented learning system.

2. METHODS

The inquiry about strategy utilized in this study is a qualitative approach with a literature study method (Creswell & Creswell, 2017). This centers on examining pertinent writing to investigate the concept of deep learning and its application in Islamic instruction, particularly in instructing neighborhood intelligence values. The information sources include logical diaries, books, articles, and scholastic records that examine manufactured insights, educational innovation, and Islamic instruction. Information collection methods are carried out by looking into different writings related to the investigated subject to get a comprehensive understanding of the integration of deep learning within the learning process (Sugiyono, 2017). This consideration applies information introduction, information presentation, and conclusion-drawing procedures within the information investigation preparation. Information is introduced by sorting important data from various sources and displaying it methodically to encourage investigation. Information introduction is in the shape of concept mapping related to deep learning, neighborhood intelligence values, and Islamic education. Moreover, conclusions are drawn by defining the most significant discoveries from the results of the writing survey and distinguishing potential benefits, challenges, and arrangements within the application of deep learning in Islamic instruction. This strategy is anticipated to supply in-depth knowledge into how deep learning innovation can improve the adequacy of educating neighborhood intelligence values in Islamic instruction.

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3. RESULTS AND DISCUSSION

3.1. The Concept of Deep Learning in Education

Deep learning could be a department of artificial intelligence (AI) that employsemploys multi-layered neural systems to mimic how the human brain works in recognizing designs and handling complex data (Fantin Irudaya Raj & Balaji, 2022). This innovation has been created quickly and has started to be connected in different areas, including education. According to Shoaib, deep learning makes AI-based learning frameworks get, analyze, and foresee student learning behavior to give a more adaptive and personal learning experience (Shoaib et al., 2024). Deep learning is a machine learning technique that allows computers to learn from large amounts of data without requiring explicit programming for each task (Ezzaim et al., 2024). The essential guideline of deep learning lies in its capacity to extract highlights from information progressively through different layers of artificial neural networks.

Within the instruction setting, deep learning can be utilized to recognize student learning styles, adjust materials based on the student's level of understanding, and improve the efficiency of the learning assessment preparation (X.-Y. Wu, 2024). A few past studies have shown that deep learning can increase the adequacy of learning by providing suggestions that are custom-fitted to the needs of each student (Fantin Irudaya Raj & Balaji, 2022). Using deep learning in instruction has significantly shifted how machine learning frameworks are designed and implemented. This innovation empowers learning frameworks to alter content based on learners' needs so that each student can get material suitable to their level of understanding. According to Shrobron, versatile learning systems work by analyzing students' interaction designs with the fabric being considered, distinguishing challenges they confront, and giving suitable suggestions to progress their understanding (Shrobron & Rosyadi; Imron, 2020). In this setting, the constructivist hypothesis created by Piaget and Vygotsky is especially significant because it emphasizes that viable learning happens when students are dynamic in building their understanding through personalized encounters (Crook & Sutherland, 2017; Amna Saleem et al., 2021).

Deep learning plays an imperative part in massive information investigation in instruction. By leveraging advanced information handling procedures, frameworks can distinguish student learning designs on an expansive scale, empowering instructors to plan more compelling instruction methodologies. Silalahi focuses on how deep learning can offer assistance in identifying patterns in student learning troubles, such as patterns of mistakes in replying to questions or particular inclinations in understanding certain concepts (Silalahi et al., 2022), typically in line with Vygotsky's hypothesis of the zone of proximal advancement (ZPD), which states that students can learn better if they get direction that is suitable to their level of advancement (Ezzaim et al., 2024). With a deep learning-based versatile learning framework, this direction can be given consequently by innovation, which can alter the level of difficulty of the fabric according to the personal needs of students.

One of the focal points of deep learning in learning is its capacity to move forward the viability of learning evaluation. In conventional learning frameworks, assessment is regularly done utilizing standardized exam strategies that do not continuously reflect students' genuine understanding. With deep learning, the framework can assess students' advances in real time and

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give more nitty-gritty input. Wu emphasized that deep learning can be utilized to analyze students' reply designs, distinguish shortcomings in their understanding, and suggest more compelling learning procedures (X.-Y. Wu, 2024). This approach underpins the evaluation for learning (AfL) hypothesis created by Dark and Wiliam (1998), which emphasizes that assessment ought not to serve to survey learning results but also as an instrument to assist students to learn more effectively by giving significant criticism (Yusron & Sudiyatno, 2021).

In expansion, deep learning plays a part in advancing counterfeit intelligence-based virtual guides that can give a more intelligent and responsive learning experience. These virtual guides can recognize students' learning designs, adjust teaching strategies, and give personalized proposals to move their understanding forward. Oker said that using virtual guides in learning has been demonstrated to extend students' motivation and assist them to get the material more effectively (Oker et al., 2020). From the viewpoint of Anderson's (1983) cognitive hypothesis, this innovation underpins learning by reinforcing the information processing prepared within the brain, so that students can understand and retain data more easily (Mayer, 2024). Deep learning can back gamification-based learning, where the fabric is displayed within the frame of intuitive recreations that can increase student engagement within the learning environment. Lawbreaker & Sutherland show that gamification can increase student motivation by giving challenging tasks, reward systems, and more engaging experiences (Crook & Sutherland, 2017). Utilizing deep learning, gamification frameworks can alter the game's difficulty level based on the student's abilities, so that they stay challenged but not overpowered. This approach is in line with Csikszentmihalyi's stream hypothesis, which states that compelling learning happens when an individual is in a state of full engagement (stream) in an action that's adjusted between challenge and expertise (Shu-Fen Wu et al., 2020).

Not as it were within formal instruction, but deep learning contributes to MOOC (Gigantic Open Online Courses)-based learning and other e-learning stages. This innovation allows MOOC stages to analyze student learning designs on an expansive scale and give more personalized course suggestions. Syafriel said deep learning improves a more comprehensive learning framework, where students can get a learning involvement that suits their needs (Syafieh, 2020). From the viewpoint of the self-directed learning hypothesis created by Knowles, this innovation makes students more autonomous in overseeing their learning pace and style, according to their inclinations (Morris, 2019). In expansion, deep learning can assist in addressing challenges in comprehensive instruction, particularly for students with exceptional needs. This innovation can be utilized to create learning aids that are custom-made to the characteristics of individual students, such as speech recognition systems for students with visual disabilities or text-to-speech help for students with dyslexia. Nur emphasized that fake insights innovation has brought incredible advances in comprehensive instruction by giving students more adaptable and open arrangements (Nur et al., 2020). This underpins Gardner's hypothesis of multiple intelligences, which states that each person has a distinctive way of learning, and a great instructional framework must adjust to this differing quality (Cavas & Cavas, 2020).

Applying deep learning in Islamic instruction is connected to the hypothesis of Islamic *tarbiyah*, which emphasizes that Islamic instruction must be based on involvement and character arrangement (*ta'dib*) as instructed by Al-Attas (2011). With VR and AR innovation based on deep learning, students can get the stories within the Qur'an and hadith more outwardly and intelligently. For illustration, a reenactment of the *Isra' Mi'raj* occasion can be made within the

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form of a virtual involvement, where students can " follow the travel of the Prophet Muhammad SAW from the Terrific Mosque to the Aqsa Mosque, and after that up to *Sidratul Muntaha*. With this approach, Islamic instruction is based on hypothesis and provides coordinated encounters that can improve students' memory and understanding.

In the Islamic instructive hypothesis, Al-Ghazali emphasized that information must be presented to understand, and by human nature (Poya & Rizapoor, 2023). This guideline is similar to Sweller's cognitive stack hypothesis, which states that people have a restricted cognitive capacity to retain information (Sweller, 2020). Therefore, VR and AR-based learning can offer assistance in decreasing cognitive load by displaying data outwardly, making it more straightforward for students to understand complex concepts. In Islamic instruction, this concept can be connected to instructing Islamic statutes, translation, and hadith, where interactive exercises can assist students in understanding Islamic legal concepts much better. In expansion, Vygotsky's social constructivism hypothesis can be connected to learning through interaction in Islam (Crook & Sutherland, 2017; Amna Saleem et al., 2021). Within deep learning and VR in Islamic instruction, students can have intuitive discussions with AI-based virtual characters showing Islamic figures such as Imam Syafi'i, Ibn Sina, or Al-Farabi. With a characteristic dialect preparing (NLP) framework, AI can reenact discourse if students talk to past researchers and pick up an understanding of Islamic law, medicine, or reasoning from the source. This approach embraces the halaqah strategy (Islamic logical dialog), which has been known since the time of the Prophet Muhammad SAW and his companions.

Deep learning in VR and AR can be used in learning the Qur'an through voice and text recognition technology. AI based on deep learning can correct tajwid and makharijul huruf in reading the Qur'an, provide automatic feedback to students, and provide error analysis to help improve their reading. This concept is based on Skinner's behaviorism learning theory, which states that drill and practice-based learning and direct feedback can improve a person's ability to master a skill (Vargas, 2017; Firmansyah & Saepuloh, 2022). In Islam, this method is also based on the concept of talaqqi in learning the Qur'an, where a student reads and gets direct correction from a teacher or AI system. Although it has many benefits, deep learning in Islamic education faces challenges, especially in infrastructure readiness and educators. As Qiu (2024) explained, implementing AI technology in education requires adequate digital infrastructure, such as VR devices, cloud-based servers, and deep learning systems that can analyze student learning patterns. In the context of Islamic education in developing countries, this challenge becomes more complex due to limited access to technology in some Islamic boarding schools and madrasas. Therefore, the government and Islamic educational institutions need to invest in infrastructure development and teacher training to implement this technology effectively.

In addition to the infrastructure aspect, the ethics of using AI in Islamic education are also a significant concern. Floridi, in his theory of technological ethics, emphasizes that AI in education must pay attention to transparency, justice, and privacy (Floridi, 2023). In Islam, the ethics of using technology must also be guided by the *maslahat* (public welfare) principle and prohibitions against things that can harm humanity (*saddu dzari'ah*). Regulations regarding the use of student data in deep learning systems must be clarified so as not to violate privacy rights and information security. In addition, strict supervision is needed so that the content presented in AI-based VR and AR systems is consistent with Islamic values and does not contain elements that conflict with sharia (Maharana & Acharya, 2024). In facing this challenge, a hybrid approach

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between technology and traditional Islamic pedagogy can be a solution. Hasan Langgulung emphasized that Islamic education must adapt to the development of the times without losing its essence. Therefore, AI technology in Islamic education must be integrated with traditional learning methods, such as *halaqah*, *sorogan*, and bandongan in Islamic boarding schools. For example, teachers can use VR to simulate Islamic history but provide direct guidance in understanding the meaning and wisdom of the studied events (Nurhadi & Harahap, 2021). In this way, Islamic education maintains its authentic values while utilizing modern technology.

3.2. Integration of Deep Learning in Islamic Education

3.2.1. The Concept of Personalization of Learning in Islam

Personalization of learning in Islam alludes to an approach that adjusts instructional strategies and materials to individual learners' requirements, capacities, and foundations. In Islam, instruction centers not only on cognitive perspectives but also on otherworldly, ethical, and social aspects (Musolin et al., 2024). Each person has a diverse understanding and encounter in examining Islamic lessons, so adaptable and versatile learning methodologies are required. By executing personalization in Islamic learning, students can gain a deeper understanding of their cognitive and otherworldly advancement.

This approach can be connected to different areas of Islamic instruction, such as learning the Qur'an, hadith, fiqh, and Islamic history. For illustration, a child learning to examine the Qur'an needs a distinctive strategy compared to somebody who has now learned its translation. Moreover, in learning fiqh, a tenderfoot needs less complicated and more pertinent fabric, whereas those who are more progressed require more in-depth and relevant thinking. With innovation such as deep learning, the learning framework can be balanced to a person's needs, making learning involvement more successful and meaningful. Personalization in Islamic instruction, moreover, incorporates perspectives of values and ethics. Learning is not as it was, exchanging information, but instilling Islamic values in the students' character. A child who tends to memorize through down-to-earth involvement (experiential learning) will more viably get Islamic lessons through activities such as revere recreations, narrating based on the stories of the prophets, or intuitively talking about morals in lifestyle. Adjusting learning strategies based on personal characteristics will make their understanding of Islam more grounded and less demanding to apply in genuine life.

The personalization approach in education, particularly within the setting of Islamic instruction, is progressively important, together with the advancement of innovation and the understanding of each person's individual needs within the learning process. This approach alludes to the hypothesis of separation in instruction, which recognizes that not all learners have the same way of understanding and internalizing data. This separation theory emphasizes the importance of altering learning techniques based on the characteristics and needs of each learner, such as cognitive capacities, learning styles, and personal interests (Goyibova et al., 2025). Within the setting of Islamic instruction, this could be deciphered into the application of procedures that consider contrasts within the way students learn Islamic lessons, both in terms of understanding hypotheses, practicing reverence, or social intuition pertinent to Islamic values.

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One hypothesis that emphatically bolsters the personalization approach in instruction is the Different Insightful Hypothesis proposed by Howard Gardner. Gardner proposes that each person has different insights, counting phonetic, logical-mathematical, melodic, kinesthetic, interpersonal, intrapersonal, spatial, and naturalist insights (Cavas & Cavas, 2020). In Islamic instruction, this hypothesis helps teachers understand that an understudy does not focus solely on the ability to understand the Qur'an or hadith but can also gain other insights that play a part in understanding Islamic values. For illustration, students with kinesthetic insights may more effectively retain Islamic lessons through coordinated revere hones such as supplication, zakat, or hajj, where they can feel earth encounters instead of fair tuning into addresses or perusing speculations.

This hypothesis of multiple intelligences guides teachers to make a multidimensional environment, where learning exercises are not centered on one frame of reference. However, different shapes of learning can complement each other. For illustration, understudies who have interpersonal insights may discover it less demanding to get Islamic lessons that center on social connections, such as the significance of *ukhuwah* (brotherhood), conduct in connection, and common regard in society, through gathering discourses or social reenactments in real-life settings. In the interim, understudies with phonetic insights can be energized to create a deep understanding of the translation of the Qur'an through discourses, debates, or perusing significant classical writings. This personalized approach aligns with the social constructivism hypothesis created by Lev Vygotsky. Vygotsky emphasized the significance of social interaction in learning, which permits people to construct modern understandings through exchange and collaboration, particularly those more experienced in a field (Crook & Sutherland, 2017; Amna Saleem et al., 2021). Within Islamic instruction, this hypothesis leads to learning strategies that do not happen as they would in the classroom but rather in the social environment around the learners. Learning can be placed in discourse between understudies, gather discourses, or experiential learning, which makes a difference in understudies building their understanding of Islamic values through collaboration with peers or instructors who direct them.

The guideline of social constructivism is that information is not received passively, but is built through coordinated encounters and actual social interaction (Crook & Sutherland, 2017; Amna Saleem et al., 2021). In Islamic instruction, this can be a dialogue on a specific elucidation or hadith, where students can share their understanding, ask questions, and discuss how these values are connected in daily life. This concept creates an opportunity for students to get Islam in a hypothetical setting and internalize Islamic lessons through coordinated encounters pertinent to their social conditions. Personalized learning is driven by innovation, such as deep learning, which can make a more in-depth and particular learning involvement, according to the characteristics of each student. For illustration, a fake insights (AI) based framework can analyze a person's learning designs and needs, and then display fabric with a more suitable approach, whether within the frame of content, video, or intuitive reenactments. This is often exceptionally pertinent to Islamic instruction, where differing qualities in learning styles can be considered so that students with distinctive foundations and insights can learn more effectively and pleasantly.

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3.2.2. Development of Adaptive Systems for Teaching Local Wisdom Values

The advancement of versatile frameworks in instruction is an imaginative approach to instruct local intelligence values. This framework employs innovation to adjust learning strategies and materials to the characteristics of students, thus empowering a more individual and relevant learning experience. In educating neighborhood shrewdness, versatile frameworks can suit contrasts in social foundations, learning styles, and levels of student understanding. In this way, social values passed down from era to era can stay significant amid the advancement of the times and the digitalization of instruction. Within the realm of learning hypothesis, there is a talk about constructivism and behaviorism concerning the viability of versatile frameworks in culture-based instruction. The constructivism hypothesis, spearheaded by Jean Piaget and Lev Vygotsky, emphasizes that learning must be dynamic and experience-based. Understudies construct their understanding based on intuition with the social and physical environment. In this manner, versatile frameworks based on constructivism will prioritize project-based learning encounters or social reenactments, where students can investigate and hone local wisdom values in real life.

Within the behaviorism hypothesis created by BF Skinner, it is contended that learning is more viable when controlled through support or strengthening (Vargas, 2017; Firmansyah & Saepuloh, 2022). Within versatile frameworks, this hypothesis emphasizes the significance of coordinating input and rewards to strengthen behaviors that reflect social values. For illustration, the framework can give virtual grants or expanded levels of learning each time a learner effectively applies a nearby intelligence concept in an advanced situation. This approach is reasonable for game-based instruction (gamification), where learner motivation is maintained through compensatory and punishment instruments. In addition to constructivism and behaviorism, the cognitivist hypothesis plays a part in advancing versatile frameworks. In his hypothesis of cognitivism, Jerome Bruner emphasizes the significance of a platform, which is a progressive bolster given to learners to accomplish more complex understanding (Stapleton & Stefaniak, 2019). In a versatile framework, this concept can be actualized through learning modules that alter the fabric's difficulty level based on a person's capacities. For example, students who adopt specific social values quickly will be given advanced challenges, whereas those still struggling will be given extra direction through intuitive media.

The approach that bolsters educating nearby shrewdness through versatile frameworks is the social learning hypothesis created by Albert Bandura. This hypothesis emphasizes that learning happens through perceiving and imitating significant models (Rumjaun & Narod, 2020). In this way, versatile frameworks can be planned to display social figures or intelligent simulations that permit learners to memorize real-life cases. For example, the utilization of augmented reality (AR) or virtual reality (VR) can assist learners who encounter certain social norms, such as standard parades or conventional expressions, firsthand, which fortify their understanding of neighborhood values. There are challenges in creating versatile frameworks for neighborhood-based education, particularly related to energetic and assorted social settings. Advocates of the connectivism hypothesis, such as George Siemens and Stephen Downes, emphasize that within the advanced period, learning must be situated within social systems and worldwide collaboration (Kop, 2023). This approach leads to a versatile framework that permits learners to interact with social communities, both locally and universally, to broaden their points of view on local and global issues. With intuitive highlights such as dialog gatherings, learners

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can trade experiences and extend their understanding through discourse with individual learners or social practitioners (Mukhlis et al., 2024).

Even though different hypotheses bolster the improvement of versatile frameworks in neighborhood shrewdness learning, a few reactions emerge concerning its execution. A few conventional instruction specialists contend that social values should be taught through coordinated approaches and genuine experiences, not computerized media. This approach is closer to David Kolb's experiential learning hypothesis, which emphasizes that the foremost successful learning happens through coordinated involvement (Kolb & Kolb, 2018). Subsequently, versatile frameworks that depend exclusively on innovation without genuine interaction with the local culture can be considered less viable in shaping a deep understanding. Integrating versatile frameworks with mixed learning strategies can be an ideal approach to this feedback. Mixed learning combines computerized learning with coordinated involvement in genuine social situations. In-home, versatile systems can supply essential materials and social activities online, whereas field exercises, such as visits to social media or associations, remain a part of the educational programs. In this way, students do not necessarily get the concept of nearby shrewdness hypothetically but can also live it in their standard of living.

In the future, the improvement of versatile frameworks to instruct neighborhood shrewdness values must improve by receiving fake insights (AI) and learning analytics. With AI, the framework can be more brilliant in altering educational materials and strategies based on students' learning styles. In the meantime, learning analytics permits measuring the framework's viability in ingraining social values, so persistent enhancements can be made. By utilizing this innovation, it is trusted that versatile frameworks can become a more compelling instrument in protecting and educating local intelligence in future eras.

In creating versatile frameworks to instruct neighborhood shrewdness values, it is imperative to recognize that different nearby settings require an adaptable approach to the framework plan (Amrin et al., 2020). Each locale or social gathering has diverse local intelligence, incorporating unique standards, conventions, dialects, and values. Hence, versatile frameworks must get to this social setting well and alter learning materials according to their uniqueness. Adaptive-based learning innovation must be planned to incorporate these differences, maintain a strategic distance from one-size-fits-all, and guarantee that learning can provide important learning experiences for each learner. This adaptive approach can increase learners' mindfulness of the significance of social differences in a worldwide society. As globalization increases, learners should have the aptitude to understand it and appreciate social contrasts. Versatile frameworks can coordinate the concept of multiculturalism by allowing learners to memorize neighborhood intelligence from different parts of the world. Utilizing innovation that interfaces learners with worldwide societies can increase their understanding of the importance of neighborhood values in keeping up social and cultural personality (Asmayawati et al., 2024).

In the long term, this adaptive system can also serve as an instrument to protect neighborhood intelligence, which will be imperiled due to modernization. Innovation can be utilized to report and spread social norms that will not be enforced in the standard of living. For illustration, conventional traditions or expressions can be recorded and broadly dispersed to the younger era using intelligent media such as video, sound, and pictures. In this way, innovation plays a part not only in supporting learning but also in social preservation. One of the focal points of versatile systems is their capacity to supply more adaptable learning. This permits learners to

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memorize anytime and place, according to their claim pace and learning style. Within instructing neighborhood shrewdness values, this adaptability is exceptionally critical, since neighborhood intelligence is frequently related to everyday practices that can be learned outside the classroom. For example, learners can practice these values in the family environment, community, or even on trips to cultural places that have historical value. In the future, adaptive systems must prioritize collaboration between various parties, including educators, cultural experts, technologists, and local communities. In this case, a participatory development model would be beneficial. Educators can work with cultural practitioners to design more authentic and relevant learning materials. Technologists can develop platforms that are easily accessible and used by all groups. At the same time, local communities can play an active role in identifying values that must be taught to the younger generation. This collaboration will improve the quality of learning and ensure that the adaptive system can truly preserve local wisdom effectively.

3.2.3. Deep Learning Islamic Education in Indonesia

In Indonesia's Islamic education context, Deep Learning, which includes Meaningful Learning, Mindful Learning, and Joyful Learning, can be applied to enrich the learning process that emphasizes spiritual, moral, and social values. Meaningful Learning in Islamic education emphasizes relevant and meaningful Learning, where students not only gain knowledge cognitively but also understand and internalize moral and spiritual values in life (Nasucha et al., 2023). Islamic values such as honesty, compassion, responsibility, and mutual respect are the core of Learning that focuses on practical application in everyday life. Through Meaningful Learning, students are invited to connect what they learn with their context so that Learning is theoretical but also practical and applicable. The constructivism theory developed by Jean Piaget and Lev Vygotsky strongly supports this approach. Piaget emphasized that knowledge is built through experience and direct interaction with the surrounding world. In contrast, Vygotsky emphasized the importance of the social environment and interaction with others in building knowledge (Crook & Sutherland, 2017; Amna Saleem et al., 2021). In the context of Islamic education, this can be translated into experiential Learning, where students learn not only from books, but also through worship practices, group discussions, or social activities that directly relate Islamic teachings to their real lives.

However, there is debate regarding the extent to which the Meaningful Learning approach can accommodate the academic needs of Islamic education with a strict curriculum structure and standards. Some critics argue that if education focuses too much on students' personal experiences and social contexts, there is a risk of reducing the systematic understanding of Islamic teachings that require in-depth theoretical knowledge, such as in studying fiqh, aqidah, and tafsir. According to Nuh (2013), in his research, learning that is too open or unstructured can potentially reduce the intellectual quality of Islamic religious education, especially related to the deepening of religious sciences that are technical and formal.

According to Al Ghazali, Islamic theory supports the implementation of Meaningful Learning, which emphasizes that the knowledge gained must be used for the good of humanity and maintain good morals. Within this framework, Islamic education must educate students to not only master knowledge but also internalize religious values that enrich their character. According to Al-Ghazali, Islamic education emphasizes moral education and the instillation of moral values

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that are useful in their social life. Therefore, in Islamic education, meaningful learning also requires students to interact with their community and environment, so that what they learn can be directly applied in everyday life (Ghozali, 2005; Poya & Rizapoor, 2023).

According to Ibn Khaldun, a Muslim social scientist and philosopher, education should facilitate the continuous transfer of knowledge in the context of social and moral values. In his work, Muqaddimah, Ibn Khaldun emphasized the importance of the relationship between knowledge and social life, which means that education should not only focus on teaching academic material but also on character-building and developing students' morals (Khaldun, 998) (Ferianto et al., 2024). In this case, Meaningful Learning in Islamic education must pay attention to the social and moral aspects that apply in society, considering that Islam is a religion that teaches the relationship between humans and God and harmonious social relations. Raza's research states that meaningful Learning can increase student engagement and encourage them to seek knowledge actively. This study highlights the importance of the relationship between what is learned and students' real-life experiences (Raza et al., 2020). Meaningful Learning is believed to create greater intrinsic motivation because students will see the immediate practical benefits of what they are learning. In Islamic education, this could mean making Learning relevant to their lives, such as discussing how Islamic values are applied in social interactions, or how worship teaches them discipline, responsibility, and concern for others (O'Neill & Short, 2025).

Mindful Learning is the second essential element in the deep learning approach, according to Abdul Mu'ti, and it is closely related to students' full awareness of the learning process. In the context of Islamic education, this concept is very relevant because it invites students to not only learn as a passive action, but also with full awareness and sincere intentions in every action of their Learning. In Islam, intention is one of the important elements in every deed. In the hadith of the Prophet Muhammad SAW, it is stated that "Deeds depend on intentions," which emphasizes that genuine and sincere intentions in carrying out an activity, including Learning, will bring blessings. In this case, Mindful Learning teaches students not only to learn the material mechanically, but to explore the meaning and purpose of every knowledge they learn, and to apply it in real life with full awareness.

The constructivism hypothesis proposed by Lev Vygotsky and Jerome Bruner gives a solid foundation for executing Careful Learning in Islamic instruction. Within the Zone of Proximal Improvement (ZPD) hypothesis, Vygotsky states that successful learning happens through social interaction and back from more experienced people, be it instructors or peers. Vygotsky contends that students, with complete mindfulness, can overcome existing challenges with the assistance of others, and through this preparation, they effectively develop their information (Crook & Sutherland, 2017) (Amna Saleem et al., 2021). This concept is in line with the rule of Careful Learning, where students do not, as it were, center on memorizing material. However, they must be effectively included in building their understanding with careful attention to the material taught and how they relate it to life. In Islamic instruction, this can be reflected in social interaction, including talk and reflection, and the genuine application of Islamic values in ordinary social life. In the interim, Jerome Bruner included that successful learning includes disclosure and investigation, where students play a dynamic part in forming their understanding. This rule also aligns with Careful Learning, where students are asked to be mindful of their learning preparation and effectively included in finding modern information, not as beneficiaries of data. Within Islamic instruction, this may be applied through question-and-answer strategies, talks, and

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project-based learning, where students can investigate and find their understanding of Islamic values and how they can be connected to their way of life.

Moreover, the concept of Mindful Learning has solid parallels in more classical Islamic instructional speculations. For example, Al-Ghazali, an incredible researcher in Islamic history, also emphasized the significance of self-awareness within the learning process. In his works, Al-Ghazali instructed that the information picked up is not as it were for individual interface but must be followed by a true deliberate to draw closer to Allah and to hone the information in ordinary life (Nur et al., 2020) (Poya & Rizapoor, 2023). Therefore, Mindful Learning in Islamic education also requires students to be fully aware of their learning goals to achieve virtue and happiness in the world and the hereafter. In Al-Ghazali's view, learning is not only intended to improve intellectual competence but also to form characters that are in line with Islamic teachings.

In the concept of Sufism taught by Imam Al-Ghazali, there is an emphasis on self-awareness and cleansing the heart in every action. Mindful Learning in this context means that students not only learn to master knowledge but also to cleanse their intentions and maintain the purity of their hearts in every aspect of life. Al-Ghazali argued that learning not accompanied by moral and spiritual awareness will be in vain because knowledge not used for the good of the people will only lead to arrogance and stupidity. However, there is criticism of the application of Mindful Learning in modern education, especially related to its application in a highly technology-dependent environment (Wartini, 2016). Several studies have shown that students today focus more on technology and digital distractions, often reducing full awareness in the learning process. For example, a study by Rosen et al. (2013) showed that excessive use of technology can reduce students' ability to be fully involved in learning activities and reduce the quality of their understanding of the material. Therefore, in Islamic education, Mindful Learning must be combined with wise technology management, so that technology can support, not interfere with, the process of awareness and sincere intention in Learning.

The Minister of Primary and Secondary Education's statement regarding the importance of deep learning to create joyful learning highlights the need for transformation in the education system. Deep learning is not just a technology-based approach but also a pedagogical method that emphasizes deep understanding, where students do not just memorize information mechanically but also understand concepts and can apply them in real life. In this context, Islamic education must also adopt a more innovative approach so that learning Islamic values can be more interesting and impactful for students.

In Islam, joyful learning aligns with the Islamic *tarbiyah* approach, which emphasizes education that humanizes humans (*ta'dib*) and provides positive and meaningful learning experiences (Sahin, 2021). In teaching Islam to his companions, the Prophet Muhammad did not use rigid or stressful methods, but instead in a persuasive, inspiring, and fun way. For example, in teaching his companions about manners and morals, the Prophet often used stories (*qashash*), dialogues, and parables that made the learning process more interesting and did not burden their minds. Deep learning in Islamic education can be applied through an experience-based and problem-solving approach, where students are invited to understand Islamic religious concepts through discussion, reflection, and application in everyday life. This aligns with Vygotsky's constructivist theory, which emphasizes that students learn more effectively when they are active in the learning process and do not just receive information passively. In Islamic learning, the

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halaqah method, *tadabbur* Al-Qur'an, and project-based learning can create a deeper and more meaningful learning experience (Crook & Sutherland, 2017; Amna Saleem et al., 2021).

Islamic education also has the concept of "learning with the heart", where knowledge is not just information, but must be understood with the heart and practiced in everyday life. This is in line with Bloom's theory of learning taxonomy, which emphasizes three main domains: cognitive (knowledge), affective (attitude), and psychomotor (skills) (Hoque, 2016; Begam & Tholappan, 2018). If deep learning is applied correctly in Islamic education, then not only will the cognitive aspect be developed, but also the spiritual and moral aspects of the students. In line with that, joyful learning in Islam can also be applied through playing while learning, especially in early childhood education. The hadith states: "Educate your children according to their time, because they live in a different time from your time." (HR. Ibn Majah) This hadith shows that educational methods must be adjusted to the development of the times, including the use of technology and modern approaches such as deep learning. AI technology, Islamic-based educational games, and interactive simulations can be applied to Islamic learning to make it more interesting for children and adolescents.

However, the challenge in implementing deep learning and joyful learning in Islamic education is the lack of readiness of educators to use this method. Many teachers still apply the one-way lecture method, which makes students tend to be passive in learning. Therefore, educators need training to apply active learning methods, blended learning, and AI-based technology in Islamic learning. From an Islamic perspective, joyful learning must not forget the aspects of piety and discipline. Islam teaches a balance between knowledge and manners, freedom of thought and moral responsibility (Sahin, 2021). Therefore, joyful learning in Islamic education must still refer to Islamic values, emphasizing patience (*shabr*), perseverance (*ijtihad*), and sincerity in seeking knowledge. By implementing deep learning based on joyful learning, Islamic education can become more interesting, interactive, and impactful for students. This will improve the quality of students' understanding of Islamic teachings and make them more enthusiastic about learning and applying Islamic values in their lives. As emphasized by Imam Syafi'i: "Knowledge is like light, and the light of Allah will not be given to a dark heart." Therefore, Islamic education must reflect the light of knowledge that is pleasant, inspiring, and brings benefits to the next generation of Muslims (Irwanti et al., 2023).

CONCLUSION

The conclusion of this study shows that this approach can significantly contribute to creating more personalized, meaningful, and enjoyable Learning. By integrating deep learning technology, the learning system can be tailored to students' individual needs, allowing them to understand Islamic values and local wisdom in a more contextual and relevant way. Through the Meaningful Learning element, students not only gain theoretical knowledge but can also relate Islamic teachings to experiences and challenges in everyday life, by the principle of constructivism, which emphasizes the importance of direct experience in building understanding. Mindful Learning plays an important role in creating active and aware students in every step of Learning, making them more involved in developing their competencies. Joyful Learning creates a pleasant learning atmosphere, which increases students' motivation to continue learning. Integrating deep Learning in Islamic education oriented towards moral and character values

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provides space for students to develop a deeper and more applicable understanding of religious teachings in life. Thus, this study emphasizes the importance of developing and implementing technology in Islamic education that can enrich students' learning experiences, while maintaining the relevance and continuity of the noble values of local wisdom in every aspect of life.

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