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Parents' Perceptions of the Use of Artificial Intelligence (AI) to Support Elementary School Children's Learning

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ABSTRACT. The rapid development of Artificial Intelligence (AI) has brought significant changes to the education sector, including learning activities at the elementary school level. The successful implementation of AI in education is influenced not only by technological readiness but also by the perceptions and support of parents as primary stakeholders in children's learning. This study aims to explore parents' perceptions of the use of Artificial Intelligence (AI) in supporting elementary school students' learning at SDIT Baitul Qur'an Tulungagung. The research employed a qualitative approach with a case study design. Data were collected through indepth interviews, observations, and documentation involving parents of students as research participants. The findings indicate that parents generally have positive perceptions of AI due to its ability to facilitate access to information, improve understanding of learning materials, and encourage independent learning. However, parents also expressed concerns regarding technology dependency, reduced critical thinking skills, information accuracy, and data privacy issues. Furthermore, parents emphasized the importance of active supervision and guidance when children use AI-based technologies. The study also revealed expectations for schools to provide clear policies, digital literacy programs, and guidance regarding the responsible use of AI in education. The findings suggest that effective AI integration in elementary education requires collaboration among schools, parents, and students to maximize educational benefits while minimizing potential risks.

Keywords: *Artificial Intelligence, Parental Perception, Elementary Education, Digital Literacy, Educational Technology.*

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INTRODUCTION

Primary education is undergoing significant transformation as digital technologies, particularly Artificial Intelligence (AI), become increasingly integrated into teaching and learning. AI enables computer systems to perform tasks associated with human intelligence, including language processing, automated recommendations, adaptive feedback, and problem solving. In education, AI is increasingly applied through adaptive learning systems, intelligent tutoring, chatbots, and AI-supported learning applications that can respond to students' diverse needs. Evidence from recent systematic reviews indicates that AI can support personalized learning, enhance student engagement and motivation, provide timely feedback, and improve learning

outcomes when appropriately integrated into instructional design (Celik et al., 2022; García-Martínez et al., 2023). In primary education specifically, recent research has also demonstrated the potential of AI-based adaptive applications to identify students' competency levels and provide individualized learning recommendations (Sunaryati et al., 2025). Therefore, AI represents an increasingly important innovation for strengthening personalized, learner-centered, and digitally responsive education in the twenty-first century.

The rapid development of artificial intelligence (AI) has accelerated the transformation of education, particularly with the emergence of generative AI (GenAI) platforms capable of producing text, images, and interactive information. These technologies provide students with immediate learning assistance, enabling greater autonomy and reducing dependence on direct teacher guidance. Recent studies indicate that GenAI can enhance student engagement, learning achievement, and motivation while providing personalized and timely feedback (Liang et al., 2023; Deng et al., 2025). AI-supported personalization can also facilitate differentiated learning by adapting resources and feedback to students' needs and learning profiles (Maier & Klotz, 2022). However, excessive reliance may weaken critical thinking and encourage academic disengagement. Therefore, AI represents a promising technology for educational transformation when integrated strategically within pedagogically guided learning environments.

Despite its educational benefits, artificial intelligence (AI) also presents challenges that require careful consideration. Excessive reliance on AI may weaken students' critical thinking, analytical reasoning, and independent decision-making when its outputs are accepted without reflection or verification (Zhai et al., 2024). AI-generated content may also contain inaccurate or fabricated information, while concerns regarding data privacy, security, algorithmic bias, and technological dependency remain significant ethical issues. Recent research further emphasizes that responsible AI integration requires critical evaluation, human oversight, and appropriate digital literacy among teachers and students (Tiara Fikriani et al., 2026). Therefore, AI should function as a supportive learning tool rather than a substitute for human reasoning. Effective supervision, verification practices, and digital-AI literacy are essential to maximize its educational benefits while minimizing cognitive and ethical risks.

In primary education, parents play a crucial role because children remain developmentally dependent on guidance, supervision, and supportive learning environments. Beyond providing learning resources, parents are responsible for mediating children's technology use and ensuring that AI is employed appropriately and purposefully. Recent evidence indicates that active parental mediation can enhance children's AI literacy, learning interest, and meaningful engagement with AI-supported learning (Kim et al., 2025). Similarly, parental mediation has been associated with greater AI literacy and trust, highlighting the importance of parents' knowledge and attitudes toward AI (Ni et al., 2025). Parents' perceptions of AIincluding its educational benefits, risks, reliability, and ethical implicationstherefore shape the support and regulation provided to children. Consequently, parental perception constitutes an important factor in understanding responsible AI implementation in primary education.

Parents' perceptions of artificial intelligence (AI) in education remain diverse, reflecting both its educational potential and perceived risks. Some parents view AI as a useful tool for providing rapid access to information, stimulating creativity, and expanding learning opportunities. However, others remain cautious because of concerns about technology dependence, misinformation, privacy, and reduced parentchild or peer interaction. Research indicates that parents' attitudes toward technology-facilitated learning are associated with their digital skills, prior experiences, and media-related attitudes (Griffith et al., 2025). Similarly, studies on early childhood AI education emphasize the importance of AI literacy and parental understanding in shaping meaningful engagement with AI (Su & Yang, 2024). Thus, parental acceptance of AI is shaped not only by technological benefits but also by digital literacy, experience, trust, and broader social and educational contexts.

Recent evidence indicates that parents increasingly recognize artificial intelligence (AI) as an important component of their children's educational and future competencies. AI literacy is becoming essential for navigating technology-mediated learning, future employment, and participation in an increasingly AI-driven society (Casal-Otero et al., 2023; Wang & Lester, 2023)). However, parents' understanding of how AI is implemented pedagogically remains uneven, potentially contributing to divergent perceptions of its educational benefits, limitations, and risks. Research on AI literacy similarly emphasizes that effective engagement with AI requires knowledge, critical evaluation skills, and awareness of ethical implications (Celik, 2023). Therefore, strengthening parents' AI literacy is increasingly necessary to enable informed decision-making, support children's learning, and foster responsible AI use at home and in collaboration with schools. These efforts should integrate practical knowledge, critical awareness, and ethical considerations.

Beyond potential benefits and risks, transparency in school-based AI use is increasingly important for parents. Parents need clear information about why AI is used, what student data are collected, how data are processed, and what forms of human oversight are provided. Evidence shows that parents regard school data-privacy policies as highly important and expect schools to assume responsibility for protecting children's digital information (Utter et al., 2022). Likewise, research on ethical AI in education emphasizes transparency, accountability, privacy, informed consent, and human oversight as foundations of trustworthy implementation (Nguyen et al., 2023; Holmes et al., 2022). Therefore, schools should communicate AI policies openly and establish sustained collaboration with parents to strengthen trust and promote responsible, child-centered AI adoption.

SDIT Baitul Qur'an Tulungagung, as an Islamic-integrated elementary school, provides a relevant context for examining the use of artificial intelligence (AI) in education. Unlike conventional schools, Islamic education seeks to balance academic achievement with character formation, moral development, and religious values. Therefore, AI integration should be pedagogically appropriate, ethically responsible, and consistent with the holistic aims of Islamic education, particularly regarding children's autonomy, privacy, and well-being (Adams et al., 2023). Parents are also essential stakeholders because their perceptions and involvement influence children's technology-supported learning and can help mediate responsible technology use at home (Lin et al., 2024). Accordingly, investigating parental perceptions of AI use at SDIT Baitul Qur'an Tulungagung is both timely and educationally significant.

Research on parents' perceptions of artificial intelligence (AI) in primary education remains relatively limited compared with studies focusing on teachers and students. Yet, parents are key educational stakeholders whose attitudes, concerns, and support can influence children's technology use and the acceptance of AI-based learning. Previous studies indicate that parents generally recognize the educational potential of AI while also expressing concerns about its practical, ethical, and developmental implication. This gap is particularly important in primary education, where parental involvement remains closely connected to children's learning experiences. Therefore, this study examines parents' acceptance, concerns, and expectations regarding AI-supported learning. The findings are expected to inform more responsive, ethical, and context-sensitive strategies for implementing AI in primary education.

Building on this context, this study aims to examine parents' perceptions of Artificial Intelligence (AI) use in supporting elementary school children's learning at SDIT Baitul Qur'an Tulungagung. The study focuses on parents' understanding of AI's educational benefits, potential risks, and forms of parental support and supervision. This focus is important because AI is increasingly entering children's learning environments, creating both opportunities for personalized and meaningful learning and concerns related to ethics, safety, and appropriate use. Research has emphasized the importance of introducing AI literacy from an early age while considering children's developmental needs and ethical awareness. Accordingly, this study is expected to contribute theoretically to educational technology research and practically to the

development of responsible, safe, and developmentally appropriate AI-use policies involving schools and parents.

METHOD

This study employed a qualitative research approach with a case study design to gain an in-depth understanding of parents' perceptions, experiences, and forms of support regarding the use of Artificial Intelligence (AI) in elementary education. A case study was considered appropriate because it enables researchers to examine a contemporary educational phenomenon comprehensively within its real-life context and to capture the complexity of participants' perspectives (Paparini et al., 2020). The study was conducted at SDIT Baitul Qur'an Tulungagung, with particular attention to how parents perceive the benefits, challenges, concerns, and expectations associated with AI-supported learning. Similar qualitative case studies have demonstrated the value of purposive participant selection and multiple data sources for developing contextually rich educational findings.

The participants were parents of elementary school students who were selected through purposive sampling based on their direct involvement in accompanying or supporting their children's learning activities. This sampling strategy ensured that participants possessed relevant experiences and knowledge concerning children's learning and technology use. Data were collected through in-depth semi-structured interviews, observations, and documentation, allowing the researchers to compare participants' accounts with contextual and documentary evidence. The use of multiple qualitative data sources is particularly suitable for case study research because it facilitates a more comprehensive and credible interpretation of complex phenomena (Duchatelet&Donche, 2022).

Data were analyzed using the interactive model of Miles et al. (2018), involving data condensation, data display, and conclusion drawing/verification. The credibility of the findings was strengthened through source and technique triangulation, enabling patterns to be cross-checked across participants and data-collection methods. Such triangulation is recognized as an important strategy for enhancing the reliability and depth of qualitative case study findings (Scholten et al., 2022). The resulting analysis identified parents' perceived benefits, concerns, challenges, and expectations regarding AI as a learning-support technology for elementary school children.

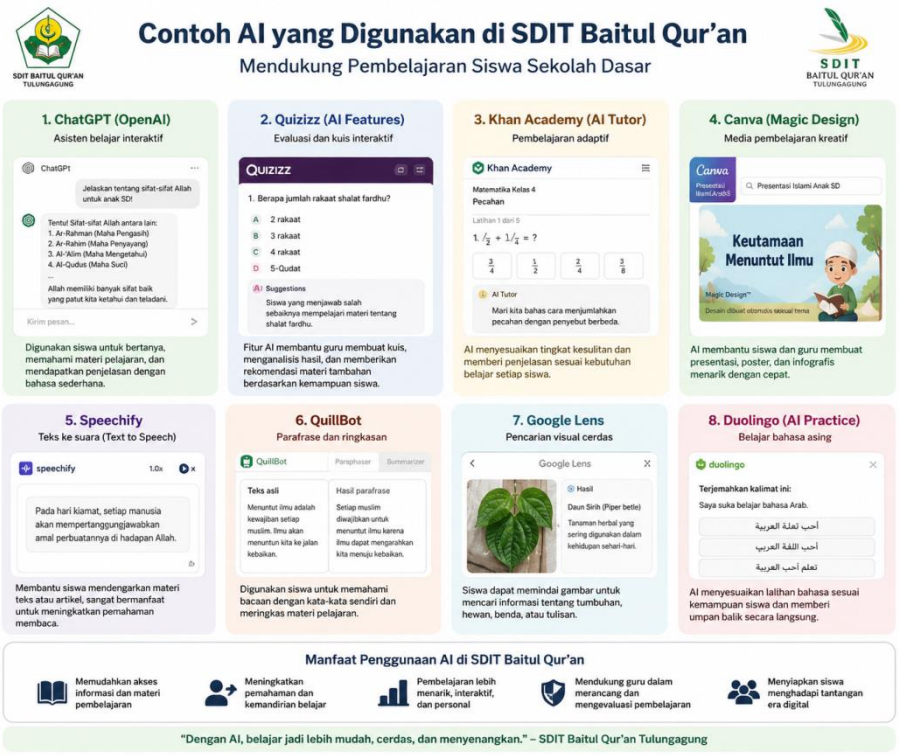
RESULT AND DISCUSSION

Result

The study was conducted at SDIT Baitul Qur'an Tulungagung, an integrated Islamic elementary school that combines academic instruction with Islamic values and character education. The school actively responds to developments in educational technology by incorporating Artificial Intelligence (AI)-based applications as supplementary learning media. AI is utilized to help students access relevant information, understand learning materials, develop creativity, and engage in more interactive and adaptive learning experiences.

The findings indicate that AI use in elementary education offers potential benefits for enhancing students' learning experiences, particularly through greater access to information, varied learning resources, and technology-supported interaction. However, the integration of AI also requires careful guidance because elementary students are still developing the cognitive, social, and digital competencies needed to use technology responsibly and critically. In this context, parental involvement emerged as an important component of AI-supported learning. Parents are expected not only to monitor children's technology use but also to provide guidance regarding appropriate content, responsible use, learning purposes, and potential risks associated with excessive or inappropriate digital engagement.

Accordingly, SDIT Baitul Qur'an Tulungagung provides a relevant setting for examining parental perceptions of AI use in children's learning. The school's integration of Islamic education, character formation, and emerging digital technologies creates a distinctive context in which the educational benefits of AI must be considered alongside ethical, developmental, and supervisory concerns. Understanding parents' perceptions is therefore essential for identifying the extent to which AI is viewed as a supportive learning tool, the benefits and challenges perceived by families, and the forms of parental guidance considered necessary. These findings provide an empirical basis for developing a more balanced approach to AI integration in Islamic elementary education that promotes technological innovation while maintaining children's safety, character development, and meaningful learning.



Gambar 1. AI widely used by teachers and students at SDIT Baitul Qur'an

Parents' Understanding of Artificial Intelligence in Learning

The findings indicate that most parents at SDIT Baitul Qur'an Tulungagung are familiar with Artificial Intelligence (AI) as a technology that facilitates information retrieval and supports children in completing learning tasks. Their understanding primarily comes from social media, digital news, and their children's experiences with AI-based applications. However, parents' AI literacy varies considerably, particularly regarding how AI works, its educational limitations, and appropriate ways to use it. While some parents view AI as a supplementary learning tool, others perceive it as a technology capable of replacing children's independent thinking. This variation highlights the need to strengthen parental AI literacy through systematic and contextually relevant educational initiatives.

Parents generally perceived AI as beneficial for supporting learning at home. They reported that AI enables children to access learning materials more quickly than conventional information-search methods and provides explanations that can be simplified according to their level of understanding. These features were considered particularly helpful for parents who may have limited time or difficulty explaining certain academic concepts independently. Consequently, AI

was viewed not merely as a technological convenience but also as a practical resource for facilitating parental involvement in children's learning.

As stated by informant parent-1, "*I see AI as helping children find learning information more quickly and in a way that is easier to understand than searching through many sources independently*" (Parent-1, interview). This finding suggests that parents recognize AI's potential to enhance the accessibility, efficiency, and personalization of learning. Nevertheless, such benefits depend on appropriate parental guidance to ensure that AI complements rather than replaces children's cognitive engagement, critical thinking, and independent learning.

Parents' Perceptions of the Benefits of AI

Interview findings indicate that most parents hold positive perceptions of artificial intelligence (AI) as a tool to support children's learning. Parents perceived AI as improving access to information, accelerating task completion, and helping children understand difficult concepts through accessible and stepbystep explanations. AI was also considered capable of increasing learning interest by providing more interactive and flexible learning experiences. Several parents reported that their children became more willing to ask questions and independently seek information after using AI-based applications, suggesting that AI can contribute to more effective and learner-centered learning.

Parent-3, for example, reported that AI helped their child understand mathematics topics that had previously been considered difficult. The parent emphasized that AI explanations were easier to follow because they were presented gradually and in simple language. Moreover, children could repeatedly ask the same questions without feeling embarrassed, as might occur when asking teachers, parents, or peers. As Parent-3 explained, "*My child is more willing to ask AI when they do not understand a lesson because they are not afraid of being wrong or scolded*" (Parent-3, interview). This finding highlights the potential of AI to create a psychologically comfortable environment that encourages questioning and sustained engagement.

Parents further perceived AI as supporting children's learning autonomy. Children were observed to become more proactive in searching for answers and information rather than relying entirely on teachers or parents. Such autonomy is increasingly important in preparing learners for rapidly changing technological and educational environments. Nevertheless, parents stressed the importance of supervision to prevent autonomy from developing into excessive dependence on technology. Overall, AI was viewed as a supportive learning resource rather than a substitute for teachers, parents, or the core learning process. Its educational value therefore depends on purposeful use, parental guidance, and appropriate integration into children's learning activities.

Parental Concerns about Children's Use of AI

Despite its perceived benefits, the findings revealed several parental concerns regarding children's use of artificial intelligence (AI). The most prominent concern was overdependence on technology, which parents believed could weaken children's critical thinking, creativity, and problem-solving skills. Parents worried that frequent access to instant answers might encourage children to seek solutions without engaging in the cognitive processes required to understand problems. They also expressed concern that children might use AI to complete school assignments without sufficiently understanding the underlying learning materials, potentially compromising learning quality in the long term.

This concern was reflected by Parent-5, who emphasized the need to regulate children's AI use to prevent them from becoming passive learners. The informant noted that technological convenience could become counterproductive without adequate parental supervision. Parents therefore believed that learning should continue to involve effort, analysis, and reflection, while AI should function primarily as a learning support tool rather than an instant-answer provider. As Parent-5 explained, "*I worry that my child will simply copy answers from AI without understanding the actual content*" (Parent-5, interview).

Another concern involved the accuracy and reliability of AI-generated information. Several parents were uncertain whether AI responses were consistently correct, particularly when answers

did not fully correspond to children's learning contexts. Consequently, parents considered it necessary to verify AI-generated information before allowing children to rely on it. This finding highlights the importance of digital literacy and parental guidance in ensuring responsible AI use. Overall, the findings suggest that parents do not necessarily reject AI in education; rather, they advocate for balanced, supervised, and critical use that preserves children's cognitive engagement and learning autonomy while minimizing dependence on automated answers.

Parental Assistance

The findings indicate that most parents provide active assistance when children use AI for learning. This assistance includes monitoring children's activities, reviewing AI-generated information, and providing guidance on responsible technology use. Parents emphasize that AI should not be treated as an absolute source of truth; rather, its outputs need to be critically evaluated and verified against reliable learning resources. Thus, parental assistance functions not only as a form of supervision but also as an important form of digital literacy education, helping children develop critical thinking and responsible technology-use habits.

Parent-7 explained that they routinely review AI-generated answers before allowing their child to use them for school assignments. This involvement is intended to ensure that the information is accurate, relevant to the learning material, and appropriately used. Parents also introduce ethical principles of technology use from an early age, encouraging children to read, compare, and evaluate information independently. As Parent-7 stated, *"I always ask my child to reread and compare the AI's answers with the textbooks they have"* (Parent-7, interview). This practice illustrates how parental guidance can transform AI use from passive information consumption into a more reflective and responsible learning process.

In addition, some parents regulate children's screen time to maintain a balance between AI-supported learning and other developmental activities. They prioritize social interaction, physical activity, and religious practices alongside academic learning. Consequently, AI use is generally permitted within specific periods and primarily for educational purposes. Such boundaries are intended to minimize excessive technology use while fostering self-discipline and balanced digital habits.

Overall, the findings demonstrate that parents adopt a balanced and educational approach to children's AI use. Rather than rejecting AI, they seek to position it as a complementary learning tool that requires supervision, verification, ethical awareness, and appropriate time management.

Parents' Expectations of Schools

The findings indicate that parents expect schools to play a proactive role in guiding children's responsible and constructive use of artificial intelligence (AI) in learning. Parents emphasized the need for clear guidance on appropriate AI use, its educational benefits, and its potential effects on children's academic and developmental outcomes. They also expressed a need for school-led socialization and training to strengthen parents' digital literacy and their capacity to supervise children's AI use at home. Thus, collaboration between schools and families emerged as a critical condition for ensuring that AI is used safely, ethically, and educationally.

Informant Parent-9 specifically highlighted the importance of parental guidance from schools, noting that parents have different levels of technological competence and therefore require accessible support. Such guidance was considered essential for enabling parents to monitor children's AI use more effectively and to distinguish productive learning support from inappropriate dependence on technology. Parents also expected schools to establish explicit policies regarding the use of AI in assignments and other learning activities. As Parent-9 stated, "The school needs to provide guidance to parents so that we understand how to appropriately assist our children in using AI" (Parent-9, interview).

Overall, parents' perceptions of AI as a learning support were predominantly positive. They recognized its potential to broaden access to information, facilitate understanding of learning materials, and promote independent learning. Nevertheless, they were also aware of risks, including technological dependency, reduced critical-thinking engagement, and exposure to inaccurate information. These findings suggest that AI integration in elementary education should not be approached solely as a technological innovation but as a shared educational responsibility. Effective implementation requires coordinated support from students, parents, and schools, with clear guidance, supervision, and digital literacy development to maximize AI's educational benefits while minimizing its potential risks.

Discussion

The findings indicate that most parents at SDIT Baitul Qur'an Tulungagung hold a generally positive perception of Artificial Intelligence (AI) as a tool to support their children's learning. This finding suggests that parents increasingly recognize AI as part of the broader digital transformation of education rather than merely as a technological innovation. From the parents' perspective, AI can facilitate rapid access to information, support students' understanding of learning materials, and expand opportunities to access diverse learning resources. Such perceptions indicate growing parental acceptance of AI-mediated learning at the elementary-school level.

This finding is consistent with the expanding educational use of AI and generative AI technologies. Fütterer et al. (2023), based on a large-scale analysis of global public responses, found that discussions of ChatGPT in education included substantial positive perceptions concerning its potential to support teaching and learning, although concerns regarding cheating, misinformation, and inappropriate use also emerged. Similarly, research on early adopters has shown that AI-based tools can be perceived as beneficial for improving productivity, learning motivation, and self-efficacy, while excessive dependence may undermine critical thinking and encourage superficial learning (Hadi Mogavi et al., 2024).

The positive parental perception identified in this study is therefore important because parental attitudes can influence how children encounter and use emerging technologies outside the classroom. However, positive acceptance should not be interpreted as unrestricted approval. Effective AI integration requires parental guidance, teacher supervision, digital literacy, and clear ethical boundaries concerning accuracy, privacy, academic integrity, and students' independence. Research on educators likewise demonstrates that stakeholders tend to recognize AI's potential while simultaneously expressing concerns about overreliance, accuracy, and reduced higher-order thinking (Ogurlu& Mossholder, 2023). Thus, the findings support a balanced approach in which

AI is positioned as a complementary learning resource rather than a substitute for teachers, parents, or students' active cognitive engagement.

The findings indicate that parents increasingly perceive technology not merely as a source of entertainment but as a potential educational resource. This perception is particularly important at the elementary level, where children still require parental guidance to use digital technologies appropriately, critically, and safely. Parents' acceptance of artificial intelligence (AI) also reflects growing awareness of digital and AI literacy as essential competencies in contemporary education. Rather than replacing teachers or parents, AI can function as a complementary learning resource that expands access to information and supports individualized learning. Holmes et al. (2022) emphasize that AI in education can provide adaptive and personalized learning experiences, although its effectiveness depends on appropriate pedagogical integration and human oversight.

A major benefit identified by parents was the ease of accessing information and obtaining assistance in understanding difficult learning materials. AIbased platforms can provide explanations that are more accessible and responsive to learners' needs, thereby supporting the principles of personalized learning. Empirical evidence also suggests that AI-enabled personalized recommendations can enhance students' learning engagement, motivation, and learning outcomes by adapting learning resources to individual characteristics (Huang et al., 2023). This finding reinforces the view that AI can extend learning opportunities beyond conventional classroom instruction.

Furthermore, parents perceived AI as potentially fostering students' learning independence. Children can use AI to explore information, formulate questions, receive immediate feedback, and attempt to solve problems independently. This is consistent with research showing that generativeAIsupported learning environments can facilitate self-directed learning and self-assessment by helping learners establish goals, access resources, monitor progress, and reflect on learning (Ali et al., 2023). Similarly, AIsupported learning has been associated with increased motivation and engagement, which are important foundations for sustained learning (Martín-Núñez et al., 2023). Thus, the findings suggest that parents increasingly recognize AI not simply as an information provider but as a potentially valuable facilitator of personalized, active, and self-directed learning, provided that its use remains guided by parents and educators.

Despite generally positive perceptions, this study also identified several parental concerns regarding children's use of artificial intelligence (AI). The most prominent concern was potential technological dependency, particularly the tendency to obtain instant answers without engaging in deeper reasoning. This finding highlights parents' continued emphasis on critical thinking as a core educational outcome. Accordingly, AI should function as a learning support tool rather than a substitute for students' cognitive engagement. This position is consistent with research showing that the educational value of generative AI depends largely on how it is pedagogically integrated and whether students remain actively involved in analysis, reflection, and problem solving (Tlili et al., 2023).

Parents also expressed concerns about the accuracy and contextual appropriateness of AI-generated information. Although AI can provide rapid and accessible responses, its outputs may contain inaccuracies or require contextual verification. Therefore, AI literacy should include not only the ability to use AI tools but also the capacity to evaluate, verify, and critically interpret their outputs. Such competencies are particularly important for children, who may have limited ability to distinguish reliable information from misleading content. Research on K–12 AI education similarly emphasizes AI literacy and pedagogical appropriateness as essential principles for responsible implementation (Mintz et al., 2023).

Finally, data privacy and security emerged as important parental concerns. Parents expect schools and AI providers to protect children's personal information and clearly communicate how educational data are collected, processed, stored, and used. These concerns are strongly supported by research identifying privacy, transparency, responsibility, and children's rights as

central ethical principles in AI-supported education (Guan et al., 2023). Overall, the findings suggest that parental acceptance of AI depends not merely on its perceived usefulness but also on safeguards that preserve children's cognitive autonomy, information literacy, and digital privacy.

The findings indicate that parents are not passive toward children's use of artificial intelligence (AI). Most informants reported active involvement through monitoring digital-device use, checking information generated or retrieved by AI, and providing guidance on responsible technology use. This positions parents as important mediators of children's interaction with AI, particularly because elementary-school children are still developing the critical skills required to evaluate information quality, reliability, and potential risks independently. Previous research similarly demonstrates that parental digital mediation can shape children's online experiences, with active mediation and parental support being particularly important for improving parents' knowledge of children's digital activities (Geržičáková et al., 2023)

These practices reflect the concept of parental mediation, which extends beyond restriction to include explanation, co-use, monitoring, and educational guidance. Recent evidence shows that parental mediation is influenced by family values and digital-parenting readiness, suggesting that effective mediation depends not only on controlling children's access but also on parents' knowledge, attitudes, and capacity to guide digital engagement (Kotrla Topić et al., 2023);. In the context of AI, such mediation should therefore encompass information verification, ethical awareness, privacy, responsible use, and critical AI literacy.

The findings further reveal that parents expect schools to provide clear guidance, training, and policies concerning AI use. This suggests that AI implementation should be understood as a shared responsibility between families and schools, rather than delegated to either setting alone. Family values and communication are particularly important because children's digital learning and well-being are shaped by interactions within the home environment.

Overall, AI offers substantial potential to enrich elementary learning, but its effective implementation requires parental mediation, institutional policies, and strengthened AI literacy. AI should function as a supporting educational tool rather than a substitute for teachers or parents. Sustainable implementation therefore depends on meaningful collaboration among schools, families, and technology.

CONCLUSION

This study concludes that parents at SDIT Baitul Qur'an Tulungagung generally hold a moderately positive perception of Artificial Intelligence (AI) as a learning support tool for elementary school children. Parents recognize AI's potential to facilitate faster access to information, enhance students' understanding of learning materials, and encourage greater learning autonomy. However, this positive perception is accompanied by concerns regarding excessive technological dependence, reduced critical-thinking skills, the accuracy and reliability of AI-generated information, and risks related to data security and privacy. These findings indicate that parental acceptance of AI is shaped not solely by its perceived educational benefits but also by parents' assessment of its potential risks.

The findings further demonstrate that parental mediation and school support are essential for ensuring safe, ethical, and pedagogically meaningful AI use. Parents contribute through supervision, guidance, monitoring, and appropriate restrictions, particularly by encouraging children to use AI as a learning aid rather than as a substitute for independent thinking and teacher guidance. Meanwhile, schools are expected to provide clear educational guidance, AI literacy programs, and institutional policies that establish appropriate boundaries for AI use. This shared responsibility is particularly important in elementary education, where students are still developing their critical, digital, and ethical competencies.

Overall, the study suggests that effective AI integration requires a collaborative school–family approach involving teachers, parents, and students. AI should be positioned as a complementary educational technology that enriches learning rather than replaces human

interaction, teacher expertise, or parental involvement. In the context of Islamic elementary education, its implementation should also remain consistent with character formation, ethical responsibility, and the moral and spiritual values promoted by the school. Accordingly, the sustainable adoption of AI depends on balancing technological innovation, educational usefulness, risk mitigation, digital literacy, and character development. With coordinated support from families and schools, AI has considerable potential to improve learning quality while preparing elementary students to participate responsibly and critically in an increasingly digital society.

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