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Public Perception Regarding the Use of Artificial Intelligence (AI) in the Learning Process of Elementary School (SD/MI) Students

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Abstract

This study aims to describe public perception of the use of Artificial Intelligence (AI) in the learning process of Elementary School/Islamic Elementary School (SD/MI) children, to identify the positive and negative impacts perceived by the public, and to describe public views regarding the importance of parental and teacher guidance in children's use of AI. This study employed a quantitative descriptive approach involving 20 respondents selected randomly through an online questionnaire distributed via Google Form on WhatsApp social media. The research instrument consisted of multiple-choice questions, a Likert scale (Strongly Disagree–Strongly Agree), and open-ended questions, which were then analyzed descriptively through percentage calculations and thematic grouping of responses. The results show that the majority of respondents (65%) believe AI is already widely used by SD/MI-aged children, and 60% believe AI should begin to be introduced at grades 4–6 of elementary school. A majority of respondents (75%) agreed that AI helps children understand learning materials more easily; however, 95% also stated that AI use risks reducing children's independent thinking, and all respondents (100%) agreed that SD/MI children are not yet mature enough to use AI without supervision and that AI use risks lowering literacy skills if adopted early without adequate control. These findings confirm that the public views AI as a potentially valuable learning aid, but its application for young children still requires active guidance from teachers and parents so that its benefits can be optimized without neglecting the development of children's critical thinking and literacy skills.

Keywords: Public Perception; Artificial Intelligence; Learning

INTRODUCTION

The development of Artificial Intelligence (AI) technology has progressed rapidly in recent years, permeating nearly every aspect of human life, including the realm of education. The emergence of various AI platforms such as ChatGPT, Google Lens, and similar applications enables users to search for information, complete assignments, and grasp lesson

material in an instant, interactive manner. This accessibility is not limited to adults; it has also extended to primary school-aged children, including students in both general elementary schools (SD) and Islamic elementary schools (MI) (Putra et al., 2025). This phenomenon demonstrates that the interaction between young children and AI technology is no longer an anomaly; rather, it has become part of their daily learning reality. This situation warrants serious attention from parents, teachers, and education policymakers alike, given that children at this age are in a developmental stage that is crucial for shaping their future study habits.

Children of primary school age (SD/MI) typically ranging from seven to twelve years old are in the concrete operational stage of cognitive development according to Piaget's theory. At this stage, children begin to think logically, yet their thinking remains grounded in concrete realities; they are not yet fully prepared to grasp abstract concepts such as new technologies like AI without adult guidance. Children in this age group also tend to imitate and adopt habits from their surroundings; consequently, the technology usage patterns modeled by teachers and parents will significantly influence how these children utilize AI in the future. Unsupervised AI use within this age group carries the potential for diverse impacts, both positive and negative. On one hand, AI can assist children in understanding subject matter through interactive, personalized, and engaging methods, thereby fostering an interest in learning. On the other hand, there are concerns that reliance on AI could diminish critical thinking skills, independent learning capabilities, and literacy levels if not balanced with appropriate guidance from parents and teachers (Handayani & Adha, 2026). This situation makes the issue of guidance an inseparable aspect of any discussion regarding AI utilization for young learners.

Numerous prior studies have highlighted the role of AI in primary school education. AI applications in learning generally take the form of intelligent educational apps and adaptive learning platforms capable of tailoring content to individual student abilities and learning styles exemplified by Intelligent Tutoring Systems (ITS) that analyze student performance in real-time. Research on the impacts and challenges of implementing AI in primary schools indicates that AI can help teachers work more efficiently and enhance the quality of instructional interactions, although the readiness of human resources, infrastructure, and educational policies remains a hurdle to implementation (Batubara et al., 2025). Other research regarding AI's influence on primary school students' learning motivation has found that integrating AI can positively affect motivation, though its effectiveness ultimately depends on appropriate guidance from teachers and parents. Furthermore, a literature review on the impact of AI on the English speaking skills of elementary school students indicates that applications such as Duolingo and virtual assistants can support these abilities, yet they also carry the potential for

negative impacts specifically a decline in social skills if used excessively. Overall, these findings confirm that AI offers tangible benefits for learning among elementary school students, but its implementation requires adequate supervision to optimally minimize associated risks (Prasetya et al., 2026).

While various prior studies have examined the impact of AI usage on primary school students, most have relied on literature reviews rather than direct perception data gathered from the public. This gap highlights the limited empirical research exploring the public's direct views, concerns, and expectations regarding AI use by primary school-aged children (specifically within the SD/MI system), particularly from the perspectives of prospective educators and the general public interacting with the primary education sector. This study seeks to address this gap by collecting primary data through a questionnaire combining multiple-choice questions, Likert scales, and open-ended questions, thereby providing a more comprehensive and contextual picture of perceptions than literature-based studies alone. The study's novelty lies in its exploration of direct public perceptions including those of *Madrasah Ibtidaiyah* (Islamic primary school) teacher education students as prospective educators regarding attitudes, concerns, and expectations concerning AI's role in either supporting or hindering the learning process of primary school children; an aspect that has received limited empirical attention in previous research.

Based on this background, the study aims to describe public perceptions regarding AI usage in the learning process of primary school children, identify the perceived positive and negative impacts of AI usage on these children, and describe public views on the importance of parental and teacher guidance when children use AI. Through these objectives, the study is expected to provide a clearer picture of public views, expectations, and concerns regarding the phenomenon of AI usage in primary school-level learning.

LITERATURE REVIEW

1. Artificial Intelligence in Education

Advancements in technology, particularly Artificial Intelligence (AI), have influenced various aspects of life including education as this technology shapes interaction patterns within the teaching and learning process. AI applications in education generally take the form of intelligent educational apps and adaptive learning platforms capable of tailoring material to individual student abilities and learning styles; examples include Intelligent Tutoring Systems (ITS) that analyze student performance in real-time. AI utilization is considered capable of boosting student motivation by making material delivery more interactive and personalized to individual capabilities, thereby increasing student interest and participation. At the primary

school level, AI is also seen as a tool that helps teachers work more efficiently and enhances the quality of instructional interactions, although the readiness of human resources, infrastructure, and educational policies remains a challenge for its implementation. Despite its benefits, the use of AI carries risks—particularly without proper supervision such as a decline in students' social and emotional skills and the development of a dependency on technology; consequently, the use of AI in learning requires adequate guidance from both teachers and parents (Fitriya et al., 2025).

2. Characteristics of Elementary School (SD/MI) Children

Children of elementary school age (SD/MI) ranging from seven to twelve years old are in the concrete operational stage of cognitive development, according to Jean Piaget's theory. At this stage, children begin to form simple logic and understand cause-and-effect relationships; however, their thinking remains heavily reliant on concrete objects and experiences, and they are not yet fully capable of grasping abstract concepts without adult assistance. Children in this age group also exhibit a strong tendency to imitate and adopt behaviors from their surroundings, including technology usage patterns modeled by teachers and parents. These characteristics make the elementary school years a crucial period for establishing learning habits including the use of artificial intelligence (AI) technology thereby making adult guidance a decisive factor in shaping the child's future mindset and independent learning capabilities.

3. Relevant Research

Previous research has extensively examined the relationship between AI and learning at the elementary school level. A literature review regarding the impact of AI on elementary students' speaking skills in English classes indicates that applications like Duolingo and virtual assistants can help students practice pronunciation and vocabulary independently, though excessive use may reduce social interaction among students. Other studies on the impact and challenges of implementing AI in elementary education reveal that while AI can alleviate teachers' administrative and pedagogical burdens, its adoption is hindered by issues such as infrastructure readiness, educators' digital competence, and a lack of clear policies from educational institutions. Research on AI's influence on elementary students' learning motivation has found a positive correlation between AI usage and increased motivation, noting that this motivation is optimized when accompanied by consistent guidance from teachers. Furthermore, studies on AI's role in tailoring learning materials for elementary students show that personalization features in adaptive learning platforms can accommodate varying learning paces, although teacher evaluation remains necessary to ensure that AI-presented materials align with the curriculum. Overall, these studies reveal a consistent pattern of findings: AI offers

tangible benefits for primary school learning, yet these benefits can only be fully realized when its use is accompanied by appropriate supervision, guidance, and policies from teachers, parents, and schools.

RESEARCH METHODOLOGY

1. Research Design

This study employs a quantitative descriptive approach aimed at describing public perceptions regarding the use of Artificial Intelligence (AI) in the learning processes of elementary school (SD/MI) students, based on data obtained through an online questionnaire.

2. Research Subjects

The study involved 20 respondents from the general public, comprising university students, high school students, and junior high school students aged 15 to 30. Respondents were selected randomly via an online questionnaire (Google Form) distributed through WhatsApp.

3. Instruments and Data Collection Techniques

Data collection was conducted using a questionnaire consisting of three main sections: multiple-choice questions to gather factual data on respondents' knowledge and experience regarding AI; a Likert scale (ranging from "Strongly Disagree" to "Strongly Agree") to measure perceptions regarding eight statements about AI use by elementary school students; and open-ended (essay) questions to capture additional qualitative data on respondents' views in greater depth.

4. Data Analysis Techniques

Data from the multiple-choice questions and Likert scale were analyzed descriptively by calculating response percentages and frequencies, then presented in tables and narrative form. Data from the open-ended questions underwent qualitative descriptive analysis by categorizing responses into recurring themes, thereby providing a comprehensive overview of public perspectives (Amirotun Sholikhah, 2016).

RESULTS AND DISCUSSION

1. Respondent Description

This study involved 20 respondents from diverse backgrounds—including university students, high school students, and junior high school students—aged 15 to 30 years. Data collection was conducted online via Google Forms distributed through social media. The diversity of respondent backgrounds provides an initial overview of general public perception regarding the use of AI in learning for elementary school (SD/MI) children, although the study did not directly involve teachers or parents.

2. Multiple-Choice Question Results

Based on the questionnaire results, all respondents were able to identify and name examples of AI technologies frequently used in learning activities, such as ChatGPT and Google Lens, indicating that these technologies are widely recognized by the public. Regarding the current use of AI by elementary school children, 13 respondents (65%) stated that AI is already widely used by children in this age group, 4 respondents (20%) stated that AI is used but to a limited extent, while the remaining 15% either did not know or believed that AI is not yet widely used by elementary school children. Concerning the ideal age to introduce AI to children, 12 respondents (60%) believed it should be introduced during grades 4–6 of elementary school, 6 respondents (30%) felt that AI did not need to be introduced at the elementary school level, and 2 respondents (10%) stated that AI could be introduced at any age. These findings reflect a cautious attitude among the majority of respondents regarding the introduction of AI to young children, with age-appropriateness serving as a primary consideration.

3. Likert Scale Results

The results of the Likert scale measurement regarding eight statements on the use of AI by elementary school (SD/MI) students are presented in table 1.

Table 1. The Results of the Likert Scale

No	Statement	Agree	Don't agree
1.	AI helps elementary school students understand the material more easily.	15 (75%)	5 (25%)
2.	The use of AI makes elementary school students less independent in their thinking	19 (95%)	1 (5%)
3.	Elementary school students are mature enough to use AI without supervision	0 (0%)	20 (100%)
4.	Early use of AI risks diminishing children's literacy skills	20 (100%)	0 (0%)
5.	Teachers need to be equipped with training on how to guide the use of AI.	19 (95%)	1 (5%)
6.	Schools need to establish specific rules regarding the use of AI.	17 (85%)	3 (15%)
7.	AI becomes a useful tool when supervised by parents and teachers	19 (95%)	1 (5%)
	The use of AI should be limited to specific purposes	18 (90%)	2 (10%)

The table reveals a relatively consistent pattern of perception among the respondents. A total of 75% agreed that AI could help elementary school students (SD/MI) grasp lesson material more easily, indicating that the public recognizes AI's potential to facilitate understanding. Conversely, concerns regarding AI's negative impacts were also prominent;

95% of respondents stated that AI usage could hinder children's independent thinking, while all respondents (100%) believed that using AI at an early age risks diminishing children's literacy skills. There was also unanimous agreement (100%) that elementary school students lack the maturity to use AI without adult supervision. A majority of respondents supported the need for teacher training (95%), the establishment of specific school policies (85%), and the restriction of AI usage to specific purposes (90%). These responses indicate that the public does not reject the presence of AI in education but rather advocates for its use to be purposeful, safe, and accompanied by adequate supervision from teachers and parents.

4. Results of Open-Ended Questions (Essay)

The categorization of responses to open-ended questions revealed three main themes regarding the roles of teachers and parents in the use of AI by elementary school (SD/MI) students. The first theme concerns the supervision and restriction of AI usage; the majority of respondents emphasized the need for teachers and parents to monitor the duration of AI use and ensure the technology is utilized for positive purposes that support the learning process. The second theme focuses on guidance in critical thinking, reflecting respondents' desire for children not merely to accept direct answers from AI but to be guided in understanding the thought processes and reasoning behind those answers, thereby preserving their critical thinking skills and creativity. The third theme addresses education on the wise use of AI, specifically the expectation that teachers and parents provide guidance on how to utilize AI correctly such as for obtaining additional explanations of lesson material or finding relevant study references. Regarding examples of AI usage, respondents generally cited appropriate use as employing AI as a study tutor to help explain difficult material in simpler language. Conversely, uses deemed inappropriate included directly copying assignment answers without understanding the content, using AI to complete exams, and developing an over-reliance that could diminish children's literacy skills and independent learning capabilities.

Research findings indicate that the majority of respondents view AI as a technology with significant potential to support the learning process of elementary school (SD/MI) students; this aligns with theoretical studies suggesting that adaptive learning platforms and Intelligent Tutoring Systems can help children quickly access information and grasp difficult material through interactive presentations. However, the high percentage of respondents stating that AI could diminish independent thinking and potentially lower literacy levels points to concerns that children might rely on instant answers rather than striving to understand the material independently a concern also identified in previous research regarding the potential decline in social skills due to excessive AI use. The finding that all respondents considered elementary-

aged children not yet mature enough to use AI without supervision is consistent with the developmental characteristics of this age group; according to Piaget's theory, they are in the concrete operational stage and require adult guidance to comprehend new concepts and technologies. Therefore, the use of AI for elementary-aged children should be positioned as a learning aid rather than a substitute for the child's own thinking process, requiring supervision, education, and clear usage guidelines from teachers, parents, and schools to ensure optimal benefits without compromising the development of the child's critical thinking and literacy skills..

CONCLUSION

Based on the research findings, several conclusions can be drawn. First, public perception regarding the use of AI in the learning process of elementary school (SD/MI) students is generally positive yet tempered with caution; the majority of respondents noted that AI is already widely used by children in this age group and can facilitate easier comprehension of study materials. Second, the public views the use of AI for elementary students as having positive impacts such as making it easier to understand material and find study references but also negative impacts, specifically the potential decline in independent thinking and literacy skills, particularly if AI is used without supervision. Third, all respondents agreed that elementary students are not yet mature enough to use AI without supervision; consequently, the role of guidance from teachers and parents is considered crucial. This guidance should encompass both monitoring the duration and nature of usage and educating children to use AI as a tool to aid understanding rather than as a means to bypass the independent thinking process. Overall, these findings underscore the need to manage the integration of AI into elementary education through policies, teacher training, and consistent parental supervision, ensuring that the technology serves as a support mechanism rather than a substitute for the learning process and the child's cognitive development.

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