# The Impact of Artificial Intelligence on Students in the First Three Grades in Basic Schools in the City of Amman-Jordan from The Perspective of Their Teachers

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**Abstract**

*Nowadays Artificial Intelligence (AI) affects most of our lives; it is positive in some ways, but there are limitations in others. Teachers' perceptions of AI are still poorly studied, despite ongoing debate and growing research in the field. One of its main effects is on students in the first grades; however, this study aimed to investigate the effect of AI on the first three grades of students in basic schools in the governorate of the capital Amman Jordan, from the perspective of its teachers as a case study. The study was performed using a scientific questionnaire, and 125 participants completed this survey. The findings of an analysis of teachers' beliefs regarding using AI technologies to teach the first three grades in elementary schools in Jordan's capital, Amman Governorate, are presented in detail. As a result of the significance of these axes in educational curricula and strategies, as well as related sustainability, the focus was on five axes in the questionnaire questions: the validity of information derived from artificial intelligence, supporting students' technical knowledge and conceptual knowledge, focusing on development practices for students' skills, and finally achieving educational outcomes. The findings show that in-service teachers need to be trained to use current AI-based tools more effectively. To integrate AI into regular education, teachers must participate in the process of co-designing materials while taking into account contextual circumstances and, most importantly, curricula. Teachers' input during the development can help put AI in perspective, resulting in tangible effects and significant educational advances.*

**Keywords:** *Artificial Intelligence, Teachers, Student Attributes*

## INTRODUCTION

People with disabilities are frequently caught in a terrible cycle of social exclusion, employment, and involvement in mainstream development projects in many developing nations in Asia and the Pacific, [1]. According to Parker, the United States, Singapore, and India are the top nations that have consistently launched new education reform strategies for the future and developed pertinent policies and regulations to create a roadmap for the development of smart education in their nations, (Parker, 2018). Lu said that a number of tech firms, including Amazon, Facebook, Microsoft, and Google, had adopted AI. Few people are aware that this AI has also made its way into the teaching and educational fields. Along with school improvement, technology came next, (Lu, 2018). In the Industrial Revolution Era 4.0, educators need to possess a number of abilities, according to Lase. Critical thinking and problem-solving abilities come first. Understanding a problem, gathering as much information as possible to be elaborated on, and bringing many viewpoints to the table to address the problem are all examples of these abilities. The ability to create learning and transfer these competencies to students is expected of teachers, (Lase, 2018). Du Boulay provided a deeper grasp of how artificial intelligence works effectively as a crucial learning partner, (Du Boulay,2016). This AI system seems to place less value on social duties and cognitive prowess. Chung demonstrates how AI may assist in identifying students' emotions in the classroom so that instructors can modify their instruction accordingly, (Chung, 2021). Sharma said that AI in education has taken the shape of adaptive learning systems, intelligent tutoring systems, and other systems that enhance the effectiveness of operational procedures, instructions, and learning. Baridam and Nwibere artificial intelligence assist in divide the grading of homework and tests for lecture courses between themselves, the process may be laborious and time consuming at the college level, (Awa, 2015). Britgo asserts that there are numerous ways to describe AI, but the four main definitions are: thinking like a human, thinking like a reasonable person, acting like a human, and acting like a rational person, (Britgo, 2019). According to Tuomi, one of the main functions of the modern educational system is to develop the competencies necessary

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for people to engage in the economic sector of life. According to this interpretation, educational policies are framed in the context of economic growth and are a major contributor to economic productivity and competitiveness. Therefore, it is crucial to consider how labor and employment may change as a result of AI in the context of educational policies, (Tuomi, 2018). The AIEd group is actively examining how AI systems may affect online learning. For instance, Roll and Wylie advocate for greater use of AI systems in applications for education outside of the classroom and in student-teacher communication, (Roll, 2016). Guilherme predicted that AI systems would have "a deep impact in the classroom, changing the relationship between teacher and student", (Guilherme, 2019). Felix stated that additional research is necessary to comprehend how and why different types of AI systems effect interactions between instructors and students in online learning, (Felix, 2020). Tahiru in (Tahiru, 2021) examined the implementation of AI in education from 2010 to 2019 in terms of the difficulties, possibilities, and advantages. However, he did not take the education industry into account when producing his work. Therefore, no in-depth analysis of how AI is used in various areas of education was offered. However, despite providing a scholarly review on AI applications in education, (Zawacki-Richter, 2015) emphasized higher education rather than K–12. As a last point, there have been further systematic reviews that have just looked at certain subject areas, such as health (Sapci, 2020) and mathematics (Hwang, 2021). Similar to this, several studies constrained the scope of their research by concentrating on a single aspect of education, like student assessment (González-Calatayud, 2021). After all, there haven't been any studies of a similar nature that focus on the adoption of AI in K–12 educations, looking into the applications and classifying the many uses of AI in this field of education. Numerous AI-powered Intelligent Tutoring Systems (ITS) have been made available to students as of late. Additionally, these systems adapt the educational material to the student's level of aptitude, (Mikropoulos, 2011), making learning more fun for them, (Liang, 2020).

## OBJECTIVES OF THE STUDY

AI has received a lot of attention in Jordan and has recently been a major consideration in several important national plans. AI must be used in the educational process, according to the nation's Ministry of Education. This means that to apply and incorporate AI applications into their pedagogical practices, teachers must have the relevant abilities. The COVID-19 pandemic has also demonstrated that teaching some subjects, such as science and mathematics, requires a type of practice that enables appropriate investment of AI resources and applications, such as through dry laboratories and interactive platforms, (Al Darayseh, 2020). As a result, it is important to research and comprehend the issues related to the use of AI applications in the classroom. This study focuses on the impact of AI on the learning first three grades students in basic schools in the governorate of capital Amman of Jordan from the perspective of its teachers.

## RESEARCH METHOD

A questioner is designed that cover all issues needed to investigate the effect of AI on the first three grades students in basic schools in the governorate of capital Amman of Jordan from the perspective of its teachers, then it filled from a 115 teachers 88% is female where the rest is male as shown in Figure1 (a). In addition, Figure1 (b) shows the relevant experience of teachers participating in the study through interaction with the questionnaire, and Figure1 (c) shows their percentages of specializations.
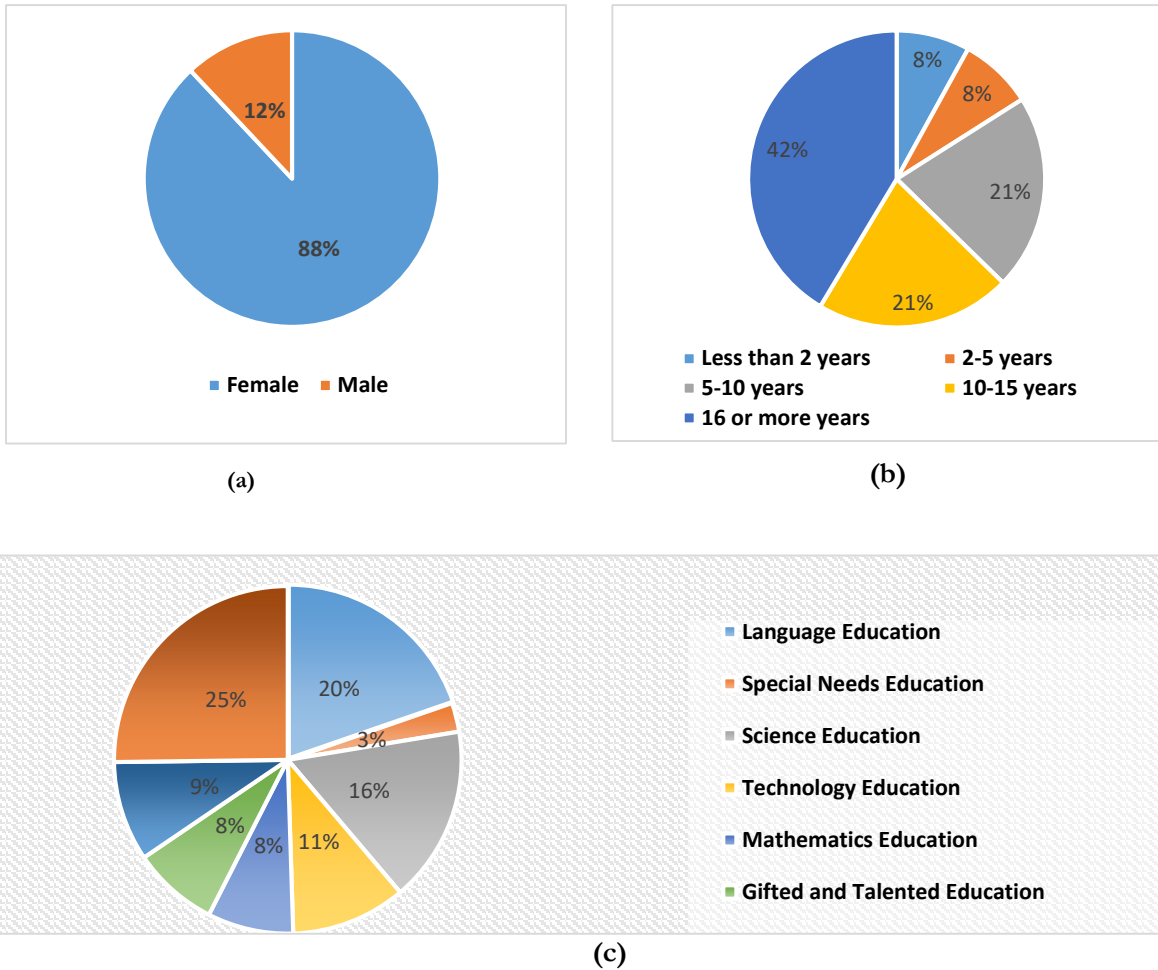
(a)



(b)



(c)

**Figure 1** Study sample of teachers and their specialties and relevant results and discussions

Numerous tools and platforms for educational technology have integrated AI. The AI tools that the teachers surveyed for the study utilized and the proportions of use are displayed in Figure 2. The teachers used these tools in various courses that they believed were suitable for teaching students in the first three grades.
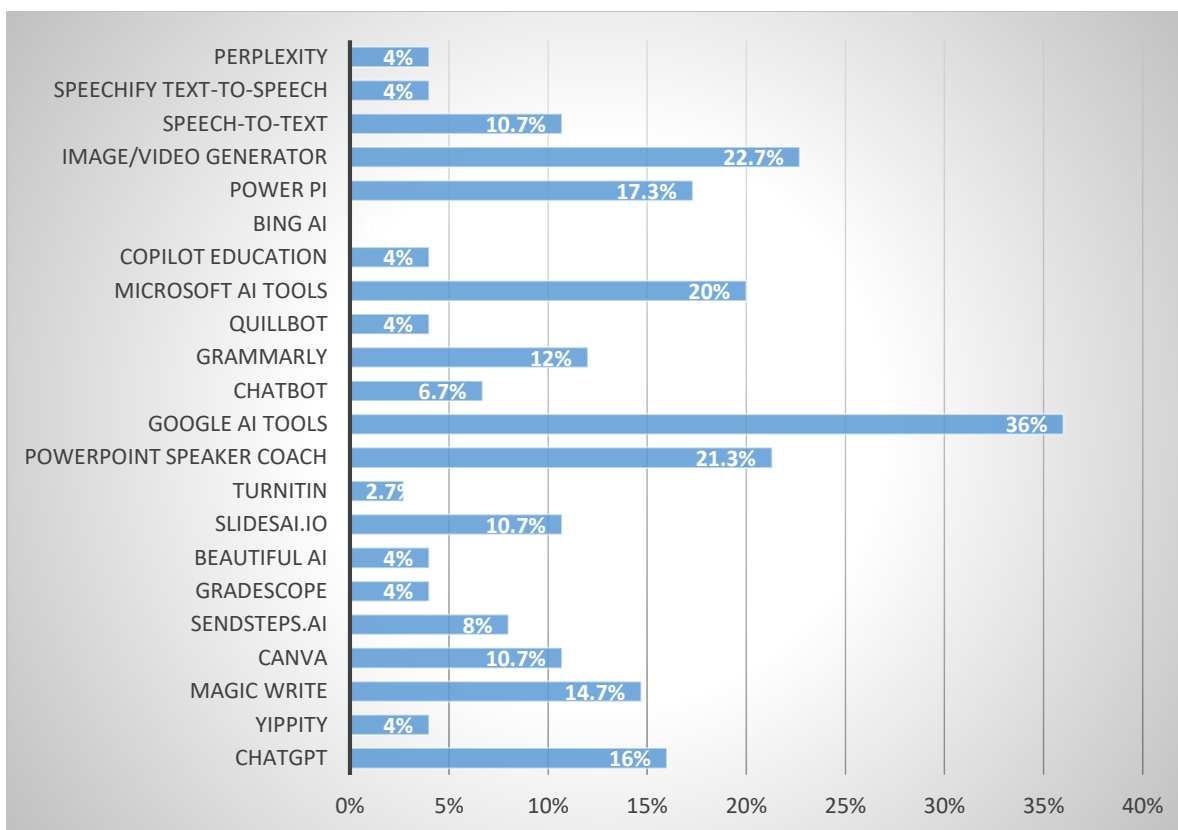
**Figure** 2 AI tools used during the teaching experience

If we focus on important criteria, some of which we chose as follows: acceptance and positivity, reliability of information, inclination to use AI methods instead of traditional methods in education, and finally, readiness to use AI tools, which are considered modern and constantly updated, we can better answer the questions of the study, which focused on the extent to which teachers of the first three grades accept the use of AI applications and tools in teaching. As demonstrated in TABLE 1, the findings indicated that teachers generally support the use of AI tools and applications in the classroom, but at a moderate level that deserves further research to determine the reasons for this, in addition to providing recommendations to improve teachers' experiences in the future.

**Table 1 DEPENDABILITY and RELIABILITY in AI TOOLS**

| Factor | Arithmetic Mean | Arithmetic standard Deviation |
|---|---|---|
| Positive Attitudes Towards AI-based Tools | 61.1% | 0.179 |
| Trust Towards Information Provided by AI-based Tools | 60.4% | 0.194 |
| Confident Towards AI-based Tools | 56.3% | 0.178 |
| Orientation Towards AI-based Tools | 56.6% | 0.166 |
| Ability to use and simplicity of use  AI-based Tools | 32.7% | 0.095 |

AI is the term used to describe intelligent machines that can perform tasks normally done by humans. In actuality, we view AI as a part of the overall informatics era, where ever-increasing digital transformation is altering how we interact with the outside world. Abilities have become crucial for students as a result of the recent acceleration in digital transformation and the emphasis on continuous learning in the majority of professional disciplines. With this development, students' abilities and knowledge must reflect the new reality.

The development of students' talents is greatly influenced by AI, sometimes in beneficial ways and sometimes in harmful ways. It is important to note that this effect needs to be researched in order to establish the best teaching strategies depending on the contexts, learning histories, and skills that students need to acquire during their educational experience. AI has an impact on how students learn, the learning gaps that exist, the most effective teaching strategies, and how to keep students' attention. In these situations, teachers take on the role

of an "informed human," with AI's main purpose being to help teachers make better judgments by giving them predictions about student performance or, with teachers' permission, offering pertinent content to students. Teachers in this situation are the ones who make the final decisions; thus, for the purpose of this study, we assigned questions to gauge how AI techniques and tools affect different student skills, including curiosity (Sun, 2022), initiative and originality (Yang, 2020), agility and adaptability (Dubey, 2022), communications skills (Ryan, 2019) [25], information preservation (Popenici, 2017), and analytical skills (Huang, 2021). The findings are detailed in TABLE 2.

**Table 2 THE IMPACT of AI TOOLS on STUDENTS' SKILLS**

| Student Skills | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|
| AI helps to preserve and remember the information that they learn | 14.70% | 12.00% | 36.00% | 29.30% | 8.00% |
| AI positively affects students' oral communication skills | 16.00% | 10.70% | 42.70% | 20.00% | 10.70% |
| AI positively affects students' writing skills | 13.30% | 25.30% | 30.70% | 24.00% | 6.70% |
| AI positively affects students' curiosity and imagination | 13.30% | 8.00% | 37.30% | 26.70% | 14.70% |
| AI positively affects students' agility and adaptability skills | 14.70% | 20.00% | 34.70% | 20.00% | 10.70% |
| AI positively affects students' initiative and innovation skills | 14.70% | 6.70% | 45.30% | 22.70% | 10.70% |
| AI positively affects students' analytical skills (accessing and analyzing information) | 10.70% | 16.00% | 36.00% | 33.30% | 4.00% |
| AI positively affects students' critical thinking and problem solving skills | 12.00% | 16.00% | 36.00% | 26.70% | 9.30% |
| AI positively affects students' research skills | 10.70% | 12.00% | 36.00% | 32.00% | 9.30% |
| AI positively affects students' learning using emerging technology | 12.00% | 5.30% | 34.70% | 37.30% | 10.70% |

Figure 3 focuses on how AI technologies can improve learning outcomes while upholding academic integrity and the effort to develop new assessment strategies that put more emphasis on students' understanding, critical thinking, and analysis skills than just their capacity for information gathering. In essence, we need to concentrate on these areas, and based on the findings in Fig. 3, we can offer a suggestion that asks for the creation of an extensive master plan with policymakers as its main audience and that covers several facets of education. Contrarily, the primary area for rethinking assessments and exams is more narrow and user-focused, serving different stakeholders in educational institutions, such as students and teachers, as well as addressing the challenges and opportunities associated with integrating AI in teaching and learning in creative ways that inspire students' abilities and help them succeed. On the other hand, teachers must rethink conventional evaluation methods and select new ones that are compatible with the AI revolution; that's how learning outcomes are not only achieved but excelled at.
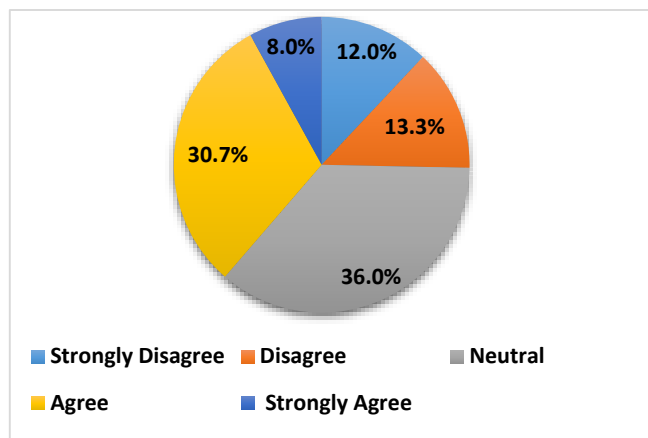
(a) AI tools' contribution to achieve learning outcomes
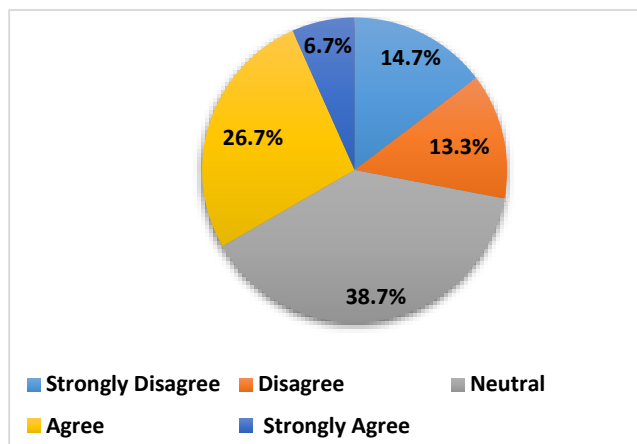


(b) AI tools' contribution to various student assessment techniques
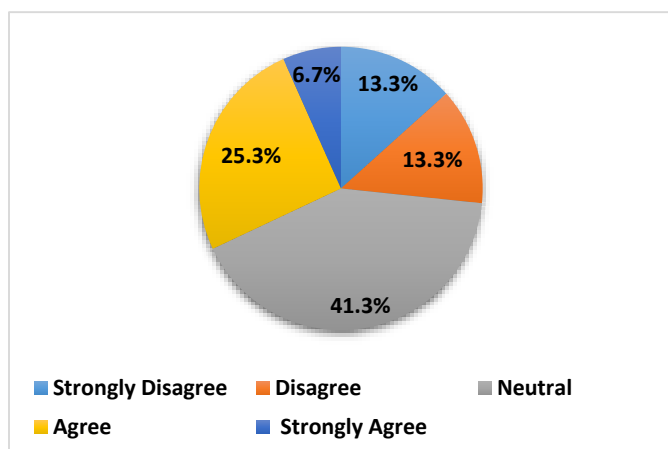


(c) AI tools' contribution to evaluate students efficiently and accurately

**Figure 3** AI tools contribution in evaluating students and achieving learning outcomes

## CONCLUSIONS

The findings revealed a very good view toward AI education and, thus, high motivation to maybe participate in it, which corresponds to a positive will factor. However, teachers and students appear to have just rudimentary digital abilities and little experience with AI. The fact that the respondents did not mention any major problems with the availability of resources indicates that more research in this area is required. Therefore, focusing on skills would be crucial for providing teachers with improved support.

The findings of this study showed that first through third grade teachers have a high level of approval for deploying AI apps in their classrooms. Additionally, teachers' behavioral intentions toward AI apps are most influenced by the variables of self-efficacy, predicted advantages, convenience of use, and attitudes toward AI applications. One explanation for this could be that teachers have gained some foundational knowledge of information skills. As a result, when considering how to employ technology in the classroom, teachers directly assess its educational value before deciding whether to accept it or not. On the other hand, teachers' attitudes toward utilizing AI to help instruction are influenced by how easily they accept AI applications. Further influencing teachers' perceptions of AI's utility and behavior when used to help teach is how simple it is for them to utilize. In other words, making it easier for scientific teachers to incorporate AI applications into their

lessons can also help them see the value of AI-assisted learning and encourage adoption. The findings showed that teachers and policymakers should think about establishing guidelines for the use of AI tools in the classroom to prevent them from impairing students' writing or linguistic abilities or limiting their capacity for creative thought when planning training activities on adopting this technology to support student teaching. Instead, they should benefit from it since it encourages students to think creatively, which helps them find simple solutions to difficulties. Finally, artificial intelligence-based learning methods must be used under strict control to ensure that they both produce the best learning results and do not interfere with methods for evaluation and assessment.

AI might be able to teach students information, but it cannot help students build their personalities. The educator's role is to motivate and inspire students to do well in school. As a result, because AI does not possess sentiments and emotions like humans generally do, it cannot replace the role of the teacher in fostering motivation, inspiration, and personality development. We must ultimately be able to adapt as technology develops if we are to understand technological breakthroughs. If we don't change, a teacher (teacher/lecturer) using technology might take our place.

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