

Attitudes of teachers of gifted students towards the use of educational robots in developing students' personalities in Jordan

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Article Info	ABSTRACT
Article history: Received 1 April 2025 Revised 30 April 2025 Accepted 16 May 2025	This study sought to examine teachers' attitudes toward the use of educational robots to foster student personalities and to analyze the nature and degree of these attitudes as well as gender, academic qualifications, and years of experience variations. A descriptive-analytical approach was used; 100 instructors from Jubilee School and King Abdullah II Schools for Excellence were chosen at random. Three areas were assessed on a researcher-created questionnaire: the part educational robots play in fostering students' social and personal skills, boosting critical and creative thinking, and fulfilling student needs while enhancing the learning environment. With Cronbach's alpha = 0.95, the instrument exhibited strong validity and reliability. Results showed that teachers often had favorable attitudes (M = 3.70). The results show that, in general, teachers are strongly in favor of integrating educational robots to improve gifted pupils' personal, social, and cognitive growth, hence creating a basis for training programs and curriculum development to use robotics effectively in education.
Keywords: Teachers gifted students Educational robots	
الكلمات المفتاحية: الخرائط الذهنية متعة التعلم	ملخص سعت هذه الدراسة إلى فحص مواقف المعلمين تجاه استخدام الروبوتات التعليمية لتنمية شخصيات الطلاب، وتحليل طبيعة هذه المواقف ودرجتها، بالإضافة إلى الاختلافات المتعلقة بالجنس والمؤهلات الأكاديمية وسنوات الخبرة. استُخدم المنهج الوصفي التحليلي، حيث تم اختيار 100 معلم من مدرسة اليوبيل ومدارس الملك عبد الله الثاني للتميز عشوائيًا. تم تقييم ثلاثة مجالات باستخدام استبيان أعده الباحث: دور الروبوتات التعليمية في تنمية المهارات الاجتماعية والشخصية للطلاب، وتعزيز التفكير النقدي والإبداعي، وتلبية احتياجات الطلاب مع تحسين بيئة التعلم. أظهر الاستبيان، بمعامل ألفا كرونباخ 0.95، مصداقية وموثوقية عاليتين. أظهرت النتائج أن المعلمين غالبًا ما كانت لديهم مواقف إيجابية (المتوسط = 3.70). تشير النتائج، بشكل عام، إلى أن المعلمين يؤيدون بشدة دمج الروبوتات التعليمية لتحسين النمو الشخصي والاجتماعي والمعرفي للطلاب الموهوبين، مما يُرسي أساسًا لبرامج التدريب وتطوير المناهج الدراسية لاستخدام الروبوتات بفعالية في التعليم.
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1 Introduction

Because of ongoing technical developments, the modern educational system is changing quickly. Improving the quality of education, developing students' physical, mental, social, and academic abilities and producing its results depends on the use of digital technologies, which have become important and a basic component (Alahmari et al., 2023; Al-Mseidin et al., 2023). Among the most visible of these contemporary technologies is the use of educational robots, which offer interactive learning environments that build cognitive and practical abilities in students via

experiential learning and direct experimentation (Bai & Tian, 2025; Lampropoulos & Papadakis, 2025; Zou et al., 2025).

Given the nature and requirements of the present generation, technology is fast becoming a must-have in the educational system. In a largely digital setting, conventional approaches are no longer enough to inspire students or satisfy their learning needs. Furthermore, the knowledge revolution has changed how information is acquired, therefore requiring the deployment of technology to make curricula more interesting and interactive and to activate educational channels of communication, accounting for individual differences and varied educational demands (Dahlan, 2025; Rosen, 2025). This change has caused teachers and pupils to reassess their respective roles in the educational system.

Teachers have developed guides and facilitators instead of just transmitters of information. Students have instead evolved to be active collaborators in building knowledge via research, inquiry, engagement, and the use of a range of digital tools. This means that teachers must have sophisticated technical expertise to foster 21st-century skills in pupils, including critical thinking, cooperative work, and excellent communication (Herlinawati, 2024; Toh et al., 2016; Rahimi & Oh, 2024).

Through simulation and engagement with many learning environments (Bano et al., 2024; Chiu & Hwang, 2024; Munoz Ubando et al., 2025; Yang, 2021; Zhang & Zhu, 2024), it helps one to more clearly understand scientific and technical ideas as well as their contribution in promoting creativity. Educational studies show that using educational robots can boost learner motivation and independence, foster higher-order scientific thought abilities, and raise learning results. Additionally, it encourages cooperative learning and the creation of visually and practically symbolic representations of abstract ideas. Moreover, some research has demonstrated that using robots to learn is at least as effective as conventional techniques and may even go above it in terms of time efficiency and learning quality. This emphasizes how crucial it is to include them in several educational settings under expert supervision (Ching & Hsu, 2024; Hong, 2024; Mamatnabiyev et al., 2024; Lotriet & Gouws, 2025).

Considering how crucial it is to cultivate gifted students as a human resource contributing to society's advancement, educational robots provide a practical tool for providing learning environments rich in intellectual difficulties and ongoing stimulation, hence enhancing the development of their cognitive, emotional, and social abilities. The teacher here is absolutely crucial for the effective adoption of this technology. Studies verifying the success of educational robots in developing problem-solving abilities and producing creative ideas have sparked more research interest in analyzing teacher attitudes about their use in several academic courses (Al-Hashemi, 2018; Al-Omari & Al-Siman, 2020; Al-Ruwaili, 2018; Yeslyamov, 2024). Therefore, this study aimed at identifying teachers' attitudes towards using educational robots in developing students' personalities in Jordan.

2 Literature Review

This study seeks to find out teachers' perceptions regarding the employment of educational robots to shape students' characters in Jordan and to show the nature and degree of these attitudes. Furthermore, it tries to find statistically significant variations in the attitude of teachers across gender, academic credentials, and years of experience.

2.1 Study Question

What are the attitudes of teachers of gifted students in Jordan towards the use of educational robots in developing students' personalities?

2.2 Significant of the Study

The results of the study give researchers and education policy makers a crucial information foundation and aid in the creation of specialized teacher training programs for gifted students, as well

as contemporary educational curricula incorporating educational robots. This helps to raise the caliber of instruction and satisfy the psychological and academic needs of gifted children in Jordan.

3 Methodology

A descriptive-analytical method was used through a questionnaire to collect data from the study sample of 100 teachers. The study sample was based on demographic variables, namely gender, academic qualification, and years of experience. Accordingly, the study sample is described as follows:

3.1 Data Collection Tools

The researcher developed a study instrument to achieve the study's objectives, which measures the level of social interaction and its relationship to school discipline among school principals in the Wadi Al-Seer Education Directorate, from the teachers' perspective. This was done by referring to several previous studies, including Al-Akhtar and Al-Furaih (2023), Al-Juaid and Al-Ajami (2023), and Al-Ateeq (2012).

Giving the instrument in its original state to a group of Jordanian university professors confirmed its validity and reliability which was 0.95.

4 Results and Discussion

The average values and standard deviations for the dimensions measuring teachers' attitudes towards the use of educational robots, as well as for the scale overall, were determined in response to this question. The items within these dimensions were also computed for the mean and standard deviations as shown in table 1.

Table 1. *Study Sample*

	Variable	Mean	Standard Deviation	Rating
1.	Overall Attitudes Scale	3.70	0.82	High

5 Discussion

Teachers of gifted children in Jordan held both strong and middling opinions on the application of educational robots to shape pupils' personalities, as shown in Table 4. The overall mean across all dimensions was 3.70 (SD = 0.82), indicating a high level of agreement. These findings show that teachers in Oman strongly support the use of educational robots to foster different facets of gifted students' personalities. Among other reasons, the significance of educational robots in offering creative, interactive, and learning possibilities that aid in the development of pupils' social, critical-thinking, and creative abilities helps to explain this support.

Moreover, the range of teaching techniques made possible by robots provides interesting and varied learning experiences that appeals to brilliant kids, hence making the educational environment more appealing. Moreover, robots are becoming useful tools to fulfill students' needs and create a sophisticated learning environment as educational technology quickly advances.

Generally, the results show that teachers understand the added benefit educational robots provide in nurturing gifted pupils' talents, a good sign of the greater technology incorporation into the educational system.

6 Conclusion and Recommendations

In conclusion, the results of this study confirm that teachers had a high attitude towards using education arobots in teaching and leanring. Based on the results, the investigator suggests that the decision makers should create an instructional program that emphasize using robots to improve student critical thinking, creativity, cooperation, and coordination. Furthermore, using this with a

range of educational groups and samples, and carrying out more study and research on teachers' perspectives on using educational robots.

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