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# The Role of Artificial Intelligence in Learning Motivation for Deaf Students the Perspective of Teachers

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**Abstract**

This research aims to identify the current status of artificial intelligence and its potential impact on motivation towards learning. It provides conceptual foundations for thoughtful, policy-oriented work, research, and forward-looking activities that address the opportunities and challenges created by recent developments in artificial intelligence. The research adopts a descriptive approach, using a random sample of 45 male and female teachers from the Zayed Higher Organization. The results show that artificial intelligence plays a significant role in motivating deaf students in the Emirates, as the average responses of the participants reached 3.56 in this area. The results also indicate that there are statistically significant differences, at a significance level of $\alpha = 0.05$, between the assessments of the study sample members regarding the role of artificial intelligence in motivating deaf students in the United Arab Emirates, depending on gender. In light of these findings, a set of recommendations is presented.

*Keywords*: Artificial Intelligence; Deaf Students; Learning Motivation; United Arab Emirates.

## Introduction

In recent years, artificial intelligence has undergone a revolution that has had an impact on practically every facet of existence. The applications of this artificial intelligence can be found in nearly every sector, including engineering, manufacturing, finance, communications, and many more. The education ministries are now under a lot of pressure to create policies, curriculum, and strategies that will keep up with the reality of the current artificial intelligence revolution. This revolution has been the spark that has opened up new avenues for educators to investigate enhancing the culture of artificial intelligence and

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integrating it both conceptually and practically in different levels of education (Al-Bajzi, 2019).

The use of communication technology into the teaching process is one of the most significant new techniques in the field of education. Learners receive lessons in methods that are more straightforward, creative, and engaging. In terms of current development goals, notably in the area of education, artificial intelligence technologies constitute a new age for this technology (Shaban, 2020). According to current trends and research in the area of artificial intelligence in education, there are potential to enhance the educational system and stay up with technological improvements as the field of education broadens with new applications.

In educational institutions and the parts that make them up, artificial intelligence plays significant and varied functions (Lin et al., 2021; Huang2023; Sharma, 2020). Its applications act as a teacher's assistant in the classroom by asking questions, correcting assignments, automatically identifying learning barriers, and providing real-time feedback. It makes up for flaws in conventional education and encourages individualized instruction based on the unique characteristics of each student (Mansour, 2021). Artificial intelligence applications are having a clear impact on education for people with disabilities because they offer individualized instruction that is in line with their needs and educational services that support their adaptation (Meera & Kathe, 2019; Vinichenko etal., 2020).

One of the most crucial aspects of education is motivation for learning. The significant impact is reflected in learners' willingness to accept challenging tasks and find appropriate solutions to these challenges through programming and positive learning (El-Sayed & Mahmoud, 2020). It helps to raise students' skill acquisition levels. According to educational reality, using artificial intelligence properly within the educational curriculum aids students in developing a variety of skills. Given the availability of contemporary technology like artificial intelligence, this increases their desire to learn, which in turn improves the acquisition of skills (Abdulatif, 2020; Chiu, 2023).

In order to guarantee those with special needs or disabilities the same rights as other members of society, the UAE coined the term "People of Determination" to describe them (Abdul Salam, 2022). According to UN law, a person with a

disability is one who has a long-term physical, mental, intellectual, or sensory impairment that prevents them from participating fully and effectively in society on an equal basis with others because of a variety of obstacles (Al Badi, 2023;). One of the most notable centers for People of Determination in the UAE is Zayed Foundation, which offers them and their families the required assistance, instruction, and rehabilitation services (Al Badi, 2023; Abdul Salam, 2022).

The People of Determination community in general and the Deaf community in particular have benefited greatly from the extensive efforts made by the United Arab Emirates. By providing this group with the facilities and resources required for effective education, the nation has shown this group a great deal of care and attention. Additionally, it has provided them with all technological tools necessary to make teaching easier and boost their desire to learn, with artificial intelligence and all of its applications serving as a significant resource for the Deaf community's motivation and learning (Al Zaheri, 2021). The level of services and challenges faced by students with disabilities in the nation, which may also apply to other societies, must be determined through research in this area.

***Study problem***

People with disabilities, especially children in general and the deaf community in particular, face a shortage of electronic educational resources that cater to individual differences for each child. Additionally, current resources need further development to keep up with the times. This necessitates the search for modern and engaging methods that hold educational value and support their learning and independence. Artificial intelligence technologies assist in making the lives of people with disabilities, particularly in their schools, easier. They play a crucial role in their education and help teachers develop their abilities to educate individuals with disabilities (Al-Ghamdi, 2020). Hence, the need for this research arises to employ educational applications of artificial intelligence for the deaf community and to investigate the role of artificial intelligence in motivation towards learning for students with disabilities from the perspective of teachers.

The main research question that can be identified is: What is the role of artificial intelligence in motivation towards learning for students with disabilities at the Zayed Foundation from the perspective of teachers?

The importance of this study lies in its examination of artificial intelligence's educational applications for people with disabilities and their function in enhancing learning motivation. The lack of research on the use of

artificial intelligence in educational settings for people with disabilities in the United Arab Emirates has confirmed the need for this study. The study's potential to influence social policies for officials and decision-makers as they consider how to use AI applications in the United Arab Emirates is another factor that makes it important. This holds true for the Ministry of Community Development, which is in charge of government and non-governmental care and rehabilitation facilities for people with disabilities, as well as the Ministry of Education and other organizations that offer national training, care, and rehabilitation services for this group.

***Study Questions***

The study aims to answer the following questions:

1. What is the current usage of artificial intelligence among deaf students with disabilities in the United Arab Emirates, according to their teachers' perspective?
2. What role does artificial intelligence play in motivation towards learning for deaf students with disabilities in the United Arab Emirates, according to their teachers' viewpoint?
3. What are the obstacles in using artificial intelligence for the deaf community with disabilities in the United Arab Emirates, as perceived by their teachers?

**H1**: At a significance level of ($\alpha = 0.05$), there is a statistically significant correlation between the variable of gender and the impact of artificial intelligence on the learning motivation of deaf students with disabilities in the United Arab Emirates.

**Literature Review**

Few studies have focused on the significance of artificial intelligence for deaf students with disabilities, despite the fact that many have examined the significance of AI in education. Al-Qarni and Imran (2021) conducted a study to find out how the Microbit artificial intelligence affected female students enrolled in the Educational Technologies program at King Abdulaziz University in Jeddah's Educational Technologies course in terms of increasing their motivation to learn programming. The study used a single experimental group in a quasi-experimental design. Measurements of motivation were made before and after the experiment.

There were 14 students in the study's research sample. The findings demonstrated statistically significant differences between female students' motivation for learning programming before and after the experiment at a significance level of (0.001).

Similar to this, the Bakr study (2021) sought to define the function of augmented reality in Iraqi classrooms for students with special needs. The research sample included 50 students, and the researcher used both descriptive and quasi-experimental methodologies. The study discovered that using augmented reality in Iraq improved academic performance for those with special needs.

Additionally, Astal, Astal, and Agha (2020) aimed to create a model based on artificial intelligence and assess how well it helped students at the University College of Science and Technology in Khan Yunis improve their programming skills. 33 students made up the study's sample, which was conducted experimentally. The study discovered statistically significant differences between the mean student scores on the pre- and post-application assessments for their programming abilities in the Algorithms and Programming Principles course, favoring the post-application assessment at a significance level of (0.05).

Mohammed and Khaled (2020) both investigated the connection between university students' motivation for learning and their various Internet usages, including for research, education, leisure, or entertainment. 107 students from Mohammed Sadiq bin Yahya University were given a questionnaire as part of the study's descriptive correlational methodology. According to the findings, internet use for research, education, and leisure by university students is positively correlated with their motivation to learn.

In a similar vein, Al-Qarni (2020) sought to ascertain how using micro-learning affected the level of learning motivation among first-grade secondary school students in Jeddah as well as the development of programming skills. A sample of 78 students was used in a quasi-experimental design by the researcher. According to the study's findings, using micro-learning helps students' motivation for learning while also helping them develop their programming skills.

Last but not least, Gómez, Tong Lam, Marcelino, Méndez, and Antonio (2018) investigated student motivation levels and connected it to their performance in learning introductory programming in San Jose, USA. 48 male students majoring in Bachelor of Computer Science made up the study's sample. The Instructional Material Motivation Survey (IMMS) and the Course Interest Survey

(CIS) were both used. Based on the ARCS model, the findings revealed a favorable and significant correlation between students' programming learning performance and motivation.

Additionally, Michel (2018) sought to comprehend how using technological tools affected French secondary school students' motivation to learn. The study used a descriptive methodology, with 50 high school students making up the sample. 22 items made up the questionnaire that was used. The findings showed that using technological applications had a significant impact on secondary school students in France's motivation to learn.

***Artificial intelligence concept***

The ability to analyze, synthesize, distinguish, choose, and adapt to various situations is the general definition of intelligence (Al Saud, 2017). Al-Ashqar's definition of artificial intelligence in a study from 2018 added that it is the study of intelligent machines, particularly computer programs, and that it entails the use of computers to study human intelligence. Artificial intelligence (AI) is "a science that focuses on creating machines that perform actions considered intelligent by humans or, in simpler terms, making ordinary machines behave like those we see in science fiction movies" (Al-Jabir, 2020, 45).

***The idea of motivation***

The motivation of a learner is defined by behaviorist theorists Watson and Thorndike as an internal or external state that drives their behavior and performance and works to sustain and direct it towards the accomplishment of a particular goal or objective (Qarni, 2013). As a result of fierce competition among students, Herbert Hermans defined learning motivation as the propensities toward success and control within the classroom (Al-Afash, 2018). Beller and Snellman, on the other hand, believe that the learner's internal or external state determines their behavior and performance and works to maintain and direct it towards the accomplishment of a particular goal or objective (Tawfiq, 2019).

According to the aforementioned, artificial intelligence is the capacity of a machine to carry out operations that call for human intelligence, such as logical reasoning, learning, and the capacity for justification. On the other hand, motivation can be described as a person's love of learning, acquiring new skills, and persevering in that endeavor.

***Artificial Intelligence and Motivation towards Education***

Artificial intelligence (AI) is a modern computer science that aims to use sophisticated programming techniques to carry out actions and draw conclusions that are comparable to those attributed to human intelligence (Al-Hamidi, 2020; Wang, 2022). By using pre-assessment tests to identify strengths and weaknesses before a lesson, intelligent computers help learners develop their skills. The learner's typical errors are compared to a specific database by the computer, which then chooses the mistake that most closely matches the learner's error patterns and gives feedback to correct it. By pressing a specific key, submitting a help request on the screen, or writing their question in their native tongue, intelligent programs allow students to ask the computer any question they have at any point during the lesson (Al-Aqeelah, 2021; Qawaqneh).

Scientists created and created intelligent computer-based learning systems in a study. Positive findings were found in the first evaluation of the tool's users' students. Based on these findings and other research, educators and students felt that utilizing these systems would improve students' academic performance and sharpen their cognitive skills (Ismail, 2017; Hwang, 2023; Chassignol et al., 2018). Thus, traditional methods of teaching these skills should not be the only way that educational institutions and systems do so. Rather, they ought to provide a curriculum that is oriented toward the future and motivate the target audiences to use contemporary technologies in their education (Ahmed, 2018; Ouyang et al., 2022).

The use of artificial intelligence techniques in education and training has demonstrated its effectiveness. In most fields, particularly education, there is a trend in science and society towards a heavy reliance on AI applications. By including them in the learning environment, allowing them to interact with the instructional materials, and adjusting the learning environment based on their responses, this helps overcome learner negativity (Khalifa, 2017; Azamatova et al., 2023).

Teachers are assisted by intelligent educational systems in eschewing the one-size-fits-all method. Learning platforms employ big data analysis to furnish educators with insights into student performance, areas of strength and weakness. This allows educators to pinpoint individual students' learning needs and skill gaps and offer extra support. All of this necessitates the presence of a (human) teacher to control the classroom setting and support struggling students.

Along with ethical thinking, socio-emotional skills play a big part in education, especially for young students. According to Al-Ashqar (2018), AI systems have proven to be able to teach students new skills and increase their motivation to learn. In the field of education, motivation is essential because it is a key sign of any educational situation's success. It encourages students to pursue knowledge in their academic lives by consulting with them and igniting particular interests in them. Ibrahim and Wajeeh stressed that motivation in the learning process stimulates particular learning activities and releases the emotional energy that is dormant in living things (Qarni, 2013).

According to Balqees and Mar'i (2018), motivation in the classroom serves as the goal and a tool for both the teacher and the student during the learning process. It is one of the objectives of education since we believe that our pupils should be engaged and focused while they study. However, one of the goals of education is thought to be the development of inclinations, interests, and attitudes as a result of teaching and learning. As a result, motivation can be seen as a key component of learning and strategies for adjusting to the outside world. There is a close bond between the two. It is the motivation behind students' behavior when they are studying in general and the source of their mental energies, enabling them to embrace knowledge acquisition with vigor, gravity, and resolve. During the academic year, they are committed to distinction and excellence.

## Methods

### *Research Design*

By observing, gathering information, and presenting a thorough and accurate picture of the topic of artificial intelligence and its role in motivating students with disabilities to learn at Zayed Foundation from the teachers' point of view, we used the descriptive approach using a thorough survey method. Because it saves time and effort, this approach was thought to be the most suitable for these kinds of studies.

### *Sample*

The study community is made up of all 176 male and female special education teachers in the Emirate of Abu Dhabi. Simple random sampling was used to select the 45 male and female teachers who made up the study sample. There were (18) male teachers, or 40% of the total, and (27), or 60%, of the total number

of female teachers. Sixty-seven percent of them had a bachelor's degree or above. Regarding the teaching experience variable, which accounted for 44.5 percent of those with more than 10 years of experience, it had the highest percentage in the sample distribution. This is illustrated in Table 1.

**Table 1**

*Shows the demographic characteristics of the study population*

| Variable | Level | Teachers | |
|---|---|---|---|
| | | Number | Percentage |
| **Gender** | Male | 18 | %40 |
| | Female | 27 | %60 |
| | Total | 45 | %100 |
| **Educational qualification** | Bachelor | 30 | %66.7 |
| | Master's | 15 | %33.3 |
| | Total | 45 | %100 |
| **Teaching Experience** | Less than 5 years | 10 | %22.2 |
| | 10-5Years | 15 | %33.3 |
| | More than 10 years | 20 | %44.5 |
| | Total | 45 | %100 |

***Data Collection Tool***

To identify the characteristics of the research sample and accomplish the study's objectives, a questionnaire was used as a means of gathering data for the research through the chosen research sample. Four axes comprised the questionnaire: First Part: Demographic Information (Gender, Educational Qualifications, and Experience). Second Part: examine the Reality of Using Artificial Intelligence for the Deaf Community in the United Arab Emirates from the Perspective of Their Teachers; (1) Educating with artificial intelligence technology. (2) Artificial intelligence is being used to answer children's queries. (3) creating artificial intelligence-based educational activities that improve higher-order thinking abilities. (3) using artificial intelligence to define my educational objectives accurately. (4) creating artificially intelligent study materials and curricula. (5) utilizing artificial intelligence to create lessons that meet international quality standards. (6) Use a variety of teaching strategies while utilizing artificial intelligence. (7) making educational cartoon videos with artificial intelligence apps. (8) Thanks to artificial intelligence, I have more time for other things. (10) Artificial intelligence gives me feedback right away. (11) Evaluation of children's performance includes the use of artificial intelligence. (12)The ability to recognize

a child's strengths and weaknesses is aided by artificial intelligence. Third Part: Barriers to Using Artificial Intelligence for Students with Hearing Disabilities in the United Arab Emirates from the Perspective of Their Teachers, comprising (11) statements: (1) Device availability is insufficient. (2) Artificial intelligence implementation comes at a high cost. (3) a lack of training programs for using applications of artificial intelligence. (4) Limited availability of Arabic apps. (5) inadequate school facilities. (6) Lack of technical assistance in the school. (8) ignorance of the data needed to use artificial intelligence. (9) Teachers have little experience with technology. (10) The decision-makers' conviction regarding the viability of utilizing AI applications is low. (11) The administration of schools is not well-prepared to use artificial intelligence apps.

***Data collection procedures***

The study tool was initially presented to a team of five expert reviewers in order to confirm its apparent validity. They were asked to share their thoughts on the questionnaire items, particularly with regard to their phrasing and appropriateness for the goals of the study. Their input was taken into consideration during the modification process, and the tool was eventually ready. We first determined the degree of internal consistency (Cronbach's Alpha coefficient), which produced a result of 0.82, to confirm the stability of the study tool. As indicated in Table (2), these values are deemed appropriate and suitable for the objectives of this investigation.

**Table 2**

*Results of Reliability Coefficients for Internal Consistency*

| Tool | Internal Consistency |
|---|---|
| The questionnaire | 0.82 |

The five-point Likert scale was used to distribute the response scores for the questionnaire items. In the teacher survey, respondents receive 5 points for selecting "Very High," 4 points for selecting "High," 3 points for selecting "Neutral," 2 points for selecting "Low," and 1 point for selecting "Very Low." In order to make the interpretation of the results easier, Table (3) employed the following grading system.

**Table 3**

*Arithmetic Means by Category for Questionnaire Interpretation*

| Employment rate | Types of Arithmetic Averages |
|---|---|
| Low | 2.33 -1.00 |
| Moderate | 3.67 -2.34 |
| High | 5.00 -3.68 |

***Statistical Processing***

The Statistical Package for the Social Sciences (SPSS) software program was used to process the statistical data and provide descriptive statistics for sample characteristics, such as frequencies and percentages. The mean and standard deviation were used to provide answers to the research questions. Analysis of Variance (ANOVA) and post-hoc comparisons using the Tamhane method were used to address the study hypotheses. The tool's stability was confirmed using the Cronbach's Alpha reliability coefficient.

## Findings

**First Question Results.** What is the current usage of artificial intelligence among deaf students with disabilities in the United Arab Emirates, according to their teachers' perspective?

In order to respond to this inquiry, the study sample's estimates of the arithmetic means and standard deviations were taken from the questionnaire items pertaining to the reality of using artificial intelligence for students with hearing disabilities in the United Arab Emirates from the viewpoint of their teachers. Table (4) serves as an example.

**Table 4**

*Shows the standard deviation and averages of the study population's answers the current usage of artificial intelligence among deaf students*

| Rate | sorting | Category | Arithmetic Mean | Standard Deviation | Score |
|---|---|---|---|---|---|
| 1 | 5 | I sometimes develop curricula and educational content with artificial intelligence. | 4.16 | 0.72 | High |
| 2 | 1 | I often employ artificial intelligence technology in teaching. | 4.03 | 0.88 | High |
| 3 | 9 | Artificial intelligence allows me to free up time for other tasks. | 3.68 | 1.06 | Moderate |

| | | | | | |
|---|---|---|---|---|---|
| 4 | 10 | Artificial intelligence provides immediate feedback. | 3.62 | 1.34 | Moderate |
| 5 | 2 | I often use artificial intelligence to respond to children's questions and inquiries. | 3.53 | 1.51 | Moderate |
| 6 | 12 | Artificial intelligence helps me identify the strengths and weaknesses of the children. | 3.48 | 1.63 | Moderate |
| 7 | 6 | I often design lessons with artificial intelligence according to global quality standards. | 3.40 | 1.72 | Moderate |
| 8 | 7 | Sometimes, artificial intelligence helps me utilize diverse teaching methods. | 2.77 | 1.68 | Moderate |
| 9 | 8 | Sometimes I use artificial intelligence applications to create animated films for lessons. | 2.74 | 1.72 | Moderate |
| 10 | 11 | Artificial intelligence contributes to the process of assessing the performance of children. | 2.34 | 1.54 | Moderate |
| Total Score | | | 3.15 | 1.74 | Moderate |

According to table (4), the study sample's mean scores on the reality of deaf students with disabilities using artificial intelligence in the United Arab Emirates, as perceived by their teachers, varied from 1.84 to 4.16. As can be seen from the table, three statements were given a high score. The statement with the highest score, statement (5), which says, "Sometimes, I develop curricula and educational content with artificial intelligence," had an average of (4.16). However, statement (9) with the following content was the lowest: Artificial intelligence allows me to focus on other tasks," with an average of (3.68) and a high score. Meanwhile, (7) statements received a moderate score, with their mean scores ranging between (2.34 - 3.62). The highest was for statement (10) which reads: "Artificial

intelligence provides immediate feedback," with an average of (3.62), while the lowest was for statement (11) which reads: "The evaluation of children's performance is aided by artificial intelligence," with an average score of 2.34. The mean scores of the two statements that were given low scores ranged from 1.84 to 2.32. Statement (3), "I always develop teaching activities with artificial intelligence that enhance higher-order thinking skills," had the highest average (2.32). The statement "I always set my educational goals accurately with artificial intelligence," found in statement (4), had the lowest average (1.84). According to their teachers, deaf students with disabilities in the United Arab Emirates are using artificial intelligence on a moderate level, as indicated by the overall mean score of 3.15.

**Second Question Results.** What role does artificial intelligence play in motivation towards learning for deaf students with disabilities in the United Arab Emirates, according to their teachers' viewpoint?

In order to respond to this inquiry, the study sample's arithmetic means and standard deviations were extracted in relation to the questionnaire items that dealt with the influence of artificial intelligence on students with hearing impairments in the United Arab Emirates' motivation to learn. A table (5) shows this.

**Table 5**

*Shows the standard deviation and averages of the study population's answers role does artificial intelligence play in motivation towards learning for deaf students*

| level | sorting | Category | Arithmetic Mean | Standard Deviation | Score |
|---|---|---|---|---|---|
| 1 | 2 | Providing specialized and accumulated knowledge in the field of subjects. | 4.06 | 0.92 | High |
| 2 | 6 | Delving into presenting scientific content. | 4.00 | 0.98 | High |
| 3 | 1 | Helping students engage with the scientific material. | 3.60 | 1.53 | Moderate |
| 4 | 8 | Providing clear and easy learning procedures. | 3.55 | 1.26 | Moderate |
| 5 | 5 | The interaction between children and | 3.53 | 1.28 | Moderate |

| | | | | | |
|---|---|---|---|---|---|
| | | the presented experiences. | | | |
| 6 | 3 | Guiding children through learning activities. | 3.50 | 1.29 | Moderate |
| 7 | 7 | Providing educational experiences that blend the tangible and the abstract in environments that simulate reality. | 3.49 | 1.43 | Moderate |
| 8 | 4 | Storing information for easy reference. | 3.44 | 1.45 | Moderate |
| 9 | 10 | Employing teaching strategies that suit each child individually. | 3.40 | 1.67 | Moderate |
| 10 | 9 | Presenting the scientific content in a comprehensive manner. | 3.10 | 1.49 | Moderate |
| Total Score | | | 3.56 | 1.31 | Moderate |

According to Table (5), the average score for teachers' perceptions of artificial intelligence's contribution to learning motivation among hearing-impaired students in the United Arab Emirates is (3.56), which suggests a moderate level of use. The study sample's computed averages fell between 3.10 and 4.06. Two items received a high score, as the table also shows. These are item (2), which has a high level of knowledge and an average score of (4.06) with the statement, "Providing specialized and accumulated knowledge in the field of subjects," Similar to item (6), which had the statement "Delving into presenting scientific content," item (6) was scored at a high level and averaged 4.00. A moderate level of knowledge was assigned to the remaining items, with calculated means ranging from 3.10 to 3.60. With an average score of (3.60) for item (1), "Helping students engage with the scientific material," received the highest rating, while item (9), "Presenting the scientific content in a comprehensive manner," received the lowest (3.10).

**Third Question Results**. What are the obstacles in using artificial intelligence for the deaf community with disabilities in the United Arab Emirates, as perceived by their teachers?

To answer this question, the means and standard deviations were extracted for the survey items related to the obstacles of using artificial intelligence for individuals with hearing impairments in the United Arab Emirates from the perspective of their teachers. Table (6) illustrates this.

**Table 6**

*Shows the standard deviation and averages of the study population's answers the obstacles in using artificial intelligence for the deaf community*

| level | sorting | Category | Arithmetic Mean | Standard Deviation | Score |
|---|---|---|---|---|---|
| 1 | 6 | Lack of technical support within the school. | 4.12 | 0.92 | High |
| 2 | 3 | Insufficient training programs for using artificial intelligence applications. | 4 | 1.66 | High |
| 3 | 2 | High financial costs required for implementing artificial intelligence. | 3.64 | 1.69 | Moderate |
| 4 | 9 | Weak conviction about the importance and feasibility of artificial intelligence applications among decision-makers. | 3.63 | 1.85 | Moderate |
| 5 | 1 | Inadequate availability of devices. | 3.60 | 1.89 | Moderate |
| 6 | 11 | Students' limited proficiency in using the applications. | 3.50 | 1.90 | Moderate |
| 7 | 8 | Scarce Arabic applications. | 3.49 | 1.05 | Moderate |
| 8 | 4 | Weak technological expertise among teachers. | 3.32 | 1.65 | Moderate |
| 9 | 15 | Inadequate school infrastructure. | 3.30 | 1.43 | Moderate |
| 10 | 7 | Lack of knowledge about artificial intelligence applications. | 2.80 | 1.93 | Moderate |
| 11 | 10 | Low level of preparedness among school administration for using artificial intelligence applications. | 2.29 | 1.96 | Low |
| Total Score | | | 3.42 | 1.63 | Moderate |

Table (6) makes it clear that, as judged by their teachers collectively, the average score for the barriers to using artificial intelligence for people with hearing impairments in the United Arab Emirates is (3.44), signifying a moderate level. The items' computed averages varied from (2.29 - 4.12). Two other items in the table also show that they scored highly. The item with the highest score, item (6), which states, "Lack of technical support within the school," had an average score of (4.12). Eight items, on the other hand, had a moderate degree of agreement; their calculated means ranged from 2.80 to 3.64.

**Data presentation for the fourth question**. Is there a statistically significant correlation between the gender variable and artificial intelligence's ability to motivate learning among students in the United Arab Emirates who have hearing impairments?

**The Results of the Hypothesis Search (H1).** At a significance level of (=0.05), there is a statistically significant correlation between the variable of gender and the impact of artificial intelligence on the learning motivation of deaf students with disabilities in the United Arab Emirates.

The means and standard deviations for the contribution of artificial intelligence to learning motivation among hearing-impaired students in the United Arab Emirates attributed to the gender variable were computed in order to respond to this question. A three-way ANOVA analysis was also performed. This is shown in the following tables.

**Table 7**

*Means and Standard Deviations for the Role of Artificial Intelligence in Motivating Learning Among Students with Hearing Impairments in the United Arab Emirates Attributed to the Variable of Gender.*

| Variable | Level | Arithmetic mean | Standard Deviation |
|---|---|---|---|
| Sex | Male | 2.92 | 0.61 |
| | Female | 4.32 | 0.40 |

From Table (7), it is apparent that there are noticeable differences in the means of the study sample's assessments regarding the role of artificial intelligence in motivating learning among students with hearing impairments in the United Arab Emirates attributed to the variable of gender. To ascertain the statistical significance of these differences, a three-way ANOVA analysis was applied. Table (8) illustrates this.

**Table 9**

*Three-Way ANOVA Analysis for the Role of Artificial Intelligence in Motivating Learning Among Students with Hearing Impairments in the United Arab Emirates Attributed to the Variable of Gender.*

| variable | Sum of Squares | Degrees of Freedom | Mean Square | F | Statistical Significance |
|---|---|---|---|---|---|
| Sex | 0.86 | 1 | 0.86 | 5.28* | 0.01 |
| Error | 18.38 | 29 | 0.633 | | |
| Total | 1667.21 | 30 | | | |

A statistically significant function at a significance level (α=0.05)

Table 9 makes clear the following: The study sample's means regarding the role of artificial intelligence in motivating learning among students with hearing impairments in the United Arab Emirates show statistically significant differences at a significance level (α=0.05) that can be attributed to the variable of gender. Five.28 is the (F) value, which represents a statistical function. Examining the means reveals that the differences were more pronounced for female students, suggesting that artificial intelligence has a greater impact on female students.

## Discussion

The results from the previous section of the study indicate that the majority of the study participants acknowledge that artificial intelligence is being used effectively by students in the UAE. However, there remains a crucial need to integrate students with disabilities into this system. This result is attributed to the fact that artificial intelligence is considered a modern application, and teachers have not received sufficient training in it. This finding aligns with the results of studies conducted by Alqarni and Imran (2021), Bakr (2021), Astal, and Agha (2020). Also his results have confirmed that artificial intelligence has significantly contributed to the learning of students with disabilities. This outcome is attributed to the fact that artificial intelligence applications provide interactive video presentations that engage students and ignite their enthusiasm, thereby increasing their motivation towards learning.

This finding aligns with the results of studies conducted by Mohammed and Khalid (2020), Alqarni (2020), and Michelle (2018). In Addition to, the results indicated the presence of several obstacles that may hinder the integration of students with disabilities in effectively using artificial intelligence for learning. This is attributed to the high costs and the limited attention of the administration in

preparing specialized AI resources for this group. Despite the recent introduction of artificial intelligence technology in the UAE's educational system, this group of students still faces challenges in using these technologies. This finding contradicts the results of studies conducted by Alqarni and Imran (2021), Bakr (2021), and Astal, Astal, and Agha (2020), which suggested that modern technologies are effectively used by students in Tunisia.

This difference arises from the fact that our study focused on students with disabilities, while those studies were conducted on students without disabilities. Finally, the Results indicated differences between male and female students with disabilities in terms of learning motivation among students with hearing impairments in the United Arab Emirates. These differences are attributed to the higher level of commitment exhibited by female students in the classroom compared to male students, which enables them to benefit more from artificial intelligence applications. This finding aligns with the results of studies conducted by Mohammed and Khalid (2020), Alqarni (2020), and Michelle (2018).

## Conclusion & Recommendations

According to the previous discussion it is clear artificial intelligence is of great importance in stimulating the motivation of deaf students in Emirati society, due to the great progress that Emirati society enjoys in technology, as well as the focus of those in authority and sheikhs on the importance of integrating many groups in society, including people of determination. This group has received the attention of the authority in the fields of... Education, health care, and work are fundamental, and based on the previous results, the study presents a set of recommendations to society, researchers, decision-makers, and those interested, with the aim of improving the conditions of this group in Emirati society and the rest of societies in the world. The most prominent recommendations are:

Purchasing specialized equipment for learning for students with disabilities contributes to motivating them towards learning.

Developing a program that helps raise learning motivation among students with disabilities. Updating the curriculum to better meet the needs of students with disabilities.

Appointing lecturers from graduates with disabilities to train the same category of students.

Conduct similar studies on a larger sample and a different category of students with disabilities.

**Limitation**

Our study had some limitations. Due to the nature of this study, it was not possible to explain the causal relationships between the variables of social networking addiction and academic performance of students. In the current study, the data were collected by questionnaire method that could have affected the accuracy of the results. However, the researchers tried to solve this limitation by encouraging the participants to answer the questionnaire during researchers attendens classes.

**Declaration of competing interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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