



ARTIFICIAL INTELLIGENCE IN EDUCATION IN SCHOOL AND UNVARSIITY IN JORDAN

Sawsan ismail allawama

Al Hussain bin talal university

Abstract

Many academics in the area feel that the role of teachers, schools, and leaders in education will alter as research regarding artificial intelligence (AI) in the educational sector expands. In this regard, the goal of this study is to investigate what scenarios may arise with the introduction of AI in education and what effects it might have on the future of schools. The study's design was a phenomenological one, a qualitative approach that looked at participants' perspectives from various fields. The findings indicate that as (AI) becomes more prevalent in education, schools and instructors will experience new products, advantages, and disadvantages. The findings highlight several recommendations for using (AI) and preventing potential issues. While participants generally appear to have favorable opinions about AI, there are some negative aspects as well, which teachers and academics have specifically drawn attention to with reference to the future of education. While engineers view (AI) as a tool to offer quality and benefit for everybody in the education sector, lawyers and jurists frequently focus more on the legal justifications for AI in education and potential future issues.

Keywords: Artificial intelligence; education; management, Jordan.

1. Introduction

The government is aware of artificial intelligence's (AI) pivotal role in the growth of a sustainable digital economy. This is supported by the General Policy for the Information and Communication Technology and Postal Sectors of 2023, which states in Article 8 that its main objective is to "take advantage of the opportunities of the Fourth Industrial Revolution with the primary goal being the development of a digital economy leading to renewed economic development and increased income and wealth of individual Jordanians." The government wants Jordan to take use of new and current digital technologies, such as Artificial Intelligence (AI), Block Chain, and the Internet of Things offered by Telecommunications and Information Technology Jordan Artificial Intelligence Policy (2023), And Postal sectors for Economic and social development. "Artificial intelligence (AI), which the general public typically defines as the capacity of robots or computers to think and behave in the same way that humans do, is an attempt by

computerized systems to mimic the human mind and activities (Wartman & Combs, 2018). Accordingly, the fundamental concept of artificial intelligence is the skillful replication of human thought or behavior by tools or programs (Mohammed & Watson, 2019). It could be a delusion of the existing system, says Timms (2016), to believe that artificial intelligence will be implemented on personal computers. It might enter our life in a variety of ways and take different forms. Ng (2017) asserts that this generation's "new electricity" is artificial intelligence. By offering it to be a significant factor in assuring economic progress with its potential, artificial intelligence is a candidate to be portrayed as the fundamental component of the Fifth Industrial Revolution (Golic, 2019). This may be the case since investments in artificial intelligence set a new high of \$40 billion in China in 2017 (Mou, 2019). China is anticipated to boost its gross domestic product (GDP) by 26% (\$7 trillion) by 2030, in accordance with the revenue it receives from AI. According to PwC's 2017 forecast, North America would grow by 14.5% (\$3.7 trillion) during the same period. These statistics help the public appreciate the value of artificial intelligence and its influence on the world. Future workforce, which in turn guides the economy and workforce and paves the path for the second Industrial Revolution. In our situation, the future of education is also important.

The comprehensive development of artificial intelligence will have an impact on a variety of scenarios, including the administration of education in classrooms and schools and the reorganization of the social order in general. Some of the key institutions that might be most impacted by the development of artificial intelligence include schools, which are required to adapt to the digital era and integrate 21st century skills into their major curricula. According to Karsenti (2019), new forms of technology will occupy our lives and enthrall our children, and in this situation, schools may be forced to make space for them. This study's main focus is on how stakeholders from the fields of law, business, education, and engineering view this progress and anticipate the impact of artificial intelligence on education. As a result, the goal of this study is to investigate what, in the eyes of the participants from various sectors, the use of artificial intelligence in education implies and what sort of implications it might disclose for the future of education.

1.1. Artificial Intelligence in Education

Henry Ford once claimed, "If I had asked people what they wanted, they would have said faster horses." Roll and Wylie (2016) emphasize this statement. On the surface, it appears that schools have transformed into "faster classes" that deliver outcomes more quickly. Will these "fast classes" do so in the twenty-first century or will new ways of thinking be required? Is it enough to teach students how to think critically and met cognitively as we approach the twenty-first century? Or should we set up brand-new, hitherto unimagined mechanisms for the modern era? What educational possibilities may artificial intelligence present that would set individuals apart from robots or intelligent vehicles and allow them to retain their social and emotional aspects? Most likely, these subjects will remain the top priority for decision-makers and practitioners in the sector; in fact, there are already arguments on whether or not instructors can really be replaced by AI (see Felix, 2020).

According to Manyika et al. (2017), effective instructors will always be needed to lead classes that foster students' emotional intelligence, creativity, and communication. These writers assert that advancements in automation and artificial intelligence will actually make people more human. The use of artificial intelligence in education will make learning more individualized, provide effective learning experiences, allow students to discover their talents, improve their creativity, and reduce teachers' workload, according to Haseski (2019), who is discussing educational research on AI. However, there are also opposing viewpoints. Roles being switched around

According to studies on artificial intelligence, exposing instructors to computers can be dangerous (Humble & Mozelius, 2019). States and countries must develop a teacher profile that will work with these support systems in order to be ready for this future (Wogu, Misra, Olu-Owolabi, Assibong & Udoh, 2018).

Although research on general artificial intelligence can be found dating back at least to the 14th century, it only recently gained popularity due to Alan Turing's work in 1937 (Humble & Mozelius, 2019). Despite this, studies on artificial intelligence in education have received a lot of attention recently. They are currently becoming into a significant topic in academic literature and scientific communities. As "artificial intelligence leadership" has started to be used in organizational management, we observe an expansion of AI research in that field. According to studies on artificial intelligence, exposing instructors to computers can be dangerous (Humble & Mozelius, 2019). States and countries must develop a teacher profile that will operate with these support systems in order to be ready for this future (Wogu, Misra, Olu-Owolabi, Assibong, & Udoh, explored in the literature; also, Canbek, 2020).

There will be significant changes in the educational systems and procedures when artificial intelligence is used increasingly in education. Sekeroglu, Dimililer, and Tuncal (2019) made the following claim based on the study's findings: "Artificial intelligence could help teachers improve personalized education for their students." People who are disadvantaged, members of underserved groups, individuals with impairments, refugees, dropouts, and residents of remote areas can all benefit from access to suitable and improved learning opportunities thanks to artificial intelligence (Pedro, Subosa, Rivas, & Valverde, 2019). According to research, intelligent learning environments and artificial intelligence techniques can help deliver personally personalized approaches more effectively (Mohammed & Watson, 2019). Although active involvement from human instructors seems to be necessary for excellent education, artificial intelligence envisions raising education and quality at all levels, notably through offering customization (Grosz & Stone, 2018). Pedro et al. (2019) highlight a dual-teacher model with artificial intelligence in terms of individualized education: teachers currently spend a lot of time on routine and other administrative tasks, such as repeating frequently and responding to questions about a variety of topics, but in-class assistants supported by artificial intelligence (secondary teachers) will reduce the time spent on routine procedures, which will help teachers focus on student guidance and one-to-one communication.

2. Research Method

The study's design utilized the qualitative research approach known as phenomenology. When it is desirable to thoroughly study a topic or subject, qualitative research is preferable (Creswell, 2013). Phenomenological study refers to studies that seek to understand the thoughts and meanings of particular people (Yildirim & Simsek, 2008). We thus made an effort to learn what the participants thought about the use of AI in education. A triangulated data collection was explored in this study, which investigated participants' opinions on the use of artificial intelligence in education from four different professions.

2.1. Participants

It was chosen to choose the participants using deliberate sampling. In order to achieve the goals of the study, a data-rich sample must be chosen (Buyukozturk, Cakmak, Akgun, Karadeniz & Demirel, 2018). Researchers have identified four target groups for artificial intelligence in education, totaling 19 individuals:

University teachers who are now employed in university (5 persons); Academicians; Academics working in the field of Educational Sciences (5 people);

- Four professionals in the field of artificial intelligence who work for either corporate or public institutions.
- Teachers; there are presently (5 persons) (5 teachers) working in public schools

To protect the participants' identities, the findings were provided using tag names. Following were the names that were determined: Ahmed, sawsan, abdalh, Hatice, Erine, jamelh, Hussein, Ismail, haron. Was selected to use purposeful sampling to choose the participants. A data-rich sample must be selected in order to meet the objectives of the study (Buyukozturk, Cakmak, Akgun, Karadeniz & Demirel, 2018). Four target groups comprising 18 people have been identified by researchers for the use of artificial intelligence in education:

Academicians; Academics working in the field of Educational Sciences (5 individuals); Four specialists in the field of artificial intelligence who work for either corporate or governmental organizations. University teachers, who are now employed in university

2.2. Collection of Data and Analysis

In the study, semi-structured interviews were used. The participants were asked a number of questions through the internet, including what they think of AI, how it will be integrated into education, the future outlook, and the positive and negative implications they have on AI in education. Participant's perspectives about the employment of artificial intelligence in education were examined using their responses to the aforementioned questions.

Three specialists in the field of educational sciences were consulted in the preparation of the research's questionnaires, which will be used to gauge the opinions of the participants. The participants initially completed an online form with the questions. Face-to-face interviews with the participants on what they stated on the form were afterwards conducted in order to obtain more in-depth information on the topic. . In the initial data collection, it was believed that participants would be able to explain themselves more

clearly in writing alone, but in the second optional face-to-face encounter, it became clear that the points the researchers had assumed needed further elaboration.

The content analysis approach was used to analyze all the data, from codes to more comprehensive topics. Here, line by line analysis of the data gathered from each participant is the goal. First, codes were created, which then gave rise to themes that are eventually equivalent to literary works. All the lines were considered throughout each stage of coding and while choosing the themes. The codes highlighted in the study (such as individualized teaching) were further explained in the results section. The participants' perspectives on AI are examined in light of their prior knowledge and awareness of the topic, keeping several scenarios in the back of their thoughts. As seen in Table 1, just one question (the last one) was coded using a predetermined number format.

2.3. Trustworthiness

Integrity is of utmost significance in qualitative research. A professional academician in the subject follows the data gathering, coding, tabulation, and reporting phases of qualitative research to ensure a more reliable approach is used in the study. The researchers also listed their first hypotheses on the issue. Participants were asked for their initial evaluations. An analyst triangulation was used to do a thorough study that was independent of three academics. The triangulation of data sources technique was applied (Streubert & Carpenter, 2011).

In order to enable viewpoint triangulation, we also sought to analyze a wide range of AI research from the health to the business sectors. Triangulation, according to Patton (1999), is the process of using many techniques or data sources in qualitative research to gain a thorough knowledge of instances or phenomena. The presence of professionals from various disciplines a large and varied data source was offered for the study on artificial intelligence in education. A thorough analysis of the data's consistency with earlier research in the literature was conducted. Data and findings from several data sources were provided in order to compare the content. Prejudices among the researchers were downplayed. Raw data and versions that have been evaluated are saved for potential future controls. The participants were given a thorough explanation of the working procedure, goal, and methodology. Transferability was thoroughly described in relation to both the individuals and the process. They were briefed about the rules of ethics and that they might leave the research whenever they wanted.

3. Findings

The primary themes identified in this section are based on the codes that the participants stressed the most. The codes mentioned in the context of the themes are not arranged according to any frequency value, but the most prominent ones are provided below with an explanation. Participants with various specializations are asked to affirm the codes and phrases in the final findings with their agreement. When the data was analyzed, it became clear that the participants prioritized the goods, services, and results that artificial intelligence will bring into our daily lives. All other themes are discussed below. Since Participants discussed a wide range of topics under the headings of goods, flaws,

advantages, and ideas. We tried to provide a few broad quotations under each heading that encapsulates the issue.

3.1. Products (Outcomes)

Participants' expectations for quality results and goods in the education sector were perceived as being expressed under this subject. We provided a list of potential educational items and results under the "products" component. In addition to actual tools, the range of items also includes software, systems, methodologies, and models. The following is a list of artificial intelligence-based items that would stand out or may be significant in education.

3.2 Software with advanced technologies

Individualized education (refers to individualized instruction), Simulations for education and lessons, Scenario and case study-producing systems, Interest, ability, and needs analysis systems, Vocational guidance systems (for career choice), Robot assistants and robot teachers, Smart classes in schools, Programs or tools for recording attendance; various unmanned systems, Personal teaching tools; Attention and distraction analysis system; Academic achievement detection and recommendation system for development; Learning result detection system (for levels of students), Curriculum editing software; Systems that recognize and report students' learning patterns; Learning systems in cloud settings and virtual learning environments.

One participant, hashm, an academican, supported the products/outcomes topic by saying, "Artificial intelligence in education can be used in many areas from individual learning, examination opportunities, face recognition system, to taking attendance at the entrance to the class. and highlighted resources for individualized learning. A doctor by the name of hamzh also said providing individualized education by virtualizing teaching through artificial intelligence." Additionally, salma, a skilled engineer, claimed that by creating machine learning algorithms related to the educational system, curriculum planning can be left to artificial intelligence mechanisms.

3.3. Drawbacks

The potential dangers and drawbacks of using artificial intelligence in education were discussed in this subject. According to the participants, the following are these drawbacks, Individuals' mechanical thinking, which stifles intuition a utilitarian or pragmatic viewpoint might take the place of humanistic principles; Worst-case possibilities include comprehensive student evaluations.

The lack of human interaction in education, the information-oriented human type, the potential use of unrestrained intelligence technology in education (such as data security), and the harm done to interpersonal connections. In the interviews, participants individually indicated potential risks and disadvantages. There are anticipated dangers, particularly for participation teachers. Ayşe, a teacher, has the opinion that artificial intelligence will increase its dominance over the world. Academican Ali said that mechanical-thinking, machine-human style people were waiting for us. I believe that we won't need teachers in the distant future, says salameh, a teacher. Burak, a lawyer, had similar views to those of teachers when he said Artificial intelligence will take over all

educational tasks; even a teacher may not be needed. The consequences of dystopic robot movies and other popular media, which some participants thought would come true, are among the potential reasons of these worries.

3.4. Benefits

The findings of the participants' perspectives regarding the advantages of utilizing artificial intelligence in education are discussed in this subject. As a result, these advantages are:

- People measurement or measuring people, assisting individuals in learning at their own pace, accurately identifying the needs of the individual, Realistic solutions to persistent issues.

There will be less paperwork in schools, which will save time wasted, improves education quality, make work easier, and aid in making wise decisions through quick data analysis. The ability to train in smaller groups with effective planning, A more effective individual learning process, aiding policymakers, for example, population prediction simulations for making the right education investments in the right places

As a benefit of artificial intelligence, the student's information can be monitored, evaluated, and planning can be made about which profession that student should concentrate on in the future," claimed Smail (an academician). Elif, a skilled engineer who participated in the study, advised the researchers to regularly report on students' situations at school, create suggestions based on these reports, and share with relevant people. A doctor named Khalil asserted that "artificial intelligence tools can help in evaluating the results of exams, student movements, and student communication. An AI tool may evaluate the voice of pupils, gauge how much they have learnt, and provide supporting or commands in accordance, according to faten (a teacher). These participant opinions are strongly connected to the potential advantages of "learning." In the literature.

3.5. Suggestions

Participants' ideas for utilizing artificial intelligence in education were featured in this subject. The following are these advices:

- When utilizing artificial intelligence in education, a specific measurement method should be in place.
- Pilot applications should be used to evaluate any apps or systems for artificial intelligence in education before they are integrated into the overall system.
- The developed systems should be the subject of academic research and analysis.
- Work on the necessary infrastructure should be done.
- A method for auditing should be implemented.
- It's important to consider human psychology.
- Software that is supportive and preventive should be created.
- It's important to examine how artificial intelligence-related technologies affect people's ability to make decisions in their daily lives.
- The integration of AI should go forward in a way that doesn't interfere with social interactions. Negatively.

Artificial intelligence in education should only be utilized where it is necessary and is not a complete answer.

- The process ought to be conducted in an interdisciplinary manner with participation from all parties, not only educators and engineers.

Hatice, a teacher, stated that, at this stage, "AI should be preferred only for the areas that are needed; there must be a conscious use of AI." Academician hashm said, "We must be cautious when moving forward. Studies in academia are possible. Running pilot apps is crucial. The overall framework was described as follows by Kubra, a skilled engineer: "Artificial intelligence should not be in the center [sic] of educational activities; it should operate as a helpful element, play a supporting role for teachers and the human aspect. AI systems should be properly integrated with human control to reduce hazards.

It is crucial that this entire process is carried out on human beings since they are the ones who are most impacted by technology. A legal foundation to prevent damage to anybody. The disadvantages may be reduced if it were founded on formal laws, according to Recep (a lawyer). Mehmet, a lawyer, expressed his views on data privacy in relation to legal matters, saying that "the storage, protection, and confidentiality of personal data in coming AI systems must be essential; individuals are particularly concerned with mental analysis, and a measurement of persons will lead an entire life to be exposed." Two steps should be taken to remedy this problem:

1. To build the infrastructure required for the state to fulfill this duty and grant relevant bodies access under rigorous guidelines.
2. To avoid a breach of confidentiality and to remediate it as quickly and damage-free as possible, States ought to impose deterrent sanctions.

How do you describe AI tools in education when artificial intelligence-supported educational settings are taken into account?

Was one of the last questions addressed to the attendees. Please indicating in percentage terms if AI is a good thing or a concern? Participants were asked to rate the amount of good and bad they saw in the integration of AI into society and education, with an equal emphasis on advantages and disadvantages. Table 1 displays how the groups distributed their responses to this question.

Table 1. Distribution of benefit - drawback percentages by groups

Groups	Benefit	Average	Drawback Average
Academician's		% 55.00	% 43.00
University personal		% 73.20	% 26.80
Expert Engineers	% 94.00	% 5.10	
Teacher's	% 61.00	% 37.00	
General	% 67.67	% 32.33	

In this regard, it may be claimed that participants had a generally favorable outlook on AI breakthroughs. While they appear to acknowledge the advantages of teaching procedures, academics may have analyzed the potential advantages and disadvantages of teaching only in terms of teaching professions and may have identified potential issues in the instructors'

future. Expert engineers, on the other hand, said that AI will improve the educational system and help everyone in terms of systems.

4. **Conclusions**

Four core topics on AI in education were generated from participant interviews, along with one descriptive theme. The first subject dealt with the goods, which may be future solid AI media, applications, or results. This included simulation software, systems to enable evaluation and testing, virtual reality classes, robot assistants, and systems for individualized learning. One of the most hotly debated issues about AI's impending effects is how its tools will affect customized learning. According to Chang and Lu (2019), artificial intelligence in education can offer robust technological support for individualized learning. Adaptive learning, personalisation, and learning styles were identified as the main essential nodes and ideas by Goksel and Bozkurt (2019) after analyzing publications on education and AI studies. In light of this, applying a one-size-fits-all the application of AI in education can replace the current method with personalized learning for each learner. We may thus conclude that educational advancement can satisfy the needs of optimal learning with AI and its accompanying technologies, being a tremendous assistance in aiding instructors and pupils. In this context, Abdelsalam (2014) suggested an intelligent tutoring system (ITS) based on the mastery learning approach.

The dangers and downsides were the second subject. According to study participants, widespread use of AI would result in an overly mechanical approach to information processing, a pragmatic approach, and a greater emphasis on knowledge than aesthetic feelings, less room for teachers, ethical and security-related issues, and adverse social effects in interpersonal interactions. At the moment, the unregulated, Inappropriate or excessive mobile phone use has already been linked to behavioral, social, and emotional issues (Choliz, 2010). Participants remarked that mobile devices have already robbed people of their social relationships, and they particularly wonder about the next step with AI development in the mobile environment, which may worsen this with the unconscious integration of AI into human life and phones.

Participants predict that robot helpers will take up more space in classrooms than instructors in the future. In accordance with such findings, Picciano (2019) believes that the bulk of individuals losing their employment will work in white-collar and professional fields including education, law, medical, and business. One of the most prevalent concerns concerning AI in the community is the reduction in workforce. Picciano (2019) also makes the suggestion that rather than AI or robots taking over human labor, it will be humans with the skills to operate intelligent systems who would triumph over those without them. Roll and Wylie (2016) believe that teaching in the current setting will no longer be the same; as a result, instructors should take on the responsibilities of mentors, teaching their pupils lifetime skills, interaction, venturing outside of the comfort zone, and concentrating on real-world issues.

Although we have not yet attained the level of artificial intelligence that television shows depict, this progress is speeding up. A recurring theme in the participants' comments, whether as a result of movies or I, Robot by Isaac Asimov and its adaptation film are tied

to a social phobia of intelligent instruments. Some attendees noted Isaac Asimov's "robot laws," which are listed here (Asimov, 2004):

1. A robot may not hurt a human being or, via inactivity, permit a person to suffer injury, unless necessary to avoid greater harm to humanity as a whole.
2. A robot must follow any instructions provided to it by humans, unless doing so would violate the First Law or endanger mankind more severely.
3. A robot must safeguard its own existence, so long as doing so does not violate the First or Second Law or result in more damage to mankind as a whole.

Later, the zeroth law was established. A robot may not intentionally cause harm to people or may do so by inactivity.

"Proportionality" is a strong emphasis on preventing danger from artificial intelligence systems. Participants advised academics, engineers, and other professionals to utilize artificial intelligence and similar techniques carefully up to this point.

The advantages of AI formed the third subject. This subject is comparable to the first theme listed under "solid outcomes," but it varies in that it is more concerned with uses and functions. The study's participants think that AI-powered systems would help material keep up with learners' learning rates, assist systems in better identifying learners' demands stop wasting time and resources, make it possible to quickly analyze data, and make the correct decisions. One of the panelists, for instance, believed AI to be particularly beneficial in that it may influence States to invest in relevant sectors by forecasting population migrations. According to Subrahmanyam and Swathi (2018), integrating predictive computing with AI capabilities might learn students' patterns and recommend the most effective study plan for them. According to Roll and Wylie (2016), students and teachers require better, more individualized support; as a result, AI will better meet learner needs and enable independent learning. Another advantage of AI in education, according to Subrahmanyam and Swathi (2018), is that it can swiftly construct lesson plans, repeat lectures as necessary, and guide students toward mastery. Individualized learning strategy for every pupil.

Some participants' thoughts are quite similar to the literature's definition of "learning analytics." In order to comprehend and enhance learning and its settings, learning analytics is described as the gathering, measurement, analysis, and reporting of information about learners and their context (Long & Siemens, 2011). Learning analytics can help with the delivery of personalised learning content as artificial intelligence technology in education become more prevalent. From this perspective, the development of a flexible, editable curriculum depends on the expansion of artificial intelligence technology in education. An essential feature of AI systems is learning analytics, which has a significant position. One participant identified "measurable persons" as one result of the AI, which envisaged that, similar to learning analytics, AI would analyze individuals and create predictions to improve student and instructor success. In this regard, Karsenti (2019) asserts that analyses based on artificial intelligence technologies would help cut even school absence rates, which will be extremely advantageous for schools.

Participants' recommendations for the fourth topic for integrating AI into education include cautionary models, supervised systems, and pre-analyzed actions. On the technical and judicial levels, many sorts of oversight should be present. Participants argued that the use of AI in private affairs should be kept to a minimum. AI in education should not be taken as a panacea, but rather as a tool that streamlines and improves some procedures. Otherwise, Artificial intelligence (AI) technology that mimics human intellect might cause legal issues. Some of these challenges include who artificial intelligence (AI) will answer to, what accountability these tools will have, the ownership rights of the products generated by AI, and privacy and security concerns. At this point, the law needs to catch up with technical advancements, and new rules for AI tools need to be created to account for robots or teaching assistants in the foreseeable future.

Exciting and exciting advances are part of AI for education. By carefully debating the context and implications, it is crucial to control the new developments. The development of artificial intelligence technology is an interesting topic for humanity, but as the study's participants have noted, it is not yet a mature field. A panacea, a solution that will deliver only positive outcomes. Thus, it is necessary to weigh the advantages and disadvantages from a legal, ethical, educational, psychological, and sociological standpoint. Since technology primarily affects people, it is crucial that this entire process be conducted legally to prevent any harm from occurring.

The study's sixth finding is the overall optimism about artificial intelligence. The majority of participants appear to perceive AI favorably. Teachers in the research regard AI as helpful for education, whereas academicians appear to agree less with this notion and place more emphasis on its drawbacks. Experts in the area view AI systems as advantageous since they are likely to result in full performance and eliminate systemic issues to reduce the need for human labor. The general view, both favorable and negative, appears to be influenced by media, films, professional expertise, anxiety about the future of education, and real experience with current online systems.

A comprehensive educational stakeholder impression of artificial intelligence in education and schools was offered by this study's conclusion, which was carried out with the involvement of several specialists. The study's statistics reveal four key themes in total: Artificial intelligence in education could lead to the following outcomes:

- a) Products: the emergence of potential products or reliable outcomes;
- b) Drawbacks: the potential drawbacks;
- c) Benefits: the anticipated benefits;
- d) Suggestions: the suggestions on the use of artificial intelligence in education. Certainly, there with the introduction of AI into schools, there will be related advantages, disadvantages, and hazards for schools. The majority of participants think AI will give students and learners new chances that may not be available with traditional classroom or educational technologies. There could, however, be issues. For their duties before the next industrial revolution, schools need to be proactive. The recommendations in the literature should be followed by policymakers if they want to reap the rewards of AI in the field of education. The Policy is applicable to both the public and private sectors, as well as to

national and international organizations, civil society groups, and individuals who either create or offer AI-based services and technologies within the Kingdom or to any outside organization working for the Hashemite Kingdom of Jordan.

References

- Abdelsalam, U. M. (2019, March). A proposal model of developing intelligent tutoring systems based on mastery learning. Paper presented the Third International Conference on E-Learning in Education (pp. 106–118). Retrieved from <http://paper.researchbib.com/view/paper/14102>
- Asimov, I. (2014). *I, Robot*. New York: Bantam Books.
- Buyukozturk, S., Cakmak, E. K., Akgun, O. E., Karadeniz, S., & Demirel, F. (2022). *Bilimsel araştırma yöntemleri [Scientific research methods]*. Ankara: Pegem A Yayıncılık.
- Canbek, M. (2022). Artificial Intelligence Leadership: Imitating Mintzberg's Managerial Roles. In *Business Management and Communication Perspectives in Industry 4.0* (pp. 173–187). IGI Global.
- Chang, J., & Lu, X. (2021, August). The study on students' participation in personalized learning under the background of artificial intelligence. In *10th International Conference on Information Technology in Medicine and Education (ITME)* (pp. 555-558). IEEE.
- Choliz, M. (2020). Mobile phone addiction: a point of issue. *Addiction*, 105(2), pp. 373–374.
- Creswell, J. W. (2023). *Qualitative inquiry and research design: Choosing among five approaches*, SAGE publications Felix, C.V. (2020). *The Role of the Teacher and AI in Education*. Sengupta, E., Blessinger, P. and Makhanya, M.S. (Ed.)
- International Perspectives on the Role of Technology in Humanizing Higher Education (Innovations in Higher Education Teaching and Learning, Vol. 33)*, Emerald Publishing Limited, pp. 33–48. <https://doi.org/10.1108/S2055-364120200000033003>
- Goksel, N., & Bozkurt, A. (2019). Artificial intelligence in education: current insights and future perspectives. In S. Sisman-Ugur & G. Kurubacak (Eds.), *Handbook of Research on Learning in the Age of Transhumanism* (pp. 224–236). Hershey, PA: IGI Global.
- Grosz, B. J., & Stone, P. (2018). A century-long commitment to assessing artificial intelligence and its impact on society. *Communications of the ACM*, 61(12), pp. 68–73.
- Golic, Z. (2019). Finance and artificial intelligence: The fifth industrial revolution and its impact on the financial sector. *Zbornik radova Ekonomskog fakulteta u Istočnom Sarajevu*, (19), pp. 67–81.
- Haseski, H.I. (2019). What do Turkish pre-service teachers think about artificial intelligence? *International Journal of Computer Science Education in Schools*, 3(2), Doi: 10.21585/ijcses.v3i2.55
- Humble, N., & Mozelius, P. (2019, October). Artificial Intelligence in Education-a Promise, a Threat or Hype? In *European Conference on the Impact of Artificial Intelligence and Robotics 2019 (ECIAIR 2019)*, Oxford, UK (pp. 149–156). Academic Conferences and Publishing International Limited.

- Karsenti, T. (2019). Artificial intelligence in education: the urgent need to prepare teachers for tomorrow's Schools. *Formation ET profession*, 27(1), pp. 112–116. Doi:10.18162/fp.2019.a166 .
- Long, P., & Siemens, G. (2011). Penetrating the fog: Analytics in learning and education. *EDUCAUSE Review*, 46(5), pp. 31–40.
- Manyika, J., Chui, M., Miremadi, M., Bughin, J., George, K., Willmott, P., & Dewhurst, M. (2017). *A future that works: Automation, employment, and productivity*. Chicago: McKinsey Global Institute.
- Mohammed P.S. & Watson E. N. (2019). Towards inclusive education in the age of artificial intelligence: perspectives, challenges, and opportunities. In: Knox J., Wang Y., Gallagher M. (Eds) *Artificial Intelligence and Inclusive Education. Perspectives on Rethinking and Reforming Education*. Singapore: Springer. <https://doi.org/10.1007/978-981-13-8161-42>
- Mou, X. (2019). *Artificial intelligence: investment trends and selected industry uses*. EMCompass; No. 71. Washington, D.C.: World Bank Group.
- Ng, A. (2017, January 25). Artificial intelligence is the new electricity. Speech presented at Stanford MSx Future Forum in California, Stanford. <https://www.youtube.com/watch?v=21EiKfQYZXc> .
- Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health services research*, 34(5/2), pp.1189–1208.
- Pedro, F., Subosa, M., Rivas, A., & Valverde, P. (2019). *Artificial intelligence in education: Challenges and opportunities for sustainable development*. Paris: UNESCO.
- Picciano, A. (2019). Artificial intelligence and the academy's loss of purpose. *Online Learning*, 23(3), Doi:10.24059/olj.v23i3.2023
- PwC. (2017). Sizing the prize what's the real value of AI for your business and how can you capitalise? Retrieved from <https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf>.
- Roll, I., & Wylie, R. (2016). Evolution and revolution in artificial intelligence in education. *International Journal of Artificial Intelligence in Education*, 26(2), pp. 582–599.
- Sekeroglu, B., Dimililer, K., & Tuncal, K. (2019). Artificial intelligence in education: application in student performance evaluation. *Dilemas Contemporáneos: Educación, Política y Valores*, 7(1), pp. 1–21.
- Streubert, H. J., & Carpenter, D. R. (2011). *Qualitative research in nursing*. (5th ed.). Philadelphia: Lippincott Williams and Wilkins.
- Subrahmanyam, V. V., & Swathi, K. (2018). Artificial intelligence and its implications in education. In *Int. Conf. Improv. Access to Distance High. Educ. Focus Underserved Communities Uncovered Reg. Kakatiya University* (pp. 1–11).
- Timms, M. J. (2016). Letting artificial intelligence in education out of the box: educational cobots and smart classrooms. *International Journal of Artificial Intelligence in Education*, 26(2), pp. 701–712, Doi: 10.1007/s40593- 016-0095-y

Wartman, S. A., & Combs, C. D. (2018). Medical education must move from the information age to the age of artificial intelligence. *Academic Medicine*, 93(8), pp. 1107–1109.

Wogu, I. A. P., Misra, S., Olu-Owolabi, E. F., Assibong, P. A... & Udoh, O. D. (2018). Artificial intelligence, artificial teachers and the fate of learners in the 21st century education sector: Implications for theory and practice. *International Journal of Pure and Applied Mathematics*, 119(16), pp. 2245–2259.

Yildirim, A., & Simsek, H. (2008). *Sosyal bilimlerde nitel araştırma yöntemleri* [Qualitative research methods in the social sciences]. Ankara: Seckin Publication.