

THE ETHICAL RISKS OF USING ARTIFICIAL INTELLIGENCE BY CHILDREN FROM THE PARENTS' PERSPECTIVE

Ali M Alelaimat¹

¹Department of Child Education, Queen Rania Faculty for Childhood, The Hashemite University, P.O. box 330127, Zarqa 13133, Jordan.

Aliolaimat@hu.edu.jo¹

Abstract— The researcher aimed to investigate the ethical risks of using artificial intelligence by children from the parents' perspective in Jordan. He adopted a quantitative approach and targeted 11 variables in order to identify the parents' perspective. He developed a five point Likert survey. (100) parents were chosen purposively from pediatric clinics located in Amman, Jordan. They were surveyed. SPSS software was employed to analyze data. Based on the results, there are ethical risks associated with using artificial intelligence technologies by children. Such risks negatively affect children from the parents' perspective in Jordan. In the light of the results, the researcher recommends conducting studies about the negative impacts of using AI applications on adolescents in Jordan.

Keywords—Ethics, ethical risks, Artificial Intelligence, Children.

Introduction

Artificial intelligence (AI) is a branch of computer science. It involves the use of intelligent systems that are capable of performing tasks that simulate human intelligence. Such tasks include tasks that involve visual perception, speech recognition, translation and decision-making (Berghea et al, 2024).

Although AI technologies offer many potentials, they expose people to ethical risks. For instance, their users may get attacked by cyber-attacks that may lead to disturbing business operations, blackmailing people or threatening people's lives. In addition, they may contribute to promoting negative ideologies among people. That requires promoting knowledge about the model use of AI technologies. It requires setting a code of ethics regulating the use of AI technologies. The latter code should identify the unethical uses for AI technologies. In addition, more awareness must be promoted in society about the good and bad use of AI technologies. More awareness must be promoted in society about the ethics of using AI technologies (Waseela, 2023).

AI technologies have negative impacts on children in social, cultural, and ethical areas. For instance, they may lead to infringing their privacy, and security. They may affect their wellbeing. That makes decision makers think about the way of protecting the rights and dignity of children when using AI technologies. Thus, much effort has been exerted on the national and international levels to protect children in the digital environment and ensure that children's best interests are met. It should be noted that much effort has been exerted to protect the children's right to get protection from the digital risks. Activists have been claiming for complying with stricter guidelines regulating the use of AI technologies by children (Yakoub, 2024)

There are many ethical concerns associated with using AI technologies. Such concerns include: accessing biased or incomplete data. That may lead to promoting negative ideologies in society (Mittelstadt et al, 2016).

The ethical challenges and risks posed by AI technologies are overlooked by the ones marketing such technologies. Such risks include: having the AI technologies promoting the negative values adopted by their owners (Akgun& Greenhow, 2022). Whenever developers of AI technologies set the algorithms, they take into consideration the values they want to

promote. In this regard, it should be noted that the contents in AI technologies involve bias unintentionally. That's because the beliefs and cultures of the developers shall definitely affect the contents. Thus, racial and gender bias exist on various AI-based platforms (Stahl & Wright, 2018). Due to having many ethical risks associated with using AI by children, the researcher believes that's necessary to conduct more studies in this regard.

Objectives of the Study:

This study aimed to investigate the ethical risks of using artificial intelligence by children from the parents' perspective in Jordan.

The Significance of the Study

This study is significant because it contributes to promoting awareness among parents about the negative impacts of using AI technologies by children. It provides researchers with a beneficial reference and a reliable instrument

Literature Review

Badawy (2025) explored the ethical implications of using children's photographs in AI applications and program. He adopted an analytical approach. He conducted a meta-analysis. He found that such implications include: risks related to data security and misuse. He found that such implications include: viewing a content that involves bias and discrimination. He found that such implications include: having negative psychological impacts on children.

Al-Aroud (2024) aimed to explore the negative impacts of artificial intelligence on the moral system of people during childhood. He conducted a meta-analysis. He found that such impacts include: accessing contents that involve child sexual abuse and going through online harassment. They also include: falling a victim for fraud, deception and criminal impersonation. They include: infringing the privacy of children's data and having children preferring isolation over face-to-face interaction in real life. The latter researcher offered several recommendations for avoiding such negative impacts. Such recommendations include: enforcing stricter control on children by their parents while using AI technologies. They include: promoting knowledge about the ethical risks associated with using AI technologies.

Abed Ar-Razeq (2024) aimed to shed a light on several ethical standards that regulate the use of AI technologies and ensure the protection of human right. He proposed a vision for the ethics of using AI. He identified the significance of having ethical standards regulating the use of AI. Such standards include: justice, legal accountability, transparency, sustainable continuity, environmental friendliness, and comprehensive development

Waseela (2023) aimed to shed a light on the meaning of AI and identify the areas of its use. He aimed to identify how ethical it is to use AI. He aimed to identify whether the use of AI complies with agreed upon standards. He found that AI serves as a manifestation for science fiction that humans have exerted much effort to make it real. He added that humans created robots that can do tasks that can be done by highly qualified humans. Such tasks may be risky and complicated.

Yeşilkaya (2023) added that it's significant to realize that AI is capable of redefining concepts and conduct comparisons. He added that there is a need to comply with ethical principles when designing an AI technology. He added that policy developers and decision makers must take decisions and develop policies that contribute to promoting knowledge about the values and ethics regulating the use of AI. That shall contribute to reducing the risks associated with using AI. It shall contribute to addressing the ethical problems associated with using AI.

Methodology:

The researcher adopted a descriptive analytical and quantitative approaches

Population & Sample:

The population of the study consists of all parents (fathers and mothers) in Jordan. The sample consists of (100) parents (35 fathers and 65 mothers) who are older than 20 years. Those parents were chosen purposively from pediatric clinics in Amman, Jordan

Instrument:

The researcher developed a questionnaire that targets (11) variables which are listed below. The five point Likert scale was used. It consists from the following rating categories: (Strongly agree, agree, neutral, disagree, and strongly disagree). These rating categories stand for the following scores respectively: (five scores, four scores, three scores and one score). The following statistical criteria were adopted to classify means into levels: (2.33 – 1.00): Low level / (2.34 – 3.67): Moderate level / 3.68 – 5.00: High level.

Validity and Reliability of the Instrument: The questionnaire was assessed by three experts who added that the instrument is well-written and capable of meeting the study’s goals. The reliability of the instrument was measured through identifying the Cronbach's alpha coefficient value. The overall Cronbach's alpha value is 0.86.

Analysis of data: The researcher used SPSS program.

Findings

Table No. (1): Means and standard deviations for the ethical risks of using artificial intelligence

No	Statements	Rank	M	S.D	Degree
1	Breach to data privacy	7	3.43	0.20	Moderate
2	Negative impact on social and emotional development	1	4.13	0.64	High
3	Impact on mental health	3	4.08	0.62	High
4	Bias in algorithms	6	3.70	0.42	High
5	Impact on creativity and critical thinking	10	3.39	0.30	Moderate
6	Exposure to inappropriate content	9	3.40	0.28	Moderate
7	Addiction to technology	4	4.04	0.63	High
8	Impact on autonomy and decision-making ability	2	4.12	0.61	High
9	Impact on cultural and ethical values	5	3.73	0.50	High
10	Inequality of access	8	3.41	0.32	Moderate
11	Responsibility and accountability	10	3.39	0.31	Moderate

Based on the table above, the respondents have concerns about the ethical risks of using AI by their children. Such concerns includes the ones related to: the social and emotional development, autonomy and decision-making ability, and mental health

Table No. (2): Breach for data privacy

No	Statements	Rank	M	S.D	Degree
1	I am afraid of having the data of my child infringed without being aware of that, especially when my child uses electronic games or educational applications	5	3.27	0.45	Moderate
2	I don't know the way in which others may use my child's data. I don't know whether such data can be sold for meeting financial goals	3	3.93	0.26	High

3	I am afraid of having the system used by my child infringed. That shall expose my child's personal information to risks	2	3.83	0.51	High
4	I wish if there are more clear and comprehensible privacy policies for children's parents	1	4.00	0.00	High
5	I feel helpless sometimes, because I don't know how to protect my child's data effectively	7	2.97	0.52	Moderate
6	I noticed that some applications require more personal information without having a clear reason for that.	8	2.96	0.42	Moderate
7	I am afraid of having my child's data used for creating online profiles that can negatively affect him/her in the future	6	2.99	0.76	Moderate
8	I wish if there are strict laws that prevent companies from exploiting children's data	4	3.47	0.56	Moderate
	Overall		3.43	0.20	Moderate

Based on the above table, the parents' attitudes towards (the breach to data privacy) are positive. That's because the overall mean is 3.43. The mean of item (4) is ranked first. It is 4.40. The latter item states the following: (I wish if there are more clear and comprehensible privacy policies for children's parents). The mean of item (6) is ranked last. It is 2.96. The latter item states the following: (I noticed that some applications require more personal information without having a clear reason for that). One can say that parents have concerns about the disadvantages of using AI technologies. Such disadvantages include: the infringement of privacy and unauthorized access to the family's data. Such data may be considered confidential and sensitive. Children don't realize the implications of disclosing data without the parents' authorization.

Table No. (3): Negative Impact on Social and Emotional Development

No	Statements	Rank	M	S.D	Degree
1	I noticed that my child became less interactive when dealing with his/her peers and spends most of his/her time playing on the tablet.	6	3.91	0.83	High
2	I am afraid that reliance on technology will affect my child's ability to make real friends	4	4.05	0.88	High
3	I noticed that my child prefers playing with video games to engaging in social activities, such as: playing outside with friends.	7	3.88	1.18	High
4	I am afraid that my child may lose his/her basic communication skills due to spending too much time in using technology.	1	4.35	0.70	High
5	I wish if there are apps that encourage children to interact socially with others	3	4.22	0.92	High
6	I noticed that my child has become less empathetic towards others due to spending much time in the virtual world	5	3.97	0.92	High
7	I am afraid that using technology will affect my child's ability to understand and express his/her emotions.	1	4.35	0.81	High
8	I noticed that my child is having difficulty in creating	2	4.28	0.78	High

	deep relationships due to his/her reliance on technology				
	Overall		4.13	0.64	High

Based on table (5), the parents' attitudes towards (the negative impact on social and emotional development) are positive. That's because the overall mean is 4.13. It's because all the means in the table are high. The results indicate that parents are afraid of changing the use of AI. That's because this use may affect the psychological and emotional abilities of children. It's because this use may lead to making children isolated from society and incapable of interacting with the surrounding environment. As a result of the negative effects of artificial intelligence.

Table No. (4): Impact on Mental Health

No	Statements	Rank	M	S.D	Degree
1	I noticed that my child has becomes more nervous after spending much time using smart applications	3	4.28	0.85	High
2	I am afraid of having my child accessing a content that is inappropriate content leading him/her to experience anxiety or fear.	4	4.19	0.87	High
3	I noticed that my child has become more isolated and having less desire to participate in family activities.	1	4.33	0.92	High
4	I am afraid of having the addiction to video game negatively affecting my child's mental wellbeing	2	4.29	0.77	High
5	I wish if there are tools that can help me in monitoring the content that my child accesses	8	3.81	0.90	High
6	I noticed that my child experience mood swings after using the apps for a long period of time.	6	3.87	0.97	High
7	I am afraid of having the online violent content negatively affecting my child's behavior and his/her way of interacting with others.	5	4.03	0.87	High
8	I noticed that my child has become more stressed when he/she can't use technology	7	3.86	0.97	High
	Overall		4.08	0.62	High

Based on the table above, the parents' attitudes towards (the impact on mental health) are positive. That's because the overall mean is 4.08. All the means in the table are high. One can say that the excessive use for technology shall negatively affect the children's physical and mental wellbeing. Such use shall negatively affect the children's way of thinking.

Table No. (5): Bias in Algorithms

No	Statements	Rank	M	S.D	Degree
1	I am afraid of having contents involving racial or gender biases in the applications used by my child. Such at could affect his or her values. Such contents may negatively affect my child's values.	1	4.27	0.90	High
2	I noticed that some applications display contents that aren't in agreement with our culture and values	3	3.78	1.24	High
3	I am afraid that my child may be negatively affected by the contents involving bias in the intelligent systems.	6	3.38	1.44	Moderate
4	I wish if there is a careful review for the algorithms to ensure they are fair and comprehensive.	4	3.64	1.45	Moderate

5	I noticed that some apps reinforce stereotypes that may affect my child's perceptions for the world.	5	3.61	1.30	Moderate
6	I noticed that some apps favor a certain category of children over others.	7	3.26	0.44	Moderate
7	I'm afraid of having the bias in the algorithms negatively affecting my child's self-confidence.	2	3.87	0.34	High
8	I wish if there were more transparency in the way in which the algorithms operate	1	4.27	0.90	High
	Overall		3.70	0.42	High

Based on the table above, the parents' attitudes towards (the bias in algorithms) are positive. That's because the overall mean is 3.70. The means of item (1) and item (8) are ranked first. They are 4.27, and 4.27 respectively. They are deemed high. Item (1) states the following: (I am afraid of having contents involving racial or gender biases in the applications used by my child. Such at could affect his or her values. Such contents may negatively affect my child's values). Item (8) states the following: (I wish if there were more transparency in the way in which the algorithms operate). The mean of item (6) is ranked last. It is 3.26 which is moderate. The latter item states the following: (I noticed that some apps favor a certain category of children over others.)

Such results indicate that technologies have negative impacts on the children using them. That applies especially to the electronic applications. For instance, there are many applications that promote negative ideologies and ideas. Such negative ideas include:homosexual ideas. Such negative ideologies include:racism, classism and etc..

Table No. (6): Impact on Creativity and Critical Thinking

No	Statements	Rank	M	S.D	Degree
1	I am afraid of having my child becoming completely dependent on technology instead of thinking independently.	4	3.77	0.55	High
2	I noticed that my child has become less interested in engaging in creative activities, such as: drawing or writing.	2	3.94	0.24	High
3	I am afraid that technology might limit my child's creativity and ability to solve problems.	7	2.97	0.52	High
4	I noticed that my child prefers ready-made solutions that are provided by applications rather than using his/her creative thinking capabilities	8	2.96	0.42	High
5	I wish if there were apps that encourage people to use their creativity and critical thinking capabilities instead of relying on offering ready-made solutions.	6	3.05	0.72	Moderate
6	I have noticed that my child became less curious and having less interests in exploring things due to his/her reliance on technology.	5	3.41	0.55	Moderate
7	I am afraid of having technology negatively affecting my child's ability to innovate.	3	3.92	0.84	High
8	I noticed that my child rely on apps to find solutions instead of using his/her critical thinking capabilities	1	4.06	0.87	High
	Overall		3.39	0.30	Moderate

Based on the table above, the parents' attitudes towards (the impact on creativity and critical thinking) are moderate. That's because the overall mean is 3.39. The mean of item (8) is ranked first. It is 4.06 which is high. The latter item states the following (I noticed that my child rely on apps to find solutions instead of using his/her critical thinking capabilities). The mean of item (4) is ranked last. It is 2.96 which high. The latter item states the following (I noticed that my child prefers ready-made solutions that are provided by applications rather than using his/her creative thinking capabilities). Those results indicate that having children relying much on AI shall negatively affect their thinking abilities and sense of creativity.

Table No. (7): Exposure to Inappropriate Content

No	Statements	Rank	M	S.D	Degree
1	I am afraid of having my child exposed to violent or inappropriate content when using smart applications	8	2.77	0.60	Moderate
2	I've noticed that some apps don't filter content effectively. That may explore my child to inappropriate contents	7	2.82	0.73	Moderate
3	I am afraid of having my child negatively affected by the content he/she is exposed to when using technology.	2	3.81	0.42	High
4	I noticed that some apps presents ads that are not appropriate for children.	3	3.75	0.58	High
5	I wish if there were stricter control over the contents that target children.	1	3.99	0.17	High
6	I noticed that some apps allow children's access to undesired contents	5	3.11	0.58	Moderate
7	I am afraid of having my child will exposed to contents that will negatively affect his/her moral values.	6	3.01	0.61	Moderate
8	I found that some apps do not provide enough options to control which contents to be displayed.	4	3.21	0.88	Moderate
	Overall		3.40	0.28	Moderate

Based on the table above, the parents' attitudes towards (the exposure to an inappropriate content) are moderate. That's because the overall mean is 3.40. The mean of item (5) is ranked first. It is 3.99 which is high. The latter item states the following: (I wish if there were stricter control over the contents that target children). The mean of item (1) is ranked last. It is 2.77 which is moderate. The latter item states the following: (I am afraid of having my child exposed to violent or inappropriate content when using smart applications). Based on the results, the sampled parents are afraid that they aren't capable of monitoring their children while using smart apps and AI-based programs. That is because there isn't a clear mechanism for filtering the displayed contents to display contents that fit with the children's age

Table No. (8): Addiction to technology

No	Statements	Rank	M	S.D	Degree
1	I am afraid of having my child becoming addicted to video games. That will negatively affect his/her health and academic achievement	5	3.85	0.64	High
2	I noticed that my child spends long hours on the tablet without wanting to stop to take a	7	3.73	0.81	High

	rest				
3	I'm concerned that addiction to technology might negatively affect my child's sleep and concentration level.	6	3.83	0.89	High
4	I noticed that my child has become less interested in outdoor activities due to his/her attachment to electronic devices.	8	3.72	1.11	High
5	I wish if there are tools that can help me in controlling my child's screen time.	2	4.26	0.77	High
6	I've noticed that my child has difficulty concentrating when he/she is not using technology.	3	4.17	0.93	High
7	I am afraid that addiction to technology will negatively affect my child's social relationships.	4	3.95	0.97	High
8	I noticed that my child has become more irritable when screen time is reduced for him/her	1	4.37	0.77	High
	Overall		4.04	0.63	High

Based on the table above, the parents' attitudes towards (the addiction to technology) are positive. That's because the overall mean is 4.04. The mean of item (8) is ranked first. It is 4.37 which is high. The latter item states the following: (I noticed that my child has become more irritable when screen time is reduced for him/her). It can be clear that parents are afraid of having their children becoming addicted to technology due to the prevalence of AI technologies in everyday life. Parents are afraid of having the excessive use for technology negatively affecting their children

Table No. (9): Impact on Autonomy and Decision-Making Ability

No	Statements	Rank	M	S.D	Degree
1	I am afraid of having my child relying entirely on technology to make decisions.	4	4.29	0.80	High
2	I noticed that my child prefers the solutions provided by apps rather than thinking independently.	3	4.33	0.87	High
3	I am afraid that technology may limit my child's independence and ability to make choices by himself / herself	2	4.39	0.76	High
4	I noticed that my child has become less capable to solve problems without relying on apps.	1	4.46	0.78	High
5	I wish if there were apps that encourage my children to think independently and make decisions by themselves	5	4.22	0.79	High
6	I noticed that my child relies on technology even for making simple decisions.	8	3.76	0.91	High
7	I am afraid that technology will negatively affect my child's ability to take responsibility.	7	3.86	1.01	High
8	I noticed that my child has become less	6	4.10	0.85	High

	confident in his/her abilities due to his/her reliance on apps.				
	Overall		4.12	0.61	High

Based on the table above, the parents' attitudes towards (the impact on autonomy and decision-making ability) are positive. That's because the overall mean is 4.12. All the means are high. The mean of item (4) is ranked first. It is 4.46 which is high. The latter item states the following: (I noticed that my child has become less capable to solve problems without relying on apps). The results indicate that there are negative impacts for the reliance on using AI technologies. Such impacts include: a drop in children's autonomy level and a decline in the children's decision making skill

Table No. (10): Impact on Cultural and Ethical Values

No	Statements	Rank	M	S.D	Degree
1	I am afraid of having technology negatively affecting child's values and morals, especially if it reflects values that don't fit with our culture	2	3.87	0.96	High
2	I noticed that some applications display contents that don't fit with our religious and cultural values.	1	4.19	0.94	High
3	I am afraid of having my child negatively affected by the values promoted through smart apps.	3	3.83	1.17	High
4	I noticed that some apps promote individual-oriented values at the expense of group-oriented values that we seek promoting	6	3.53	1.38	Moderate
5	I wish if there were applications that reflect cultural and value diversity	4	3.76	1.39	High
6	I noticed that some apps display contents that don't fit with our family traditions.	5	3.61	1.33	Moderate
7	I am afraid of having my child's cultural identity negatively affected by technology	7	3.31	0.79	Moderate
8	I noticed that some applications promote materialistic values at the expense of spiritual values.	2	3.87	0.96	High
	Overall		3.73	0.50	High

Based on the table above, the parents' attitudes towards (the impact on cultural and ethical values) are positive. That's because the overall mean is 3.73. The mean of item (2) is ranked first. It is 4.19 which is high. The latter item states the following: (I noticed that some applications display contents that don't fit with our religious and cultural values). It's clear that the sampled parents have concerns about the negative impacts of using AI applications and tools on the cultural and ethical values of children. That's because such applications and tools may infringe the cultural and religious privacy of many societies.

Table No. (10): Inequality of Access

No	Statements	Rank	M	S.D	Degree
1	I am afraid of having my child feeling that he/she is unequal to his/her peers, due to my incapability to provide him/her with advanced technology.	1	3.83	0.73	High
2	I've noticed that some children have the ability to access apps and devices that are more advanced than the ones accessed by my child.	2	3.76	0.75	High
3	I am afraid that this technological gap may negatively affect the future opportunities of my child	3	3.75	0.46	High
4	I believe that the unequal access to technology may exacerbate the social disparities	6	3.18	0.69	Moderate
5	I wish if there are initiatives to provide children of all backgrounds with technologies	7	3.17	0.62	Moderate
6	I noticed that some schools provide access to advanced technological tools, whereas other school don't offer such an access	8	3.06	0.74	Moderate
7	I am afraid that the unequal access to technology will negatively affect my child's self-confidence.	5	3.33	0.55	Moderate
8	I believe that the technological gap may lead to a disparity between the educational attainment levels of children	4	3.71	0.83	High
	Overall		3.41	0.32	Moderate

Based on the table above, the parents' attitudes towards (the inequality of access) are neutral. That's because the overall mean is 3.41. The mean of item (1) is ranked first. It is 3.83 which is high. The latter item states the following: (I am afraid of having my child feeling that he/she is unequal to his/her peers, due to my incapability to provide him/her with advanced technology). The mean of item (6) is ranked last. It is 3.06 which is high. The latter item states the following: (I noticed that some schools provide access to advanced technological tools, whereas other school don't offer such an access). The ongoing development of technologies and the constant upgrading of technologies may make some children feel unequal to their peers. That's because some children may not have access to advanced technologies like their peers.

Table No. (12): Responsibility and Accountability

No	Statements	Rank	M	S.D	Degree
1	I am afraid that there isn't any institution that's responsible for the harm that may be caused to my child due to the use of technology.	5	3.33	0.64	Moderate
2	I noticed that some apps don't provide adequate information about the one who is responsible for displaying the content.	1	4.03	0.41	High

3	I am afraid that it will be difficult to claim for liabilities in case of having infringement when using smart apps	2	3.82	0.41	High
4	I noticed that there are shortcomings in the laws protecting children from the risks of technology	4	3.61	0.82	Moderate
5	I wish if there were more effective regulatory bodies to ensure having a safe use for technology.	8	2.70	0.76	Moderate
6	I noticed that some companies don't take responsibility for the damages caused by their applications.	7	2.98	0.47	Moderate
7	I am afraid that the lack of accountability will negatively affect the trust of children's parents in technology.	6	2.95	0.82	Moderate
8	I think that there is a need to enact stricter legislation to protect children from the risks of technology.	3	3.67	0.55	Moderate
	Overall		3.39	0.31	Moderate

Based on the table above, the parents' attitudes towards (the responsibility and accountability) are neutral. That's because the overall mean is 3.39. The mean of item (2) is ranked first. It is 4.03 which is high. The latter item states the following: (I noticed that some apps don't provide adequate information about the one who is responsible for displaying the content). The mean of item (5) is ranked last. It is 2.70 which is moderate. The latter item states the following (I wish if there were more effective regulatory bodies to ensure having a safe use for technology). Based on the results, it's necessary to enforce a stricter legal control over the uses of AI technologies. That's because it's necessary to protect the categories that may be negatively affected by such technologies. Such categories include: children. The producers of AI technologies and tools are not held liable for the negative impacts of such technologies and tools on children.

Conclusion and Recommendations

There are ethical risks associated with using artificial intelligence technologies by children. Thus, the researcher recommends issuing stricter legislations by governments to regulate the use of AI tools by children. He recommends conducting studies about the negative impacts of using AI applications on adolescents in Jordan

Acknowledgment: The researcher would like to thank the members of the sample.

References:

- Abed Ar-Razeq, Abed Al-Karim, Abed Ar-Razeq (2024). The ethical risks associated with using artificial intelligence applications: An analytical study. *The Journal of the Faculty of Education – Banha University*, 35(137), 329-376. doi: 10.21608/jfeb.2023.248537.17840
- Akgun S, Greenhow C (2022) Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *AI and Ethics*. 2. 10.1007/s43681-021-00096-7.
- Al-Aroud, R. (2024). The risks of artificial intelligence on the moral system of people during childhood. *Humanities and natural sciences journal*. 5(11), <https://www.hnjournal.net/5-11-1/>
- Badawy, W. (2025). The ethical implications of using children's photographs in artificial intelligence: challenges and recommendations. *AI Ethics*,

- Berghea, E. C., Ionescu, M. D., Gheorghiu, R. M., Tincu, I. F., Cobilinschi, C. O., Craiu, M., Bălgrădean, M., & Berghea, F. (2024). Integrating Artificial Intelligence in Pediatric Healthcare: Parental Perceptions and Ethical Implications. *Children*, 11(2), 240
- Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society*, 3(2). <https://doi.org/10.1177/2053951716679679>
- Reiss, MJ (2021) 'The use of AI in education: Practicalities and ethical considerations' *London Review of Education*, 19 (1), 5, 1–14. <https://doi.org/10.14324/LRE.19.1.05>.
- Shihab, A (2018) The Tsunami of artificial intelligence invading the wired and wireless communication networks. *Al-Ahram Journal of Computer, Internet and Communication Journal*, 212.
- Stahl BC, Wright D (2018) Ethics and privacy in ai and big data: implementing responsible research and innovation IEEE Secur Priv. vol. 16, no. 3, pp. 26-33, May/June 2018, doi: 10.1109/MSP.2018.2701164.*
- Taylor, James W (2020) Forecast combinations for value at risk and expected shortfall *International Journal of Forecasting* , Volume 36, Issue 2, Pages 428-441
- Waseela, Es'oud (2023). Artificial intelligence and the challenges associated with ethical practice, *Nama' Journal for Economy and Business*. 7(2), pp. 1 - 13.
- Yeşilkaya, Nazan. (2023) Ethical Issues Related to Artificial Intelligence. *Arabic Language Journal. Mustafa HamzaTrc* 5/1, 170-193.
- Yakoub, Bouhebila (2024). Children's rights and artificial intelligence - Opportunities and risks: The International In-person and Remote (Hybrid) Conference: Artificial Intelligence: Intersecting Views. University of Mohamed Seddik Ben Yahia - Jijel, Algeria, 10th -11th, January, 2024