Pak. j. life soc. Sci. (2024), 22(1): 10006-10026 E-ISSN: 2221-7630;P-ISSN: 1727-4915

Pakistan Journal of Life and Social Sciences
www.pjlss.edu.pk

https://doi.org/10.57239/PJLSS-2024-22.1.00142

RESEARCH ARTICLE

The Role of Artificial Intelligence in Women's Empowerment in the Labor Market: A Field Study on a Sample of Women Working in the Tech Sector

Prof. Osama Abdelbary[1*], Dr. Abeer Shreaf[2]

[1] Professor of Sociology, UAQU
[2] Assistant Professor, Zagazig University

ARTICLE INFO

Received: Aug 19, 2024

Accepted: Oct 24, 2024

Keywords

Artificial Intelligence

Women's Empowerment

Labor Market

***Corresponding Author:**

Profosamabary1974@gmail.com

ABSTRACT

The study aimed to identify the actual role that artificial intelligence (AI) plays through its various technologies to achieve women's empowerment in the labor market, uncover the opportunities available for women to be empowered in the labor market, and monitor the main challenges facing women in the labor market. The study reached several conclusions, the most important of which are: AI with its various technologies contributes to empowering women in the labor market, as AI systems significantly improve working conditions for women. Additionally, women's use of AI algorithms has led to the development of their skills, and the use of AI technologies at home helps reduce the burden of domestic work, allowing more time to focus on their professional roles as working women.

Moreover, AI has greatly contributed to providing women with opportunities to work in various fields through creating applications, collecting and analyzing data, designing user interfaces, and marketing them. Women have also been able to complete traditional tasks at a much faster pace thanks to the use of AI technologies.

INTRODUCTION

Artificial intelligence (AI) represents one of the most significant outputs of the Fourth Industrial Revolution, due to its wide applications in military, industrial, economic, technological, medical, educational, and service fields. AI is expected to unlock limitless innovations and lead to further industrial revolutions, transforming human life dramatically. As the world experiences rapid technological advancements and transformations driven by the Fourth Industrial Revolution, AI and the growing use of robotics will be the driving forces behind progress and growth in the coming years. AI, as a branch of computer science, aims to guide computers to perform tasks traditionally done by humans, but in a more efficient manner, using specialized programming languages to mimic human behavior.

AI and information and communication technologies (ICTs) can help bridge the digital divide and increase women's participation in social, political, and economic processes, ultimately empowering them. However, while these technologies can enhance women's ability to make informed decisions, they do not end gender discrimination. To maximize the benefits of AI for women, there is a need to improve their living conditions, address the challenges they face at home and work, and raise awareness about these issues. By providing more opportunities for education and training in STEM fields, and ensuring women have access to new, suitable job opportunities, societies can promote

women's participation in AI and other emerging technologies, thus contributing to overall societal advancement.

Study Problem and Questions:

Many Arab countries, such as the United Arab Emirates, Saudi Arabia, and Qatar, are striving to enter the field of artificial intelligence (AI), adopting smart technologies and modern innovations. These nations aim to utilize such technologies for their economic, developmental, and societal advancement, as well as to provide prosperity for their citizens. AI is seen as a tool to achieve national developmental strategies and goals. Women's access to the internet and ICT skills opens doors for new businesses, better-paying jobs, education, and essential services. Empowering women through technology and AI is essential for achieving gender equality and enhancing their participation in the labor market, adding value to the national economy. Therefore, it is crucial to focus on women's digital empowerment, providing them with training in modern technologies to equip them with the necessary skills for AI-related job opportunities.

The core problem of this study lies in addressing the main research question: "To what extent does artificial intelligence, with its various technologies, contribute to empowering women in the labor market?"

This primary question leads to several sub-questions:

1. What is the concept of artificial intelligence, and how important is it for developing women's skills?
2. What is the actual role of AI in empowering women in the labor market?
3. To what extent are AI applications adopted in institutions?
4. What is the status of working women in the digital economy?
5. What opportunities are available for women's empowerment in the labor market?
6. What challenges do women face in the labor market?
7. What mechanisms and proposals can enhance women's empowerment in the labor market in light of AI technologies?

Second: Importance of the Study

(A) Scientific Importance (Theoretical Importance):

The theoretical significance lies in testing key theoretical perspectives and their applicability to Egyptian women in the labor market. It highlights the role of AI as a modern tool for women's empowerment, aligning with national efforts to address women's challenges and improve their status. This study is also valuable due to the limited research focusing on AI's role in empowering women.

(B) Social Importance (Practical Importance):

The practical importance of this study is to provide decision-makers with insights for developing programs that enhance the capabilities of Egyptian women. It proposes effective social policies that promote women's empowerment through AI technologies, aiming to change traditional views and highlight women’s potential to take on important societal roles.

Third: Study Objectives

1. Understand the concept of AI and its importance in developing women's skills.
2. Identify the role AI plays in empowering women in the labor market.
3. Explore the extent to which AI applications are adopted in institutions.
4. Examine the status of working women in the digital economy.
5. Uncover the opportunities available for women's empowerment in the labor market.
6. Identify the key challenges women face in the labor market.
7. Suggest mechanisms to enhance women's empowerment through AI technologies.

Concepts:

First: Concept of Artificial Intelligence (AI)

AI represents a major turning point in human history due to its revolutionary applications across various fields. Intelligence, in a general sense, refers to the mental abilities an individual uses to respond to new situations and solve problems logically (Qasem, 2011, p.11). AI combines "artificial" (non-natural) and "intelligence" (the ability to think and understand), which some define as creating computers or robots that think as intelligently as humans (Abdullah & Bilal, 2019, p.20). AI enables machines to perform tasks requiring human intelligence, such as reasoning and learning (Al-Fakhry, 2018, p.120). Operationally, AI in this study refers to modern software and technologies employed to empower women in the labor market, measured by responses to interview questions.

Second: Concept of Women's Empowerment

Empowerment is the ability of an individual to become an active participant in various economic and social fields, capable of influencing others (National Development Report, Syria, 2005, p.32). Women's empowerment strengthens their influence, enabling them to understand and change their status, and assert their rights (Ubada, 2011, p.59). It encompasses providing women with skills, laws, and opportunities to build self-confidence and contribute to society (Varghese, 2011, p.37). Empowerment also includes fostering self-awareness and confidence in women to challenge societal norms (Friedman, 2010, p.73). Operationally, empowerment in this study refers to the process by which women are equipped to organize, grow, and make independent decisions, ensuring their active participation in society while overcoming challenges.

Third: Concept of the Labor Market

The labor market refers to the place where buyers and sellers of labor services meet. The seller is the individual offering their services, and the buyer is the employer seeking those services (Dictionary of Educational Terms, 2004, p.132). It is a virtual market that connects job seekers with employers, acting as a bridge between both parties. The labor market consists of:

Supply: The active and capable workforce ready for employment.

Demand: The entities or companies in need of labor.

Operationally, in this study, the labor market refers to the environment involving employers and female job seekers, where AI technologies are leveraged to prepare skilled candidates, fostering competitive, innovative leaders ready for the workforce.

Fourth: Theoretical Framework

The study relies on two main theories:

Network Society Theory: This theory provides a comprehensive description of modern society dominated by a post-industrial economy, characterized by new work patterns and innovative business practices. It highlights the shift in labor dynamics and the social division of labor, with networks as the fundamental unit of organization in modern societies.

Feminist Theory: This approach, central to the women's empowerment movement, emphasizes the elimination of gender-based discrimination in social, economic, and political spheres. It advocates for equality between genders, focusing on the marginalization of women and their underrepresentation in many fields.

Previous Studies:

Bassem Atiya Mohamed (2021): "Applications of Artificial Intelligence and Their Role in Developing Work in UAE Media Institutions: A Field Study on Communication Personnel"

The study aimed to reveal the applications of AI used in UAE media institutions and their role in developing media work. Using a survey method and an electronic questionnaire, the study found a lack of awareness among media personnel about AI technologies, reflecting weak AI application usage. Results showed resistance among journalists to having robots as direct supervisors or colleagues, though some accepted them as assistants. There was a notable lack of conviction about AI's utility in various media roles.

Souad Haida (2019): "Using AI Applications to Improve Decision-Making in Economic Institutions: A Case Study of the Electricity and Gas Production Company in Adrar"

This study explored the availability of AI applications at Sonelgaz and emphasized the need for institutions to adopt modern, scientific methods for economic advancement. Results showed significant statistical impacts of AI applications on decision-making and highlighted the importance of training and effectiveness in improving decision-making processes.

Sujood Ahmed Mahmoud (2021): "The Reality of AI Utilization and Its Relationship with the Quality of Performance in Jordanian Universities from the Faculty Members' Perspective"

This study investigated the use of AI in Jordanian universities and its impact on performance quality. With a sample of 370 faculty members, results indicated a moderate level of AI utilization and quality of performance. The study found no significant differences in AI utilization based on gender, academic rank, or years of experience, but noted differences by college type and a significant correlation between AI utilization and performance quality.

Mohammed Hamad Al-Attl et al. (2021): "The Role of AI in Education from the Perspective of Students at the College of Basic Education, Kuwait"

This study examined the importance of AI in education and the challenges of its use from the perspective of students in Kuwait. Results showed statistically significant differences in AI's importance based on academic year but not in challenges faced. It also found differences in challenges based on gender and GPA.

Noura Mohammed Abdullah Al-Azzam (2021): "The Role of AI in Enhancing the Efficiency of Administrative Systems in Human Resource Management at Tabuk University"

The study aimed to identify AI's role in improving administrative systems for human resources at Tabuk University. Using a descriptive approach and a survey, results showed no significant differences in AI usage based on gender, education level, or years of experience.

Ismail Khalid Ali Al-Mekawi (2023): "Towards an Ethical Charter for AI Use in Educational Research"

This research aimed to develop an ethical charter for AI use in educational research, focusing on privacy, reliability, and institutional use. It emphasized the need for an ethical framework to guide AI applications in research, considering cultural contexts and human rights.

Hind Fouad El-Sayed (2023): "Social and Economic Implications of AI Technologies and Their Impact on Human Rights in the Arab World"

This study investigated the benefits and potential of AI and robots, examining the social and economic implications for Arab societies. It stressed the importance of protecting human rights and privacy in AI applications and suggested ethical and legal guidelines to manage AI's impact on society.

Studies on Robotics and AI in Journalism:

Miroshnichenko (2020): The study aimed to answer whether robots will replace journalists by reviewing the current state of automated journalism and analyzing common arguments about robots' limitations in creative practices. It provided insights into the potential evolution of automated

journalism and its clash with traditional forms. The study found that readers sometimes cannot distinguish between news written by robots or humans and that robots have been successful in handling and analyzing big data and writing economic and sports news. It predicts that newsrooms will increasingly rely on robots in the next decade to produce content more quickly and efficiently.

Moravec, Vaclav, et al. (2020): This study focused on the application of algorithms by CTK News Agency to convert large data files into news texts using AI without human intervention. It compared algorithm-produced content with human-produced content and included a field study of journalists and economic editors. Results indicated that AI reliance is inevitable for Czech journalism to continue its mission, though journalists expect their roles to remain crucial and to work alongside AI for better reporting.

Lewis, Guzman, & Schmidt (2020): The study highlighted that research on automated journalism has much to achieve in understanding human-machine communication. It emphasized the need for a conceptual framework for studying different AI technologies, such as chatbots and social robots, designed as message sources rather than channels. It explored what happens when machines replace human roles and the creation of social relationships through interactions between humans and machines.

Fatmah T. (2020): "Saudi Women and Leadership: Empowering Women as Leaders in Higher Education Institutions" - This study examined barriers preventing Saudi women from reaching leadership positions in higher education. Through semi-structured interviews with Saudi men and women in higher education, it identified organizational, cultural, and personal challenges and proposed comprehensive reforms to reduce these barriers.

Accountability and Glower (2017): "Women in Management and Leadership in Saudi Arabia" - This study assessed Saudi Arabia's progress towards becoming a model for workforce development and incorporating Saudi women into the workforce as part of Vision 2030. Results showed that political changes in Saudi Arabia have improved women's economic participation, with a 3% increase in female participation.

Ahmed Elsayed et al. (2017): "Empowering Young Women through Work and Vocational Training: A Field Study in Rural Egypt" - This study addressed the urgent need to tackle the unprecedented youth employment crisis, create decent work opportunities for young women, and achieve gender equality in rural employment. Results showed that while vocational training improved women's economic status in rural areas, it did not lead to better social conditions.

Azzah Alsubaie and Karen Jones (2017): "An Overview of the Current Status of Female Leadership in Higher Education in Saudi Arabia and Suggestions for Future Research" - This study proposed new research directions to address obstacles to women's leadership in higher education in Saudi Arabia. It highlighted significant changes, including increased female participation in paid work and leadership positions, and suggested future research and policy directions to enhance women's status and mobility.

Peeblos et al. (2015): "Factors Influencing the Empowerment of Working Women in the Jordanian Private Sector" - This study explored the current situation of working women in Jordan’s private sector and the impact of empowerment on them and private organizations. Using a descriptive-analytical approach with a sample of 56 working women, it revealed several social and legal obstacles women face in the private sector and highlighted a participation rate of 16%-25%.

Anna Sheree Rogers (2015): "Women in Male-Dominated Societies: Analyzing Gender Dynamics in Heavy Metal Subculture" - This study analyzed gender dynamics in subcultures, focusing on the dominance of men and the potential for violence against women. It used a theoretical framework to

identify gender differences and found that male-dominated subcultures often hinder women's empowerment.

Hadeer Mohamed Abdel Hamid (2021): "Digital Transformation and Women's Empowerment in Egyptian Society: An Analytical Study on the ICT Gateway for Women" - The study explored how the digital economy facilitates remote work and opportunities for women. It assessed the ICT Gateway for Women's role in digital and economic empowerment, finding that it offers various forms of empowerment, including digital, economic, social, and political. The study also highlighted the expansion of services to marginalized women and refugees.

Amani Abdel Aziz Abdel Ghafour and Samha Sameer Ibrahim Mohamed (2023): "Empowering Saudi Women and Sustainable Development: A Study of Trends and Challenges" - This study examined the relationship between Saudi women and development, given Vision 2030's goals for women's empowerment. It identified high levels of support for economic, social, and political empowerment but also noted significant social, personal, political, and economic challenges. Using a descriptive-analytical approach with a sample of 185 participants, it found social challenges were the most significant obstacles to women's empowerment.

Siham Al-Kaabi (2020): "Empowering Women: Opportunities and Challenges" - This study highlights that women's empowerment has become a global issue in the 21st century, with women seeking equal opportunities in various fields such as politics, economics, and social sectors. Research shows that women now stand on equal footing with men in many areas, and some women excel in specific issues. Empowered women contribute significantly to their countries' economic, social, and political development. Women make up about 50% of the global population and are crucial to their countries' development. However, full economic integration of women remains insufficient. The study identifies two dimensions of empowerment: internal (psychological) and external (economic, social, political, legal, educational, environmental, and health). Both dimensions require external intervention and the woman's willingness. It emphasizes the importance of psychological empowerment and reviews opportunities and challenges faced by women, focusing exclusively on individual women rather than organizational or institutional aspects.

Shireen Eid Morsi and Sahar Abdel Hamid El-Bakry (2021): "Efforts in Women's Empowerment at Taibah University: The Women's Empowerment Center as a Model" - This study aimed to understand the philosophical foundations of women's empowerment and examine efforts at Taibah University, specifically the Women's Empowerment Center. It involved 110 faculty members and 1,054 students, using a questionnaire covering five main dimensions: the concept of women's empowerment, areas of empowerment, needs, levels, and obstacles. The results suggested that the center's efforts in women's empowerment were moderate overall, with high availability for some dimensions. The study proposed a plan to enhance the role of the Women's Empowerment Center and found variations in the availability of empowerment dimensions between faculty and students. It also identified statistical differences in students' opinions based on their specialization and no significant differences among faculty based on their administrative roles.

Manal Fahmy Al-Batran (2019): "Political Empowerment of Arab Women: The Case of Egypt" - This study explored the development of political empowerment for Arab women, particularly after the Arab Spring. It used descriptive and analytical approaches, including historical and comparative methods. The study concluded that Arab countries have made tangible progress in political empowerment for women. Positive factors include clear constitutional provisions, supportive political will, improved educational and cultural levels for women, and increased awareness of political rights.

METHODOLOGICAL PROCEDURES:

Type of Study: This study falls under descriptive-exploratory research, aiming to describe and report on specific phenomena or situations. It relies on collecting, analyzing, and interpreting facts to make generalizations about the studied phenomenon. The study aims to describe the potential benefits of AI techniques in empowering women in the labor market.

Method Used: The research utilizes a case study methodology, which is crucial for understanding social phenomena deeply. Case studies involve in-depth analysis of elements within a culture, with the assumption that individual social trends and behavioral patterns affect future outcomes. The study examines successful women in technical fields to reveal the impact of AI technologies on women's empowerment in the labor market. Key criteria for selecting participants include representing successful models, having an active social role, and being knowledgeable about AI technologies.

Data Collection Tools and Methods:

Data Sources:

Theoretical Sources: The researcher relied on various sources including translated books, journals, documents, scientific conferences related to the study topic, and websites.

Human Sources: This refers to all members of the sample, including women working in the technical field within Egyptian society.

Data Collection Tools:

Theoretical Tools: The researcher used written literature, documents, statistics, and academic theses related to the study topic.

Field Tools: The researcher used "in-depth interviews" to collect data, involving structured interviews with a purposive sample of women working in the technical field in Egyptian society.

Interviews: An interview is a verbal interaction between the researcher and the interviewee, involving a set of questions or discussion units, conducted face-to-face according to a specific plan (Saeed Ismail, 2000).

In-depth Interview Guide: This tool is suited for qualitative research and aims to obtain deeper data. The researcher designed the interview guide as follows:

Define the Study Objective: To understand how AI technologies can empower women in the labor market.

Develop Questions: Formulated questions to achieve the study's goals, focusing on interviews with technical professionals and faculty members from the Faculty of Computers and Information at Zagazig University.

Review by Experts: Presented the interview guide to a panel of sociological experts to ensure the questions address the study's questions and goals.

Construct the Questionnaire: Included 13 questions to achieve the study objectives. Examples of questions include:

What is your definition of AI as a term?

How do various AI technologies contribute to empowering women in the labor market?

To what extent are AI applications used in your institution?

What is the status of working women with the advancement of technology and the widespread use of AI?

What opportunities does AI offer women for empowerment in the labor market?

How do AI technologies affect job opportunities and the future of jobs for women?

What challenges do women face in the labor market with the spread of AI technologies?

What efforts are being made by the government to enhance women's use of AI technologies for empowerment and performance improvement?

Have you received any specific training in AI to improve your skills and performance? What type of training?

Have you self-learned AI skills using the internet? What skills?

What mechanisms and suggestions can enhance women's empowerment in the labor market in the context of AI technologies?

Study Areas:

Human Domain: Includes a sample of women working in the technical field and some faculty members from the Faculty of Computers and Information at Zagazig University.

Geographical Domain: The study was conducted in the Sharqia Governorate, specifically targeting faculty members, assistants, and teaching staff from the Faculty of Computers and Information at Zagazig University.

Temporal Domain: The field study lasted for approximately two months, from 5/6/2024 to 5/8/2024.

Sample of the Study:

The field study involved conducting in-depth interviews with women working in the technical field at Zagazig University and with teaching staff (10 participants). The researcher used an open-ended interview guide to gather data pertinent to the research topic.

Residence	Occupation	Marital status	Educational qualification	AGE	م
city	Dean of the Faculty of Computer Science	Married	PhD	53	1
city	Lecturer in the Department of Information Technology	Married	PhD	35	2
city	Assistant Professor at the Faculty of Computer Science	Married	PhD	40	3
city	Lecturer in the Department of Information Systems	Married	PhD	40	4
city	Lecturer in the Department of Computer Technology	Married	PhD	33	5
city	Lecturer in the Faculty of Computer Science and Information Systems, Department of Information Systems	Married	PhD	40	6
city	Lecturer in the Faculty of Computer Science and Information Systems, Department of Computer Operations Research	Married	PhD	40	7
city	Assistant Lecturer in the Faculty of Computer Science and Information Systems, Department of Information Systems	Married	MA	30	8
city	Teaching Assistant in the Faculty of Computer Science and Information Systems	Single	BA	23	9
city	Teaching Assistant in the Faculty of Computer Science and Information Systems	Single	BA	22	10

DISCUSSION:

Case 1:

Basic Data:

Age: 53

Educational Qualification: PhD

Marital Status: Married

Job: Professor and Dean of the Faculty of Computer Science

Interview Responses:

Definition of AI: Described as a field of computer science focused on creating machines that exhibit intelligent behavior, such as learning, problem-solving, and adapting to changing conditions.

AI's Contribution to Women's Empowerment: AI systems significantly improve working conditions for women, protect their rights, and help balance work and home life by reducing domestic burdens.

Application of AI: The college uses AI for attendance and trains students in AI techniques.

Impact of AI on Women's Work: AI advancements continually enhance women's skills and capabilities, though AI can sometimes negatively impact job opportunities in certain fields.

Opportunities Provided by AI: Women can access new roles in AI and machine learning through training and improved digital literacy.

Challenges: AI can lead to job displacement due to increased reliance on machines and raises concerns about security and privacy.

Government Efforts: The government has initiated programs like "Leaders Initiative" and "Egyptian Cubs" to teach programming and technology to all community members, benefiting women as well.

Training and Skills: The respondent has attended AI training and continuously updates skills through online resources and university workshops. Emphasized the importance of ongoing training and adaptation to technological advancements.

Case 2 (Summary):

Age: 35

Education: PhD

Marital Status: Married

Occupation: Lecturer at the College of Computing, Department of Information Technology

The individual explains that artificial intelligence (AI) is an umbrella term for technologies that enable machines to simulate human intelligence. AI is one of the most modern and rapidly advancing fields, emerging in the 20th century and continuing to evolve. The individual predicts that over time, machines will be capable of performing nearly all tasks that humans do. AI is now present in various fields, including diagnostics, and its roles will continue to expand with technological development.

They highlight that AI could contribute to eliminating gender biases in the workplace, offering equal opportunities for both genders. AI technologies also increase women's efficiency and productivity, improving promotion opportunities and access to responsibilities. These technologies provide women with ongoing education opportunities through specialized training courses.

The individual notes that AI applications are widely integrated into the college environment, with a consulting center offering AI-related workshops and courses, often in partnership with major companies like Huawei and IBM. They emphasize the importance of ensuring women's rights in the labor market amidst the rapid growth of AI, which might reduce labor demand. They also stress the need for women to be proficient with modern technologies to avoid job displacement. Finally, the

individual suggests that governments should actively provide training programs related to AI to empower women and equip them to thrive in the evolving job market.

Case 3 (Summary):

Age: 40

Education: PhD

Marital Status: Married

Occupation: Assistant Professor at the College of Computing

This individual defines AI as a form of intelligence exhibited by machines and software, mimicking human cognitive abilities. AI has significantly expanded opportunities for women to work in areas such as application development, data collection, analysis, and design. It allows them to complete traditional tasks much faster.

They mention that the institution heavily relies on AI applications, educating students on AI techniques through projects that serve the community. The college has introduced a Bachelor's degree in AI and Data Science to prepare a generation equipped to handle future technological challenges.

They also discuss how AI technologies allow women to work online as freelancers, which has empowered many women to work from home. AI education is spreading, with female graduates and students teaching AI-related courses online to children and young people.

Despite AI creating new work-from-home opportunities, the individual acknowledges that AI has led to the disappearance of certain jobs, replaced by automation. Moreover, challenges like cybersecurity, privacy, and intellectual property must be addressed.

They commend the government’s efforts in promoting AI education for all, especially through training sessions and collaborations with global companies like IBM and AWS. Lastly, the individual stresses the importance of continued government support in empowering women through technological training and support for small enterprises led by women.

Case 4 (Summary):

Age: 40

Education: PhD

Marital Status: Married

Occupation: Lecturer at the College of Computing

The individual explains that AI is a branch of computer science aimed at simulating human cognitive abilities, and in some cases, AI can outperform humans in decision-making tasks. They highlight that AI has played a significant role in empowering women by reducing gender discrimination in the workplace and providing equal job opportunities for both genders.

The college they work at integrates AI education into its curriculum, with a dedicated AI department teaching students various applications. However, the individual points out the challenges women face in keeping up with the fast-paced advancements in AI, especially when balancing family responsibilities.

They recognize that AI technologies create opportunities for women by facilitating decision-making, problem-solving, and speeding up tasks, but they also acknowledge the threat that AI could replace human roles, affecting both men and women. Despite this, the individual praises the government's

initiatives to support AI learning and development, particularly through the National AI Council, which provides a platform for collaboration between various sectors on AI-related matters.

Finally, the individual mentions taking AI courses and continuously enhancing their skills through online learning. They suggest offering subsidized and intensive AI courses online to help more women access training.

Case No. (5)

Age: 33

Educational Qualification: Ph.D.

Marital Status: Married

Occupation: Lecturer at the Faculty of Computers

The case defined artificial intelligence (AI) as the ability of a machine to perform tasks that require human intelligence, such as logical reasoning, learning, and adaptability. She explained that AI has significantly contributed to empowering women by providing access to information and solving problems using various applications like "ChatGPT." With these tools, women can make their work easier, gain more opportunities, and solve problems more accurately, in addition to making decisions. Personally, AI helped her through an application called "Quillbot," which she uses for paraphrasing her promotion research, benefiting greatly from it. Thus, AI applications are crucial for completing tasks quickly and accurately. She also mentioned that the college, as an educational institution, heavily relies on AI applications. The students are taught AI technologies and applications through graduation projects, and the college has a consultation center that offers special courses for students and partnerships with companies like "Huawei" and "Microsoft" to train students, faculty, and staff in using various AI technologies.

When asked about the situation of working women amidst technological advancements and the widespread use of AI, she pointed out that women can access information quickly and accomplish their tasks with less time and effort. However, the benefits of AI only apply to women familiar with modern technologies. Women who lack knowledge and can't use computers cannot benefit from it. Therefore, AI's advantages primarily benefit women proficient in internet usage and computer skills. She added that AI technologies could impact future jobs positively and negatively. A downside is that AI might replace humans in many tasks, threatening not only women but also men, which could increase unemployment. However, AI has significantly helped women by making their tasks more efficient and precise. She also highlighted the challenges women face in an AI-dominated world, such as the potential loss of their jobs. Therefore, women must stay updated with technological developments and adapt to new AI technologies.

The case mentioned the government's efforts to enhance working women's use of AI technologies, enabling them in the labor market and improving their performance. She added that the government launched a digital platform dedicated to AI in Egypt, promising a major leap forward in this field. This platform saves time and effort for those working in or interested in AI, supporting the state's efforts to utilize this technology for digital transformation and building a digital Egypt. It also helps promote Egypt’s leading role as an international player in AI, reflecting the government's efforts to implement a national AI strategy aimed at fostering an AI industry in Egypt. Additionally, the state has expanded AI faculties to prepare graduates for both the local and international labor markets, especially in big data analysis, enabling them to create large e-commerce platforms for marketing products locally and globally. The state is also producing many programmers capable of quickly analyzing and handling big data. Furthermore, sectors like the postal service, finance ministry, and banks are transitioning to financial technology applications, known as "Fintech," widely used abroad. This technology allows customers to open accounts and manage them from their homes. She also said she

continually seeks to improve her skills by learning from the internet, particularly in areas like financial technology applications and user interface design, and she has taken courses in the Internet of Things. She always strives to enhance her skills, learning programming languages like Java and Android, and she has learned how to conduct scientific research.

She suggested several mechanisms to increase and enhance women's empowerment in the labor market, such as providing workshops and courses to teach AI applications.

Case 6:

Age: 40

Academic Qualification: PhD

Marital Status: Married

Occupation: Professor at the Faculty of Computing, Information Systems Department

The respondent sees artificial intelligence (AI) as a simulation of human behavior in all aspects, considering it one of the most critical industries marking the peak of technological advancement in the modern era. AI has achieved numerous successes due to the intelligent behavior of these systems. The respondent added that AI, through its various technologies, plays a vital role in empowering women in the labor market. Women can accomplish their tasks faster and with greater precision by using AI tools. A woman who masters these tools can advance in her career and achieve more progress. She highlighted that the university places a strong emphasis on applying AI technologies, having a dedicated AI department and a training unit that offers workshops and courses to train students on AI usage.

Furthermore, the respondent noted that the role of working women has developed significantly with technological progress, particularly with the widespread use of AI, enabling them to balance their family duties and work responsibilities more effectively. AI allows women to find solutions to challenges that humans may not foresee, providing opportunities to enhance their skills in their professions. With easy access to information through AI tools, women can continuously develop themselves.

The respondent emphasized that AI's impact on the future of jobs for women will be positive, provided they seek self-improvement, expand their knowledge, and develop their skills. Women need to learn new technologies to efficiently manage both their home and work tasks. However, there are challenges women face in the workplace, especially with the rapid spread of AI technologies. These challenges include the need to learn new tools, protect personal information, and approach new technologies with caution to avoid potential risks.

The respondent also noted that the Egyptian government has made significant efforts to enhance AI use, launching the National Strategy for Artificial Intelligence. This aims to support sustainable development goals and foster regional cooperation in Africa and the Arab world, solidifying Egypt's role as a key player in the global AI landscape. To that end, Egypt has developed the necessary infrastructure, advanced education, and established partnerships with countries that lead in AI technology to transfer knowledge. The government has also partnered with global companies to offer training and set up business incubators for innovative young minds.

The respondent has attended numerous AI training courses, including courses on the Internet of Things (IoT), as AI-related research is central to the faculty's scientific agenda. Most of the research at the institution is heavily reliant on AI applications, motivating the respondent to stay updated with new developments in AI. She also makes an effort to self-learn by utilizing the internet to enhance her skills, especially as she encourages students to adopt self-learning techniques during lectures.

Given the constant evolution of technology, the respondent sees the importance of improving her skills continuously. She uses online resources like YouTube to learn new skills, such as creating powerful presentations using AI applications. Moreover, she has found AI tools helpful for product marketing. The respondent also discussed various mechanisms for further empowering women in the workforce, such as holding workshops, conferences, and awareness campaigns about the risks of unsafe AI use.

Case 7:

Age: 44

Academic Qualification: PhD

Marital Status: Married

Occupation: Professor at the Faculty of Computing and Information, Operations Research Department

This respondent defines AI as a collection of systems, programs, and technological applications designed to simplify routine tasks in the workplace. She believes that although AI has not been applied extensively across Egypt, the current AI tools have significantly contributed to completing essential tasks in the workplace. However, the infrastructure and foundations for using these technologies are still lacking in her institution.

She sees the role of women in the workplace improving with the spread of AI technologies. A smart woman who can use these technologies will progress in her career, accomplishing tasks with greater accuracy and ease. AI also opens new opportunities for women to perform routine tasks more efficiently and with more precision, allowing them to take on new roles in fields like AI and machine learning.

The respondent views the impact of AI technologies on job opportunities as a double-edged sword. While AI could reduce job opportunities by replacing humans in some roles, it could also create opportunities in specific fields for women skilled in these technologies. Women who lack the skills to use AI will struggle to secure jobs in the future.

The respondent also noted challenges women face in the AI-driven workforce, including the lack of infrastructure for implementing these technologies and concerns over security, privacy, and data protection. Despite these challenges, the Egyptian government has taken steps to foster the use of AI, launching various programs to train young graduates and government employees, especially in engineering, computing, and related fields.

To address the gap in AI expertise, the government has formed partnerships with countries like Singapore, sending Egyptian trainers and young leaders to learn how to implement AI in modern industries. These young leaders return after nine-month training programs with diplomas in AI applications. Additionally, the government has organized over 150 AI training courses, benefiting thousands of government employees and university graduates.

The respondent emphasized her own efforts to stay updated on AI developments by regularly researching new topics on the internet. She has attended several courses on AI in education and simulation technologies and aims to continue improving her skills in teaching and web analytics.

Case 8:

Age: 23

Academic Qualification: Bachelor’s Degree

Marital Status: Single

Occupation: Teaching Assistant at the Faculty of Computing

This respondent defines AI as a set of technologies, tools, and techniques designed to mimic human intelligence and carry out tasks through programming and computer systems. She believes that AI's various technologies play an essential role in empowering women in the labor market, enabling them to complete their tasks faster and more accurately. Women who are proficient in AI tools can achieve greater progress in their careers, enhancing productivity and contributing more effectively to the workplace.

The respondent noted that her institution places significant importance on AI technologies. The presence of a dedicated AI department at the university reflects its commitment to teaching and training students on modern technologies. She also highlighted the university's partnerships with companies like Huawei to provide students with access to free AI applications.

In her view, women's roles have progressed considerably with AI's rapid advancement. AI tools allow women to complete their work tasks with more speed, accuracy, and flexibility. However, the respondent also expressed concern that AI might negatively impact job opportunities in the future, replacing humans in certain professions, such as architecture. To mitigate this risk, she believes women need to continually develop their skills and use AI to their advantage.

The respondent identified challenges women face in the workforce with the rise of AI technologies, including balancing personal and professional life. She also emphasized the government's efforts to support women in the workforce by providing numerous training programs on technology and AI across various sectors. She personally engages in self-learning, using the internet to enhance her skills in programming, such as learning Java, and frequently participates in workshops on AI applications. She suggested organizing more AI workshops and providing the necessary infrastructure to facilitate AI technology in the workplace.

Case 9:

Age: 23

Academic Qualification: Bachelor's Degree in Computer Science and Information

Marital Status: Single

Occupation: Teaching Assistant at the Faculty of Computer Science and Information

She defined artificial intelligence (AI) as intelligence in the field of computer science that focuses on creating systems and programs that exhibit behavior considered human-like intelligence. She mentioned that AI is one of the most important modern technologies contributing to technical progress, increasing opportunities for innovation and development in various fields, decision-making, and problem-solving in ways that somewhat resemble human brain behavior.

She further explained that AI applications are adopted in the college where she works, and students are trained to use AI technologies in the college's labs. She also pointed out that the position of working women has continuously improved due to technological advancements and the vast spread of AI technologies. This has enhanced women's capabilities, added many skills and knowledge, and helped them progress in the labor market.

When asked about the opportunities AI provides for women in the labor market, she noted that AI offers greater flexibility in organizing time, balancing personal and professional life, and benefiting from training courses to improve decision-making processes. AI provides accurate data readings and detailed analyses, helping women make decisions. She also highlighted that AI technologies have a significant impact on job opportunities and the future of employment by opening new doors for work and improving career advancement opportunities.

She emphasized that women's participation and representation in AI are critical for developing inclusive and unbiased technology. Diversity in AI teams brings a wider range of perspectives and experiences, which can help avoid biases. However, she also acknowledged the challenges women face in the workforce due to the widespread use of AI technologies. AI could lead to increased unemployment as institutions increasingly rely on machines with continuous operational capabilities to perform complex tasks, replacing human employees.

AI also raises concerns about security and privacy due to its heavy reliance on data, which can be misused by spreading false information. She noted that the government has made significant efforts to encourage working women to use AI technologies, empowering them in the labor market and improving their performance. This is evident through President Abdel Fattah el-Sisi's directives to introduce AI programs into all productive sectors. As a result, positive outcomes have been achieved, such as using robots in design processes and actual production.

The Ministry of Communications has also launched initiatives over the past three years to train AI professionals, such as the "Egypt's Digital Pioneers" initiative and programs for graduates and women to enhance their skills and prepare them for the labor market. Furthermore, there are efforts to utilize research conducted by top graduates and turn it into practical products that benefit the environment and society, instead of leaving them on the shelves. For example, a robot has been invented to perform surgeries at the Oncology Institute, and another robot helps people with disabilities in smart education systems. There are also programs to assist individuals with autism and their families.

Additionally, the "Our Digital Future" initiative, which involves 30,000 young men and women, offers online training in computer science applications, digital marketing, and creating e-commerce platforms within and outside Egypt. The "Taqatek" initiative has also been introduced, targeting anyone interested in AI, whether professionals, amateurs, or researchers, to build awareness and bridge the gap between research and the AI job market.

She mentioned that she always tries to keep up with the latest developments in AI and constantly enhances her skills by searching the internet. She has taken several courses, such as using simulations in e-learning and improving her teaching skills, especially during the COVID-19 pandemic, when she learned how to use online platforms, manage virtual classrooms, and communicate with students.

Moreover, she proposed several mechanisms to empower women in the labor market amidst the widespread use of AI technologies. These mechanisms include identifying outdated professions that may become obsolete and guiding workers to new professions. She also emphasized the importance of increasing AI training courses, seminars, and workshops to teach various AI technologies.

Case 10:

Age: 22

Academic Qualification: Bachelor's Degree in Computer Science

Marital Status: Single

Occupation: Teaching Assistant at the Faculty of Computer Science

The respondent defined AI as the science and engineering of creating machines, where intelligence demonstrated by machines and programs mimics human cognitive abilities such as learning, reasoning, and reacting to programmed situations. AI is also concerned with designing computers and programs capable of intelligent behavior.

She added that AI, with its various technologies, contributes to empowering women in the labor market. By mastering AI technologies and various technological tools, women can complete their tasks quickly and with more accuracy, enabling them to advance and excel in their careers. As a

teaching assistant at the Faculty of Computer Science, she sees the institution placing great importance on educating and training students in AI technologies.

The university has established a dedicated AI department within the faculty, along with a special AI training unit that offers workshops and training sessions for students and faculty members to master AI skills. The college has also partnered with major companies like Huawei to provide students with free access to AI applications.

She also mentioned that AI provides numerous opportunities for women, facilitating many tasks. AI-related skills can be learned online, which has helped many women work from home, develop their skills, and complete tasks more accurately. When asked about the impact of AI technologies on job opportunities and the future of employment, she pointed out that there are two perspectives: one pessimistic view suggests that AI will replace humans, dominate them, and lead to their extinction, while the other view believes AI will replace some traditional jobs but also create new ones. This requires women to develop high-level skills and continuously improve to keep up with AI technology.

She emphasized the need for a "Women Without Digital Illiteracy" initiative and mentioned the challenges women face in the workforce due to the spread of AI technologies. AI could lead to unemployment as institutions increasingly rely on machines for complex tasks, replacing human employees.

The respondent also highlighted the government's efforts to promote women's use of AI by publishing the National AI Strategy document in both Arabic and English on the national platform. The document includes information on ongoing projects, capacity-building programs, and workforce development initiatives launched by the Ministry of Communications and Information Technology in collaboration with various entities. These programs range from raising public awareness about AI to offering specialized programs for university students, graduates, professionals, and leaders in both the public and private sectors.

She pointed out that Egypt has made significant progress in AI over the past few years. The "Government AI Readiness Index" published in 2020 by the International Development Research Centre noted that Egypt had advanced 55 places in the global ranking, moving from 111th in 2019 to 56th out of 172 countries. This progress reflects the efforts made in implementing the national AI strategy, including partnerships with major global companies to implement AI applications across various sectors, aiming to provide innovative solutions to challenges facing Egyptian society. Simultaneously, the country has established international partnerships to develop AI capacity-building programs.

She mentioned that she always strives to stay updated by self-learning on the internet, acquiring skills such as using financial applications and user interface design. She also attended a course on the Internet of Things (IoT) and emphasized her constant efforts to develop and enhance her skills. Lastly, she highlighted the need to offer affordable and intensive online AI courses for women to empower them in the labor market, given the high costs of such training.

RESULTS OF THE FIELD STUDY:

The field study was conducted with a group of faculty members, teaching assistants, and lecturers from the Faculty of Computers and Information at Zagazig University, totaling 10 participants. The study reached several results that reflect the objectives aimed at achieving as follows:

Objective 1: Understanding the concept of artificial intelligence (AI) and its importance in developing women's skills.

The field study highlighted several definitions of AI, including:

1. AI is a field of computer science concerned with creating machines that exhibit behaviors considered intelligent, such as the ability to learn, solve problems, and adapt to changing conditions.
2. AI is the science and engineering of making machines and software exhibit human-like mental capabilities and work patterns, such as learning, reasoning, and reacting to programmed conditions. It also involves creating computers and programs capable of intelligent behavior.
3. AI is intelligence in computer science concerned with creating systems and programs that display behavior considered to be human intelligence. It is one of the most important modern technologies contributing to technical development and increasing opportunities for innovation and progress in various fields, decision-making, and problem-solving in a manner somewhat similar to human thought processes.
4. AI consists of a set of technologies, tools, and techniques aimed at simulating human and machine intelligence and performing specific tasks using programming and computing.
5. AI is a set of systems, programs, and technological applications designed to streamline and automate routine and repetitive tasks in the workplace.
6. AI is the intelligence demonstrated by machines and programs that mimics human cognitive abilities and work patterns, such as learning, reasoning, and reacting to unprogrammed conditions. It allows for the creation of computers and programs capable of human-like behavior.
7. The definitions above indicate that AI encompasses a range of technologies that significantly assist women in their professional fields by helping them accomplish tasks faster and more accurately.

Objective 2: Understanding the actual role of AI in empowering women in the job market.

The respondents confirmed that AI plays several roles in empowering women in the job market:

1. AI systems significantly improve women's working conditions by seeking solutions to protect women's work rights and implementing plans to achieve gender equality in the workplace.
2. Women using AI algorithms have enhanced their capabilities, and employing AI technologies at home reduces domestic workload, allowing more time for their professional responsibilities.
3. AI technologies can help eliminate biases and discrimination against women in the job market, providing equal employment opportunities for both genders.
4. AI technologies greatly increase women's efficiency and productivity, leading to better promotion opportunities and more responsibilities, and facilitate access to continuous education and specialized training.
5. AI has significantly enabled women to work in various fields by creating applications, aggregating and analyzing data, designing program interfaces, and marketing. Women have also accomplished traditional tasks more rapidly using AI technologies.
6. AI has significantly empowered women by eliminating biases and discrimination, providing equal employment opportunities, and increasing efficiency and productivity, thereby improving promotion chances and responsibility.
7. AI has helped women access information and solve problems with greater precision through various applications like "ChatGPT." For instance, respondent number 5 noted that AI

personally assisted her via the "QuillBot" application for research revisions, resulting in substantial benefits. AI applications are crucial for completing tasks quickly and accurately.

8. AI technologies have not been widely implemented in Egyptian society, but the available technologies have significantly aided the completion of essential tasks. However, the infrastructure and basics for using these technologies are not sufficiently available in the institution where we work.
9. The working conditions for women are improving with the spread of AI technologies, as intelligent women who can handle AI technologies are able to advance in their careers and achieve their goals, completing tasks with precision and ease.

Objective 3: Examining the extent of AI application in institutions.

All case studies confirmed that AI technologies are applied in their respective institutions through:

1. The adoption of AI applications at the faculty where they work, including attendance and absence tracking and training students to use AI technologies in the faculty's labs.
2. The faculty, as an educational institution, relies heavily on AI applications. It teaches students AI technologies and their applications through student projects, and the faculty's consulting center offers special courses and partnerships with companies like Huawei and Microsoft to train students, faculty members, and all staff on various AI technologies.

Objective 4: Understanding the status of working women in the context of widespread AI technologies.

1. The status of working women is continually improving with technological advancements and the spread of AI technologies, enhancing women's capabilities and providing them with new skills and knowledge to advance in the job market.
2. Women benefit from these technologies to improve their performance and productivity in their work, and modern technologies contribute to achieving a balance between work and personal life by providing remote work opportunities and time management solutions.
3. With the rapid spread of AI technologies, women can obtain information quickly and complete their work with less time and effort. However, these benefits are more accessible to women knowledgeable about modern technologies, whereas those lacking computer skills may not benefit, thus limiting AI's positives to women proficient in internet use and computer skills.
4. The impact of AI on the future of jobs for women will be positive if women seek self-development, acquire knowledge, and learn and apply new technologies to facilitate their tasks both at home and in their work environment.

Objective 5: Identifying opportunities available for women to empower them in the job market.

The field study results showed that:

AI provides many opportunities for women to empower them in the job market, including:

1. Women have started new roles in AI and machine learning through training programs to enhance their skills and computer literacy.
2. AI contributes to increasing work efficiency and productivity, enabling women to manage their time better and improve their achievements. It also improves educational opportunities, allowing women to enhance their education and skills using innovative AI technologies.
3. Women's participation and representation in AI are crucial for developing inclusive and unbiased technology. Diversity in AI applications leads to a broader range of perspectives and experiences, helping avoid biases.

4. AI offers many opportunities for women in the job market by enabling remote work and providing online learning opportunities related to AI for children and youth from diverse backgrounds.
5. AI has significantly impacted job opportunities and the future of work by providing remote or part-time job opportunities and applications for special care providers in collaboration with disability sciences faculties, opening up technology-related fields in various sectors like medical, commercial, industrial, and social areas.

Objective 6: Identifying the main challenges facing women in the job market with the spread of AI technologies.

1. The study results highlighted several challenges facing women in the job market due to AI technologies, including potential increases in unemployment as institutions rely more on machines for complex tasks instead of human employees. AI also raises concerns about security and privacy due to its heavy reliance on data that may be misused.
2. The impact of AI on job opportunities and the future of work can be negative, as widespread AI technologies may reduce job opportunities except in certain fields like application development and programming.
3. Challenges include the risk of unemployment due to AI replacing certain jobs, the need for women to stay updated with modern technology, and issues related to learning new technologies, inadequate infrastructure, and cybersecurity.
4. Additional challenges include the difficulty of learning and using new technologies, insufficient internet infrastructure and resources for AI program implementation, and issues related to cybersecurity, privacy, and intellectual property.

Objective 7: Identifying mechanisms and suggestions to enhance women's empowerment in the job market with the presence of AI technologies.

The field study results indicated several mechanisms and suggestions for enhancing women's empowerment in the job market, including:

1. Establishing a protocol of understanding between the Ministry of Information Technology and Communication and civil bodies to support community involvement in enhancing women's use of AI technologies.
2. Organizing seminars and meetings to raise awareness among women and girls about the important role of AI technologies and the services they offer to women and society in general.
3. Promoting international collaboration to send leading women in their fields abroad for training on the latest programs and applications to enhance their performance and empower them in the job market.

General Results of the Study:

From the above, several general results can be summarized as follows:

1. AI technologies contribute significantly to empowering women in the job market by improving working conditions and enhancing their capabilities through faster and more accurate task completion.
2. AI has opened up various fields for women and allowed them to perform traditional tasks more quickly.
3. Women have started new roles in AI and machine learning, enhancing their skills and computer literacy. AI also aids in increasing efficiency and productivity, facilitating time management, and improving educational opportunities.

4. Challenges include the risk of unemployment due to AI, the need for women to stay updated with technology, and issues related to learning new technologies and infrastructure inadequacies.
5. The government has made significant efforts to enhance women's use of AI technologies through various initiatives and platforms, including training programs and creating AI-focused educational institutions.

RECOMMENDATIONS OF THE STUDY:

Based on the findings, the researcher suggests the following recommendations and proposals for decision-makers:

1. Develop a memorandum of understanding between the Ministry of Information Technology and Communication and civil bodies to support community involvement in promoting women's use of AI technologies.

2. Organize seminars and meetings to raise awareness among women and girls about the role of AI technologies and the services they provide.

3. Foster international collaboration to send pioneering women abroad for training on the latest AI programs and applications to improve their performance and empower them in the job market.

REFERENCES:

1. Accountability, & Gower. (2017). Women in management and leadership in the Kingdom of Saudi Arabia: Economic inquiry.
2. Ahmed, E., & others. (2017). Empowering young women through business and vocational training: Evidence from a field intervention in rural Egypt.
3. Al Mekkawi, I. K. A. (2023). Towards an ethical charter for the use of artificial intelligence in educational research. *Educational Journal, Faculty of Education, Sohag University*, (110), Part 2, 392-441.
4. Al-Mekkawi, B. A. M., & Abdelhamid, A. M. (2021). Applications of artificial intelligence and its role in the development of work in UAE media institutions: A field study on media professionals. *Arab Journal of Media and Communication*, (28).
5. Alotaibi, F. T. (2020). Saudi women and leadership: Empowering women as leaders in higher education institutions. *Open Journal of Leadership*, 156-177.
6. Alsubaie, A., & Jones, K. (2017). An overview of the current state of women's leadership in higher education in Saudi Arabia and a proposal for future research directions. *Institute of Education, University of Reading*.
7. Al-Zam, N. M. A. (2021). The role of artificial intelligence in enhancing the efficiency of administrative systems in human resources management at Tabuk University. *Educational Journal, Faculty of Education, Sohag University*, April, 84(1), 468-494.
8. Badr, H. H. S. (2016). Social barriers to women's role in social development: A sociological field study on a group of female employees in Diwaniyah city. *Journal of Basic Education for Educational Sciences, University of Babylon*, 274.
9. Ben Hani, M., & Al-Awadah, A. (2017). The role of the Ministry of Planning and International Cooperation in the social empowerment of women. *Conference on Arab Women in Human Resource Development and Empowerment and Increasing Participation in the Labor Market*, Arab Scientific Association for Human Resource Development, 216.
10. El-Khattab, M. Y. (2011). Social research: Methodological foundations and practical models. *Arab Publishing and Distribution*, Cairo, 46.
11. Ghannam, S. M., & Abdu, S. S. (2023). Saudi women's empowerment and sustainable development: Study of trends and challenges. *Arab Journal of Sociology*, 32, 183-245.
12. Ghassan, F. M. (2010). Empowerment as alternative development policy. Translated and presented by Rabea Wahba. *National Center for Translation*, Cairo, 73.
13. Johary, M., & Khraiji, A. (1990). Social research methods. *Dar Al Thaqafa Publishing and Distribution*, Cairo, 58-60.

14. Kassem, S. H. (2011). The impact of strategic intelligence on decision-making processes. Master's thesis, Gaza, 11.
15. Lewis, C., Guzman, A. L., & Schmidt, T. R. (2020). Artificial intelligence and communication: A human-machine communication research agenda. *New Media and Society*, 22(1), 70-86.
16. Makkawi, I. A. S. (2000). Modern trends in sociology. *University Knowledge House*, Alexandria, 151.
17. Malhotra, A., & others. (2020). Measuring women's empowerment as a variable in international development: Paper prepared for the World Bank Workshop on Poverty and Gender, New Perspectives.
18. Miroshnichenko. (2020). Will robots replace journalists? The answer is yes. *Information*, 9(7), 183.
19. Moravec, V., Macková, V., Sido, J., & Ekstein, K. (2020). The robotic reporter in the Czech News Agency: Automated journalism and augmentation in the newsroom. *Communication Today: Trnava*, 11(1), 36-53.
20. Mousa, A., & Ahmed, B. (2019). Artificial intelligence: A revolution in modern technologies. *Arab Group for Training and Publishing*, Cairo, 20.
21. Peebles, D., & others. (2015). Factors affecting women's participation in the private sector in Jordan. *National Center for Human Resource Development, Jordan*, 1-64.
22. Rogers, A. S. (2015). Women in hypermasculine environments: An analysis of gender dynamics in the heavy metal subculture. *University of South Carolina, College of Arts and Sciences*, MA.
23. Saad, A. (2011). Contemporary women's issues between the challenges of reality and future aspirations. *Dar Al-Fajr for Publishing and Distribution*, Cairo, 59.
24. Saeed, A. (2011). Impact of strategic intelligence on decision-making. Master's thesis, Gaza.
25. Subhi, S. M. (2021). The role of artificial intelligence in improving the quality of performance in Jordanian universities from the faculty members' perspective. Master's thesis, Middle East University, Faculty of Educational Sciences, Department of Administration and Curriculum.
26. United Nations Population Fund. (2000). Women and men in a changing world: The state of world population, 47.
27. Varghese, T. (2011). Women's empowerment in Oman: A study based on women, 37.
28. Yasser, M. (2011). Social research: Methodological foundations and practical models. *Arab Publishing and Distribution*, Cairo, 46.
29. Zaki, H. (2019). The impact of artificial intelligence applications in improving decision-making processes in economic institutions: A case study of the Electricity and Gas Production Company in Adrar. Master's thesis, Ahmed Draya University.
30. Abdel Aziz, A. & others. (2021). The role of artificial intelligence in education from the perspective of Basic Education College students in Kuwait. *Journal of Educational Studies and Research*, 1(1), 30-64.
31. Al-Sayyid, H. F. (2023). Social and economic impacts of artificial intelligence technologies on human rights in the Arab world. *Journal of Humanities and Social Sciences*, 12(1), 39-65.
32. Al-Qurashi, S. H. (2019). Political empowerment of Arab women: Egypt as a model. *Institute of Arab Research and Studies*, Cairo.
33. Akhdar, S. H. (2021). The reality of artificial intelligence employment and its relation to the quality of performance in Jordanian universities from the perspective of faculty members. Master's thesis, Middle East University.
34. Al-Makawi, I. A. (2023). Towards an ethical charter for the use of AI in educational research. *Educational Journal, Faculty of Education, Sohag University*, (110), Part 2, 392-441.
35. Khirji, M., & Jouhari, M. (1990). Methods of social research. *Dar Al Thaqafa Publishing*, Cairo.
36. Hashem, M., & others. (2011). *Women and men in a changing world: The state of world population*. United Nations Population Fund, 47.
37. Khalifa, M. F. (2018). Psychology of Intelligence. *Academic Book Center*, 120.