Universidad Pablo de Olavide (España)
International Journal of Educational Research and Innovation
número 22, 2024
ISSN: 2386-4303
DOI: 10.46661/ijeri.10651
Sección: Artículos
Recibido: 08-06-2024
Aceptado: 22-08-2024
Publicado: 03-12-2024
Páginas: 1-16

INTERNATIONAL JOURNAL OF EDUCATIONAL RESEARCH AND INNOVATION
REVISTA INTERNACIONAL DE INVESTIGACIÓN E INNOVACIÓN EDUCATIVA

Perspectivas de los graduados sobre la integración de la IA: Implicaciones para el desarrollo de habilidades y la preparación profesional

Graduates' perspectives on AI integration: Implications for skill development and career readiness

Musrrat Parveen
King Abdulaziz University, Saudi Arabia
https://orcid.org/0000-0002-3796-8061
mpmohammed@kau.edu.sa

Yusra Mohammed Alkudsi
King Abdulaziz University, Saudi Arabia
https://orcid.org/0009-0006-7675-4417
ymalkudsl@stu.kau.edu.sa

RESUMEN

Este estudio tiene como objetivo explorar la importancia de la inteligencia artificial (IA) para los estudiantes próximos a graduarse y su impacto en el desarrollo de habilidades futuras. Mediante una encuesta dirigida a estudiantes de licenciatura y maestría de diversas facultades en universidades públicas y privadas de Arabia Saudita, se recopilaron 465 respuestas a partir de 500 cuestionarios distribuidos en diferentes regiones.Se utilizó una escala Likert de 5 puntos para evaluar nueve dimensiones, que incluyen la influencia de la IA en las habilidades futuras, su integración en la educación, la preparación estudiantil, la exposición al mundo real, la exploración, consideraciones éticas, perspectivas globales, adaptación curricular y la comunicación y colaboración. Para evaluar el objetivo de la investigación, se emplearon una prueba t de una muestra y coeficientes de correlación a través de las diferentes dimensiones. Este trabajo contribuye mediante un análisis exhaustivo del impacto de la inteligencia artificial (IA) en los estudiantes que se gradúan en Arabia Saudita. A través de una metodología de encuesta rigurosa, se esclarecen las percepciones de los estudiantes respecto al impacto de la IA en sus habilidades futuras y en su educación. Los hallazgos destacan la actitud positiva hacia la IA, reconociendo su potencial para mejorar la resolución de problemas, el pensamiento crítico y la adaptabilidad. Además, se resalta la importancia de integrar la IA en la educación para preparar a los estudiantes frente a las oportunidades laborales en una sociedad tecnológicamente avanzada. Los estudiantes consideran que la IA puede proporcionarles oportunidades para adquirir experiencia práctica y exposición a industrias impulsadas por la IA, lo cual puede mejorar su aprendizaje y sus perspectivas profesionales futuras. Asimismo, expresan un fuerte interés

Cómo citar: Parveen, M. & Alkudsi, Y. M. . (2024). Perspectivas de los graduados sobre la integración de la IA: Implicaciones para el desarrollo de habilidades y la preparación profesional. IJERI: International Journal of Educational Research and Innovation, (22), 1-16. 10.46661/ijeri.10651

en explorar proyectos y actividades relacionados con la IA para desarrollar sus habilidades futuras, especialmente en análisis e interpretación de datos, áreas de alta demanda en el mercado laboral.

PALABRAS CLAVE

Inteligencia artificial; estudiantes de posgrado y pregrado; universidad pública y privada; Competencias; empoderamiento.

ABSTRACT

This study aims to explore artificial intelligence's (AI) significance for graduating students and its impact on their future skills. Through a survey of Bachelor's and master's students across diverse departments in Saudi Arabian public and private universities, we gathered 465 responses from 500 questionnaires distributed in various regions. Employing a 5-point Likert scale, the survey covered nine dimensions, including AI's influence on future skills, its integration into education, student preparedness, real-world exposure, exploration, ethical considerations, global perspectives, curricular adaptation, and communication and collaboration. To evaluate the research aim, we employed a one-sample t-test and correlation coefficients across different dimensions. This paper contributes by extensively examining the influence of artificial intelligence (AI) on graduating students in Saudi Arabia. Through a robust survey methodology, it elucidates students' perceptions of AI's impact on their future skills and education. The findings accentuate the positive attitude towards AI, recognizing its potential to enhance problem-solving, critical thinking, and adaptability. Moreover, it highlights the importance of integrating AI into education to prepare students for evolving career opportunities in a technologically advanced society. Furthermore, they believe that AI can provide them with opportunities to gain real-world experience and exposure to AI-driven industries, which can enhance their learning and future career prospects. Students express a strong interest in exploring AI-related projects and activities to build their future skills, particularly in data analysis and interpretation, which are in high demand in the job market.

KEYWORDS

Artificial intelligence; graduate and undergraduate level students; public and private university; competencies; empowering.

1. INTRODUCTION

Artificial intelligence (AI) has become a powerful influence in modern education, influencing how students will use their future skills and how much their knowledge will change, it's also important to ask is it expected to gain multiple languages easily by using AI, the entire learning steps will change by better way, saving time and cost and increasing availability to learn fast. Gocen & Aydemir (2020) says that the incorporation of AI into educational processes has become essential in a world marked by rapid technological innovation and the changing needs of the job market to prepare students for the opportunities and challenges that lie ahead.

Kim & Kim (2022) described the details about Artificial intelligence (AI) refers to a broad range of technologies that allow robots to mimic human intelligence, learn from data, and make defensible decisions. AI has enormous potential to transform how students learn, how teachers teach, and how institutions run in the field of education. Grassini (2023) proclaimed that it has the potential of providing individualized, flexible, and data-driven learning experiences that will encourage the growth of competencies important for both the present and the future. There will

be an increased need for competencies outside of traditional academic knowledge in the future skills environment. Employers are looking for employees with a wide range of skills, including adaptability, critical thinking, problem-solving, and digital literacy (Zhai et al., 2021).

Neha (2020) explained how students' development of these skills is significantly aided by AI, which offers personalized learning pathways and real-time feedback to enable them to realize their full potential. Xue & Wang (2022) did a written research about integrating AI into education and how much is essential for directing students onto career paths that match their interests and skills. Artificial intelligence (AI)-driven career counselling tools examine individual profiles, job market demands, and labour market trends to provide acceptable career possibilities and the skills required to succeed in those professions. Al Darayseh (2023) clearly states that although there are many potential advantages of AI in education, there are also some difficulties with this integration and to guarantee that AI is implemented responsibly and fairly, ethical issues relating to data privacy, algorithmic biases, and equitable access to resources must be addressed. The interaction between AI and pupils' future skills is examined in depth in this investigation. It looks at how AI is transforming education, how it improves students' readiness for a fast-paced, technologically advanced society, and how this shift is accompanied by ethical questions (Futterer et al., 2023). AI holds out the hope of a time when kids are not just well-educated but also well-equipped to face the demands of a labor market that is changing quickly (Joshi et al., 2021).

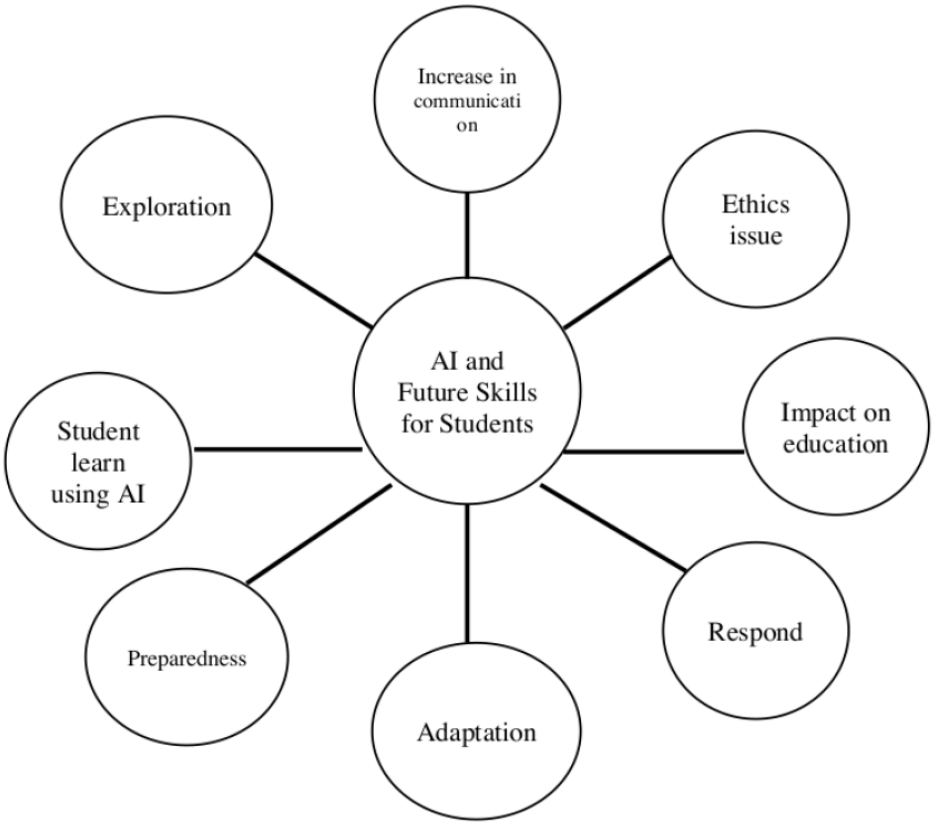
2. LITERATURE REVIEW

The primary focus and goal was on literature addressing the Artificial Intelligence (AI) and Future Skills for Students. This research is important to know how much the skills of the student will change based on AI. However, literature that generally discusses: Integration of AI in Education will directly impact dentistry practice to learn. Our understanding of how artificial intelligence (AI) affects education and students' skill development is being advanced by scientific study on AI and Future Skills for Students. In particular, this study seeks to accomplish the following goals: Research in this field has the potential to shed light on issues that should be considered when developing educational policies and procedures. It supports the decision-making of educators and policymakers regarding the creation of curricula, methods of instruction, and the use of AI tools in the classroom (Murugesan et al., 2023).

Fill in the Skill Gaps: Determine the abilities and proficiencies that, as a result of AI's impact, will be required in the future labour market. Students can learn the abilities necessary to succeed in an AI-driven environment with the support of this research. Encourage Responsible AI Use: Research can draw attention to ethical issues surrounding AI and provide guidance for the ethical application of AI technologies in the classroom. This entails dealing with concerns including prejudice, fairness, and data privacy. Syed & Al-Rawi (2023) Improved learning outcomes and more individualized learning experiences for students can result from an understanding of how AI can be successfully incorporated into the classroom. Promote Innovation: Research promotes the creation of cutting-edge artificial intelligence (AI) technologies and apps that can improve instruction and learning, eventually helping teachers and students. The objective is to equip students with the skills necessary to navigate an AI-driven society and make contributions to its advancement. This includes developing their ability to think critically, be flexible, and be lifelong learners.

Close the Skills Gap: Research can assist in closing the skills gap by suggesting changes to the educational system by highlighting the deficiencies between conventional curriculum and the competencies required in the AI area. Establish Best Practices: Scientific research can help identify the best ways to integrate AI and develop future competencies. These methods are transferable and adaptable to academic settings (Chen et al., 2023). Based on the review literature, we clearly identify our research objective that AI has a positive and strong relationship with future skills of students. Hence, Figure 1 showed that all the dimensions have been influencing the future skills for students.

Figure 1. A Model of AI and future skills for students



Syed & Al-Rawi (2023) clearly stated the ratio of *Student Preparedness* to learn and start using AI. *AI and Real-World Exposure* detailed on how the science responded to AI and how it becomes social (Murugesan et al., 2023). *AI Exploration***:** explore the awareness, perception, and opinions of students toward artificial intelligence, the use of affordable AI agents such as chatbots and conversational agents for second language by (Wang et al., 2023). *Ethical Considerations***,** it is important to conceptualize and establish a set of ethical principles as suggested by (Nguyen et al., 2023). *Global Perspectives***:** how the whole world reacted to AI and what they are feeling about it (Christian et al., 2021). *Curricular Adaptation***:** discuss about future students should be ready to adapt to AI use which may be achieved by additional education programs about AI and its application, how they plan to adapt to these AI coding tools that more students will likely have access to in the future (Huang et al., 2023). *Communication and Collaboration*, AI can increase the speed of communication and improve interpersonal perceptions. This research is important to know how AI will help students for future skills; the skills required for the future workforce are changing due to AI as proclaimed by (Hohenstein et al., 2023). Collaborative problem solving (CPS) enables student groups to complete learning tasks. Studies highlight how AI may enhance educational outcomes, provide adaptive assessments, and personalize learning (Ouyang, Xu & Cukurova, 2023). It also looks at how crucial it is to integrate AI responsibly in learning environments and must acquire digital skills, critical thinking, and adaptability in order to be ready for changes brought about by AI. The capacity for ongoing learning is also highlighted (Holstein, McLaren, & Aleven, 2018). Students gain from being exposed to AI projects and companies, as well as by getting hands-on experience, networking opportunities, and insights into practical applications of AI (Zhang et al., 2023). Students' critical thinking, problem-solving, and data analysis skills are developed when they work on AI-related projects which assist in examine the effectiveness of using problem-based learning (PBL) and project-based learning (PjBL). Through practical AI initiatives, these abilities are refined.

A popular field of study in artificial intelligence is ethics, with a focus on justice, transparency, privacy, and ethical AI use. The body of research emphasizes the necessity of moral standards for conscientious AI development (Abdul et al., 2023).AI makes virtual experiences, language translation, and cross-cultural communication easier. With the use of these resources, students can comprehend various cultures and viewpoints more deeply. The literature emphasizes the significance of adding AI-related courses to the curriculum and stresses the information and skills needed to get students ready for the AI-driven future (Zhang et al., 2023). Group projects should help students improve their ability to collaborate and communicate effectively. Promoting AI innovation and research encourages creativity and critical thinking (Chen, et al., 2023).

3. MATERIAL AND METHODS

3.1 Research design

As a beginning of study, the papers formulate a qualitative research methodology to evaluate the relationship between AI (Artificial intelligence) and future skills for students (problem-solving, critical thinking and adapt to rapidly changing technological advancements). Information assessment and theory were performed using group of researches about AI impact, because it facilitates the whole understanding factors of AI for both current and future impact.

3.2 Data collection tools

The data were collected via questionnaires and interviews (Hamd et al., 2023). The population of this study consist of Bachelors and Master students in public university in Saudi Arabia. A total of 500 questionnaires were distributed in many Saudi regions to capture many representative samples and 465 were utilized for data analysis. Data collection was performed between October and December 2023, self-reported questionnaires were utilized.

3.3 Questionnaire Design

The questionnaire was designed including nine dimensions having 15 items as shown in Table 1. The questionnaire was reviewed to examine if it was understandable to all students and if any adjustment required. A 5-point Likert rating scale (ranging from Strongly Disagree to Strongly Agree) was utilized to collect responses for each item including demographic information about age, gender education level and field of study and inclusive of nine dimensions about (1). AI influence in future skills, (2). Integration of AI in Education, (3). Student Preparedness (4). AI and Real-World Exposure, (5).AI Exploration, (6). Ethical Considerations, (7). Global Perspectives, (8). Curricular Adaptation, (9). Communication and Collaboration.

The number of dimensions for a questionnaire depends on the specific research objectives and the factors you want to measure. Each dimension typically represents a distinct concept or variable you aim to assess. In the questionnaire I provided, you can identify the following dimensions. To analyse the results, various statistical measures such as One Sample t-test, Correlation Coefficient, was performed and was conducted through SPSS 23 version.

3.4 Validity and Reliability measures

The results shows that the questionnaire was more than adequate in terms of its reliability (Kline, 1998), that is (0.946) for nine dimensions including 15 items. In addition to the above descriptive analysis, a One Sample t-test was performed to determine whether differences exist between the sample mean and the population mean (that is, 2.5) (refer to Table 3). We first performed one sample t-test to identify the differences in mean and to correlations between the variables on the items that measured AI and future skills of students. And it was found that the correlation coefficient is called statistically significant at 5 % level of significance as shown in table 4.

Table 1. Dimensions.

Dimensions	Questions	
AI's Influence on Future Skills	AFS1 AI technologies will significantly influence the job market and career opportunities in the future. AFS2. AI can enhance students' problem-solving and critical thinking skills.	
Integration of AI in Education	AIE3. The integration of AI in education can help students adapt to rapidly changing technological advancements. AIE4. AI can assist students in acquiring advanced technical skills that are relevant in the job market. AIE5.AI-driven personalized learning can improve the educational experience for students.	
AI and Student Preparedness	AISP6. Students need to develop a strong understanding of AI and its applications to thrive in the future. AISP7. AI can help in developing adaptability and resilience skills in students.	
AI and Real-World Exposure	AIRWE8. AI can provide opportunities for students to gain real-world experience and exposure to AI-driven industries.	5-point Likert scale (Strongly disagree to Strongly agree)
AI Exploration	AIE9. Students should be encouraged to explore AI-related projects and activities to build future skills. AIE10. AI can assist students in developing skills for data analysis and interpretation.	
AI and Ethical Considerations	AIEC11. The ethical considerations of AI should be an integral part of education to prepare students for responsible AI use.	
AI and Global Perspectives	AIGP12. AI has the potential to help students acquire global perspectives and cultural awareness.	
AI and Curricular Adaptation	AICA13. The education system should adapt to include AI-related subjects and curricula to meet future skill demands	
AI and Communication and Collaboration	AICC14. AI can support students in developing effective communication and collaboration skills. AICC15. Students should be encouraged to explore AI research and innovation as a means to develop future skills.	

Source: Survey.

4. RESULTS

The table 1 given below provide a snapshot of the demographic details of a group of people based on gender, age, qualification, and field of study. The group consists of 465 individuals, with 301 females (64.8%) and males 164 (35.2%). The majority of the group falls between the ages of 17-25 years, making up 76.5% of the group, while 19.7% are between 26-35 years, 7% between 36-43 years, and 2.8% are 44 years and above. In terms of qualification, 65% of the group holds a bachelor's degree, while 35% hold a master's degree. The field of study is also provided, with Human Resource Management (HRM) being the most popular field at 13.8%, followed by Business Administration at 4.6%, and Finance at 4.5%. The table provides valuable insights into the composition of the group, which can be useful for various purposes such as market research, recruitment, and policy-making.

Table 2. Demographic Profile.

Gender	Frequency	Percentage %
Female	301	64.8
Male	164	35.2
AGE		
17-25years	356	76.5
26-35 years	92	19.7
36-43years	4	7
44 and above	13	2.8
Qualification		
Bachelor	300	65
Master	165	35
Field of Study		
Human Resource Management (HRM)	110	13.8
Business Administration	37	4.6
Finance	36	4.5
Medicine	21	2.6
Management Information Systems (MIS)	58	7.3
Engineering	28	3.5
Computer Science	22	2.8
Law	26	3.3
Pharmacy	23	2.9
Film Making	4	5

Survey Results: n (465).

The data presented in Table 1 and the results of a one-sample t-test outlined in Table 3 indicate that graduating students from the HRM department exhibit the strongest perception of AI's impact on future student skills. They emphasize the importance of cultivating a robust understanding of AI and its applications to thrive in forthcoming contexts. Additionally, HRM students anticipate significant AI-driven shifts in the job market and career opportunities. Furthermore, they recognize the potential of AI-powered personalized learning to enhance educational experiences. Moreover, HRM students acknowledge AI's potential to aid in skill development for data analysis and interpretation. These four factors emerge as the most influential among HRM students compared to their counterparts in business, finance, medicine, MIS, engineering, computer

science, law, pharmacy, and film making departments, encompassing both male and female graduates. Notably, female graduating students demonstrate the highest inclination towards recognizing AI's relevance to future student skills.

Table 3. One Sample t- test

Dimensions	Mean	SD	t– value	p (2-tailed)
AFS1 AI technologies will significantly influence the job market and carrer opportunities in the future.	3.75	1.356	59.595	.000
AFS2. AI can enhance students' problem-solving and critical thinking skills.	3.60	1.267	61.195	.000
AIE3. The integration of AI in education can help students adapt to rapidly changing technological advancements.	3.68	1.310	60.531	.000
AIE4. AI can assist students in acquiring advanced technical skills that are relevant in the job market.	3.65	1.262	62.420	.000
AIE5.AI-driven personalized learning can improve the educational experience for students.	3.74	1.253	64.315	.000
AISP6. Students need to develop a strong understanding of AI and its applications to thrive in the future.	3.79	1.295	63.167	.000
AISP7. AI can help in developing adaptability and resilience skills in students.	3.45	1.250	59.570	.000
AIRWE8. AI can provide opportunities for students to gain real-world experience and exposure to AI-driven industries.	3.46	1.264	58.957	.000
AIE9. Students should be encouraged to explore AI-related projects and activities to build future skills.	3.69	1.295	61.501	.000
AIE10. AI can assist students in developing skills for data analysis and interpretation.	3.71	1.288	62.105	.000
AIEC11. The ethical considerations of AI should be an integral part of education to prepare students for responsible AI use.	3.66	1.327	59.480	.000
AIGP12. AI has the potential to help students acquire global perspectives and cultural awareness.	3.57	1.316	58.401	.000
AICA13. The education system should adapt to include AI-related subjects and curricula to meet future skill demands	3.55	1.308	58.528	.000
AICC14. AI can support students in developing effective communication and collaboration skills.	3.42	1.312	56.211	.000
AICC15. Students should be encouraged to explore AI research and innovation as a means to develop future skills.	3.36	1.357	53.335	.000

Source: Survey Results.

Table 4. Correlations coefficient between the variables.

Correlations Coefficient Between the Variables										
		MAFS1	**MAIE**	**MAISP**	**MAIRWE**	**MAIE2**	**MAIEC**	**MAIGP**	**MAICA**	**MAICC**
MAFS1	Pearson Correlation	1	.785**	.720**	.586**	.702**	.657**	.604**	.597**	.607**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	465	465	465	465	465	465	465	465	465
MAIE	Pearson Correlation	.785**	1	.740**	.614**	.743**	.708**	.654**	.621**	.621**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	465	465	465	465	465	465	465	465	465
MAISP	Pearson Correlation	.720**	.740**	1	.619**	.722**	.647**	.651**	.667**	.684**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
	N	465	465	465	465	465	465	465	465	465
MAIRWE	Pearson Correlation	.586**	.614**	.619**	1	.632**	.520**	.505**	.499**	.595**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
	N	465	465	465	465	465	465	465	465	465
MAIE2	Pearson Correlation	.702**	.743**	.722**	.632**	1	.660**	.645**	.660**	.679**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
	N	465	465	465	465	465	465	465	465	465
MAIEC	Pearson Correlation	.657**	.708**	.647**	.520**	.660**	1	.579**	.661**	.590**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000
	N	465	465	465	465	465	465	465	465	465
MAIGP	Pearson Correlation	.604**	.654**	.651**	.505**	.645**	.579**	1	.581**	.609**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000
	N	465	465	465	465	465	465	465	465	465

Correlations Coefficient Between the Variables

		MAFS1	MAIE	MAISP	MAIRWE	MAIE2	MAIEC	MAIGP	MAICA	MAICC
MAICA	Pearson Correlation	.597**	.621**	.667**	.499**	.660**	.661**	.581**	1	.635**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000
	N	465	465	465	465	465	465	465	465	465
MAICC	Pearson Correlation	.607**	.621**	.684**	.595**	.679**	.590**	.609**	.635**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	N	465	465	465	465	465	465	465	465	465

**. Correlation is significant at the 0.01 level (2-tailed).

4.1. Findings

To measure the artificial intelligence (AI) and future skills for students, we have considered nine dimensions considering 15 items for graduate and undergraduate level program.

Dimension 1 **:** *AI and future skills for Students*

As shown in table 3, the item number AFS1 clearly states that the students for undergraduate and graduate level believe that AI technologies will significantly influence job market with a mean score of (3.75), (*t*=59.595, *p=.000*) and carrer opportunities in the future. Secondly, AFS2 item indicates that AI can enhance students' problem-solving and critical thinking skills with a mean score (3.60), (*t*=61.195, *p*=.000).

Dimension 2 **:** *Integration of AI in Education*

As stated in table 3, its shows that according to students for undergraduate and graduate level rely on item number AIE3 that indicates that the integration of AI in education can help students adapt to rapidly changing technological advancements with a mean score (3.68), (*t*=60.531, *p*=.000). Secondly, for item number AIE4, AI can assist students in acquiring advanced technical skills that are relevant in the job market with a mean score (3.65), (*t*=62.420, *p*=.000) and thirdly, students' perception for AIE5 is that AI-driven personalized learning can improve the educational experience for students with a mean score (3.74), (*t*=64.315, *p*=.000).

Dimension 3 **:** *AI and Student Preparedness*

The students for undergraduate and graduate level for item number AISP6 as shown in table 3 shows that students need to develop a strong understanding of AI and its applications to thrive in the future with a mean score (3.79), (t=63.167, p=.000). Also, it indicates that item number AISP7 clearly states that AI can help in developing adaptability and resilience skills in students with mean score (3.45), (t=59.570, p=.000).

Dimension 4 **:** *AI and Real-World Exposure*

Undergraduate and graduate student's perception towards item number AIRWE8 believes the fact that AI can provide opportunities for students to gain real-world experience and exposure to AI-driven industries with mean score (3.46), (*t*=58.957, *p*=.000).

Dimension 5 **:** *AI Exploration*

As shown in table 3, the graduate and undergraduate students clearly state that item number AIE9 is significant for students and should be encouraged to explore AI-related projects and activities to build future skills with a mean score (3.69), (t=61.501, p=.000). Secondly, they also believe that item number AIE10 clearly shows that AI can assist students in developing skills for data analysis and interpretation with a mean score (3.71), (*t*=62.105, *p*=.000).

Dimension 6 **:** *AI and Ethical Considerations*

This is the most important item number for undergraduate and graduate students AIEC11 as they totally rely on the ethical considerations of AI should be an integral part of education to prepare students for responsible AI use with mean score (3.66), (*t*=59.480, *p*=.000).

Dimension 7 **:** *AI and Global Perspectives*

As indicated in table 3, the item number AIGP12 shows that AI has the potential to help students acquire global perspectives and cultural awareness with a mean score (3.57), (*t*=58.401, *p*=.000).

Dimension 8 **:** *AI and Curricular Adaptation*

As shown in table 3, the item number AICA13 clearly shows that the undergraduate and graduate students believe that the education system should adapt to include AI-related subjects and curricula to meet future skill demands with mean score (3.55), (*t*=58.528, *p*=.000).

Dimension 9 **:** *AI and Communication and Collaboration*

The undergraduate and graduate students believe that item number AICC14 which shows that AI can support students in developing effective communication and collaboration skills with means score (3.42), (*t*=56.211, *p*=.000). Secondly, they also believed that the item number AICC15 indicates that students should be encouraged to explore AI research and innovation as a means to develop future skills with the mean score (3.36), (*t*=53.335, *p*=.000).

5. DISCUSSION

Based on the above results pertaining to the Saudi context which is inclusive of Saudi female and male students (undergraduate and graduate) in a public university which strongly believe that Artificial intelligence (AI) influence future skills of students.

5.1. AI's Influence on Future Skills and Integration in Education

Artificial intelligence (AI) is transforming higher education, influencing the skills that undergraduate and graduate students need to develop. As AI becomes more prevalent in the workplace, fostering the capability to pose insightful questions and drive innovation becomes paramount (Future skills: Kingston University London, 2024). Universities are developing more AI courses and programs to prepare the future workforce (TechTarget, 2024). Some key aspects of AI's influence on future skills for students include: *Interdisciplinary AI-ready workforce*: Universities like the University of Florida are offering AI and data science courses across various disciplines, aiming to create an interdisciplinary AI-ready workforce (Artificial Intelligence University of Florida, 2024). *Data-driven insights*: AI can be used to personalize and improve support for students, allowing Student Affairs professionals to focus on higher-value activities (NASPA, May 23, 2024). *Automation of routine tasks*: AI can automate routine tasks, freeing up time for professionals to engage with students, develop innovative programs, and foster a positive campus culture (NASPA, May 23, 2024). *Lifelong learning skills*: Universities should equip students with lifelong learning skills to make the most of AI's capabilities and contribute meaningfully to the future (Inside Higher Ed, March 21, 2023). *Collaboration with industry and the public sector*: Universities should collaborate with industry and the public sector to create integrated, transparent, and impartial AI programs (Inside Higher Ed, March 21, 2023). Thus, AI continues to shape higher education, it is essential for universities to identify and understand the complexities associated with AI, ensuring that students possess the in-demand skills employers are looking for (Future skills: Kingston

University London, 2024). By embracing AI, colleges can streamline processes, reduce costs, and provide better educational experiences for students (NASPA, May 23, 2024).

5.2. AI and Student Preparedness and Curricular Adaptation

Artificial intelligence (AI) is rapidly transforming the job market, and undergraduate and graduate students need to be prepared for the changes it brings. This highlights the need for students to develop and strengthen their digital skills, as well as learn how to work with AI (Forbes, July 20, 2023). To address this issue, some universities are incorporating AI literacy into their curricula and offering AI-based tools to support career readiness (SDSU, Oct 19, 2023; Southworth and Migliaccio, 2023). For example, the Fowler College of Business at San Diego State University has adopted two AI platforms to help students improve their presentation and interview skills. The University of Florida is developing a program called AI across the Curriculum, which aims to provide every undergraduate student with real-world marketable AI skills and awareness of AI implications in society.

Business schools can also promote career-ready skills by offering students more opportunities for professional development and experiential learning (Vlasceanu, 2023). Professional development programs can help students develop self-efficacy through skills development, experiential learning, mentorship, and faculty feedback. Consequently, AI is reshaping the job market, and students need to be prepared for the changes it brings. Universities and business schools can help students develop the necessary skills and knowledge by incorporating AI literacy into their curricula and offering AI-based tools and professional development opportunities.

5.3. AI and Real-World Exposure and AI Exploration

AI is becoming increasingly important in higher education, and students need to develop their AI literacy to understand the basics of Generative AI, how it works, its advantages and disadvantages, as well as different uses in higher education. Students' perceptions of generative AI technologies, such as ChatGPT, in higher education are explored in a recent study (Chan, & Hu, 2023). AI models could help in including neurodiverse learners, and AI can be an especially strong toolkit for expanding the adaptivity provided to students (Cardona, Rodríguez, Ishmael, 2023). Early exposure to AI education has the potential to transform students' interests, shape their course selections, and even steer their career paths (Winkler, 2023). Graduate and undergraduate students are employed by top tech companies like Meta, Alphabet, Amazon, Microsoft, and Texas Instruments, and universities offer degrees and specializations in AI/ML (Hunter, 2023).

5.4. AI and Ethical Considerations

Graduate and undergraduate students engaging with artificial intelligence (AI) should consider various ethical implications. These include bias and discrimination in AI systems, transparency, accountability, and the potential for AI to surpass human capabilities. It is essential to address these concerns to ensure responsible AI deployment and mitigate challenges. Students should also be mindful of the ethical design, development, use, and evaluation of AI in teaching and learning, as well as the potential for AI to introduce bias in processes such as grading. Building diverse AI teams and implementing trustworthy AI frameworks are critical for limiting bias in AI systems. It is important for students to educate themselves about the ethical use of AI and to consider the potential impact of AI on various processes, including college recruiting (Capitol Technology University, May 20, 2023).

5.5. AI and Global Perspectives

AI and Global Perspectives is a topic of great interest for undergraduate and graduate students, as it encompasses the societal impacts of technology and its role in various industries and fields. Here are some key points to discuss: *AI in Academia*: Students are increasingly using AI and other tools to assist them in their academic careers, such as Chat GPT for research and information gathering. This trend is expected to continue, as universities aim to encourage proficiency and productivity in

using AI (Chan & Hu, 2023). *Global Perspectives*: Courses on global perspectives often investigate various global phenomena, enabling students to make comparative analyses and locate their place in the world (Global View, 2023). This can help students understand the role of AI in different regions and cultures. *Optimism and Trust*: The Ipsos Global AI 2023 Report reveals that optimism about AI is higher in the Global South than in high-income countries and among younger and highly educated adults than among older or less educated individuals (Global View, 2023). This suggests that students should be aware of the varying attitudes towards AI across the world. Impact on Jobs: AI is expected to change the way people do their current jobs and may replace some jobs, but it is also expected to give people more time to get things done and improve their country's economy. Students should consider the potential impact of AI on their future careers and the job market. *Discrimination*: Trust in AI varies widely by region, with it generally being higher in emerging markets and among people under 40 than in high-income countries (Global View, 2023). Students should be aware of the potential for AI to discriminate against certain groups and work towards ensuring that AI is developed and used responsibly. Therefore, AI and Global Perspectives is a complex and multifaceted topic that requires students to consider the societal impacts of technology, the role of AI in various industries and fields, and the varying attitudes towards AI across the world. By engaging in discussions on these topics, students can develop a deeper understanding of the potential benefits and challenges of AI and its role in shaping our future.

5.6. AI and Communication and Collaboration

AI and Communication and Collaboration are important topics for undergraduate and graduate students. Students can collaborate on research projects related to AI and crisis communication (Grady College of Journalism and mass communication, December 4, 2023). They can also enroll in certificate programs that introduce them to AI programs that enhance writing, research, presentation, design, multimedia, and promotional projects (Crompton & Burke, 2023). Graduate students can host AI workshops and explore the impact of generative AI on learning and education (Chan, & Hu, 2023). Students can also pursue a master's degree in AI to gain deep technical training and expertise in machine learning, computer vision, and natural language processing. Additionally, graduate students can work as Teaching Assistants (AI) and Assistant Instructors (TA) in the Communication Studies Department.

6. CONCLUSION

The results of the study highlight the positive perception of undergraduate and graduate students regarding the influence of Artificial Intelligence (AI) on their future skills and education. Students believe that AI technologies will significantly influence the job market and career opportunities in the future. They also recognize that AI can enhance their problem-solving and critical thinking skills, which are crucial for their future success. Students acknowledge the importance of integrating AI into education to help them adapt to rapidly changing technological advancements. They also believe that AI can assist them in acquiring advanced technical skills relevant to the job market and that AI-driven personalized learning can improve their educational experience. They understand the need to develop a strong understanding of AI and its applications to thrive in the future. They also recognize that AI can help them develop adaptability and resilience skills, which are essential in a fast-paced, technologically advanced society. Furthermore, they believe that AI can provide them with opportunities to gain real-world experience and exposure to AI-driven industries, which can enhance their learning and future career prospects. Students express a strong interest in exploring AI-related projects and activities to build their future skills, particularly in data analysis and interpretation, which are in high demand in the job market. They also emphasize the importance of ethical considerations in AI and believe that it should be an integral part of education to prepare them for responsible AI use. Students recognize that AI has the potential to help them acquire global perspectives and cultural awareness, which are important in an increasingly interconnected world. Students believe that the education system should adapt to include AI-related subjects and curricula to meet future

skill demands, highlighting the need for continuous learning and adaptation. Students believe that AI can support them in developing effective communication and collaboration skills, which are essential for success in their future careers. They also believe that exploring AI research and innovation can help them develop future skills and stay competitive in the job market.

6.1. Contribution of the study

Job Market and Career Opportunities: The positive perception of AI's influence suggests recognition among students of its potential impact on future job prospects. This implies a need for educational institutions and policymakers to align curriculum and training programs with emerging trends in AI to better prepare students for the evolving job market. Skill Enhancement: Students acknowledge AI's role in enhancing problem-solving and critical thinking skills. This highlights the importance of integrating AI education into academic programs to equip students with the necessary skills for success in a technology-driven world. Real-World Experience: The desire for real-world experience in AI-driven industries emphasizes the importance of internships, co-op programs, and practical projects that provide students with hands-on exposure to AI applications and technologies. Ethical Considerations: Students recognize the importance of ethical considerations in AI and advocate for its integration into educational curricula. This suggests a need for ethical education and training to ensure responsible AI development and usage. Overall, the implications suggest a need for holistic approaches to AI education that encompass technical skills development, ethical considerations, real-world applications, and a global perspective to prepare students for the challenges and opportunities of the AI-driven future.

AUTHOR'S CONTRIBUTIONS

Musrrat Parveen: Conceptualization, methodology, formal analysis, investigation, supervision, project administration, writing—review and editing; Yushra Mohammed Alkudsi: data curation, visualization, writing—original draft preparation, writing—review and editing.

DATA ACCESSIBILITY STATEMENT

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

ETHICAL STATEMENT

This research was conducted in accordance with the highest ethical standards. All participants provided informed consent, and confidentiality was strictly maintained. The study complied with all institutional and national ethical guidelines, ensuring that no harm or distress was caused to participants.

REFERENCES

Abdul Rahman, A., Santosa, P. I., Ilwandri, I., Suharyat, S., & Suhaimi, M. (2023). The Effectiveness of AI Based Blended Learning on Student Scientific Literacy: Meta-analysis. *International Scientific Journals of Social, Education, Humanities*, *2*(1), 2-3. https://doi.org/10.56910/literacy.v2i1.542

Artificial Intelligence University of Florida, (2024), retrieved from https://ai.ufl.edu/about/

Cardona, M. A., Rodríguez, R. J., & Ishmael, K. (2023). Artificial Intelligence and the Future of Teaching and Learning, insights and recommendations. https://www2.ed.gov/documents/ai-report/ai-report.pdf

Capitol Technology University (2023). The Ethical Considerations of Artificial Intelligence. https://www.captechu.edu/blog/ethical-considerations-of-artificial-intelligence

Chan, C.K.Y., & Hu, W. (2023). Students' voices on generative AI: perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, *20* (43). https://doi.org/10.1186/s41239-023-00411-8

Chen, H., Jensen, B., Albert, E., Gupta, N., & Lee, S. (2023). Artificial Intelligence (AI) Student Assistants in the Classroom: Designing Chatbots to Support Student Success. *Springer Link*, *31*(4), 1-3. https://link.springer.com/article/10.1007/s10796-022-10291-4

Christian, J., Park, D., Paul, H., Yi, M., Eliot, L., & Siegel, M. (2021). Medical Student Perspectives on the Impact of Artificial Intelligence on the Practice of Medicine. *Current Problems in Diagnostic Radiology*, *50*(5), 614-619. https://www.sciencedirect.com/science/article/abs/pii/S0363018820301249

Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: the state of the field. International Journal of Educational *Technology in Higher Education*, *20*(22), 1-3. https://doi.org/10.1186/s41239-023-00392-8

Chen, M. N. (July 20, 2023). AI Is Leading College Graduates to Question Their Job Readiness, According To New Survey. https://www.forbes.com/sites/michaeltnietzel/2023/07/20/ai-is-leading-college-graduates-to-question-their-job-readiness-according-to-new-survey/

Future skills. (2024). Future Skills: The Kingston Approach Kingston. *University London* https://www.kingston.ac.uk/aboutkingstonuniversity/future-skills/

Global View on AI. (2023). How people across the world feel about artificial intelligence and expect It will impact their life, A 31-country Global Advisor survey. *Ipsos*. https://www.ipsos.com/sites/default/files/ct/news/documents/2023-07/Ipsos%20Global%20AI%202023%20Report-WEB_0.pdf

Gocen, S., & Aydemir, M. (2020). Artificial Intelligence in Education and Schools. *Research Gate*, *12*(1), 1-14. https://doi.org/10.2478/rem-2020-0003

Grady college of Journalism and mass communication (2023). Cross-institutional collaboration sparks student research on AI, crisis communication. https://grady.uga.edu/news/cross-institutional-collaboration-sparks-student-research-on-ai-crisis-communication/

Grassini, S. (2023). Shaping the Future of Education: Exploring the Potential and Consequences of AI and ChatGPT in Educational Settings. *Education Sciences*, *13*(7),1-9, https://doi.org/10.3390/educsci13070692

Hamd, M., Elshami, W., AlKawasd, A., Aljuaide, A., & Abuzaid, O. (2023). A closer look at the current knowledge and prospects of artificial intelligence integration in dentistry practice: A cross-sectional study. *Heliyon*, *9*(12), e07368. https://doi.org/10.1016/j.heliyon.2023.e07368

Hohenstein, J., Kizilcec, R. F., DiFranzo, D., Aghajari, S., Mieczkowski, H., Levy, O., Naaman, M., Hancock, J. T., & Jung, J. (2023). Artificial intelligence in communication impacts language and social relationships. *Scientific Reports*, *13*(1), 1-9. https://doi.org/10.1038/s41598-023-30938-9

Holstein, K., McLaren, B. M., & Aleven, V. (2018). Student Learning Benefits of a Mixed-Reality Teacher Awareness Tool in AI-Enhanced Classrooms. In *Proceedings of the International Conference on Artificial Intelligence in Education* (pp. 12-24). Springer. https://doi.org/10.1007/978-3-319-93843-1_12

Huang, A. Y. Q., Lu, O. H. T., & Yang, S. J. H. (2023). Effects of artificial intelligence–enabled personalized recommendations on learners' learning engagement, motivation, and outcomes in a flipped classroom. *Computers & Education*, *194*, 104684. https://doi.org/10.1016/j.compedu.2023.104684

Hunter, G. (2023). AI-Ready or Not? North Texas universities are gearing up for the AI revolution, readying students for the jobs of tomorrow. https://dallasinnovates.com/ai-ready-or-not/

Inside Higher Ed (2023). How AI Is Shaping the Future of Higher Ed. https://www.insidehighered.com/views/2023/03/22/how-ai-shaping-future-higher-ed-opinion

Kim.N., & Kim., M. (2022). Teacher's Perceptions of Using an Artificial Intelligence-Based Educational Tool for Scientific Writing. *Frontiers*, *7*(1), 1-8, https://doi.org/10.3389/feduc.2022.755914

Murugesan, U., Subramanian, P., Srivastava, S., & Dwivedi, A. (2023). A study of Artificial Intelligence impacts on Human Resource Digitalization in Industry 4.0. *Decision Analytics Journal*, *7*, 100249. https://doi.org/10.1016/j.dajour.2023.100249

Wang, G., Liu, Y., Pang, Y., Chee Tan, E., Lei, Z., Wallace, J., & Li, Y. (2023). What matters in AI-supported learning: A study of human-AI interactions in language learning using cluster analysis and epistemic network analysis. *Computers & Education*, *194*(11), 2-5. https://doi.org/10.1016/j.compedu.2022.104684

NASPA (2024). The Future of Higher Education – The Rise of AI and ChatGPT on Your Campus, Student affairs Administrators in Higher education. https://www.naspa.org/blog/the-future-of-higher-education-the-rise-of-ai-and-chatgpt-on-your-campus

Neha, K. (2020). Role of Artificial Intelligence in Education. *Alochana Chakra Journal*, *9*(9), 305-309.

Nguyen, T. H., Ngan Ngo, H., Hong, H. T. T., Dang, T. T., & P. Nguyen. (2023). Ethical principles for artificial intelligence in education. *Education and Information Technologies*, *28*, 4221-4241. https://doi.org/10.1007/s10639-022-11316-w

Ouyang, F., Xu, J., & Cukurova, M. (2023). An artificial intelligence-driven learning analytics method to examine the collaborative problem-solving process from the complex adaptive systems perspective. *Educational Technology Research and Development*, *18*, 39–66. https://doi.org/10.1007/s11412-023-09387-z

SDSU. (2023). Fowler Offers Students New AI-Based Tools to Support Career-Readiness. https://business.sdsu.edu/news/2023/10/ai-career-readiness

Southworth, J., & Migliaccio, K. (2023). Developing Career-Ready Graduates: The Importance of AI Literacy Across the Curriculum. https://media-and-learning.eu/type/featured-articles/developing-career-ready-graduates-the-importance-of-ai-literacy-across-the-curriculum/

Syed, W., Al-Rawi, M. B.A. (2023). Assessment of Awareness, Perceptions, and Opinions towards Artificial Intelligence among Healthcare Students. *Medicina*, *59*(5), 2-10. https://doi.org/10.3390/medicina59050828

TechTarget. (2024). Top degree programs for studying artificial intelligence. https://www.techtarget.com/whatis/feature/The-top-20-programs-for-studying-artificial-intelligence

Vlasceanu, J. J (2023). AI's Transformation of Career Preparation. https://www.aacsb.edu/insights/articles/2023/07/ais-transformation-of-career-preparation

Winkler, C. (2023). AI Goes Rural enhances student and teacher experiences in rural Indiana. https://education.indiana.edu/news/2023/jul-dec/2023-07-11-ai-goes-rural-enhances-student-and-teacher-experiences-in-rural-indiana.html

Zhai, X., Chu, X., Chai, C. S., Jong, M. S. Y., Istenic, A., Spector, M., Liu, J.-B., Yuan, J., & Li, Y. (2021). A review of artificial intelligence (AI) in education from 2010 to 2020. *Complexity*, 1-18. https://doi.org/10.1155/2021/8812542

Zhang, H., Cheng, K., Lee, J., Ali, S., DiPaola, S., & Breazeal, C. (2023). Integrating ethics and career futures with technical learning to promote AI literacy for middle school students: An exploratory study. *Educational Technology Research and Development*, *31*(4), 1-7. https://doi.org/10.1007/s40593-022-00293-3