JOURNAL OF TERTIARY EDUCATION AND LEARNING (JTEL)

ISSN: 2994-4015 (Online)

VOLUME 2 ISSUE 3 (2024)

PUBLISHED BY
E-PALLI PUBLISHERS, DELAWARE, USA

Journal of Tertiary Education and Learning(JTEL)

Volume 2 Issue 3, Year 2024
ISSN: 2994-4015 (Online)
DOI: https://doi.org/10.54536/jtel.v2i3.3341
https://journals.e-palli.com/home/index.php/jtel

Are We Prepared as Management Undergraduates for an AI-Driven Future?

Kristy Anjala[1*]

Article Information

Received: September 02, 2024
Accepted: October 12, 2024
Published: November 23, 2024

Keywords

Artificial Intelligence, Attitudes, Higher Education, Management Undergraduates, Perceptions

ABSTRACT

This study investigated the attitudes and perceptions of management undergraduates towards Artificial Intelligence (AI) in higher education. Drawing on survey data from 185 management undergraduates across three leading public universities in Sri Lanka, the study examined the respondents' perspectives towards AI along with seven distinctive domains of General Perception and Awareness, Comfort and Confidence, Education and Curriculum Design, Ethical Considerations, Impact of market jobs, Learning experience and Future Preparedness. Employing cross-sectional descriptive research design, an online survey using Google Forms was administered to collect data, covering seven sub-areas related to AI awareness and attitudes. Results indicated a moderate level of knowledge about AI concepts among management undergraduates, coupled with a significant gap in formal education and awareness about AI technologies within their academic curriculum. While many undergraduates expressed optimism about the positive impact of AI on their performance and the job market, there is a clear need for increased integration of AI topics into academic programs to enhance skills and knowledge of the undergraduates in this rapidly evolving field. Ethical considerations surrounding AI emerged as an important area of concern, highlighting the need for greater awareness and education on AI ethics within academic curricula. Accordingly, the study contributes valuable insights to the growing body of literature on AI in higher education and emphasizes the importance of addressing the evolving role of AI in preparing management undergraduates for the future.

INTRODUCTION

Artificial Intelligence (AI) is one of the most important recent technologies that had shown an accelerated effect in the society thus influencing how we live, work and interact with the society. At first, AI was considered the same as a computer, but the concept has evolved over time. When it comes to the literature, the role of AI in various industries has been explored, including but not limited to manufacturing (Zeba *et al.*, 2021; Buchmeister *et al.*, 2019; Chien *et al.*, 2020), banking and finance (Jain, 2023), healthcare (Wang & Preininger, 2019; Rajpurkar *et al.*, 2022; Reddy *et al.*, 2020), and education (Holmes & Tuomi, 2022; Guilherme, 2019; Perrotta & Selwyn, 2020). The function of AI in higher education has also received significant attention from researchers due to the advantages it provides (Chan & Hu, 2023; Sousa *et al.*, 2021; Wang *et al.*, 2021). The emergence of AI in higher education promises to revolutionize not only the outdated pedagogies and procedures but also the conventional administrative practices (Luan *et al.*, 2020; Ahmad, 2020; Muhabbat *et al.*, 2024). Taking into consideration that academia is more and more AI-powered, it is significant to understand how students relate to AI in order to develop a strategy how to utilize AI to the maximum benefit. Accordingly, several studies have been directed towards to understand the students' attitudes and perceptions towards AI, which are mostly covered the students in health care domains (Asmatahasin *et al.*, 2021; Pinto dos Santos *et al.*, 2019; Sit *et al.*, 2020; Yüzbaşıoğlu, 2021; Busch *et al.*, 2024).

Most importantly, according to the literature, studies on students' perceptions of AI have proved that students' attitude towards AI influenced their engagement with AI educational tools, which directly influence the students learning outcomes (Sousa *et al.*, 2021; Wu & Yu, 2024). According to the studies, it is clear that most of the efforts of the researches all over the world on AI-based education solutions are directed towards medical and healthcare domains and the perspectives of the management undergraduates received less attention as there are very few studies (Almaraz-López *et al.*, 2023) and therefore, more studies will be useful to study whether they are positive toward AI and its consequences for their academic life and career. Thus, we need to highlight the fact that the merging of management education and AI is undoubtedly an important matter that needs our attention because the skill sets and competencies of future business leaders will be influenced by the effect of AI on organizational decision-making and strategic planning as well as by the efficiency level changes within the organization's operations (Meier & Seufert, 2022). That is, management students, the generations next in leadership, are not only the recipients of AI learning but also the key drivers of reinvention in organizations. Consequently, a study of the attitudes of management undergraduates towards AI in higher education not only contributes to an understanding of their educational experience but also gives a chance to take a look at the future of AI in business. Accordingly, the study aims to investigate the attitudes and perception of management undergraduates towards Artificial Intelligence in Higher education, which encompasses the seven sub-

[1] Department of Business Management, Faculty of Management Studies, Rajarata University of Sri Lanka, Mihinthale, Sri Lanka
[*] Corresponding author's e-mail: anjalaak@mgt.rjt.ac.lk

areas: namely, General Perception and Awareness, Comfort and Confidence, Education and Curriculum, Ethical Considerations, Impact on Job Market, Learning Experience and Future Preparedness. Accordingly, the prominence of this study goes far beyond the academic sphere. Firstly, in the light of the fact that AI technologies change all the time and become to be more and more widespread in higher education, this research explores the management undergraduates' attitudes and awareness about AI and clarify the current gap in the area. Moreover, given that AI technologies are progressively used by educational institutions, it is rational to be familiar about how management undergraduates understand and use AI, which can help to devise better strategic decision related to curriculum development, resource allocation and student experience enhancement. Finally, this research will give important input to the policymakers, researchers and business leaders to be prepared the new management professionals that AI will be central to the business success.

MATERIALS AND METHODS

This study utilized cross sectional descriptive research design to explore the awareness and attitudes of management undergraduates towards Artificial Intelligence (AI) within the higher education landscape of Sri Lanka, aiming to provide a comprehensive understanding of this emerging field. The target population comprises management undergraduates from three prominent public universities in Sri Lanka, with a convenient sampling approach facilitating participant selection based on accessibility and availability. An online survey, constructed using Google Forms, serves as the primary data collection instrument, designed to capture undergraduates' perspectives across seven key areas: General Perception and Awareness, Comfort and Confidence, Education and Curriculum, Ethical Considerations, Impact on Job Market, Learning Experience, and Future Preparedness. The survey was distributed among the targeted population by email, social media platforms as well as through university communication channels. Subsequent to the completion of data collection, the gathered data was subjected to an intensive analysis with the use of Statistical Package for the Social Sciences (SPSS) 23 version, which offers numerous analytical tools, including frequency analysis and descriptive statistics, to come up with meaningful insights. Ethical aspects of research underlie all components of research process and participants' rights were guaranteed confidentiality, anonymity and protection during the whole research duration.

RESULTS AND DISCUSSION

Sample Profile

For the purpose of the study, a sample of 185 management undergraduates from three leading public universities was selected and the sample profile of respondents can be seen in the Table 1.

Table 1: Sample profile of respondents

Variable		Count	Frequency
Gender	Male	102	55.1%
	Female	83	44.9%
Field of Study	Business Management	35	18.9%
	Human Resource Management	15	8.1%
	Accounting	20	10.8%
	Finance	22	11.9%
	Marketing	18	9.7%
	Information Systems	22	11.9%
	Economics	27	14.6%
	Other	26	14.1%

According to the sample profile, there are 102 individuals identified as Male, constituting 55.1% of the total count, while 83 individuals are identified as Female, making up 44.9% of the total. Regarding Field of Study, Business Management is the most represented with 35 individuals (18.9%), followed by Economics with 27 individuals (14.6%), and Information Systems with 22 individuals (11.9%). Other fields such as Accounting, Finance, and Marketing each have varying proportions, contributing to the diversity of academic interests within the population under consideration.

Assessment of AI Understanding and Integration

The Table 2 provides insights into respondents' perceptions, engagement, and beliefs regarding artificial intelligence (AI).

Table 2: Assessment of AI Understanding and Integration

Assessment of AI Unders- tanding and Integration		Count	Frequency
How would you rate your overall knowledge about artificial intelligence?	Very Low	41	22.2%
	Low	39	21.1%
	Moderate	95	51.4%
	High	7	3.8%
	Very High	3	1.6%
Have you taken any courses or attended on artificial intelligence?	Yes	13	7.0%
	No	172	93.0%

How frequently do you currently use or interact with AI technologies?	Daily	107	57.8%
	Weekly	40	21.6%
	Monthly	38	20.5%
	Rarely	0	0.0%
	Never	0	0.0%
Do you believe that artificial intelligence will have a positive impact on your performance?	Very Unlikely	0	0.0%
	Unlikely	0	0.0%
	Neutral	23	12.4%
	Likely	33	17.8%
	Very Likely	129	69.7%
Do you think there is enough education and awareness about artificial intelligence in your academic curriculum?	Yes	19	10.3%
	No	166	89.7%

Firstly, when asked to rate their overall knowledge about AI, a majority of respondents (51.4%) considered their knowledge to be moderate, followed by 22.2% who rated it as very low and 21.1% as low. Only a small percentage rated their knowledge as high (3.8%) or very high (1.6%). Secondly, regarding participation in AI-related courses or workshops, a significant majority (93.0%) reported not having taken any such courses or attended workshops, with only 7.0% indicating they had. Thirdly, in terms of current usage or interaction with AI technologies, a majority of respondents (57.8%) reported daily engagement, followed by 21.6% weekly and 20.5% monthly. Notably, none reported rarely or never using or interacting with AI technologies. Fourthly, when asked about their belief in the positive impact of AI on their performance, a substantial majority (69.7%) expressed that they believed AI would have a very likely positive impact, while 17.8% indicated it was likely. A smaller percentage (12.4%) remained neutral on this issue, with none expressing unlikelihood. Finally, regarding education and awareness about AI in their academic curriculum, the majority (89.7%) felt there was not enough education and awareness, while only 10.3% believed there was sufficient coverage of AI topics in their academic curriculum.

Purpose of Using AI

Table 3 demonstrates the multiple purposes undergraduates disclosed which motivate them to use AI in their studies.

Table 3: Purpose of Using AI

Purpose of Using AI	**Frequency**	**Percent**
Research Support	26	14.1
Data Analysis	29	15.7
Programming and Coding Practice	25	13.5
Learning and Skill Development	18	9.7
Image and Video Processing	32	17.3
Problem Solving	31	16.8
Other	24	13.0
Total	185	100.0

Among the listed activities, "Image and Video Processing" was the most frequently mentioned, with 32 respondents (17.3%) indicating their involvement. Following closely were "Problem Solving" and "Data Analysis," selected by 31 (16.8%) and 29 (15.7%) respondents, respectively. Other activities, such as "Research Support" and "Programming and Coding Practice," also saw notable participation, with 26 (14.1%) and 25 (13.5%) respondents involved. Additionally, "Learning and Skill Development" was chosen by 18 respondents (9.7%). These findings provide valuable insights into the diverse activities respondents engage in regarding AI, while also highlighting the key areas of interest and focus among the participants.

Attitudes and perceptions Towards AI

The Table 4 shows in details the respondents' perspectives towards AI along with seven distinctive domains of General Perception and Awareness, Comfort and Confidence, Education and Curriculum Design, Ethical Considerations, Impact of market jobs, Learning experience and Future Preparedness.

Table 4: Attitudes and perceptions Towards AI

	Strongly Disagree	Disagree	Moderate	Agree	Strongly Agree
General Perception and Awareness					
AI concepts are clear and understandable to me.	20 (10.8%)	48 (25.9%)	41 (22.2%)	53 (28.6%)	23 (12.4%)
I am aware of the various applications of AI in today's world.	10 (5.4%)	62 (33.5%)	54 (29.2%)	49 (26.5%)	10 (5.4%)
I feel informed about how AI technologies work.	5 (2.7%)	61(33.0%)	44(23.8%)	60(32.4%)	15 (8.1%)
Comfort and Confidence					
I feel comfortable using AI technologies for academic purposes.	6(3.2%)	58(31.4%)	57(30.8%)	59(31.9%)	5(2.7%)
I am confident in my ability to understand basic AI concepts.	8(4.3%)	57(30.8%)	48(25.9%)	59(31.9%)	13(7.0%)
I am open to experimenting with new AI tools.	6(3.2%)	48(25.9%)	61(33.0%)	57(30.8%)	13(7.0%)
Education and Curriculum					
AI should be integrated into the academic curriculum to better prepare students for the future.	4(2.2%)	31(16.8%)	37(20.0%)	88(47.6%)	25(13.5%)
I believe there is a need for more AI-related courses in my academic program.	0(0.0%)	34(18.4%)	57(30.8%)	66(35.7%)	28(15.1%)
I value the inclusion of AI topics in my education.	7(3.8%)	51(27.6%)	27(14.6%)	77(41.6%)	23(12.4%)
Ethical Considerations					
Ethical considerations of AI are important for me to understand as a student.	10(5.4%)	54(29.2%)	50(27.0%)	63(34.1%)	8(4.3%)
I am concerned about the ethical implications of widespread AI use.	7(3.8%)	67(36.2%)	47(25.4%)	57(30.8%)	7(3.8%)
I believe education on AI ethics should be part of the curriculum.	3(1.6%)	54(29.2%)	59(31.9%)	60(32.4%)	9(4.9%)
Impact on Job Market					
I believe AI will significantly impact the job market in the future.	2(1.1%)	51(27.6%)	41(22.2%)	70 (37.8%)	21(11.4%)
I am concerned about potential job displacement due to increased use of AI.	7(3.8%)	47(25.4%)	48(25.9%)	59(31.9%)	24(13.0%)
I feel confident about adapting to changes in the job market influenced by AI.	7(3.8%)	41(22.2%)	55(29.7%)	70(37.8%)	12(6.5%)
Learning Experience					
AI technologies can enhance the learning experience in academic settings.	6(3.2%)	42(22.7%)	36(19.5%)	76(41.1%)	25(13.5%)
I am open to exploring and using AI tools for personal or academic projects.	0(0.0%)	53(28.6%)	53(28.6%)	65(35.1%)	14(7.6%)
Exposure to AI enhances my overall educational experience.	4(2.2%)	56(30.3%)	37(20.0%)	74(40.0%)	14(7.6%)
Future Preparedness					
I feel adequately prepared for a future with increased AI integration.	7 (3.8%)	79(42.7%)	49(26.5%)	43(23.2%)	7(3.8%)
My academic program is equipping me with the skills needed for a future influenced by AI.	6(3.2%)	93(50.3%)	36(19.5%)	42(22.7%)	8(4.3%)
I believe understanding AI is crucial for my future success.	3(1.6%)	33(17.8%)	40(21.6%)	80(43.2%)	29(15.7%)

In terms of General Perception and Awareness, a significant portion of respondents expressed varying degrees of clarity regarding AI concepts, with 28.6% feeling very clear and understandable, while only 10.8% strongly disagreed. Similarly, awareness of AI applications was diverse, with 33.5% agreeing they were informed about various applications, contrasting with 5.4% who strongly disagreed. Regarding Comfort and Confidence, respondents showed a range of attitudes. While a notable portion felt comfortable using AI technologies for academic purposes (31.9%), a smaller fraction expressed confidence in their ability to understand basic AI concepts (7.0%). Concerning Education and Curriculum, the majority indicated a need for AI integration into academic curricula (47.6%) and more AI-related courses (35.7%). However, opinions varied on the inclusion of AI topics in education, with 41.6% agreeing, while 12.4% disagreed. Ethical Considerations elicited mixed responses, with a substantial portion indicating the importance of understanding AI ethics (34.1%), while others expressed concerns about ethical implications (36.2%) and the need for education on AI ethics in curricula (32.4%). When considering the Impact on Job Market, opinions varied widely. While many believed AI would significantly

impact the job market (37.8%), concerns about potential job displacement (31.9%) and confidence in adapting to changes (37.8%) were also evident. Learning Experience falls under the area where AI is likely to have improving effects, stated by 41.1 percent of respondents. Over 35.1 percent of survey takers were ready to learn about AI for personal or academic purposes. Though in Future Readiness opinion were relatively divided, whereas some students considered themselves adequately prepared for their future careers in artificial intelligence (42.7%), others felt that their course of study was not yet effective enough to supply them with the necessary skills in the future (50.3%). This data is holistic and indicates a diverse attitudes of AI integrations in higher education.

Table 5: Descriptive Statistics on Attitudes and perceptions towards AI

	Minimum	**Maximum**	**Mean**	**Std Deviation**
General Perception and Awareneess	1.67	5.00	3.0306	.62527
Comfort and Confidence	1.67	5.00	3.0613	.59575
Education and Curriculum.	2.00	5.00	3.4414	.67769
Ethical Consideration	1.00	5.00	3.0234	.59694
Impact on Job Market	1.67	4.67	3.2559	.60443
Learning Experience	2.00	5.00	3.2703	.61796
Future Preparedness	1.33	4.67	3.0288	.55637

The table summarizes respondents' perceptions of AI, showing generally positive attitudes across various aspects, though with some variation. Key findings include moderate to high levels of understanding, confidence, and agreement on AI integration into education, job market impact, and its potential to enhance learning. Ethical considerations were rated as moderately important. While most respondents expressed confidence, there was some variability in their preparedness for an AI-driven future. Overall, the data highlights both positive views and differing opinions on AI-related topics.

Discussion of the results

This study investigates the attitudes and perceptions of management undergraduates towards Artificial Intelligence (AI) in higher education. Accordingly, through the research data obtained from a total of 185 management undergraduates who belong to the leading public universities in Sri Lanka, the findings of the study provide valuable insights into the attitudes and perceptions of management undergraduates towards Artificial Intelligence (AI) in higher education. The discussion will address key aspects of the results, comparing them with existing literature where applicable. The assessment of AI understanding and integration revealed that the majority of respondents rated their AI knowledge as moderate (51.4%), with very few considering their knowledge high (3.8%) or very high (1.6%). This aligns with findings of other reseachers who observed that undergraduates often have a basic understanding of AI concepts but lack in-depth knowledge (Ampofo, Emery & Ofori, 2023; Kono, 2022). The low participation in AI-related courses (7.0%) further underscores this gap in education. This suggests a need for more comprehensive AI education within the curriculum. Daily interaction with AI technologies (57.8%) suggests high engagement, yet the lack of formal education on AI indicates that much of this interaction is likely informal and self-driven. This gap highlights an opportunity for universities to integrate more structured. AI learning experiences, as recommended by various studies (Almaraz-López, Almaraz-Menéndez & López-Esteban, 2023; Dantas, Estrela & Yuan, 2022). General perception and awareness of AI varied, with 28.6% agreeing that AI concepts are clear and understandable. This finding is in line with some studies which found that while students are generally aware of AI, there is still significant room for improving their understanding of its underlying principles and applications (Almaraz-López, Almaraz-Menéndez & López-Esteban, 2023; Chan & Hu, 2023; Hostetter *et al.*, 2023). Ethical considerations around AI were also significant, where majority of the respondents are agreeing on the importance of understanding AI ethics. This aligns with the previous research done by several researchers, who stressed the need for ethical education in AI to prepare students for the broader societal implications of AI technologies (Gartner & Krašna, 2023; Matias & Zipitria, 2023; Slimi & Carballido, 2023). Concerns about the impact of AI on the job market were prevalent, where majority of the respondents are believing that AI will significantly impact future employment. This concern is supported by many previous studies who discussed the transformative effects of AI on the job market, including potential job displacement (Rickardo & Meiriele, 2023; Tiwari, 2023). However, only a few percentages of respondents in the view that they are adequately prepared for a future with increased AI integration, suggesting a gap between current education and future workforce requirements. This finding underscores the need for educational institutions to better align their programs with the skills required in an AI-driven economy as evident by previous studies as well (Benhayoun & Lang, 2021; Robson *et al.*, 2022; Zouhaier, 2023). Consequently, the general results of the study indicate a positive attitude towards AI and the perceived demand for AI incorporation into curricula. Hence, filling these educational gaps and improving AI-infused learning experiences will be instrumental in equipping students for a world in which AI is both prevalent and indispensable. However, based on the responses received from the management undergraduates

regarding their perception about the use of AI in higher education, the following limitations should be taken into account when analyzing the results of this study. Firstly, the number of students of the sample is 185 which is sufficient for exploratory analysis but may not truly depict the entire population of management undergraduates in Sri Lanka or other areas. The future studies could improve the external validity of the findings by recruiting a larger and more diverse sample. Secondly, the data used in the study is based on self-report, and this is more likely to be bias. Respondents might have overestimated or underestimated their knowledge and engagement with AI. Thirdly, the cross-sectional design of the study captures perceptions at a single point in time. Longitudinal studies could offer insights into how these perceptions change over time. Lastly, the study focuses on management undergraduates from leading public universities in Sri Lanka. The findings may not be applicable to students from different disciplines or educational institutions with different resources and curricular focuses. Comparative studies across different fields of study and types of institutions could help identify unique and common factors influencing AI perceptions.

CONCLUSION

This study investigates the awareness and attitudes of management undergraduates towards Artificial Intelligence (AI) in higher education in Sri Lanka. Accordingly, this study provides valuable insights of management undergraduates towards AI in higher education landscape. The findings indicate that while students generally have a moderate understanding of AI and engage frequently with AI technologies, there is a significant gap in formal AI education. This highlights the need for higher education institutions to integrate more comprehensive AI-related content into their curricula to better prepare students for future challenges and opportunities in an AI-driven world. The diverse purposes for which students use AI, ranging from problem-solving to data analysis and creative tasks, underscore the versatility and importance of AI skills in modern education and future careers. However, the limited coverage of AI topics in current curricula suggests that much of this engagement is informal, pointing to a critical need for more structured learning opportunities. Future research should address the limitations of this study, including the relatively small and localized sample and the reliance on self-reported data. Longitudinal studies and comparative analyses across different disciplines and institutions would provide deeper insights into how AI education can be effectively integrated into higher education. By addressing these educational gaps and enhancing AI-related learning experiences, higher education institutions can better equip students with the skills and knowledge needed to thrive in an increasingly AI-centric world.

REFERENCES

Ahmad, T. (2020). Scenario based approach to re-imagining future of higher education which prepares students for the future of work. *Higher Education, Skills and Work-Based Learning, 10*(1), 217-238. https://doi.org/10.1108/HESWBL-12-2018-0136

Almaraz-López, C., Almaraz-Menéndez, F., & López-Esteban, C. (2023). Comparative study of the attitudes and perceptions of university students in business administration and management and in education toward artificial intelligence. *Education Sciences, 13*(6), 609. https://doi.org/10.3390/educsci13060609

Ampofo, J. W., Emery, C. V., & Ofori, I. N. (2023). Assessing the level of understanding (knowledge) and awareness of diagnostic imaging students in Ghana on Artificial Intelligence and its applications in Medical Imaging. *Radiology Research and Practice, 2023*(1), 4704342. https://doi.org/10.1155/2023/4704342

Asmatahasin, M., Pratap, K. V. N. R., Padma, T. M., Kalyan, V. S., & Kumar, V. S. (2021). Attitude and perception of dental students towards artificial intelligence. *Indian Journal of Basic and Applied Medical Research, 10*(3), 305-314. https://doi.org/10.36848/IJBAMR/2020/29215.557818

Benhayoun, L., & Lang, D. (2021). Does higher education properly prepare graduates for the growing artificial intelligence market? Gaps' identification using text mining. *Human Systems Management, 40*(5), 639-651. https://doi.org/10.3233/HSM-211179

Buchmeister, B., Palcic, I., & Ojstersek, R. (2019). Artificial intelligence in manufacturing companies and broader: An overview. DAAAM International Scientific Book, 81-98. https://doi.org/10.2507/daaam.scibook.2019.07

Busch, F., Hoffmann, L., Truhn, D., Palaian, S., Alomar, M., Shpati, K., ... & Adams, L. C. (2024). International pharmacy students' perceptions towards artificial intelligence in medicine—a multinational, multicentre cross sectional study. *British Journal of Clinical Pharmacology, 90*(3), 649-661. https://doi.org/10.1111/bcp.15911

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*(1), 43. https://doi.org/10.1186/s41239-023-00411-8

Chien, C. F., Dauzère-Pérès, S., Huh, W. T., Jang, Y. J., & Morrison, J. R. (2020). Artificial intelligence in manufacturing and logistics systems: algorithms, applications, and case studies. *International Journal of Production Research, 58*(9), 2730-2731. https://doi.org/10.1080/00207543.2020.1752488

Dantas, L., Estrela, E., & Yuan, Z. (2022). What Can AI Learn from Teachers and Students? A Contribution to Build the Research Gap Between AI Technologies and Pedagogical Knowledge. *European Journal of Education and Pedagogy, 3*(6), 189-198. https://doi.org/10.24018/ejedu.2022.3.6.509

Gartner, S., & Krašna, M. (2023, June). Artificial intelligence in education-ethical framework. In *2023 12th Mediterranean Conference on Embedded Computing*

(MECO) (pp. 1-7). IEEE. https://doi.org/10.1109/MECO58584.2023.10155012

Guilherme, A. (2019). AI and education: the importance of teacher and student relations. *AI & society, 34*, 47-54. https://doi.org/10.1007/s00146-017-0693-8

Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European Journal of Education, 57*(4), 542-570. https://doi.org/10.1111/ejed.12533

Hostetter, A., Call, N., Frazier, G., James, T., Linnertz, C., Nestle, E., & Tucci, M. (2023, March 21). *Student and Faculty Perceptions of Artificial Intelligence in Student Writing*. PsyArXiv Preprints. https://doi.org/10.31234/osf.io/7dnk9

Jain, R. (2023). Role of artificial intelligence in banking and finance. *Journal of Management and Science, 13*(3), 1-4. https://doi.org/10.26524/jms.13.27

Kono, Y. (2022). Student Learning in the Age of AI. In: Aruka, Y. (eds) Digital Designs for Money, Markets, and Social Dilemmas. *Evolutionary Economics and Social Complexity Science, 28*. Springer, Singapore. https://doi.org/10.1007/978-981-19-0937-5_19

Luan, H., Geczy, P., Lai, H., Gobert, J., Yang, S. J., Ogata, H., ... & Tsai, C. C. (2020). Challenges and future directions of big data and artificial intelligence in education. *Frontiers in psychology, 11*, 580820. https://doi.org/10.3389/fpsyg.2020.580820

Matias, A., Zipitria, I. (2023). Promoting Ethical Uses in Artificial Intelligence Applied to Education. In: Frasson, C., Mylonas, P., Troussas, C. (eds) Augmented Intelligence and Intelligent Tutoring Systems. ITS 2023. *Lecture Notes in Computer Science, 13891*. Springer, Cham. https://doi.org/10.1007/978-3-031-32883-1_53

Meier, C., & Seufert, S. (2022). AI-supported systems for integrated skills-management and skills-development. In *Artificial Intelligence Education in the Context of Work* (pp. 3-25). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-031-14489-9_1

Muhabbat, H., Mukhiddin, K., Jalil, H., Dustnazar, K., Farxod, T., Shavkat, M., ... & Jakhongir, S. (2024). The digital frontier: AI-enabled transformations in higher education management. *Indonesian Journal of Educational Research and Technology, 4*(1), 71-88. https://doi.org/10.175 09/ijert.v4i1.60367

Perrotta, C., & Selwyn, N. (2020). Deep learning goes to school: Toward a relational understanding of AI in education. *Learning, Media and Technology, 45*(3), 251-269. https://doi.org/10.1080/17439884.2020.1686017

Pinto dos Santos, D., Giese, D., Brodehl, S., Chon, S. H., Staab, W., Kleinert, R., ... & Baeßler, B. (2019). Medical students' attitude towards artificial intelligence: a multicentre survey. *European radiology, 29*, 1640-1646. https://doi.org/10.1007/s00330-018-5601-1

Rajpurkar, P., Chen, E., Banerjee, O., & Topol, E. J. (2022). AI in health and medicine. *Nature medicine, 28*(1), 31-38. https://doi.org/10.1038/s41591-021-01614-0

Reddy, S., Allan, S., Coghlan, S., & Cooper, P. (2020). A governance model for the application of AI in health care. *Journal of the American Medical Informatics Association, 27*(3), 491-497. https://doi.org/10.1093/jamia/ocz192

Rickardo, G., & Meiriele, S. (2023). Artificial Intelligence: Its Impact on Employability. *World Journal of Advanced Research and Reviews, 18*(3), 198-203. https://doi.org/10.30574/wjarr.2023.18.3.1056

Robson, R., Kelsey, E., Goel, A., Nasir, S., Robson, E., Garn, M., ... & Ray, F. (2022). Intelligent links: AI-supported connections between employers and colleges. *AI Magazine, 43*(1), 75-82. https://doi.org/10.1002/aaai.12040

Sit, C., Srinivasan, R., Amlani, A., Muthuswamy, K., Azam, A., Monzon, L., & Poon, D. S. (2020). Attitudes and perceptions of UK medical students towards artificial intelligence and radiology: a multicentre survey. *Insights into imaging, 11*, 1-6. https://doi.org/10.1186/s13244-019-0830-7

Slimi, Z., & Carballido, B. V. (2023). Navigating the Ethical Challenges of Artificial Intelligence in Higher Education: An Analysis of Seven Global AI Ethics Policies. *TEM Journal, 12*(2). https://doi.org/10.18421/TEM122-02

Tiwari, R. (2023). The impact of AI and machine learning on job displacement and employment opportunities. *Interantional Journal of Scientific Research in Engineering and Management, 7*(01). https://doi.org/10.55041/IJSREM17506

Vandenberg, J., & Mott, B. (2023, June). " AI Teaches Itself": Exploring Young Learners' Perspectives on Artificial Intelligence for Instrument Development. In Proceedings of the 2023 Conference on Innovation and Technology in Computer Science Education V. 1 (pp. 485-490). https://doi.org/10.1145/3587102.3588778

Wang, F., & Preininger, A. (2019). AI in health: state of the art, challenges, and future directions. *Yearbook of medical informatics, 28*(01), 016-026. https://doi.org/10.1055/s-0039-1677908

Wang, Y., Liu, C., & Tu, Y. F. (2021). Factors affecting the adoption of AI-based applications in higher education. *Educational Technology & Society, 24*(3), 116-129. https://www.jstor.org/stable/27032860.

Wu, R., & Yu, Z. (2024). Do AI chatbots improve students learning outcomes? Evidence from a meta analysis. *British Journal of Educational Technology, 55*(1), 10-33. https://doi.org/10.1111/bjet.13334

Yüzbaşıoğlu, E. (2021). Attitudes and perceptions of dental students towards artificial intelligence. *Journal of dental education, 85*(1), 60-68. https://doi.org/10.1002/jdd.12385

Zeba, G., Dabić, M., Čičak, M., Daim, T., & Yalcin, H. (2021). Technology mining: Artificial intelligence in manufacturing. *Technological Forecasting and Social Change, 171*, 120971. https://doi.org/10.1016/j.techfore.2021.120971

Zouhaier, S. (2023). The Impact of Artificial Intelligence on Higher Education: An Empirical Study. *European Journal of Educational Sciences, 10*(1), 17-33. https://doi.org/10.19044/ejes.v10no1a17