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Students' Awareness and Perception Regarding the Usage of AI in Education at Government College University, Faisalabad

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ABSTRACT

The ever-increasing presence of artificial intelligence (AI) in the field of education across the world necessitates studies on the student's awareness and perception of its usage in their learning environment. This research investigates students' perspectives and understanding regarding artificial intelligence in their academic pursuits at the government college university, Faisalabad, Pakistan. The research used a quantitative method-based survey design. The study's population consisted of students from two distinct departments: Computer Science and Education at the University. The results of the study indicated that while students recognize the presence of AI in their educational experiences, their understanding of its potential as a writing aid, plagiarism detection tool, and research assistance resource remains quite limited. In a similar vein, students' perceptions regarding the integration of AI in educational settings were measured as moderate, with respondents recognizing that these innovative technologies have the potential to enhance user satisfaction effectively. The research recommends that it is essential for the government to implement periodic training and workshops for students nationwide, focusing on the applications and ethical considerations of AI in improving educational practices. This will equip the learners and ensure their relevance in the current landscape of technological advancement.

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INTRODUCTION

Artificial Intelligence (AI) has revolutionized many sectors, mainly how operations are conducted and services are delivered has been transformed. Its use in various areas showcases its versatility and critical role in driving efficiency and innovation. In 1955, John McCarthy conducted research that laid the groundwork for what would later be known as Artificial Intelligence (AI) (Ida, 2024). His premise was that machines might be programmed to enhance every facet of intelligence, including learning (Wang, 2019). Numerous researchers have articulated the notion of artificial intelligence (AI). Benhamou and Janin (2018) assert that AI encompasses a range of technologies that allow machines to operate at an intelligence level closely resembling that of humans. Verma (2018) defined artificial intelligence (AI) as the ability of computers to accomplish assignments and work that are usually connected with human intelligence, including comprehension, decision-making, problem-solving, and portraying creativity. Artificial intelligence is the study of intelligent machines and software that can reason, learn, gather knowledge, communicate, manipulate, and perceive objects (Rai et al., 2020). AI is being used for work automation in several industries, such as healthcare, banking, computing, manufacturing, and education. It mainly uses data-driven decision-making to automate processes and attain efficiency. Its application in healthcare increases accuracy in disease diagnosis and provides individual care procedures. Similarly, in the field of finance and banking, AI algorithms are used to identify fraudulent activities. Its application in the manufacturing industry has brought many advantages, such as enhanced supply chain management and proactive maintenance, which has reduced operational losses and increased productivity. This highlights how pivotal AI tools have become in regard to fostering innovation in several areas.

A paradigm shift is evident in the educational sector as artificial intelligence has transformed the landscape of learning and teaching. Platforms that use AI facilitate personalized learning by adapting educational contents that match individual needs and understanding, thus enhancing learning outcomes. Among various benefits of AI in education, the top of the list are adaptive learning, personalized feedback, support research and data analysis, and automated administrative services (Khare et al., 2024). The deployment of AI in education not only supports tailored educational experiences but also prepares students for a technology-driven world (Shareef, and Nithyanantham (2021). The education sector is required to embrace technological advancements such as AI tools, particularly in the

fields of information and communication technologies, in order to improve the quality of education and to meet future needs (Pratama & Chandra, 2024).

Technologies related to artificial intelligence are now widely acknowledged as essential resources for raising educational productivity and efficiency. It is sufficient to assert that AI technologies have significantly impacted the professional landscape of the 21st century. Within the realm of education, the integration of AI has the potential to enhance both teaching and learning processes, offering access to precise information that can foster growth and advancement in our current information-driven era. Nonetheless, it is evident that learners, especially in more affluent nations, have embraced and integrated AI technologies into their academic pursuits; conversely, those in less developed regions continue to face challenges in adapting to these advancements. Despite the potential of AI among students in higher education, there is a notable lack of research in this area, particularly in Pakistan. The lack of investigation into this topic results in a void in the current body of work that must be addressed for learners to participate meaningfully in the conversation surrounding AI. Therefore, this study on the future of students considering artificial intelligence: insights from students in Pakistan is pertinent. The research will offer valuable insights into the application of artificial intelligence among higher education students in Pakistan.

As artificial intelligence becomes more dominant in education, it is becoming vital for schools and universities to remain cautious. They need to make sure that algorithms that empower this AI software are not concentrated in a few hands, which is only possible through effective policy-making and drafting control mechanisms (Popenici, 2017). A new form of plagiarism has been identified as 'AI-giarism' " it is a rising type of academic misconduct related to AI and plagiarism within higher education settings that provides crucial input to academic stakeholders, policy-making, and the broader incorporation of AI technology in educational practices (Chan, 2023). Although many studies were conducted on the use of IA in teaching and learning in Pakistan, for example, AI studies on Knowledge attitude and practice among medical science students and health care professionals (Ahmed et al., 2022: Akhtar et al., 2022; Truong et al., 2023; Qadri et al., 2024) usage in universities library (Asim et al., 2023; Ali et al., 2024). AI impacts students' performance (Dahri et al., 2024), but no such study has been conducted to explore the perception and awareness of university students in general. This study, therefore, intends to assess the current level of awareness among the students at Government College University about AI tools, which is crucial for the development of targeted educational strategies. The study, therefore, intended to provide answers to the following research hypotheses.

Ho: The level of awareness among students at government college students on the use of AI in their studies is low

H_1: there is no correlation between the level of awareness and students' perceptions of the use of AI

RESEARCH METHODOLOGY

Study area

In Pakistan, the Government College University is situated in Faisalabad. In recent years, the institution has attained remarkable success in research contributions and enhancing educational quality, as evidenced by its impressive ascent in the HEC ranking from 59th to 7th position, leading to increased confidence among the civil society and business community in the region. The institution employs a cross-disciplinary methodology and fosters social unity. The institution provides an extensive array of programs across various disciplines, including Information Technology, Natural and Physical Sciences, Food and Home Sciences, Engineering, Pharmacy, Management and Business Sciences, Law, Social Sciences, Humanities, Fine Arts, Medical Sciences, and Biotechnology among others, to address the diverse requirements of the social and industrial sectors in this region.

Sampling Procedure and Data Collection Method

The present study was descriptive in nature, and quantitative methodology was employed to collect data from students from two departments (Computer Science and Education) of the Government College University, Faisalabad. The selection of these departments was due to their unique perspectives. Computer Science students were selected because they were assumed to be more exposed to the use of AI tools and could provide technical insights. Education students were chosen because they can provide critical views on pedagogical influence. According to the data collected from admissions, there are 781 students currently enrolled in both undergraduate and postgraduate programs at the University. The sample, which was 126 students, was selected with the help of the online software from www.surveysystem.com, which had a 95% confidence level and 8% confidence interval. These 126 students were approached conveniently for data collection purposes. A well-structured, validated, and reliable questionnaire was prepared and used for data collection, bearing the objectives of this study in mind. The collected data were analyzed with the Statistical Package for Social Science (SPSS), and descriptive and correlation analysis was used to capture the study objectives.

RESULT AND DISCUSSION

Socioeconomic Characteristics of the Respondents

The socioeconomic characteristics of the respondents revealed that the majority (73%) of the respondents are within the age bracket of 18-22 years. Some 14.3% are within the age category of 22-26 years, and those in the age category of 27-30 and 31 to 34 are only 11.1 and 1.6%, respectively. This result shows that the majority of the students are within the transformative age, and they are adopting new skills and ideas. The result shows that the distribution of the respondents by gender is 48.4 and 51.6 for male and female, respectively. The distribution of the respondents by department shows that 60% of the respondents are from the computer department, while 40% are from the education department. Similarly, most of the students interviewed are in their bachelor's degree, 61.1%. The results in Table 1 also show that 57.9% of the respondents have urban backgrounds, and 50.79 attend private schools. Regarding proficiency in computers, more than half of the respondents, 57.1, claimed that they are at the intermediate level of computer proficiency.

Table 1: Demographic Characteristics of Respondents

Age of the respondent	Frequency	Percentage
18-22	92	73.0
22-26	18	14.3
27-30	14	11.1
31-34	2	1.6
Gender		
Male	61	48.4
Female	65	51.6
Department		
Computer	75	60.3
Education	51	39.7
Semester		
1-2	53	42.06
3-4	13	10.31
5-6	44	34.92
7-8	16	12.69
Degree		
BS/B.ed	77	61.1
Masters	2	1.6
Mphill	37	29.4
PhD	10	7.9
Area		
Rural	53	42.1
Urban	73	57.9
Schooling		
Public	62	49.21
Private	64	50.79
Proficiency		
Beginner	18	14.3
Intermediate	72	57.1
Advanced	35	27.8

Source: Field survey, 2024

Level of Awareness of the AI usage of AI in their Studies

In order to understand the students' awareness level regarding AI usage in academic learning, nine statements were formulated, and students' responses were used using the Likert scale format. A five-point Likert scale from 'strongly disagree' to 'strongly agree' was used, and the reactions were captured and analyzed. To make decisions easier, weighted means were used to determine the level of student awareness. If the individual item weighed means is equal to or greater than the overall weighted mean, it means the awareness level about that statement is high; otherwise, it is low. Results in Table 2 indicated that students have a relatively high level of awareness about AI usage in their educational career. From their responses, the result shows that the student's level of awareness is moderately high, especially their awareness about the use of AI in academics and overall learning purposes. However, the result shows that the use of AI as a guide in writing an assignment or finding solutions or clarification about some issues, like AI-based plagiarism detection and AI-based research assistance tools, is limited. This result is in line with the findings of Stöhr and Malmström, (2024). However, contrary to that of Dergunova et al., (2022), who found a low level of awareness of AI among students.

The result in Table 2 revealed that the students in the study area have positive perceptions about the use of AI in studies. The students have a higher knowledge of the AI used in education, and they use AI for academic purposes. The students affirm that they are benefitting tremendously from AI applications in their studies. The students opined that AI enhances their learning experience and gives them, for instance, feedback on their academic work. Additionally, the respondents opined that AI makes learning more engaging and interactive. Moreover, the

respondents are not in agreement with the claim that AI may reduce critical thinking skills or might lead to lack of privacy of their data.

Table 2: Distribution of the Respondents on Their Level of Awareness on the use of AI in their studies

Variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Weighted Mean	Remark
I am familiar with the concept of AI	4.00	4.80	11.10	56.30	23.80	3.91	**
I can name at least three AI tools used in academic	1.60	7.90	10.30	54.00	26.20	3.95	**
I have used AI tools for academic purposes.	4.00	2.40	15.10	57.90	20.60	3.89	**
I understand how AI can be applied in education	4.00	2.40	6.30	57.10	30.20	4.07	**
I am aware of the benefits of using AI in education.	3.20	3.20	10.30	54.80	28.60	4.02	**
I am familiar with AI-powered writing assistants	9.50	27.00	16.70	35.70	11.10	3.12	LA
I am using AI-powered search tools	11.10	22.20	16.70	37.30	12.70	3.18	LA
I am aware of AI-based plagiarism detection tools	8.70	21.40	21.40	34.90	13.50	3.23	LA
I have experience with AI-powered research tools	5.60	8.70	23.00	46.80	15.90	3.59	LA
Overall Awareness Level							

Decision rule: Individual weighted mean > or equal to overall weighted mean (3.66) signifies a high awareness level (**); otherwise, Low Adoption (LA)

However, the result shows that the respondents did not agree with most of the negative statements about AI used in the academic cycle. This finding is in line with Ngo's (2023) study on the perception of university students of the use of ChatGPT in education. His findings showed that more than half of the students expressed positive attitudes towards the use of chatbots in education. The findings are also in line with those of Magantran and Abd Rahman (2023) in their study on the perception of students towards AI usage in tertiary institutions. The results indicate a good awareness among students regarding AI tools, with a substantial number utilizing these technologies to enhance their scholarly pursuits. Nonetheless, the research reveals significant apprehensions regarding the privacy risks linked to the utilization of artificial intelligence. The observations presented illustrate the prevailing patterns in the integration of artificial intelligence within learning environments, emphasizing essential factors for instructors and decision-makers to contemplate as they navigate the intersection of technological progress and the safeguarding of student privacy and welfare. The findings of this study also coincide with those of Asmatahasin et al. (2021), who found that about 90% of their respondents were familiar with AI and believed that AI would lead to significant advancements in learning.

Table 3: Students' Perceptions of the usage of AI in their Studies

Perception	S.D	D.A	NTR	A	S. A	Weighted Mean	Remark
AI tools can enhance my learning experience.	0.8	0	4	60.3	34.9	4.29	Agree
AI-powered personalized learning can help me learn at my own pace.	0.8	1.6	9.5	59.5	28.6	4.13	Agree
AI tools can provide instant feedback on my academic work.	0.8	1.6	11.9	60.3	25.4	4.08	Agree
AI can help me access more diverse learning resources.	1.6	4	7.9	65.1	21.4	4.01	Agree
AI tools can make learning more engaging and interactive.	3.2	4	11.1	59.5	22.2	3.94	Agree
I am concerned about the potential for AI to promote academic dishonesty.	4.8	5.6	26.2	46.8	16.7	3.65	D.A
I worry about the privacy of my data when using AI tools.	1.6	7.1	21.4	47.6	22.2	3.82	Agree
AI may reduce critical thinking skills among students.	2.4	4.8	14.3	50	28.6	3.98	Agree
The use of AI in education may lead to job losses for teachers.	5.6	18.3	21.4	40.5	14.3	3.40	D.A
I fear becoming over-reliant on AI tools for my academic work.	3.2	7.9	22.2	54	12.7	3.65	D.A
AI tools may not understand the nuances of my field of study.	6.3	20.6	28.6	34.9	9.5	3.21	D.A
The cost of AI tools may create inequality in access to education.	4.8	12.7	23	50.8	8.7	3.46	D.A
AI may not be able to replicate the human aspect of teaching and mentoring.	0.8	11.9	18.3	47.6	21.4	3.77	DA
I am concerned about potential biases in AI algorithms.	1.6	1.6	33.3	57.1	6.3	3.65	D.A
The rapid development of AI may make it challenging to keep up with new tools.	2.4	9.5	19.8	56.3	11.9	3.66	D.A

Decision Rule: individual Weighted mean > or = to overall weighted mean =3.78 signifies agreement with the statement, otherwise disagree (D.A)

Association between level of awareness and student perception about the use of AI

Results from Table 4 indicated that there is a positive correlation between awareness about AI use in learning and students' perception of the use of AI. The result shows a positive correlation of 0.37, which is significant at a 0.01 probability level. This result can be interpreted to mean that as the level of awareness increases, so does positive perception.

Table 4: Correlation between Level of Awareness and Students Perception about the use of AI

	Awareness	Perception
Awareness	1	0.37***
Perception	0.37***	1
Observation	126	126

***Correlation is significant at 0.0 level (2-tailed)

CONCLUSION

The era of AI has had a tremendous impact on teaching and learning, and this has provided the impetus for students to leverage novel tools to carry out a lot of quality research work. Previous studies have relied so much on the use of AI among medical students, AI, and classroom management as well as utilization of AI tools for research. However,

there are limited studies that cover the aspect of awareness and attitude. This study covered the gap by examining students' awareness and attitude toward the usage of AI at the Government College University Faisalabad, Pakistan. A total of 126 university students were used for the study. The data were analyzed using descriptive statistics, weighted mean average, and correlation analysis. The result shows that the majority (73%) of the respondents are within the age bracket of 18-22 years. The results also show that 48.4% of the respondents are male, while 51.6% are female. The distribution of the respondents by department shows that 60% of the respondents are from the computer department. Similarly, most of the students are in their bachelor's degree, 61.1%. The result indicated that the students have a relatively high level of awareness about AI usage in their educational career. Interns of perception, the result shows that the respondents have a positive perception of AI usage in learning among students in the study area.

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