

Exploring the Utilization and Understanding Level of Artificial Intelligence (AI) Technology among University Students in Pakistan

Fatima Yasin¹, Ghulam Safdar²

¹MPhil Scholar, Department of Media & Communication Studies, Rawalpindi Women University, Pakistan.

²Assistant Professor, Department of Media & Communication Studies, Rawalpindi Women University, Pakistan.

Correspondence: safdarsting@gmail.com²

ABSTRACT

Aim of the study: Aim of the study was to explore the understanding level, perceptions and utilization of Artificial intelligence tools by students in their academic activities and how students are using this technology to increase their cognitive skills and at what extent they are getting familiar with it.

Methodology: The collection of data for this study is conducted through quantitative research design in which survey method was used. Total of (n=215) respondents from the university students of twin cities were responded. The students were from the different disciplines and are of different level of study. To explore that how frequently they use AI in their learning Activities.

Findings: The study found that the students of universities use AI technology regularly in their academic activities to enhance their academic performance. 215 responses were collected and the response rate is about 86%. Students agree that using AI tools help them grow personally as well as professionally and also help them to build themselves creatively to make good grades and to lead towards the success path.

Conclusion: Study concluded that the utilization rate of AI technology is much higher in Pakistan. All other students use this technology efficiently and smartly to make their projects and task presentable and of high quality. And the students are experiencing and practice these new tools in their academics for increasing their understanding level so that they can compete with this world and to secure their place in the race of this digitalized world. Students work creatively in short time span and secure good grades as well by having the knowledge and information at their fingertips, the thing is that they should make themselves smart enough to evaluate the results or outcomes according to their queries they searched for, through this technology.

Keywords: Use of AI Technologies, Usage Experience, Understanding Level, Problem Solving.

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1. INTRODUCTION

Artificial Intelligence the latest modernized technology that really transformed our life and shaping future in a way that ever imagined. It is the branch of computer science and it can also be said that it is the study of ideas which enable computers to do the things that may include reasoning, knowledge, planning, learning, communication, perception and ability to make things move and manipulate objects (Saini, 2023). It was first coined in 1956 by McCarthy (Cristianini, 2016).

As it is latest technology that has been used in many countries and especially it is a vast technology that is also used in education very productively. Many scholars also believe that it is really a helpful tool in education sector (Sayed et al, 2021). It is one of the most important inventions of any century. And nowadays if someone is not familiar with this technology, they may feel left behind because it seems like a magical world because this technology really transformed the world (Maini & Sabri, 2017). There are different types of Artificial Intelligence tools that are utilized in Education (Nemorin et al, 2022) in which plagiarism detection, exam integrity (Ade-Ibijola et al, 2022), chatbots for enrollment (Nakitare & Otike, 2022). Analyzing Student Success Meters, Academic Research, Learning Management system, Enhanced Online Discussion and many more (Nakitare & Otike, 2022) was included. Artificial intelligence completely transformed the way learning specially for students. It shifts the old traditional method of learning to new modernized AI-generated Learning. As this new technology is transforming the world, Pakistan is no exception. As this country is also transformed digitally, Artificial Intelligence tools in many sectors (Hussain, 2023). Along with many other sectors, it was also used in Education. Many students, especially the university students utilize this technology in their academic activities, as internet become the basic need for students same as this now this latest technology Artificial Intelligence is becoming the basic need and requirement too for the students. As in Pakistan, the Government of Pakistan first took the initiative in 2018, when they open the National Centre of Artificial Intelligence (NCAI). In making projects, Assignments, even for the preparation of the exams, for active participation, coming up with the creative ideas, Artificial Intelligence is beneficial. It really helps us to solve the problems at fingertips. Higher education students really need academic support during their academic activities whether it is for their personal growth or career aspirations. Because this support really enhances the performance of student for academic success, satisfaction, professional life and resolving the academic issues (Shahid et al., 2024; Assiri et al., 2020). And the researcher believe that the Artificial intelligence technology make ease to get academic support whenever a student needs. As this AI technology is latest modern technology that is now utilizing in Pakistan also, most of the individuals are now accepting it and using it especially Students utilize AI in their academic activities and many researchers do research about this particular technology but still there is a gap that, Are students fully familiar with the latest technology or not, whether they believe that they can smartly utilize the Ai tools in their academics or not. Or if they are able to evaluate the results shown by Artificial Intelligence tools. For this purpose, my study plays vital role in getting answers of these questions as it provides the data about how many students agreed that they are utilizing the AI technology in their academics and it benefits them a lot and if they are able to evaluate it smartly or not. The main purpose of this study was to explore the utilization and understanding level of AI technology among university students in Pakistan. And for exploring the understanding level of students about AI technology, this study focuses on how students enhance their cognitive abilities, build their perceptions and efficiently use the AI technology in their academics. My study plays vital role in exploring the utilization of AI technology In Pakistan, as it was an emerging trend and students start utilizing it in their academic activities as well, at what extent they are using it, they are completely familiar with this new trend or not and specially whether they are able to evaluate the results or data, AI have given, My study explore the answers of these questions and evaluate that at which extent students understand and utilize the Artificial intelligence technology. For conducting the data, 04 universities were selected from Rawalpindi and Islamabad, two from each. Survey was conducted from students of BS, M-Phil and PHD level and did they use AI daily, weekly, monthly or never to explore the utilization and understanding level of AI among university students.

1.1 Problem Statement

Although Artificial Intelligence (latest Technology) is now become a new trend and every individual, especially students no matter from which field or discipline they are. They take help from artificial intelligence to complete their work or any task. But the point to ponder is to check whether completely getting dependent on AI is acceptable or not because as it was the new technology it was important to have better knowledge of using, understanding and handling this artificial intelligence. Moreover, Is Artificial Intelligence being enough mature to interpret the problems or to complete the task in the exact way we want. So, it is necessary to explore the understanding level of this new technology among the students. As they are working with it in their academic on daily basis.

1.2 Significance

As the latest technology “Artificial Intelligence” is emerging trend in Pakistan. It is really important to get knowledge of how to use it and the better understanding of it. How we can implement its tool in a beneficial way to work efficiently. My study significantly explains the exploration of understanding level and how individuals especially students utilize this Artificial Intelligence technology in their academics for the development and academic success. The study focuses on the students that how smartly and efficiently they utilize this technology to overcome the challenges during studies, to completing their task on time, to coming up with unique and creative ideas and to evaluate the results.

1.3 Study Gap

Despite having some existing researches which are published in few years. There is still a gap in between that how the students should get trained and use this technology to get more benefits in an efficient and smart way to overcome the issues or pressure they face during learning to get personal and professional growth. And how they even get use to the new tools developed in this technology. My study aims to address this gap and explains the understanding level of students and how often they get help from AI and how they utilize it in their studies.

1.4 Study Objectives

The main objective is to explore the utilization and understanding level of AI technology among university students in Pakistan.

- 1) To analyze the cognitive abilities of students after using AI in their academics.
- 2) To examine the perceptions of students for using AI.
- 3) To evaluate, how students effectively use AI tools for development.

1.5 Research Questions

What is the level of utilization and understanding of AI technology among university students?

- 1) How students enhanced their cognitive abilities by using AI technology in their academics?
- 2) How students build up their perceptions about AI?
- 3) How do students effectively get developed after using AI technology?

2. LITERATURE REVIEW

Dahri et al. (2024) conducted research on “Investigating AI-based academic support acceptance and its impact on students’ performance in Malaysian and Pakistani higher education institutions”. Aim of the study was to understand the determinants of AI tools’ acceptance and use for academic support among students, influenced the student satisfaction and academic performance in Pakistan and Malaysia. By use of quantitative research design, the researcher conducted survey and data was collected from (n=305) respondents, with 203 students from Quaid-e-Awam University of Science and Technology (QUEST), Pakistan, and 102 students from University Teknologi Malaysia (UTM). Study found that the

performance, effort expectancy, information accuracy of AI tools and student interaction were the important factors in predicting the acceptance and use of AI tools among students of both countries in higher education. Their study concluded that the use of AI tools improved the satisfaction level of students and significantly improved their outcomes and did not affect the engagement and personal innovativeness of them.

Minh Loan et al. (2024) conducted research about “A Study on the Level of Awareness and Use of Artificial Intelligence Tools of Students at Viet - Hung Industry University”. Aim of the study was to analyze and evaluate the level of awareness and learning activities that students use AI to support and also to identify the challenges when AI tools are used. By the use of quantitative research design, the researcher conducted survey and collected data from (n=390) students from first to fourth year at Hung Industry University, Vietnam. Study found that the majority of students use artificial intelligence tools in their studies periodically and was satisfied with the learning process using these tools and the challenge they face was about the reliability and quality of information. Their study concluded that the effective use of AI in learning help students a lot and universities can take advantage of the technology to improve the quality of education and create learning experiences valuable.

Dergunova et al. (2022) conducted research about “Artificial Intelligence Awareness Levels of Students” in two universities of Kazakhstan. Aim of the study is to understand the awareness level of artificial intelligence among students. Using quantitative design research, the survey was conducted and data was collected from the (n=98) students studying in the engineering faculties of university 2021-22. Study found that the awareness level and concept of mind and intelligence is insufficient. Their study concludes that the use of technology in education is important and it may take away the human jobs in future.

Ahmed et al. (2022) conducted research about “Knowledge, attitude, and practice of artificial intelligence among doctors and medical students in Pakistan: A cross-sectional online survey”. Aim of the study was to determine the knowledge, perception and practice of AI tools. Cross sectional study was conducted using an online questionnaire-based survey from (n=470) individuals including 223 doctors and 247 medical students of Pakistan. Study found that the majority of doctors and medical students lack knowledge about the practice of AI and its applications. Their study concluded that the students and doctors are not much aware of AI technology but still had the positive view of it in the field of medicine and were willing to adopt it.

Imran & Lashari (2023) conducted research about “Exploring the World of Artificial Intelligence: The Perception of the University Students about ChatGPT for Academic Purpose”. Aim of the study was to explore the impact of the chatgpt on writing skills of undergraduate students. Using the qualitative research design, the researcher conducted the data from random (n=24) students from two private sector universities in Karachi. Sample size was comprised of male and female BS (final year) students from the field of humanities and sciences. Study found that the majority of individuals think that chatgpt is useful for creative writing while the other group believed that it will be useful if it is under anyone’s supervision. Their study concluded that to fully understand the applications of chatgpt more in depth studies are required.

Rashid et al. (2024) conducted research on “Pakistani students’ perceptions about knowledge, use and impact of artificial intelligence (AI) on academic writing: a case study”. Aim of the study was to explore the impact of the AI and perceptions and trends related to its knowledge among Pakistani student. Using the quantitative research design, data was collected through questionnaire from random sampling (n=229) students from Bahuddin Zakariya University, Multan. Study founded the results by using SPSS that majority of students agree upon the use and knowledge of AI. Their study concluded that the academia should introduce the AI tools effectively to the students to improve students’ performance.

Ahmed et al. (2024) conducted research on “Learning Experiences and Practices through Artificial Intelligence as Adoptive Academia for Teachers and Students of Higher Education Institutions of Pakistan”. Aim of the study was to explore the practice and learning experience among students in

Pakistan by using Artificial Intelligence. Qualitative research design was used to collect the data by means of interviews from (n=20) participants and (n=50) documents including blogs, research articles and reports. Study found that the AI transformed the educational system by making it faster and more efficient and providing many other facilities. Their study concluded that the traditional teaching and learning methods are now revolutionized by advance AI practices.

Ali et al. (2024) conducted research about “Unveiling Perspectives: Exploring Student Perception on Artificial Intelligence in Academics in Rawalpindi, Pakistan”. Aim of the study was to explore the student’s perceptions and practices of Artificial intelligence tool in their academic learning processes and to measure the impact of it. By the use of quantitative research design, the data was collected from (n=200) students of social sciences at Pir Mehr Ali Shah Arid Agriculture University. The questionnaire was used to collect the data. Study found that the students who prefer to use the AI tools are performing very efficiently in overall course work and also improved their research work skills. Their study concluded that the AI tools transform traditional methods of learning and are useful for general academic achievement.

Kharroubi et al. (2024) conducted research on “Knowledge, Attitude, and Practices toward Artificial Intelligence among University Students in Lebanon”. Aim of the study was to explore the knowledge, Attitude and Practices (KAPs) of AI tools among the university students of Lebanon. The online questionnaire was conducted to collect the data from (n=457) who were at least 18 years of age. Study found that the majority of students are familiar and highly satisfied with the use of AI tools in their learning or academic activities. Their study concluded that the utilization of AI tools was supportive and served as a facilitator for the teachers and students.

Amin & Shahab (2023) conducted research on “Role of Artificial Intelligence in Modernizing Educational System in Pakistan: Challenges and the Way Forward”. Aim of the study was to explore modernized education system and the challenges faced by those modern methods and also suggest the AI implementation in education in future. By use of primary and secondary research methodologies, data was collected through electronic sources from the research papers, Google scholar, LinkedIn Dawn and nation. Study found that the utilization of AI tools enhanced the way of learning and class activities but there are some challenges as well including privacy issues, data base, ethical issues and most importantly accessibility of resources in Pakistan. Their study concluded that beside having some challenges, government of Pakistan should enhance the utilization of AI applications in diverse sectors.

Firdaus & Nawaz (2024) conducted research about the perceptions of teachers, benefits and challenges about the usage of AI in ELT. Aim of the study was to explore the opinions and Pros & Cons of teachers who utilized AI for teaching English in colleges of Pakistan. Both qualitative and quantitative Research design, Survey and Interviews was conducted in this study to collect the data from (=110) English teachers, 10 teachers from each government college in Punjab divisions were selected. Study found that the majority of English teachers were highly satisfied with the usage of Artificial Intelligence in their particular discipline. But as it was the new technology it was difficult for the learners and teachers to adapt it. Their study concluded that AI usage was really beneficial for teachers in ELT but to enhance the benefits of AI it was necessary to overcome the challenges face by teachers and students who used Artificial Intelligence.

Ahmad et al (2023) conducted research about “Impact of artificial intelligence on human loss in decision making, laziness and safety in education”. Aim of the study was to explore the influence of Artificial Intelligence on the university students of Pakistan and China about the less ability for problem solving, decision making, Laziness and safety, privacy concerns. Qualitative methodology, PLS Smart was used to collect data from (n=285) students from different universities of Pakistan and China. Study found that AI highly influenced the human decision-making ability and make them lazy. It also influenced the privacy and security challenges. His study concluded that AI technology should be acceptable but the challenges

and problems should be considered first as laziness is the most effective factor that is influenced by AI. Proper trainings sessions should be held to use this AI Technology to address the issues.

Ahmed et al (2024) conducted research about “Learning Experiences and Practices through Artificial Intelligence as Adoptive Academia for Teachers and Students of Higher Education Institutions of Pakistan”. Aim of the study was to explore the use of Artificial Intelligence among the teachers and students of higher education in Pakistan. Qualitative Research design was used to collect data from (n=20) participants through interviews and 50 documents were also used for conduction of data including AI blogs, Research articles and blogs. Study found that the use of AI in Academics highly influenced the performance of students as they use different AI tools to work smarter and efficiently while teachers are also get benefited as they have access for modern grading systems and monitoring services. His study concluded that the AI utilization highly revolutionized the old methods of teaching to the modernized one.

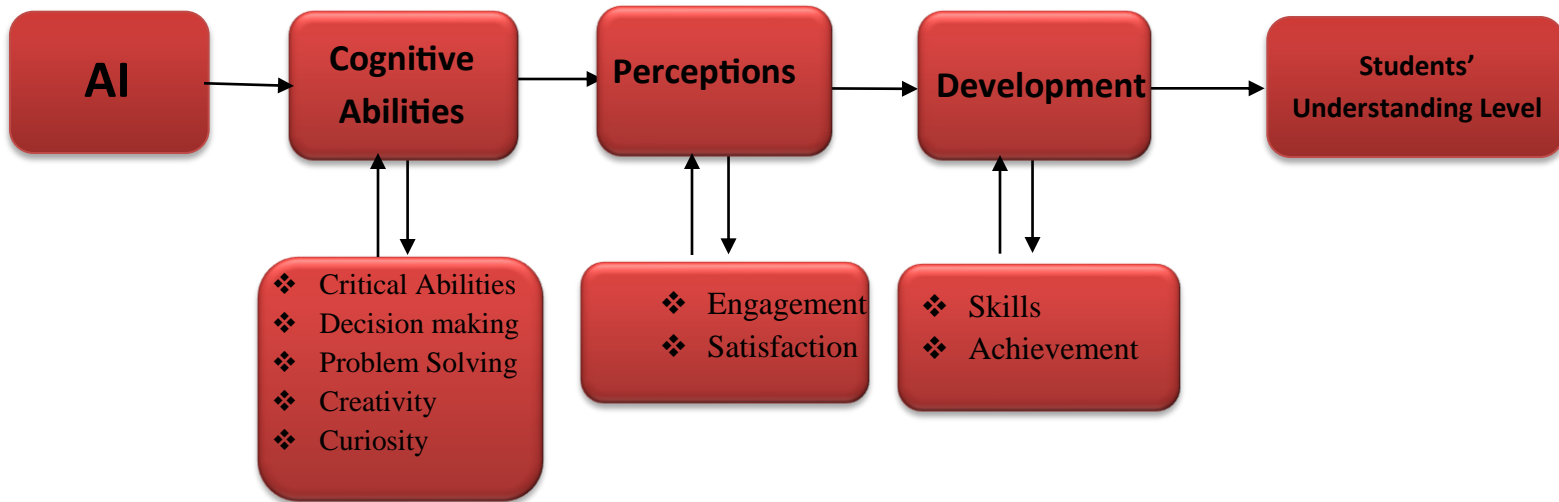
Abbas et al (2024) conducted research about “Is it harmful or helpful? Examining the causes and consequences of generative AI usage among university students”. Aim of the study was to explore the usage of CHATGPT among students and also highlight the opportunities and challenges. Two studies were conducted, Study 01 was conducted to measure the utilization of Chatgpt using survey method from (n=165) university students. Study 2 was conducted to collect data from (n=494) university students to examine the benefits and challenges for using chatgpt in academics workload and also to measure the impact of it on the health factor of the students. Study 01 found that the chatgpt was a reliable tool to be dependent on, through which you can efficiently complete your task. Whereas Study 02 found that, when students faced a lot of pressure of studies, tasks and assignments, they use chagpt to minimize it. But the students who want reward and want to put their own efforts, they were less likely to use chatgpt. Their study concluded that beside having benefits and consequences, use of chatgpt also influence the health of the students in context of memory loss, lack of critical thinking and creativity.

Shabbir (2023) conducted research on “Pakistan's Visionary AI Perspective: Reshaping Social Science Research through Innovation”. Aim of the study was to explore the use of AI in social sciences research practices and how to make these practices more efficient and effective and also to uncover the novel insights. Both Qualitative about Quantitative Research design was used to conduct data. Study found that the AI tools significantly improve or revolutionized the practices of how social sciences researches was conducted and use of AI also enhance the way, things are innovative. But there are also some challenges which can be overcome by the training sessions on how to use AI tools. His study concluded that the utilization of AI tools in social sciences research practices are effective and valuable as they it leads towards more creative and innovative but some challenges are still there while tackling this technology.

2.1 Theoretical Framework

The study is relevant with the theory “Diffusion of Innovation” by Rogers (1962) (Diffusion of Innovations). This theory indicates that how the new idea, concept or any technology diffuses into the society and how individuals start experiencing and accepting it. As there are some individuals who innovators, early adapters who first experience or used that particular idea or concept and give feedback or share their experiences and gradually it spreads further and many other individuals start adopting it. So, in addition to this my research was relevant with this theory. As Artificial Intelligence was the latest technology, which was first adopted by western world and now like for 2 to 3 years, it was get introduced in Pakistan as well. And most of the individuals were working on it and with it; to utilize it in their daily work or activities and some are still working on it to understand Artificial Intelligence.

Research Model:



3. RESEARCH METHODOLOGY

3.1 Research Design

In this study, Quantitative Research Design is employed. Quantitative research methods are basically applied to the collection of data that is calculated numerically to describe the individuals or groups whom which we are collecting the data (Meissel & Brown, 2023). This method is adopted because it allows the researchers to get the facts and not abstract about the aim of dissertation (Bryman & Bell, 2007). The survey method was conducted to collect the data. A self-designed questionnaire was carried out to gather information from respondents.

3.2 Population

The target publics were the university students of the Pakistan. The population sample are the students of Rawalpindi and Islamabad Universities that are from different disciplines or programs in universities located in these twin cities who regularly use AI in their academic activities.

3.3 Sample Frame

The target individuals are the students of university aged 16-30, enrolled in universities of Rawalpindi and Islamabad that are 36 in total (HEC, 2024). This age range was selected to focus on adults in universities including undergraduate and graduate students from different academic disciplines to carry out the understanding level of AI tools and to evaluate that how often they use Artificial intelligence technology to carry out their academic activities.

3.4 Sample Size and Technique

The study collected data from a sample of 250 students that are from 04 universities (02 from Rawalpindi and 02 from Islamabad). That are from the discipline of sciences, social sciences, management sciences, Arts & Humanities, engineering and technology.

By using Purposive Sampling method, the data was collected from the university students who utilize artificial intelligence (AI) in their academic activities. Respondents are randomly selected from the universities:

Table 1: *Selected Universities from Rawalpindi and Islamabad.*

Rawalpindi	Islamabad
Rawalpindi Women University	NUML
Fatima Jinnah University	International Islamic University

3.5 Data Collection

This study utilized the self-designed Questionnaire for the collection of the data. Questionnaire consist of the closed ended questions with options of strongly agree, agree, neutral, disagree and strongly disagree using Likert Scale. Questionnaire was distributed among the students of selected university. In the three weeks of time, 215 responses were gathered.

3.6 Data Analysis Technique

By using SPSS software and different statistical methods, Results are designed accordingly with the objectives.

4. RESULTS

Table 2: *Respondent's Information*

SR.	Questions	Options	<i>f</i>	%
1.	What is your Gender?	Male	46	21.4
		Female	169	78.6
2.	What is your Age?	16-20	67	31.2
		21-25	122	56.7
		26-30	26	12.1
3.	What is your Current level of study?	BS	129	60.0
		MS/M-Phil	69	32.1
		PHD	17	7.9
4.	In which university you are enrolled in?	Fatima Jinnah University	25	11.6
		Rawalpindi Women University	121	56.3
		NUML	28	13.0
		International Islamic University	41	19.1
5.	In which academic discipline are you?	Sciences	16	7.4
		Social Sciences	120	55.8
		Arts & Humanities	48	22.3
		Management Sciences	21	9.8
		Engineering & Technology	10	4.7
6.	Frequency of AI Tools Usage	Daily	131	60.9
		Weekly	49	22.8
		Monthly	15	7.0
		Rarely	17	7.9
		Never	3	1.4

Table no 2 represents the detail of Respondent's Information in which there are many questions about individuals including their gender, age, level of study, in which university are they in, their academic discipline and measure the frequency of AI Tools Usage. 04 universities are selected for my study's data collection (Rawalpindi Women University, Fatima Jinnah University, National University of Modern

Languages, International Islamic University). 05 academic discipline are mention including Sciences, Social Sciences, Management Sciences, Arts & Humanities and Engineering and Technology. And the last question is about the usage of Artificial Intelligence Tools that students are using these tools daily, weekly, monthly, rarely or never. As per the table most of the students whether male or female of different academic disciplines used AI tools daily in their academic activities.

Table 3: *Independent Variable (AI)*

SR.	Questions	Options	<i>f</i>	%	M	SD
1.	Do you understand the basic concept of AI?	Strongly Agree	86	40.0	1.74	0.713
		Agree	101	47.0		
		Neutral	25	11.6		
		Disagree	0	0		
		Strongly Disagree	3	1.4		
2.	Did you often use AI in your academic activities?	Strongly Agree	95	44.2	1.70	0.721
		Agree	93	43.3		
		Neutral	24	11.2		
		Disagree	3	1.4		
		Strongly Disagree	0	0		
3.	AI powered tools help you analyze the complex data & make informed decisions.	Strongly Agree	88	40.9	1.76	0.782
		Agree	97	45.1		
		Neutral	25	11.6		
		Disagree	3	1.4		
		Strongly Disagree	2	9		
4	AI powered virtual teaching assistants can enhance your learning experience.	Strongly Agree	83	38.6	1.79	0.766
		Agree	100	46.5		
		Neutral	27	12.6		
		Disagree	4	1.9		
		Strongly Disagree	1	0.5		
5.	You are able to evaluate & efficiently utilized the result of AI-Powered Search Engines in your coursework.	Strongly Agree	65	30.2	1.92	0.748
		Agree	106	49.3		
		Neutral	40	18.6		
		Disagree	4	1.9		
		Strongly Disagree	0	0		

Table 3 represents the data and question about the independent variable that is Artificial Intelligence, it includes all the basic questions about the utilization and understanding of this latest technology AI. Questions include that does students have the basic concept of AI, they often used it in their academic studies or not, did they believe that by using AI tools they can solve the complex data into simplest form so that they can easily understand that and make informed decisions, is virtual teaching assistants can enhance their learning experience or not and even they can easily evaluate and smartly utilize the AI data In their course work o not. Students can answer these questions by selecting the options of strongly agree, agree, neutral, disagree and strongly disagree. Most of the students agree that AI really helps them out in their academics and enhance their learning experiences.

Table 4: *Dependent Variable (Student's Understanding Level)*

SR.	Questions	Options	<i>f</i>	%	M	SD
Cognitive Abilities						
1.	AI, help you improve your critical thinking skills such as attention, memory and processing speed	Strongly Agree	75	34.9	2.00	0.964
		Agree	88	40.9		
		Neutral	33	15.3		
		Disagree	16	7.4		
		Strongly Disagree	3	1.4		
2.	AI, help you reduce biases and errors in your decision-making process	Strongly Agree	61	28.4	2.00	0.834
		Agree	106	49.3		
		Neutral	38	17.7		
		Disagree	8	3.7		
		Strongly Disagree	2	9		
3.	AI tools provide opportunities to practice and develop problem-solving skills	Strongly Agree	64	29.8	1.99	0.856
		Agree	104	48.4		
		Neutral	53	16.3		
		Disagree	10	4.7		
		Strongly Disagree	2	9		
4.	Artificial intelligence tools help you generate more innovative and creative solutions	Strongly Agree	69	32.1	1.91	0.798
		Agree	106	49.3		
		Neutral	32	14.9		
		Disagree	7	3.3		
		Strongly Disagree	1	0.5		
5.	AI powered tools or resources sparked your curiosity and encouraged you to learn more about a particular topic	Strongly Agree	55	25.6	1.98	0.779
		Agree	120	55.8		
		Neutral	30	14.0		
		Disagree	9	4.2		
		Strongly Disagree	1	0.5		
Perceptions (Engagement & Satisfaction)						
1.	AI increased your motivation to learn and engage with the material	Strongly Agree	72	33.5	1.96	0.864
		Agree	90	41.9		
		Neutral	43	20.0		
		Disagree	9	4.2		
		Strongly Disagree	1	0.5		
2.	Artificial Intelligence tools help you to take role in your learning more actively	Strongly Agree	66	30.7	1.92	0.769
		Agree	108	50.2		
		Neutral	34	15.8		
		Disagree	7	3.3		
		Strongly Disagree	0	0		
3.	Exploring New Topics or asking questions become more convenient by using AI	Strongly Agree	68	31.6	1.85	0.717
		Agree	118	54.9		
		Neutral	23	10.7		
		Disagree	6	2.8		
		Strongly Disagree	0	0		
4.	You are highly satisfied with the usage of AI that you recommend it to your peers as well.	Strongly Agree	54	25.1	1.99	0.764
		Agree	119	55.3		
		Neutral	34	15.8		
		Disagree	7	3.3		
		Strongly Disagree	1	0.5		
5.	You are satisfying with	Strongly Agree	64	29.8	1.92	0.748

	the feedback provided by AI on your assignments and assessments	Agree	109	50.7		
		Neutral	37	17.2		
		Disagree	5	2.3		
		Strongly Disagree	0	0		
6	Using AI reduce your stress and anxiety related to academic work	Strongly Agree	65	30.2	1.90	0.742
		Agree	113	52.6		
		Neutral	31	14.4		
		Disagree	6	2.8		
		Strongly Disagree	0	0		
Development (Skill & Achievement)						
1.	AI tools has improved your ability to collaborate and work with others	Strongly Agree	65	30.2	1.93	0.800
		Agree	110	51.2		
		Neutral	29	13.5		
		Disagree	11	5.1		
		Strongly Disagree	0	0		
2.	Has using AI improved your communication skills?	Strongly Agree	62	28.8	2.08	0.923
		Agree	94	43.7		
		Neutral	38	17.7		
		Disagree	21	9.8		
		Strongly Disagree	0	0		
3.	By using AI, you are able to identify and address biases in data and information	Strongly Agree	61	28.4	2.03	0.867
		Agree	100	46.5		
		Neutral	42	19.5		
		Disagree	10	4.7		
		Strongly Disagree	2	0.9		
4.	By using Artificial Intelligence, you are able to think outside of the box	Strongly Agree	54	25.1	2.13	0.972
		Agree	107	49.8		
		Neutral	33	15.3		
		Disagree	14	6.5		
		Strongly Disagree	7	3.3		
5.	Do you agree that after using AI you impact your ability to complete task on time?	Strongly Agree	65	30.2	1.87	0.705
		Agree	117	54.4		
		Neutral	29	13.5		
		Disagree	4	1.9		
		Strongly Disagree	0	0		
6.	AI helped you develop the skills and knowledge needed to succeed on your goals	Strongly Agree	55	25.6	2.00	0.812
		Agree	116	54.0		
		Neutral	35	16.3		
		Disagree	6	2.8		
		Strongly Disagree	3	1.4		
7.	AI helped you identify and address knowledge gaps in your understanding of key concepts	Strongly Agree	59	27.4	1.96	0.769
		Agree	114	53.0		
		Neutral	35	16.3		
		Disagree	6	2.8		
		Strongly Disagree	1	0.5		
8.	Due to the utilization of AI, you improved your academic performance and achieve good grades?	Strongly Agree	58	27.0	1.93	0.745
		Agree	125	58.1		
		Neutral	22	10.2		
		Disagree	10	4.7		
		Strongly Disagree	0	0		
9.	AI helped you to identify	Strongly Agree	61	28.4	2.00	0.862

	areas where you need to focus more for academic success	Agree	107	49.8		
		Neutral	35	16.3		
		Disagree	9	4.2		
		Strongly Disagree	3	1.4		
10.	Utilizing AI is essential for academic progress especially in today's digital age	Strongly Agree	75	34.9	1.83	0.779
		Agree	110	51.2		
		Neutral	23	10.7		
		Disagree	5	2.3		
		Strongly Disagree	2	0.9		

Table 4 represent the data showing the questions about the dependent variable (student's understanding level) that is categorized into 03 sub variables i.e. Cognitive Abilities, Perceptions (Engagement & Satisfaction) and Development (Skill and Achievement). These sub variables are further categorized into some variables including the skills like critical thinking, problem solving skills, decision making skills and communication skills and whether they are satisfied with the outcomes or results given by the AI, whether they easily deal with the anxiety or depression level or the academic pressure by using this technology. And then there are some questions about their active participation that they believe that the by utilizing this technology they are able to participate actively in any project or task or did they come up with unique creative ideas. Whether the students are highly satisfied with this technology that they also recommend it to their peers to use it. Whether they think that they can make good grades and complete their task on time or not and the most importantly did the students believe that Artificial technology is becoming the new basic need and essential for academic activities. Students answer these all question by choosing the options of Strongly agree, agree, neutral, disagree and strongly disagree. Students agree that AI help them to reduce the stress, anxiety and pressure of their studies, also help them complete the task on time with good grades and academic success and overall have better learning experience by developing new skills as well.

5. DISCUSSION

Current emerging trend in Pakistan is the latest technology Artificial Intelligence which is becoming a new basic need for every student, every other student is utilizing AI tools in their academic activities. In order to explore their understanding level and utilization of these tools, this study was conducted. To explore that whether students get satisfied after using AI or they believe that AI enhances the learning experiences of if they think that they can overcome the challenges. Utilization of AI tool enhances and improved the satisfaction level and outcomes of Students and improve the participation and interaction (Dahri et al., 2024). The use of AI tools efficiently can help students a lot, they can get a lot of benefits by utilizing these artificial intelligence and universities can also take advantage from this university to enhance their quantity of education and make learning experience valuable (Min loan et al., 2024). This is the modernized technology in this digitalized world, which may take place of human jobs in the future (Dergunova et al., 2022). But still there is a gap that in depth studies on AI tools is required and using these tools in anyone supervision is necessary (Imran & Lashari, 2023). And nowadays these advanced AI tools revolutionized and are preferable than traditional and old learning techniques or methods (Ahmed et al., 2024). This study is relevant with the diffusion of innovation theory (Rogers, 1962). As this theory indicates that how the new idea, concept or any technology diffuses in the community or the society but individual by using it day by day by the categorization of innovators, early adopters, Early majority, late majority and laggards (Dearing & Cox, 2018). My study also discussed the latest innovation AI, that how in Pakistani universities, students are utilizing the Artificial intelligence tools and at what extent they are understanding the concept of this new technology.

6. CONCLUSION

The study concluded that the new technology Artificial intelligence is now become the vital part or requirement of students to utilize in their academic activities. As internet become the basic need of students just like that students use AI in their learning as it is more personalized and conversational type. Students seek academic support from this technology whether for personal or professional growth. It has been said that AI take the human job in future but this is happening right now, students prefer AI support over the old traditional method of tutoring for academic guidance. Students get the information and seek knowledge at their fingertips that increase their overall performance in universities. The utilization of Artificial intelligence increases student's participation and interaction throughout the class. Students come up with new creative ideas and complete their task and projects on time. The efficient and smart utilization of Artificial intelligence technology can enhance the quality of education and learning experiences, and the universities can also be making their institute valuable, strong and stand out by promoting and using this new technology in their academics.

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Conflict of Interest


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ORCID iDs

Fatima Yasin ¹  <https://orcid.org/0009-0006-3159-0439>

Ghulam Safdar ²  <https://orcid.org/0000-0002-5152-0052>

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