

THE ROLE OF AI TOOLS AND CHATGPT IN ENHANCING ACADEMIC LEARNING AMONG UNIVERSITY STUDENTS

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Abstract

The article is about determining the impact of Artificial Intelligence (AI), First and foremost ChatGPT, on the academic learning of university students of the University of Gujrat (UOG), Pakistan. As the use of AI-based educational tools is A lot increasing, it becomes indispensable to study their impact on students' learning, academic performance, and development of critical thinking skills, and this has already been an area of concern among scholars. The research is a mixed-method approach that gathers quantitative data through a survey of 150 students and qualitative data through a deep level interview of 15 students. The study is based on how students' academic tasks could be eased by AI services like writing researching problem solving, and exam preparations. The findings indicate that a vast majority of students (78%) reportedly are engaged in using AI tools regularly for their academic work, and most of them have stated that their productivity and understanding levels were upgraded. But, the concerns related to academic honesty issues, the tendency of these tools, and the diminishing of one's critical thinking skills were the main points brought up. The article argues that the introduction of AI tools may bring both the disadvantages and advantages to higher education, and it urges the creation of organizational policies and digital literacy training programs to guarantee correct and efficient use of AI in educational environments. This research contributes to the structure of technology and AI in education in Pakistan, which is unrepresented in the academic literature.

1. INTRODUCTION

Artificial intelligence (AI) has rapidly changed multiple aspects of human life including education. One of the main AI tools that made a breakthrough recently is ChatGPT, a large language production model developed by OpenAI. This tool has been praised for its capacity to produce text that is human-like, respond to complex questions, carry out research, and help in various mental works. Since its launch to the

public in November 2022, ChatGPT has been used by millions of people around the world and students at different universities are a major part of its users.

When it comes to the use of AI tools for academic learning in Pakistani higher education, in particular at the University of Gujrat (UOG), integrating such tools is an incredible opportunity but at the same time, a major challenge. Digital transformation is happening in the universities of

Pakistan where the old way of teaching is being replaced or supported by new technology-enabled ways of learning. Considering that, figuring out how students at university use AI tools like ChatGPT and to what extent these tools either help or obstruct academic learning has become a key issue for the research community and educational institutions in general.

This research paper seeks to thoroughly explore the impact of AI tools on the academic learning of university students at UOG, Pakistan. It discusses the perceptions of students, their patterns of using AI tools, the academic results of AI tool adoption, etc. After that, it looks at issues related to the violation of academic integrity, the dependence on the use of AI, and the loss of fundamental cognitive skills such as critical thinking, analytical reasoning, and independent problem-solving.

The work is divided in such a way as to give an in-depth consideration of the theme. First, sharply outlined research goals and queries; next, identification of the problem; literature survey; research methods; data collecting techniques; testing and confirming reliability and validity; data analysis; main results; conclusions; and suggestions for application. Both theoretical background and, more importantly, empirical data from the University of Gujrat students are the basis of the research.

AI tools are rapidly changing and are becoming part of the academic environment worldwide. So, higher education institutions like UOG will have to come up with effective and well-researched ways to support the incorporation of the AI tools into the education system. Our research work is a pioneering action toward the objective. We highlight some areas that can be helpful in school and government planning, designing of curriculum, and the way teaching and learning are conducted.

2. RESEARCH OBJECTIVES

The intentions and objectives of the study are as follows:

- See how often and in what ways university students at UOG Pakistan use AI tools such as Kimi AI, ChatGPT, and Claude AI.

- Measure the students' conviction and the effect of AI tools on academic practice, for example performance and efficiency, as well as their learning experiences.

- Understand the worries and problems that come with the use of AI tools, in particular academic dishonesty and excessive dependence in academic settings.

- Analyze the impact of AI tool use on improvement of critical thinking, problem-solving, and self-learning skills in university students.

- Discover the necessary institutional and policy measures for regulating responsible and efficient AI tool usage in higher education at UOG.

- Add to the current knowledge about AI and education in the Pakistani higher education system.

3. RESEARCH QUESTIONS

This research work is based on these three main research questions:

- How often do the university students at UOG, Pakistan use AI tools like ChatGPT for their academic work, and in which specific areas?

- How do the university students at UOG perceive the impact of AI tool usage on their academic learning, performance, and cognitive skill development?

- What are the major challenges, ethical issues, and institutional measures related to the use of AI tools in academic learning at UOG, Pakistan?

4. SIGNIFICANCE OF THE STUDY

This research is very valuable.

4.1 Academic Significance

This study contributes to the expanding literature on AI and education, with an emphasis on the less documented context of higher education institutions in Pakistan. There is lots of documentation around AI and education with Western countries but very few academic pieces that are situated in Pakistani higher education institutions about uses of AI tools. This study gives data that is more exactly and relevantly situated in the Pakistani context.

4.2 Institutional Significance

This study has produced empirical data that can assist the University of Gujrat (UOG) in drafting their institutional policies about the use of AI tools. The knowledge of the ways in which students take advantage of ChatGPT and other AI tools will make it possible, for instance, for the decision-making bodies and teachers at UOG, to come up with new and improved pedagogical approaches, rules about academic honesty, and digital skills courses that will be a good fit for the needs and difficulties that the students of the said institution have.

4.3 Policy Significance

On a national scale, the Higher Education Commission (HEC) of Pakistan and other regulatory authorities could utilize the results of this study to formulate general policies for the use of AI in the higher education institutions of Pakistan. With AI technologies gaining widespread adoption in education, the demand for well-defined, knowledgeable, and flexible policy structures is becoming paramount.

4.4 Practical Significance

For students and faculty, this study offers practical advice on how to use AI tools in academic work responsibly and effectively. By showing the advantages and potential drawbacks of using AI tools, the research helps students to decide wisely how to interact with such technologies and also gives faculty the necessary understanding that allows them to properly guide students.

5. PROBLEM STATEMENT

The proliferation of AI tools (like ChatGPT) in the institution(s) may be an even harder problem, than the challenge, as to how to effectively incorporate and utilize these tools in the university's teaching and assessment practices, faced by an institution, like UOG Pakistan amongst all the others in the world, of which they are only starting to come to their gripped hands. While their obvious merit lies in availability, speed and added learning support, they pose a threat to the very basis of academic education itself. namely,

the intellectual independence, the thinking skills and the academic honesty.

A ban on the use of AI tools for students in institutions like UOG in all other Pakistani universities is totally absent. This rule-void is enabling students to use ChatGPT and tools like it in their academic work with little prior knowledge about what they are doing and its implications for their cognition in general.

UOG faculty reports are anecdotal so far; students Though do turn in papers, essays and sometimes research articles that seem to be computer-assistant. In practice, some students may be advantaged in article access and expedient learning, while some students may be overclocked and impaired in thinking and in actual problem solving. Paradoxically, artificial intelligence as learning enhancement versus artificial intelligence as learning shortcut makes up the main research question. The study of how UOG students utilize artificial intelligence tools (which tools, why and how) would bring about the empirical knowledge of usage that the institution needs to be able to make the informed institutional response. The study will bring about the empirical information that will then be used to craft one step further, evidence-based institutional response to artificial intelligence use in higher education at UOG.

6. LITERATURE REVIEW

6.1 Artificial Intelligence in Education: An Overview

Artificial intelligence is making a big impact in education and is the future. Luckin et al. and Zawacki-Richter et al. demonstrate that AI not only enables personalized learning but also alleviates teachers' efforts and gives students tailored guidance through interactive tutors.

Holmes et al. categorized AI in education as intelligent tutoring systems, automated assessment tools, and recommendation systems. All these have upgraded consistently over the last ten years. ChatGPT, based on GPT-4 and GPT-5, is probably the most sophisticated AI educational assistant available to date.

6.2 ChatGPT and Student Academic Engagement

The present research has revealed that Pakistan's education sector only minimally uses AI. Among the issues raised were the potential to spread misinformation, get incorrect output, and cheating in the academics.

Even then ChatGPT still has a chance to be used in writing, research, and problem-solving, but how well it works depends on how well the user can explain what they want. The potential of AI in education was explored by Kasneci et al. and then the same and more issues were reported by Lerouge et al. and Perkins.

6.3 AI Tools and Student Learning Outcomes

Though, there is mixed findings on how AI can influence academic achievement. Malik et al. Lin, and Chang have all concluded that AI can result in better achievement due to individual feedback and fixed-content. Using a similar approach, Farrokhnia et al. and Cotton et al. pointed out that it is the way the tool is used that determines whether it is beneficial or not, as too much dependence on it could decrease learning. They emphasize the need for digital literacy and critical thinking.

6.4 Academic Integrity and Ethical Concerns

Academic integrity makes up one of the most serious issues involved in AI tool deployment in higher education. Dwivedi et al. In fact, (2023) undertook a multi-disciplinary investigation into the ethical issues of ChatGPT in the classroom, pinpointing five major issue: theft of authorship, plagiarism, privacy and confidentiality, dis- and misinformation, and equality. The authors contend that current academic standards for integrity are insufficient for the AI age, and should be reformulated as a result. In the Pakistani higher teaching context, Iqbal et al. (2023) reported that almost all university students recognized the possible ethical issue related to the use of AI tools but still many used such tools without giving much thought to the impact on academic integrity, indicating a prompt need for intervention.

6.5 Institutional Responses to AI in Education

Universities and colleges around the world are implementing various measures to address the increasing use of AI Tools by students. Initially, some institutions banned or restricted the use of AI Tools in academic work. However, this approach has been heavily criticized as being unrealistic and counterproductive. It misunderstands the true benefits of AI Tools for education and does not sufficiently prepare students for work environments where AI is ubiquitous. There is now a growing consensus that a balanced approach is needed that promotes digital literacy, establishes clear ethical guidelines and proactively uses AI Tools. The 2023 UNESCO report "AI and Education" also supports this strategy and calls on educational institutions to offer comprehensive AI skills programs, review their academic integrity policies and maintain continuous dialogue between students, Educate teachers and administrative staff about the responsible use of AI in education

6.6 AI in Pakistani Higher Education

Research on AI in Pakistani higher pedagogy remains limited, though interest is growing rapidly. Ahmad et al. Actually found that over 70 % of students regularly use AI tools for academic purposes, but they are little informed about their ethical and academic implications, which brings out the need for digital literacy and institutional support. 'Let's help you find out why this matters.' Higher Education Commission has recognized the impact of AI But detailed policy structures are still deficient, which opens up the challenges as well as opportunities for the responsible implementation of AI.

7. RESEARCH METHODOLOGY

7.1 Research Design

This paper is carried out with a mixed-methods research design that combines quantitative and qualitative methods to get a full picture of the research problems. One of the reasons why mixed-methods was chosen is that it can provide a cross-verification of the data obtained from different sources, which in turn strengthens the validity and reliability of the research results. The quantitative

part is a structured survey questionnaire, whereas the qualitative part consists of semi-structured interviews with selected sample members.

The research is based on a pragmatic philosophical setup recognizing that data from both approaches can uncover different yet complementary facets of social realities. The setup fits nicely with research in education, in which objective results and subjective feelings in combination are key in the understanding of the events under study.

7.2 Research Approach

The research adopts a cross-sectional method. It gathers data from a sample of university students at UOG at a single point in time. The method suits well the present study that aims at presenting a snapshot of the AI tools' usage patterns and students' perceptions rather than changes over time. Later studies using longitudinal designs will be able to demonstrate the long-term effects of AI tool usage on student learning and development.

7.3 Population and Sample

The study population was all the enrolled under- and postgraduate students of the University of Gujrat (UOG), Gujrat, Punjab, Pakistan. Stratified random sampling was used to draw the sample of 150 students for the quantitative survey. Purposive sampling was used to draw 15 students from among the survey participants for qualitative interviews, with the purpose of maximizing variations across gender, faculty, year of study, and extent of AI tool use.

7.4 Ethical Considerations

This research project complies with research ethics for using human participants. Participants were given an information sheet about the nature, procedures, possible harm, and benefits of this project. Informed consent was gained from all participants before data collection was undertaken. Data was collected on a voluntary basis, giving participants the right to withdraw at any time without penalty. All data was anonymized and kept securely.

8. DATA COLLECTION

8.1 Survey Questionnaire

The main tool for getting the quantitative data was a structured survey questionnaire (SQ) specially made for this research. The questionnaire consisted of four parts: (1) background information like sex, age, faculty, and year in school; (2) how often and for what reasons the participants used AI tools; (3) the participants' views on how AI tools helped or affected their learning and academic performance; and (4) the participants' knowledge and feelings towards academic honesty and ethical use of AI.

The questionnaire contained close-ended questions and responses on the Likert scale (from 1 = Strongly Disagree to 5 = Strongly Agree) as well as some multiple-choice questions. The questionnaire was pilot-tested with 15 students who were not part of the main sample, and changes were made after getting their feedback. The final questionnaire was given in two ways: face-to-face and electronically through Google Form. Administration took place over three weeks in the Spring semester of 2025.

8.2 Semi-Structured Interviews

The qualitative data were gathered through semi-structured interviews carried out with 15 purposively selected individuals. The duration of each interview was between 20 and 40 minutes and the location was a private room. The main language of the interviews was English; yet, participants were allowed to speak in Urdu if that was their choice. With the permission of the participants, all the interviews were recorded and later transcribed word for word for the analysis.

The interview guide was based on these themes: participants' first encounters with AI tools, particular examples of how they have used AI for their academic work, what they believe to be the advantages and disadvantages, worries about the honesty of the academic work, how AI tools have influenced their learning, and the kinds of policies the institution should have based on them.

8.3 Secondary Data

In addition to the primary data, secondary data were gathered via a thorough examination of

existing publications on the topic of AI tools in education. These sources consisted of articles from peer-reviewed journals, books, conference materials, and reports of authoritative bodies like UNESCO and HEC Pakistan. Only literature released within the timeframe of 2021 to 2026 was taken into consideration for the review. The literature was obtained primarily from databases like Google Scholar, JSTOR, ResearchGate, and Scopus.

9. RELIABILITY AND VALIDITY

9.1 Reliability

Reliability is often denoted as the quality of research instruments and results to deliver consistent, stable outcomes. Before the actual data gathering, the survey questionnaire was first subjected to a pilot test involving 15 students, and Cronbach's Alpha was measured to check the internal consistency of the Likert scale items. The survey tool proved to be quite consistent internally and reliable as evidenced by a Cronbach's Alpha index of 0.87.

For the qualitative part, inter-rater reliability was maintained by two documentary researchers independently coding a portion of the interview transcripts. Working separately, they achieved a Cohen's Kappa value of 0.82, a level which denotes good inter-rater agreement. The difference in coding was settled by discussion and agreement between both researchers.

9.2 Validity

Content validity was confirmed by a thorough development procedure for the instrument which included a detailed study of the literature and consultation with experts on educational research and AI. The questionnaire items were reviewed by three academics who gave their opinions on clarity, relevance, and comprehensiveness. Construct validity was evaluated by performing exploratory factor analysis, which revealed that the factors were consistent with the originally hypothesized constructs.

For the qualitative part, credibility was supported by member checking, which means that initial results were given to some interviewees to get their approval and comments. Transferability was

tackled by providing very detailed descriptions of the research setting, sample, and results.

9.3 Triangulation

In the research, triangulation was used as a main tactic in improving the general trustworthiness and accuracy of the research. The study utilized three data sources – a quantitative social survey, qualitative in-depth interviews, and secondary document analysis – to validate and confirm the results. The presence of agreement between the different research findings led to greater assurance in the strength of the results. The disagreement between the different research findings, on the other hand, was looked at as giving rise to more intensive understanding and detailed interpretation.

10. DATA ANALYSIS

10.1 Quantitative Data Analysis

The quantitative data obtained from the survey questionnaire were analyzed through descriptive and inferential statistical methods. Descriptive statistics such as frequencies, percentages, means, and standard deviations were computed for all the survey items. To investigate the associations between variables like gender, faculty, year of study, and patterns of AI tool usage, inferential statistical analyses including chi-square tests and independent samples t-tests were carried out. SPSS version 26 was used to perform all the statistical analyses, and for the inferential statistical tests, a significance level of $p < 0.05$ was set.

10.2 Qualitative Data Analysis

The qualitative data collected from the semi-structured interviews were analyzed through thematic analysis following the six-step guide of Braun and Clarke (2006): (1) getting acquainted with the data by repeatedly reading the transcripts; (2) making first codes; (3) looking for themes; (4) checking themes; (5) describing and labeling themes; and (6) writing the report. NVivo 12 qualitative data analysis software was used to perform the analysis. Five major themes were identified through the analysis: (1) varieties and reasons for using AI tools; (2) students' perception of the advantages of AI tools for academic

learning; (3) difficulties and hazards linked to the use of AI tools; (4) academic integrity and ethical reflections; and (5) institutional reactions and student needs.

10.3 Integration of Findings

Following the mixed-methods research design, quantitative and qualitative findings were integrated at the stage of interpretation. The purpose was to find points of agreement and disagreement through comparing and contrasting results obtained from two types of data. Areas of convergence were considered as such when qualitative data confirmed quantitative results. When qualitative findings explained in more detail something that quantitatively was not possible to show, this was considered as the complementary value of the mixed-methods approach.

11. FINDINGS

11.1 Frequency and Patterns of AI Tool Usage

All 15 interview participants' data verified regular use of ChatGPT for academic purposes, further supporting the quantitative findings. For example, one third-year Social Sciences student who was interviewed described a typical case: first, asking ChatGPT to explain a topic and then working on her own independently. This shows that students are working with AI in more thoughtful, multi-step ways rather than just simple copy-paste types of behaviors. Among 150 surveyed UOG students, 117 (78%) said that they regularly use AI tools – of them, 43 (29%) use the tools daily, 52 (35%) weekly, and 22 (15%) monthly. Only 33 (22%) said they rarely or never use them for academic purposes. These statistics are very close to the international literature. Most frequent uses were writing essays and assignments (72%), understanding concepts (68%), gathering research material (65%), revising for exams (55%), grammar and translation (48%), and for computing students, coding help (35%). When combined, results from both data sources show that the use of AI tools at UOG is extensive, meaningful, and deep-rooted in students' academic lives.

11.2 Perceived Impact on Academic Learning

Students described many advantages they recognized from using AI tools. Based on the Likert scale items used to measure the participants' perception of the effects of AI use on their academic performance, 82% of them either agreed or strongly agreed that the help they received from the AI tools in understanding challenging concepts was worthwhile. On the same scale, 76% of the respondents said that the use of AI tools has increased their working capacity, and 69% of them believed that the use of AI tools was a factor in their higher overall level of academic performance. At the same time, the data also demonstrated that there is a lot of conflict among students when it comes to the influence that the use of AI tools has on their learning experiences. Even though the majority, 68%, said that the use of AI tools has made it more convenient for them to carry out academic tasks, the proportion of students who said that these tools have assisted them in gaining a profound understanding of their subject matter was only 54%. Besides that, 61% of those who answered confessed that there are times when they pass off AI-generated content as their own work without really editing it. This is a matter that raises serious issues about academic integrity.

Participants in the interviews gave very valuable qualitative information. One of them talked about the fear of becoming too dependent on AI tools: 'From time to time I get the feeling that I'm not really learning, I'm only doing what ChatGPT tells me. It frightens me because during an exam, I am on my own.' This was a concern shared by a fourth-year engineering student, among others.

11.3 Academic Integrity Concerns

Academic integrity was one of the areas that both quantitative and qualitative data indicated as having the highest level of concern. 73% of the 150 survey respondents felt that the use of AI tools brings up serious issues related to academic honesty, while 65% felt that their university should provide clearer guidelines on the correct use of AI tools in academic work. Interestingly, 58% of respondents revealed that they did not know if their current use of AI tools was in line with UOG's academic integrity policies.

During the interviews, academic integrity was identified as a key issue. The concern was well expressed by a postgraduate student in the Faculty of Education: 'We need our professors and the university to delineate what is permitted and what isn't. At this moment, everyone is just doing whatever they want because there are no clear rules.'

11.4 Impact on Critical Thinking and Independent Learning

Another key finding is related to the impact of AI tools on students' ability for critical thinking and independent learning. 65% of them felt that AI tools helped them to access information faster, but only 48% of them felt that AI tools had helped them to develop better critical thinking skills. Besides, 57% of them felt that they tended to regard the information found by AI tools as true and accurate.

A second-year student in the Faculty of Sciences commented: 'I know I am supposed to be checking what ChatGPT is saying, but I usually just believe it. Maybe that is bad for my thinking.' Evidence from this interview also points to a trend of unquestioning use of AI tools that was apparent in many of the interviews, indicating that students would benefit from more guidance and practice in evaluating AI outputs.

11.5 Institutional Response and Student Needs

Quantitative and qualitative evidence both showed that there is a serious lack of institutional reaction to the use of AI tools at UOG. In reality, 89% of 150 survey respondents agreed that UOG should prepare clear policies on the use of AI tools in academic work, and 84% agreed that the university should carry out training and guidance on how to use AI tools responsibly and effectively. Only 12% of the respondents declared that they were given formal guidance by their faculty or the university on the use of AI tools in academic settings.

12. CONCLUSION

This study has delivered an in-depth and evidence-based investigation on how UOG university students utilize AI tools like ChatGPT to promote

their study outcomes. The findings of this study have established that the students at UOG have a generally positive perception about the benefits and use of those tools.

The research has also identified the challenges and concerns that UOG students face while using the AI tools like ChatGPT. The findings in this study validate that AI tools such as ChatGPT are now an embedded feature of the academic journey for most UOG students and most report that they use ChatGPT at a frequency that suggests it aids in most of their academic work.

The most common perceived advantages align with those already identified in other international studies. Also, the study has uncovered various important problems and risks of using AI tools at UOG, for instance, academic dishonesty issues, the risk of dependence on AI tools, and the undermining of the development of vital cognitive abilities like critical thinking and autonomous problem-solving processes. It is worrying to see such a high percentage of students turning in work written by AI tools albeit having made small edits, which indicates an enduring issue and calls for measures from the university.

Perhaps most interestingly, the study uncovered a large disconnect between the demand for institutional guidance around the increased usage of AI tools by UOG students, with a large majority of respondents stating that the university has not sufficiently addressed this issue with any policies, training programs, or otherwise. Overall, the research verifies that responsible use of these AI tools, with combined teacher instruction, can bring significant improvement in scholarly achievement.

Achieving this impact needs proactive institutional participation. There is reason to support the assumption that Pakistani institutions, including the University of Gujrat (UOG), can lead the way in establishing an effective and equitable policy for AI tool use in Pakistani higher education.

13. RECOMMENDATIONS

From the discoveries and decisions of this study, the following advice is proposed to UOG administration, staff, students, and HEC Pakistan:

13.1 For UOG Administration

- Formulate and execute a detailed institutional policy for the use of AI tools in academic work. Such a policy should precisely identify the uses of AI tools that are acceptable and those that are not, specify the penalties for academic misconduct due to AI misuse, and be widely disseminated among students and faculty.
- Set up a dedicated AI and Digital Literacy Center at UOG, which offers training, resources, and assistance to students and faculty on using AI tools responsibly and effectively in academic contexts.
- Make AI literacy part of the orientation sessions for all incoming students so that the students understand the institutional policies, ethical implications, and best practices for the use of AI tools right from the start of their academic journey.

13.2 For Faculty

- Create evaluation activities that target higher-order thinking skills, critical thinking, personal reflection, and the use of knowledge in new contexts — in other words, activities that cannot be easily done by AI.
- Bring up the use of AI tools, academic honesty, and digital literacy both in course outlines and during class sessions to assist students in grasping the skills and consciousness needed for the responsible use of AI tools.
- Participate in continuing education courses and other professional development opportunities to keep up with AI tool innovations and their pedagogical effects so that faculty members can competently guide students.

13.3 For Students

- Think of AI tools as helpers for your learning, not as something that does the whole task for you. Be critical towards any AI content; consider it only as a starting point for your own thoughts and research.
- Learn about UOG's academic honesty rules and if you have doubts about proper AI use in particular tasks, do not hesitate to get help from your lecturers.

- Make a conscious effort to enhance your critical thinking, researching, and writing abilities through independent work, because these skills are not only necessary for your learning but also for your career success in a world where AI is a part of life.

13.4 For HEC Pakistan

- Create national standards of AI tool implementation in Pakistan's tertiary education sector, giving a legal base that Pakistan's universities may adapt into their particular institutional setups.
- Sponsor studies that examine the effects of using AI tools on students' ability to learn, maintain academic honesty, and cognitive growth in Pakistani higher education.
- Enable the exchange of best methods when it comes to AI tool use among Pakistani universities, leading to the creation of a national forum for discussing committed AI use in higher education.

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