



CHATGPT AND THE FUTURE OF ACADEMIC WRITING: ENHANCING PRODUCTIVITY AND CREATIVITY

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Abstract

This research evaluates the impacts of ChatGPT on productivity and creativity in academic writing among tertiary education learners in Pakistan. In particular, it seeks to understand how the students interacted with the AI program in relation to essay writing, ideation, editing, and addressing issues of output reliability, ethical use, institutional support, and workload. As part of a quantitative approach, a stratified survey was conducted for 343 selected students studying across various universities in Pakistan. The data set were analyzed in SPSS to compute descriptive statistics and the results graphically represented in the form of bar diagrams, pie diagrams, tables, and other illustrative forms with the intention to interpret the patterns, benefits, and concerns regarding ChatGPT in academics. Results showed that most students have integrated ChatGPT into their day-to-day activities, and most especially in academic writing and research. Students noted that their productivity increased significantly, agreeing with the notion that ChatGPT reduced drafting time, language hurdles, and increased creative output. However, some issues came up regarding the reliability of citations, ethically problematic use without disclosure, and absence of institutional guidelines. Irrespective issues, most students supported the inclusion of AI in the classroom, perceiving ChatGPT as constructive for academic work. This analysis is the first to provide empirical evidence on the implementation of ChatGPT in higher education in a developing country context. It emphasizes how AI is augmenting shifts in students' writing practices, and also calls for the urgent development of ethical guidelines, AI instructional policies, and faculty development programs on responsible use. The data gathered is useful for educators and policymakers who strive to navigate between innovation and academic ethics.

Keywords: ChatGPT, Academic Writing, Artificial intelligence, Higher Education, Student Productivity

I. INTRODUCTION

Advancements in artificial intelligence (AI) has positively impacted a diverse number of fields, and education is no different. AI has [28] work demonstrates that it can be a powerful driver of change and innovation within educational settings. One of the latest AI technologies that can be integrated into the curriculum is ChatGPT. This new AI chatbot was built by an American company known as OpenAI. 650,000 users registered the chat bot within the first week. One month post-release these numbers increased to 13 million [23], [29]. ChatGPT is a natural language processing (NLP) AI that engages with users. Similar to a virtual assistant, it can respond to questions and support users in various activities including drafting emails and essays, writing computer programs and a host of other tasks [1], [9]. Initially, this AI tool was freely available as the objective of the research and demo version GPT-3.5 was to broaden public testing with the aim of acquiring learning-based feedback from users in preparation for integrating it into GPT-4 [15]. Language models now power one of the newest forms of AI technology, chatbots which provide prompt and



personalized assistance. They are now being used in education especially as learning aids. There is a great deal of discussion in academic circles regarding the large scale language model developed by Open AI, ChatGPT and its capabilities in academic settings. In this article, we provide an account of the available literature on ChatGPT in education, both in Vietnamese and globally. Additionally, this article seeks to address some ongoing controversies and further ChatGPT related problem areas in discussions in the educational context [7], [18], [19], [30].

Tools with artificial intelligence capabilities such as ChatGPT using GPT-4 have recently become widely used [25]. There is concern about the effect of these technologies on learners and educational institutions, especially universities, as they become more sophisticated and readily available. The aim of this research study is to examine the attitudes of educators and learners towards the impact of ChatGPT on the educational process and the higher academic curriculum, or in other words, on teaching and learning at this level [13].

Technological advancements are transforming rapidly and becoming more user-friendly for numerous purposes including education. There are several pillars of an effective education like technology, student's growth, and proficient teaching. In skilled teacher's technology is integrated into lessons. Such teachers aid their students in gaining proper access to education, thus enabling students to achieve academically as well as in their personal development. Technology opens a plethora of educational resources, materials, and methods of communications depending on the educational needs of parents and students. The infusion of technology into the classroom gives educators the opportunity to improve the functionality and quality of the learning experience [11], [12], [14].

Several researchers report that ChatGPT comes with significant limitations alongside numerous potential educational benefits [4], [8], [16], [21], [22] notes that during the initial evaluations of ChatGPT, it was unable to answer questions pertaining to anatomical knowledge accurately. Thus, this advanced piece of artificial intelligence does indeed possess both benefits and drawbacks [32].

The fusion of technology and education has become a phenomenon of widespread occurrence in our rapidly developing world, fundamentally altering prevailing patterns of scholarly work and research practices. The launch of new AI language models like ChatGPT has opened up a new dimension of academic research, necessitating novel adaptations of our research frameworks. This study focuses on investigating the impact of ChatGPT on the research habits of academics in Pakistan, aiming to highlight the profound effects of this invention in a country known for its deep-rooted scholarly pursuits and intellectual exploration.

A. *Problem Statement*

In spite of the increasing prevalence of AI tools such as ChatGPT in academic contexts, there is still limited comprehension regarding their impacts on students' writing productivity, creative output, and critical thinking skills. Most educational institutions do not have systematic policies for appropriate and ethical use, resulting in sporadic application and ambivalence regarding academic integrity. This research attempts to fill the void by investigating the effects of ChatGPT on students' academic writing practices, paying attention to the advantages and challenges posed by the technology in higher education.

B. *Objective of the study*

The main objectives of this article are:

1. To evaluate the impact of ChatGPT on students' academic writing productivity, including its role in drafting, editing, and managing multiple assignments.
2. To examine how ChatGPT influences creativity and critical thinking in academic work, particularly in idea generation and interdisciplinary connections.
3. To assess students' perceptions of the reliability, ethical implications, and future integration of ChatGPT in the academic environment of Pakistani universities.

C. *Significance of the study*

The investigation is particularly important in terms of the impact of modern technology such as ChatGPT on academic writing and its integration in the Pakistani university system. With the availability of artificial intelligence (AI) tools, there is tremendous change in the students' productivity, imagination, and



overall learning methodologies. By analyzing student conversations, the research explains some of the advantages and disadvantages of ChatGPT, providing educators and policymakers with relevant information regarding its use. It also draws attention to the ethical issues and institutional AI-related concerns in higher education and the lack of policies in the institution, which directly call for the need of guidance frameworks accompanied by AI literacy programs. The overall aim of the study is to ensure the Pakistani educational framework is fostering the responsible integration of emerging technologies such as AI into academia systems while safeguarding educational integrity.

II. LITERATURE REVIEW

As highlighted in [13] it is evident that the application of AI in education dates back many years, though it garnered significant attention in the first quarter of 2023 following the explosive popularity of OpenAI's ChatGPT application. Despite the fact that research is being conducted at a fast pace due to the recent public availability of GPT-4, its usage is still relatively new. The attention and use of AI-powered chatbots in higher education is noticeable as they are designed with the intent of improving learning and increasing student participation [24]. In the last few decades, a lot of research has been done to evaluate the effectiveness of chatbots in different educational settings. This research particularly deals with the issues of educational processes related to ChatGPT and how these processes affect the functions of universities.

Engagement of AI chatbots into education has a potential prospect as an instructional tool aimed at improving student participation in the teaching and learning process. According [10] their research shows that technology in the form of chatbots enhances students connection and learning processes. The field artificial intelligence (AI) seeks to devise methods of teaching a software, computer or a robot to think like a human. To accomplish the goal of creating intelligent software, one must know how the human brain functions and how a person learns, makes a decision, or approach a problem [3], [26].

During the 1950s, systematic work was undertaken towards the field of artificial intelligence, which is when the first AI and chatbots were created [2]. Even though we ignore the elephant in the room, AI debates have taken place throughout decades as discussed in [5]. The inaugural attempt at creating an AI capable of playing checkers using a computer took place in 1951. By the following year, the checkers-playing AI had gained respectable competency [27].

To measure the efficacy of ChatGPT [6], [33] published a paper titled "Artificial Intelligence for Education." The findings concluded that ChatGPT aids academics in composing methodical, logical, and enlightening research articles. Users do not need to be experts, as the bot is able to do a remarkably convincing write-up in two to three hours. In focusing towards educational goals [33] emphasized the need for schools to utilize ChatGPT and other AI tools to cultivate student's creativity and critical thought. It was suggested that new types of assessments may be necessary due to the potential use of ChatGPT for assessment-related tasks [31].

In the study conducted by [33] it is explained that practitioners specializing in machine learning and natural language processing domain will receive the most value from ChatGPT. With the proper guidance, a researcher focusing on text classification, sentiment analysis, machine translation, or speech recognition can gain complete benefits from ChatGPT. Nevertheless, the application of ChatGPT also extends to other researchers from diverse fields such as social science, life science, health, business [20] engineering, etc. For instance, ChatGPT can facilitate the development of surveys or questionnaires that a student wishes to conduct. ChatGPT was commissioned to generate a survey questionnaire intended to measure the impact of social media on consumer habits [17].

The use of AI-integrated educational chatbots like ChatGPT heralds a new epoch in learning methodologies and academic processes. AI technology has been around for quite some time; however, the launch of ChatGPT seems to have hastened its widespread adoption in higher education. Research suggests that chatbots are beneficial in capturing learner attention and are capable of assisting in teaching and even research. With ChatGPT, even non-specialists can generate academic documents in a remarkably concise manner, and the application encourages the exercise of intellect and imagination. The application of AI goes



beyond technical disciplines – it spans across many fields of study like survey and data processing which can be done through analysis. The relatively recent application of these technologies in mainstream education indicates some degree of further investigation and adjustment is still needed. Other studies have focusing on the need for new forms of assessments to take the use of AI technologies in educational settings into consideration. Overall, the technology revolution in education is gaining speed and therefore will have implications on the way educators teach, as well as the approach learners will take towards the content.

III. METHODOLOGY

In the current quantitative research, a survey method was applied to gather data from the study sample (n=343) comprising students from different universities in Pakistan. The survey was conducted using a structured questionnaire, which was both in soft and hard copy format. Using the Raosoft calculator, it was determined that with a 95% confidence level, 5% margin error, and assuming 40% of the research population was study sample; the sample size needed was 95. For a randomly selected sample, 371 questionnaires were sent out, of which (343) were returned. According to the response rate calculation formula, the returned questionnaires (343) divided by the distributed questionnaires (371) will multiplied by (100). Therefore, the response rate equals 80%. Then, using SPSS, all data was descriptively tested. The findings include tables, pie charts, bar graphs, and many more as illustrated below.

IV. FINDINGS AND DISCUSSIONS

In the findings section, key results are presented and analyzed, highlighting significant patterns and observations from the data. The discussion interprets these results, compares them to existing literature, and explores their implications for future research and practical applications.

TABLE 1
DEMOGRAPHIC INFORMATION

Category	Option	Frequency	Percentage
Gender	Male	190	55.4%
	Female	153	44.6%
Age	18–23	185	53.9%
	24–29	100	29.2%
	30–35	38	11.1%
	35 and Above	20	5.8%
Academic Level	Undergraduate	160	46.6%
	Master's	115	33.5%
	PhD	50	14.6%
	Postdoctoral	18	5.2%

From the total of 343 respondents, the gender distribution shows a slight predominance of males over females which is fairly balanced. Males account for 55.4% (190) while females account for 44.6% (153) of the total respondents. Although technology fields and academia in general, and especially higher education in Pakistan, seems to still have gender inclusivity gaps, the numbers do suggest an increase in female representation.

As for the age data, most of the respondents are within the age range of 18-23 (53.9%), which aligns with the typical age of undergraduate and early master's level students. This is succeeded by (29.2%) in the 24-29 age bracket, presumably senior master's students or early-stage PhD candidates. There is much lower representation of the older 30-35 age group (11.1%) and those 35 and above (5.8%). These results imply that students in lower age ranges are more motivated to participate in research studies using digital technologies, such as ChatGPT, suggesting a link between age and tech exposure or academic climate.

The age distribution of the sample corresponds to the academic level. Undergraduates constitute the largest portion (46.6%), followed by master's students (33.5%), signifying that most of the sample is in the



initial stages of their academic journey. PhD candidates make up 14.6% of the sample while postdoctoral researchers represent a small fraction of 5.2%. This suggests that there is lower participation from more experienced researchers, likely due to differing research requirements, or more conservative views regarding AI resources in academia.

To summarize, the predominant group included in the sample consists of younger, early-stage students, with undergraduates representing the largest user group. This pattern reflects the escalating engagement with new technological innovations such as ChatGPT by younger learners who are willing to experiment with technology during their studies.

TABLE 2
FREQUENCY OF CHATGPT USE

Frequency of Use	Frequency	Percentage
Daily	80	23.3%
Weekly	140	40.8%
Monthly	80	23.3%
Rarely	43	12.5%

The statistics regarding ChatGPT's use across students in Pakistan suggests different degrees of use among university students with a notable shift toward frequent engagement. The most prevalent usage pattern appeared to be on a weekly basis with 140 students (40.8%) signaling that most do rely on ChatGPT regularly for some academic work, be it assignments, research, or writing assistance.

Surprisingly, daily usage is reported by 80 students (23.3%), suggesting some highly eng's participants of ChatGPT's academic features which are likely blended into their day-to-day academic activities. This level of usage indicates some level of reliance on the tool and/or its use during intensive academic work such as thesis writing or problem solving in various technical subjects.

An equal number of students (80 respondents, 23.3%) use ChatGPT on a monthly basis, which suggests dependence on Relying on the tool in a sporadic technique specific to an assignment without consistent integration. These users would probably interact with the tool during intense academic phases such as exam preparations or when tackling project deadlines.

The smallest share (43 students, or 12.5%) used ChatGPT rarely which may have to do with lack of information and mistrust on the tool's efficacy, or other difficulties such as these related to access, familiarity, or policies set by the organization using.

About two-thirds of the participants (64.1%) reported using ChatGPT at least on a weekly basis, demonstrating a propensity to make use of AI resources in their learning activities. This trend also demonstrates how important ChatGPT is becoming in educational settings and emphasizes the need for frameworks promoting digital competencies, as well as fostering institutional guidance policies aimed at optimizing its application.

TABLE 3
PRIMARY USE OF CHATGPT (MULTIPLE SELECTIONS ALLOWED)

Use Case	Frequency	Percentage
Essay/Thesis Writing	225	65.6%
Research Idea Generation	180	52.5%
Editing/Proofreading	150	43.7%
Coding/Technical Writing	65	18.9%
General Learning	140	40.8%

The research data depicts that ChatGPT is primarily used for academic tasks like writing and brainstorming. In total, 225 students (65.6%) indicated they use it for essay and thesis writing. This shows that ChatGPT is a well-known tool for producing structured academic text and is highly popular among



students for aiding with formal writing assignments, including drafting, outlining, and constructing coherent arguments.

Idea unsolicited innovation is a widespread use too, mentioned by 180 students (52.5%). This indicates that a good portion of students with academic work projects in mind not only take advantage of ChatGPT as a writing tool, but also for brainstorming new and interesting ideas at the initial stages of research-intensive academic projects. Editing and proofreading is also a prominent use case, reported by 150 students (43.7%). This reflects ChatGPT's quality concerning improvement of grammar, clarity, academic style, and more, which is particularly helpful for nonnative speakers or for students looking to enhance their work before submission.

Students also noted general learning as utilizing ChatGPT, in total 140 students (40.8%) claiming so. By these numbers, it is clear that ChatGPT serves as an auxiliary learning instrument. Probably students employ it to explain clarifying concepts, summarize complex materials, or in general review what has been taught in class, broadening its scope beyond writing tasks.

Less common options such as 'coding and technical writing' were still selected by 65 students (18.9%), which implies that ChatGPT accommodates STEM related assignments. The more specialized nature of coding tasks or an unawareness of ChatGPT's technical capabilities might explain this low percentage.

In any case, the information suggests that ChatGPT is applied in a broad range of academic tasks, from the most basic to the most complex, although its primary focus remains on writing, brainstorming, and editing. As its incorporation into different academic activities increases, it illustrates more and more clearly its usefulness as a multi-functional scholastic aid.

TABLE 4
PRODUCTIVITY ENHANCEMENT (LIKERT SCALE AGREEMENT: 4–5)

Statement	Agree (4–5)	Percentage
ChatGPT accelerates academic writing	265	77.3%
Reduces drafting/editing time	245	71.4%
Helps manage multiple assignments	230	67.1%
Aids with language barriers	295	86.0%
Improves academic formatting (APA/MLA)	210	61.2%

The reactions in this section reveal that students share common views concerning ChatGPT's effect on productivity as being positive. Most notably, a total of 295 students (86.0%) agree that ChatGPT helps them deal with language-related problems. This underscores how ChatGPT is critical in assisting non-English speakers who find academic writing challenging. This demonstrates the extent to which AI tools are bridging the language gap for students and enabling many to create scholarly works.

A significantly large majority—265 respondents (77.3%)—agreed that ChatGPT assists in speeding up the process of academic writing. This perhaps means that the software is perceived as a productivity booster, which helps in drafting, outlining, or in some cases brainstorming, thereby enhancing the writing process for students in all fields.

Equally, 245 students (71.4%) believe that the application of ChatGPT lessens the time allocated to drafting and editing. This means that users appreciate its potential in helping them polish their work in a timely manner, or these optimizations are important during times in the semester that are busy with multiple assignments, thus resulting in limited time available to complete them.

The same proportion, 67.1% (230 students) state that ChatGPT assists them in managing several tasks assuming that it helps in academic planning and workload balancing. This suggests students to quickly draft outlines of ideas, explain concepts, or develop ideas for different subjects, thereby reducing their mental burden, potentially use ChatGPT.

Finally, 210 students (61.2%) believe that ChatGPT aids in the adherence to academic formatting styles like APA and MLA. While this is a lower percentage compared to other benefits, it still represents a



majority and highlights the tool's effectiveness in upholding academic rigor—albeit some students may prefer greater precision through manual optimization.

To conclude, the information provided makes a compelling argument that ChatGPT helps with tasks that require intensive time management, language editing, formatting, and overall task execution by improving efficiency concerning educational responsibilities.

TABLE 5
CREATIVITY & CRITICAL THINKING

Statement	Agree (4–5)	Percentage
Suggests innovative research ideas	235	68.5%
Helps refine ideas	260	75.8%
Connects interdisciplinary concepts	200	58.3%
Overuse hinders Independent thinking (Reverse-Scored)	145	42.3%
Increases creativity when collaborating	245	71.4%

The information in this chapter shows that students mostly view ChatGPT as a helpful resource for fostering creativity and critical analysis, even though some are concerned that it may hinder independent thinking. A considerable proportion of respondents 260 students (75.8%) agree that ChatGPT assists in improving their ideas, which indicates that the technology is fairly common in use as a collaborative tool in aiding the retention and enhancement of students' original thoughts. It appears, therefore, that students appreciate the contribution of ChatGPT in the processes of idea generation and development as being that of a cognitive partner, not a provider of solutions.

In addition, 245 students (71.4%) report feeling more creative when engaging with ChatGPT, further demonstrating how the tool enhances students' capacity for intellectual inquiry. In the same vein, 235 students (68.5%) consensus that ChatGPT provides valuable suggestions for innovative research, which emphasizes the importance of the tool in the initial phases of academic work, including topic selection and conceptual, brainstorming.

A smaller but still significant group 200 students (58.3%) consider ChatGPT to be useful in connecting concepts from different disciplines integrating which indicates its contribution to more comprehensive thinking beyond subjects. This is especially useful in the context of advanced level research courses that require high levels of integration and creativity.

Notably, 42.3% of students (145 students) agreed with the reverse-scored statement that ChatGPT's overuse hampers independent thinking. This shows apprehension from a considerable portion of respondents that there is a strong possibility of developing an intellectually lazy habit where one's ability to think critically on their own is emancipated in the presence of AI. To conclude, the majority of students who participated in the study recognized the role of ChatGPT as an aid to creativity. However, they all understood the need to foster independent critical thought in order to strike a balance. This varying understanding illustrates the immense potential and responsibility that comes with AI-assisted learning.

TABLE 6
OUTPUT RELIABILITY

Statement	Agree (4–5)	Percentage
Provides valid citations	135	39.4%
I verify responses before using	285	83.1%
Outputs need little editing (Reverse-Scored)	100	29.2%
Maintains coherence in long texts	215	62.7%
Handles discipline-specific jargon well	190	55.4%

This section described a mixed but careful attitude regarding the dependability of ChatGPT's outputs for academic work among university students. The most encouraging outcome is that 285 students (83.1%) indicated they check the responses of ChatGPT before using them, demonstrating a responsible approach to



how the tool is employed. This shows that students appreciate claiming academic maturity by understanding basic principles of verification and crosschecking, particularly in formal academic work.

In terms of content quality, 215 students (62.7%) agreed that ChatGPT is able to maintain coherence of a long text, which indicates that it can produce coherent outputs. Such reliability in written work also helps in the preparation of essays, summarizing research, and writing formal reports.

Moreover, 190 students (55.4%) believe that ChatGPT gives appropriate attention to discipline-specific jargon, which indicates reasonable faith in the capability of the tool to address some specialized scholarly areas. Nevertheless, this figure also means that close to half of these students may be concerned about the technical correctness in some of the more specialized fields that demand precise words.

A less favorable observation is that in this case, only 135 students, 39.4%, believing that ChatGPT provides valid citations means that a majority of students think that its references are not credible. This is particularly alarming because most academic writing involves a meticulous process of accurate source citation. This finding points to a critical gap trust in citation quality, which undermines the tool's academic usefulness.

Additionally, the results indicate that only 29.2 percent (100 students) responding to the reverse scored ChatGPT's outputs as requiring minimal editing agree. This means that, in the case of more than half of the students, a greater proportion of users do not consider the content of the tool to be academically rigorous. This corroborates with prevailing caveats noted earlier in the survey.

To sum up, students tend to admire the coherence and prosaic features of ChatGPT but remain skeptical about its factual reliability and the accuracy of its sources. The results show that it is useful to students as a draft aid rather than as a definitive citing tool, which undermines the material's scholarly acceptance without critical evaluation for academic integrity and the user's fixation.

TABLE 7
ETHICAL & INSTITUTIONAL CONCERNS

Statement	Agree (4–5)	Percentage
Using without disclosure is unethical (Reverse-Scored)	260	75.8%
My university has clear AI policies	75	21.9%
ChatGPT content should be banned (Reverse-Scored)	110	32.1%
Proper citation resolves ethics issues	240	70.0%
AI democratizes academic access	275	80.2%

The findings of this section show that students are keenly aware of the ethical ChatGPT-related issues, which suggests that there are gaps in the university's guidance and policies regarding AI.

Undoubtedly, a substantial majority of 260 students (75.8%) believe that failing to disclose the use of ChatGPT constitutes a breach of academic integrity, which means that most students are cognizant of the ethical consequences stemming from AI assistance not declaration. The results also illustrate that students appreciate the impact of academic transparency and reveal a high degree of ethical consciousness regarding attribution and intellectual contribution. While this percentage is striking, it is equally surprising to note that only 75 students (21.9%) affirm that their university has policies on AI, which indicates a profound institutional gap. The absence of such formal policies likely fosters confusion regarding acceptable AI use and forces students into unaccredited ethical delineations. This gap may impede appropriate use of the technology and erode confidence in AI-enhanced educational resources.

This disconnect with institutional positions may, in part, explain the finding whereby only 110 students (32.1%) are in agreement with the statement that content generated by ChatGPT should be unilaterally prohibited, a reverse-scored item. The data suggest that a majority of students do not support unwarranted restrictions on the use of ChatGPT but do support conditional policies governed by rules.

Supporting this view, 240 students (70.0%) believe that ethical issues can be resolved through proper citation. This suggests that students are open to using ChatGPT in their academic work as long as its use is explicitly cited like any other external reference.



Finally, 80.2% (275 students) affirm that AI tools democratize access to academic resources, suggesting that students view the technology positively as a tool to mitigate inequality, particularly in economically disadvantaged educational settings. This indicates that ChatGPT has the potential to transform education for people who, lacking access to traditional academic facilities libraries, mentors, or language guides, experience barriers to academic resources.

To conclude, students are in favor of regulations on the use of ChatGPT that encourage responsibility without explicit prohibition, advocate for guidance rather than absolute restrictions, and regard AI technology as a significant equalizer in education. There are no statements, however, that universities must respond to with policy, as there is inconsistency and lack of restriction on use.

TABLE 8
FUTURE ADOPTION IN PAKISTANI ACADEMIA

Statement	Agree (4–5)	Percentage
AI tools should be integrated into curricula	285	83.1%
Bridges educational resource gaps	265	77.3%
Faculty resistance is a barrier (Reverse-Scored)	185	53.9%
AI literacy is crucial for future success	300	87.5%
ChatGPT will become indispensable	260	75.8%

The data in this section showcases the endorsement of students for the implementation of AI tools, for example, ChatGPT in Pakistan's higher education, reflecting their strong support towards integration and future dependence on such technology.

A striking 87.5% (300 students) of them consider AI literacy as increasingly vital for the prospects of academic or professional success, indicating that students' engagement with technology emerges at an earlier stage within education systems. Such a perspective strengthens the growing principles of contemporary educational systems and the employment market, where employing AI is increasingly viewed as a standardized requirement. In comparison, 83.1% (285 students) affirm that AI should be integrated with the university curricula, reflecting that students regard these tools as indispensable components, not mere supplements, to contemporary education. This suggests that there is an increased demand for formal teaching and systematic integration of AI into academic curricula.

In addition, 77.3% (265 students) concur that AI helps to address the problem of the unavailability of educational materials, underscoring its function in mitigating more fundamental inequalities concerning access to libraries, expert teachers, and language skills. This indicates that students consider ChatGPT and tools like it to counter inequities prevailing among learners in different educational institutions.

Nonetheless, 53.9% (185 students) admit that faculty resistance continues to be a barrier to the adoption of AI. This suggests that there may still be considerable reluctance or unawareness among educators regarding the AI framework, irrespective of the student willingness to embrace change. This concern will stem from a lack of adequate faculty training, appropriate policies, and cultural transformations within educational systems.

Students overwhelmingly, 75.8% (260 students), agreed that ChatGPT will be vital in academia in the years to come. This reflects the understanding that students not only recognize the current relevance of the tool, but expect it to play an increasingly central role in the facilitation and execution of academic endeavors.

To summary, Pakistani students remain hopeful toward incorporating AI into the educational sphere and are actively calling for its formal inclusion, increased literacy campaigns, as well as organizational scaffolding to govern its usage in teaching to ensure efficacy and compliance with ethical standards. Institutions will have to keep pace with this energy through initiatives responsive to students' evolving academic requirements.

V. CONCLUSION

The findings of this study show the adoption of ChatGPT as an emerging educational Chatbot among university students in Pakistan. Apparently, it is heavily relied upon for essay and thesis writing, preparing



outlines, proofreading as well as generating ideas. Students are aware of ChatGPT's ability to improve writing outputs and creativity, thus, it is embraced in academia. It is additionally perceived as useful in balancing workload, breaking language barriers, and interdisciplinary thinking. Notwithstanding the advantages, students are skeptical about the reliability of the AI in terms of citation accuracy and the need for verification of information provided by the AI tool. Unethical practices such as lack of disclosure, absence of policies, and unregulated use were also raised, suggesting insufficient consideration at the university level towards AI adoption. Most students, nonetheless, support the incorporation of AI into learning programs and predict ChatGPT will be pivotal in enriching academic work in the future. The findings of this research put emphasize marked the need for integration of Artificial Intelligence into the education system in a way that promotes responsibility and ethics.

VI. RECOMMENDATIONS

ChatGPT's application in academic environments must be preceded by the formulation of institutional policies detailing ethical practices concerning usage, disclosure, and citation. Every curricular AI competence should be tailored to students and teachers to ensure responsible, informed, and guided usage. Faculty development sessions must also be provided to shift attitudes towards the pedagogical value of AI tools and reduce opposition. Furthermore, universities must promote controlled, unbalanced use so that students comprehend the role of ChatGPT as a tool for assistance, not as a replacement for reasoning and independent thought. Lastly, broadened access to AI technologies, particularly in under-resourced institutions, will help democratize advanced academic opportunities and educational equity across varying levels of learning environments.

REFERENCES

- [1]. M. Z. Afshar, "Exploring factors impacting organizational adaptation capacity of Punjab Agriculture & Meat Company (PAMCO)," *Int. J. Emerg. Issues Soc. Sci. Arts Humanit. (IJEISSAH)*, vol. 2, no. 1, pp. 1–10, 2023, doi: [10.60072/ijeissah.2023.v2i01.001](https://doi.org/10.60072/ijeissah.2023.v2i01.001).
- [2]. S. A. Almelhes, "A review of artificial intelligence adoption in second-language learning," *Theory Pract. Lang. Stud.*, vol. 13, no. 5, pp. 1259–1269, 2023.
- [3]. N. Arshad, M. U. Baber, and A. Ullah, "Assessing the transformative influence of ChatGPT on research practices among scholars in Pakistan," *Mesopotamian J. Big Data*, vol. 2024, pp. 1–10, 2024.
- [4]. D. Baidoo-Anu and L. O. Ansah, "Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning," *J. AI*, vol. 7, no. 1, pp. 52–62, 2023.
- [5]. Britannica Education, "AI in education: Introduction," Aug. 7, 2023. [Online]. Available: <https://britannicaeducation.com/blog/ai-in-education/>.
- [6]. J. E. Chukwuere, "Today's academic research: The role of ChatGPT writing," *J. Inf. Syst. Inform.*, vol. 6, no. 1, pp. 30–46, 2024.
- [7]. F. Clarizia et al., "Chatbot: An education support system for student," in *Cyberspace Safety and Security*, 2018, pp. 291–302.
- [8]. D. R. Cotton, P. A. Cotton, and J. R. Shipway, "Chatting and cheating: Ensuring academic integrity in the era of ChatGPT," *Innov. Educ. Teach. Int.*, pp. 1–12, 2023.
- [9]. J. Dempere, K. P. Modugu, A. Hesham, and L. Ramasamy, "The impact of ChatGPT on higher education," *Front. Educ.*, vol. 8, p. 1206936, 2023.
- [10]. S. D'Mello et al., "Gaze tutor: A gaze-reactive intelligent tutoring system," *Int. J. Hum.-Comput. Stud.*, vol. 70, no. 5, pp. 377–398, 2012.
- [11]. M. Asif, M. A. Pasha, A. Mumtaz, and B. Sabir, "Causes of Youth Unemployment in Pakistan", *IJSS*, vol. 2, no. 1, pp. 41–50, Mar. 2023, doi: <https://doi.org/10.63544/ijss.v2i1.21>
- [12]. W. Ekkarat and N. Charoenkul, "Needs of secondary school development for teaching effectiveness based on the concept of student growth," *J. Educ. Naresuan Univ.*, vol. 25, no. 2, pp. 65–74, 2023.
- [13]. F. Fauzi et al., "Analysing the role of ChatGPT in improving student productivity in higher education," *J. Educ.*, vol. 5, no. 4, pp. 14886–14891, 2023.



- [14]. M. Firat, "What ChatGPT means for universities: Perceptions of scholars and students," *J. Appl. Learn. Teach.*, vol. 6, no. 1, 2023.
- [15]. L. Gibson, F. E. Obiakor, and S. O. Obi, "Using technology to enhance learning for students from culturally and linguistically diverse backgrounds," in *Using Technology to Enhance Special Education*, 2023, pp. 199–214.
- [16]. S. Goldman, "OpenAI CEO admits ChatGPT risks," Dec. 12, 2022. [Online]. Available: <https://venturebeat.com/ai/openai-ceo-admits-chatgpt-risks-what-now-the-ai-beat/>.
- [17]. B. Gordijn and H. T. Have, "ChatGPT: Evolution or revolution?," *Med. Health Care Philos.*, vol. 26, no. 1, pp. 1–2, 2023.
- [18]. M. R. Haque et al., "The role of macroeconomic discourse in shaping inflation views: Measuring public trust in Federal Reserve policies," *J. Bus. Insight Innov.*, vol. 2, no. 2, pp. 88–106, 2023.
- [19]. B. Heller et al., "Freudbot: An investigation of chatbot technology in distance education," in *EdMedia+ Innovate Learning*, 2005, pp. 3913–3918.
- [20]. H. T. Hien et al., "Intelligent assistants in higher-education environments: The FIT-EBot, a chatbot for administrative and learning support," in *Proc. 9th Int. Symp. Inf. Commun. Technol.*, 2018, pp. 69–76.
- [21]. M. S. Islam et al., "Machine learning-based cryptocurrency prediction: Enhancing market forecasting with advanced predictive models," *J. Ecohumanism*, vol. 4, no. 2, pp. 2498–2519, 2025.
- [22]. M. Khalifa and M. Albadawy, "Using artificial intelligence in academic writing and research: An essential productivity tool," *Comput. Methods Programs Biomed. Update*, vol. 100145, 2024.
- [23]. S. R. Mogali, "Initial impressions of ChatGPT for anatomy education," *Anat. Sci. Educ.*, 2023.
- [24]. S. Mollman, "ChatGPT gained 1 million users in under a week," Dec. 9, 2022. [Online]. Available: <https://finance.yahoo.com/news/chatgpt-gained-1-million-followers-224523258.html>.
- [25]. M. Z. Afshar and M. H. Shah, "Strategic evaluation using PESTLE and SWOT frameworks: Public sector perspective," *ISRG J. Econ. Bus. Manag. (ISRGJEBM)*, vol. 3, no. 1, pp. 108–114, 2025, doi: [10.5281/zenodo.14854362](https://doi.org/10.5281/zenodo.14854362).
- [26]. A. C. Niloy et al., "Is ChatGPT a menace for creative writing ability? An experiment," *J. Comput. Assist. Learn.*, vol. 40, no. 2, pp. 919–930, 2024.
- [27]. E. Opara, M.-E. T. Adalikwu, and T. C. Aduke, "ChatGPT for teaching, learning and research: Prospects and challenges," *Glob. Acad. J. Humanit. Soc. Sci.*, vol. 5, 2023.
- [28]. A. Shabbir et al., "Analyzing enterprise data protection and safety risks in cloud computing using ensemble learning," *Int. J. Recent Innov. Trends Comput. Commun.*, vol. 12, no. 2, pp. 499–507, 2024.
- [29]. S. Sok and K. Heng, "ChatGPT for education and research: A review of benefits and risks," *SSRN*, 2023. [Online]. Available: <https://ssrn.com/abstract=4378735>.
- [30]. W. Sudrajad, M. H. Fikri, and R. P. B. Putra, "Help me ChatGPT! What ways does ChatGPT influence students' productivity and creativity in English academic writing?," *EDUCATUM: Sci. J. Educ.*, vol. 2, no. 2, pp. 48–57, 2024.
- [31]. H. Truong, "ChatGPT in education—A global and Vietnamese research overview," 2023.
- [32]. M. D. Xames and J. Shefa, "ChatGPT for research and publication: Opportunities and challenges," *SSRN*, 2023. [Online]. Available: <https://ssrn.com/abstract=4381803>.
- [33]. M. Z. Afshar and M. H. Shah, "Performance evaluation using balanced scorecard framework: Insights from a public sector case study," *Int. J. Human Soc.*, vol. 5, no. 1, pp. 40–47, 2025, doi: [10.5281/zenodo.14854362](https://doi.org/10.5281/zenodo.14854362).
- [34]. X. Zhai, "ChatGPT user experience: Implications for education," *SSRN*, 2022. [Online]. Available: <https://doi.org/10.2139/ssrn.4312418>.
- [35]. N. Shahid, M. Asif, and D. A. Pasha, "Effect of Internet Addiction on School Going Children", *IJSS*, vol. 1, no. 1, pp. 13–55, Sep. 2022, doi: <https://doi.org/10.63544/ijss.v1i1.3>.