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INVESTIGATING HOW UNDERGRADUATE STUDENTS IN PAKISTANI UNIVERSITIES USE AND MISUSE CHATGPT IN ACADEMIC WRITING

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Abstract
This study investigates how undergraduate students in Pakistani universities use and misuse ChatGPT in academic writing. The rapid development of Artificial Intelligence (AI) tools has significantly influenced students' learning practices. A quantitative research design was adopted, and data were collected from 200 undergraduate students through a structured questionnaire. The findings reveal that students widely use ChatGPT for idea generation, grammar improvement, and understanding complex topics. However, the study also highlights misuse behaviors, including submitting AI-generated content without modification and lack of proper citation. The results indicate that while ChatGPT enhances academic performance and saves time, it may negatively affect critical thinking and creativity if overused. The study concludes that clear institutional guidelines and student awareness are essential to ensure the ethical use of AI tools in academic settings.

Keywords: ChatGPT, academic writing, artificial intelligence, academic integrity, undergraduate students, Pakistan, misuse

Introduction

The rapid advancement of Artificial Intelligence (AI), particularly tools like ChatGPT, has significantly transformed how students engage with academic writing in higher education. Since its emergence in late 2022, ChatGPT has become a routine academic tool, especially among undergraduate students. In Pakistani universities, students increasingly use it not only for occasional support but as a regular companion for assignments, essays, and research tasks. This trend is understandable in Pakistan's higher education context, where many students write in English as a second or third language, face limited academic resources, and experience strong academic pressure. While ChatGPT offers structured text generation, grammar correction, and conceptual explanations, its growing use has raised concerns about misuse, academic integrity, writing skill development, and institutional readiness.

The academic benefits of ChatGPT are well documented. Research shows it is effective in language processing, summarization, and writing support, improving grammar, coherence, and writing quality (Malik et al., 2024). For non-native English speakers, it reduces anxiety and improves expression. Studies in Pakistan confirm these benefits, showing its role in idea generation, argument development, and comprehension of complex content (Shafqat & Amjad, 2024). Teachers also report improved learning experiences due to faster access to information (Kanwal et al., 2023), while students report increased writing confidence and fluency (Hongxia & Razali, 2025).

Despite these advantages, misuse is increasing. Many students submit AI-generated content without attribution, which is considered plagiarism and weakens analytical writing skills (Shakil & Siddiq, 2024). Over-reliance also reduces critical thinking, especially among weaker

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students who struggle to verify AI output (Abdulhajar et al., 2024). This creates dependency and weakens independent writing skills.

Institutional response in Pakistan remains weak and inconsistent. Students are aware of ethical issues but lack clear guidance on acceptable use (Malik, 2024). This policy gap creates uncertainty, and researchers recommend formal AI guidelines (Malik, 2024; Shardlow & Latham, 2023). However, most universities have not implemented such frameworks.

The situation is further complicated by unreliable AI detection systems. Tools like Turnitin, GPTZero, and Copyleaks are widely used but remain inaccurate (Weber-Wulff et al., 2023). Detection is even weaker after paraphrasing with tools like QuillBot (Elkhatat et al., 2023), and non-native English writers are often falsely flagged (Liang et al., 2023). Even OpenAI discontinued its own detector due to poor accuracy (UCLA HumTech, 2024).

In this context of rapid AI adoption, misuse, weak policies, and unreliable detection, this study examines how Pakistani undergraduate students use and misuse ChatGPT, their ethical understanding, and institutional gaps. The aim is to provide evidence for improving academic integrity and writing pedagogy in higher education.

Objectives of the Study

1-To explore how undergraduate students use ChatGPT in academic writing.
2-To identify common patterns of misuse in Pakistani universities.
3-To examine the impact of ChatGPT on students' writing skills and critical thinking.
4-To analyze students' perceptions regarding ethical use of AI tools.
5-To suggest guidelines for responsible use of ChatGPT in academia.

Research Questions

The following research questions guide this study and align directly with its objectives:

1-How do undergraduate students in Pakistani universities use ChatGPT in academic writing tasks?
2-What are the common patterns of ChatGPT misuse among undergraduate students in Pakistani universities?
3-How does the use of ChatGPT affect undergraduate students' academic writing skills and critical thinking abilities?
4-What are undergraduate students' perceptions of the ethical boundaries surrounding ChatGPT use in academic work?
5-What institutional guidelines and student awareness strategies are needed to promote the responsible use of ChatGPT in Pakistani universities?

Literature Review

The rapid advancement of Artificial Intelligence (AI), particularly tools like ChatGPT, has significantly transformed students' engagement with academic writing in higher education. Since its emergence in late 2022, it has become an integral academic tool, especially among undergraduate students who now use it for planning, drafting, revising, and refining assignments. In Pakistani universities, this shift is especially evident, as students rely on ChatGPT not only for occasional help but as a regular academic companion for essays, reports, and research tasks. This development is understandable in Pakistan's context, where many students write in English as a second or third language, face academic pressure, and have limited access to writing support. While ChatGPT offers structured text generation, grammar correction, and conceptual explanation, its increasing use raises concerns about misuse, academic integrity, writing skill development, ethical awareness, and institutional preparedness.

Research highlights significant academic benefits. ChatGPT supports language processing, summarization, organization, and writing quality improvement (Malik et al., 2024). It reduces anxiety and improves confidence among non-native English speakers. Studies in Pakistan

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confirm its usefulness in brainstorming, argument development, and comprehension (Shafqat & Amjad, 2024), while teachers report improved learning access (Kanwal et al., 2023). Students also report better writing fluency and confidence (Hongxia & Razali, 2025).

However, misuse is increasing. Students often submit AI-generated content without attribution, amounting to plagiarism and weaker analytical skills (Shakil & Siddiq, 2024). Overreliance also reduces critical thinking and independent reasoning (Abdulhajar et al., 2024). This creates dependency and weakens intellectual autonomy.

Ethically, students are aware of concerns but lack guidance, creating confusion between acceptable use and misconduct (Malik, 2024). Institutional policies remain largely absent despite calls for regulation (Malik, 2024; Shardlow & Latham, 2023).

Detection tools such as Turnitin, GPTZero, and Copyleaks are unreliable (Weber-Wulff et al., 2023), and paraphrasing tools further reduce accuracy (Elkhatat et al., 2023). Bias against non-native English writers also raises fairness concerns (Liang et al., 2023). Even OpenAI discontinued its own detector due to poor performance (UCLA HumTech, 2024).

Research Design

This study uses a quantitative research design with a structured survey to collect numerical data on undergraduate students' use and misuse of ChatGPT in academic writing. A quantitative approach is suitable because it allows systematic measurement of behaviors, perceptions, and attitudes from a relatively large sample, helping to identify trends and generalizable patterns (Creswell & Creswell, 2018). The study aims to examine the extent of ChatGPT use, ethical awareness, and its impact on writing skills and critical thinking among students. Therefore, a quantitative method is most appropriate. Although a qualitative approach was considered, it was not selected because the focus is on frequency and prevalence rather than in-depth subjective experiences. Survey-based quantitative research is widely used in educational studies on technology use and academic integrity (Cohen et al., 2018), making it a suitable choice for this investigation.

Population of the Study

The target population consists of undergraduate students enrolled in Pakistani universities. The study focuses on BS students in English, Social Sciences, and Natural Sciences. This group was selected because they are actively engaged in academic writing tasks and are among the most frequent users of AI tools like ChatGPT. Both public and private universities were included to capture diverse academic contexts.

Sample and Sampling Technique

A sample of 200 undergraduate students was selected. This size is suitable for descriptive statistical analysis and manageable within academic research limits (Cohen et al., 2018). Convenience sampling was used based on accessibility and willingness to participate. Students were drawn from multiple universities to ensure some institutional diversity. However, this approach limits generalisability, as the sample is not randomly selected from the full population of Pakistani undergraduates.

Research Instrument

Data were collected through a self-developed structured questionnaire using a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The Likert scale is widely used in educational research for measuring attitudes and behaviors (Dörnyei, 2003). The questionnaire included four sections: use of ChatGPT, misuse patterns, impact on writing and critical thinking, and ethical awareness. Items were developed from existing literature to ensure validity. The instrument was reviewed by the supervisor and piloted with a small group of students before final data collection (Cohen et al., 2018).

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Data Collection Procedure

Data were collected mainly through Google Forms for efficiency and ease of response collection. Printed questionnaires were also used where digital access was limited. Participants were informed about the purpose of the study, voluntary participation, confidentiality, and their right to withdraw at any time.

Data Analysis Techniques

Data were analyzed using IBM SPSS Statistics. Descriptive statistics such as frequency counts, percentages, and mean scores were used to interpret responses. Results are presented in tables for clarity. This approach is appropriate because the study focuses on describing patterns and perceptions rather than testing causal relationships (Field, 2018).

Data Analysis and Interpretation

The study investigated how students use and misuse ChatGPT in academic writing, with a focus on identifying patterns of legitimate use, misuse behaviors, academic impact, and the level of ethical awareness among students.

Demographic Profile of Respondents

Table 1 presents the demographic characteristics of the 200 respondents who participated in this study.

Table 1

Demographic Characteristics of Respondents (N = 200)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	104	52.0%
	Female	96	48.0%
Age	18–20 years	50	25.0%
	21–23 years	110	55.0%
	24+ years	40	20.0%
Program	BS English	70	35.0%
	BS Sciences	60	30.0%
	BS Social Sciences	70	35.0%

Note. Frequencies and percentages reflect the full sample of 200 respondents.

The sample was near-equally divided by gender, with 52% male (n = 104) and 48% female (n = 96) participants. The age distribution indicates that the majority of respondents (55%) fall within the 21–23 age bracket, which is consistent with the typical enrollment profile of undergraduate students in Pakistani universities. The remaining respondents were aged 18–20 (25%) and 24 and above (20%). In terms of academic program, students were distributed across BS English (35%), BS Social Sciences (35%), and BS Sciences (30%), ensuring that the findings reflect a cross-disciplinary perspective rather than being confined to a single subject area. This balanced distribution across gender, age, and program strengthens the representativeness of the sample and enhances the generalizability of findings within the Pakistani undergraduate context.

Use of ChatGPT in Academic Writing

Table 2 presents student responses regarding the extent to which they use ChatGPT for legitimate academic writing tasks.

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Table 2

Student Use of ChatGPT in Academic Writing (N = 200)

Statement	SA	A	N	D	SD	M
I use ChatGPT to generate ideas for my academic writing.	45%	37%	10%	5%	3%	4.16
I use ChatGPT to improve the grammar of my writing.	40%	38%	12%	6%	4%	4.04
I use ChatGPT to summarize academic texts.	38%	36%	14%	7%	5%	3.95
I use ChatGPT to understand complex academic topics.	42%	38%	10%	6%	4%	4.08

Note. SA = Strongly Agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly Disagree; M = Mean score on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

The data show that ChatGPT is widely used by undergraduate students for academic writing tasks. The most common use is idea generation (82%, M = 4.16), showing that students rely on it to start and develop assignments. Understanding complex topics follows closely (80%, M = 4.08), indicating its role as a learning aid. Grammar improvement is also high (78%, M = 4.04), reflecting its importance for students with English as a second language. Summarizing academic texts is slightly lower (74%, M = 3.95) but still widely used.

Overall mean scores range from 3.95 to 4.16, all within the Agree category, showing consistent positive usage. This suggests students view ChatGPT as a supportive tool that helps overcome language and comprehension difficulties rather than replacing their own thinking. These findings align with research showing that non-native English learners frequently use AI tools to bridge language gaps (Farrokhnia et al., 2023).

Misuse of ChatGPT in Academic Writing

Table 3 presents the frequency and mean scores for items measuring student engagement in misuse behaviors related to ChatGPT.

Table 3

Misuse of ChatGPT in Academic Writing (N = 200)

Statement	SA	A	N	D	SD	M
I have submitted AI-generated content as my own work.	22%	26%	20%	18%	14%	3.24
I submit ChatGPT output with minimal or no editing.	25%	30%	18%	17%	10%	3.43
I am overly dependent on ChatGPT for academic tasks.	28%	32%	15%	15%	10%	3.53
I do not cite ChatGPT when I use it in my work.	30%	37%	12%	12%	9%	3.67

Note. SA = Strongly Agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly Disagree; M = Mean score on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Table 3 shows a moderate but widespread pattern of ChatGPT misuse among undergraduate students. The most common issue is failure to cite ChatGPT, reported by 67% of students (M = 3.67). This raises serious academic integrity concerns, as lack of attribution may still count as misconduct.

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Overdependence on ChatGPT was reported by 60% of respondents (M = 3.53), showing heavy reliance that may weaken independent learning. About 55% admitted submitting AI-generated content with little or no editing (M = 3.43), indicating low engagement with the writing process. Furthermore, 48% acknowledged submitting AI-generated work as their own (M = 3.24), which directly reflects academic dishonesty.

Although mean scores remain moderate (3.24–3.67), the consistently high percentages across all items show that misuse is not isolated but a repeated behavior among students. These findings suggest that unclear institutional policies and limited AI literacy are key factors behind unethical AI use in higher education (Tlili et al., 2023).

Academic Impact of ChatGPT

Table 4 presents student perceptions of the positive and negative academic impacts of using ChatGPT.

Table 4

Perceived Academic Impact of ChatGPT (N = 200)

Statement	SA	A	N	D	SD	M
Using ChatGPT has improved the overall quality of my writing.	35%	35%	15%	10%	5%	3.85
ChatGPT saves me significant time in academic tasks.	45%	40%	8%	5%	2%	4.21
Relying on ChatGPT has reduced my critical thinking skills.	20%	38%	20%	12%	10%	3.36
ChatGPT negatively affects my creativity in writing.	18%	34%	22%	16%	10%	3.24

Note. SA = Strongly Agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly Disagree; M = Mean score on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Table 4 shows both positive and negative effects of ChatGPT use among students. ChatGPT is mainly valued for improving efficiency, as 85% of students reported time savings (M = 4.21), and 70% reported better writing quality (M = 3.85). However, negative effects are also evident. About 58% of students felt a decline in critical thinking (M = 3.36), while 52% reported reduced creativity (M = 3.24). These findings show a dual impact: students benefit when using ChatGPT for support tasks, but excessive reliance may weaken higher-order thinking skills. Overall, the effects depend on how the tool is used in academic writing.

Ethical Awareness and Institutional Needs

Table 5 presents data on student awareness of the ethical dimensions of AI use and their perceptions of institutional responsibility.

Table 5

Ethical Awareness and Institutional Support Needs (N = 200)

Statement	SA	A	N	D	SD	M
I am aware of the ethical concerns surrounding the use of AI tools in academic writing.	30%	32%	18%	12%	8%	3.64
My university should provide clear guidelines on the acceptable use of ChatGPT.	50%	38%	7%	3%	2%	4.31

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I would like to receive formal training on how to use AI tools ethically in my studies.	48%	36%	10%	4%	2%	4.24

Note. SA = Strongly Agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly Disagree; M = Mean score on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Table 5 shows a clear gap between students' ethical awareness and their actual practice. Although 62% of students reported awareness of ethical issues in AI use (M = 3.64), the misuse patterns in Table 3 indicate that this awareness does not consistently lead to ethical behavior. This suggests that awareness alone is not enough to prevent misuse, and students need clear institutional guidance on acceptable and unacceptable use of AI tools.

This need is further confirmed by strong responses regarding institutional support. An overwhelming 88% of students stated that universities should provide clear guidelines on the use of ChatGPT (M = 4.31), while 84% supported formal training on ethical AI use (M = 4.24). These are the highest mean scores in the dataset, showing strong demand for structured guidance. Overall, the findings highlight a major institutional gap in Pakistani universities, where the absence of clear AI policies contributes to misuse and weak academic integrity.

Key Findings

The analysis of survey data from 200 undergraduate students enrolled in BS English, BS Sciences, and BS Social Sciences programs at Pakistani universities produced four major findings.

First, ChatGPT is widely used for academic writing. Most students reported using it for idea generation (82%, M=4.16), understanding complex topics (80%, M=4.08), grammar improvement (78%, M=4.04), and summarizing academic texts (74%, M=3.95). This shows that ChatGPT has become a routine academic tool.

Second, misuse is common and raises serious academic integrity concerns. Failure to cite ChatGPT was reported by 67% of students (M=3.67), overdependence by 60% (M=3.53), minimal editing of AI output by 55% (M=3.43), and direct submission of AI-generated work by 48% (M=3.24).

Third, ChatGPT improves productivity but affects higher-order thinking. While 85% agreed it saves time (M=4.21) and 70% reported improved writing quality (M=3.85), 58% felt it reduced critical thinking (M=3.36), and 52% reported lower creativity (M=3.24).

Fourth, students showed ethical awareness but lacked institutional guidance. Although 62% recognized ethical concerns (M=3.64), 88% demanded clear university policies (M=4.31), and 84% requested formal AI training (M=4.24).

Recommendations

1-Develop clear AI policies. Universities should create written policies about the acceptable and unacceptable use of AI tools such as ChatGPT in academic work. Academic integrity policies should also be updated to address AI-generated content. In this study, 88% of students identified the absence of such policies as a major gap.

2-Introduce AI literacy in the curriculum. Universities should provide formal training on how AI tools work, their limitations, ethical use, and proper documentation. This is important because 84% of students expressed willingness to receive such training.

3-Improve assessment practices. Faculty should design assignments that require critical thinking, personal reflection, original arguments, and active participation. Regular writing feedback should also be provided, as 52% of students reported reduced creativity and 58% reported weaker critical thinking.

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4-Promote ethical AI use in classrooms. Teachers should model responsible use of ChatGPT, show students how to evaluate AI-generated content, and teach proper attribution of AI assistance.

Limitations of the Study

1-Limited sample scope. This study included only undergraduate students from selected Pakistani universities. Therefore, the findings may not represent postgraduate students, students from institutions with different digital resources, or learners in other countries.

2-Quantitative approach only. Data were collected through a structured Likert-scale questionnaire. Although suitable for measuring attitudes and behaviors, this method did not allow an in-depth understanding of students' experiences. Future studies may include interviews or focus groups for richer insights.

3-Self-reported data. All responses were based on students' self-reporting. This may have created social desirability bias, especially in questions related to misuse, as some students may have underreported problematic behaviors.

4-Rapid changes in AI technology. AI tools such as ChatGPT are evolving rapidly. Therefore, findings based on data collected at one point in time may not fully reflect future patterns of use and academic impact.

Directions for Future Research

1-Postgraduate studies. Future research should examine how postgraduate students use ChatGPT in dissertations, research proposals, and journal writing.

2-Mixed-method research. Combining surveys with interviews or focus groups would provide deeper understanding of why students use ChatGPT and how they view ethical boundaries.

3-Comparative studies. Future studies should compare student use of ChatGPT in public and private universities, and in institutions with or without AI policies.

4-Longitudinal research. Tracking students over multiple semesters would help examine the long-term effects of ChatGPT on writing skills, critical thinking, and academic performance.

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