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Use of ChatGPT and Generative AI in Higher Education: Opportunities, Obstacles and Impact on Student Performance

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ABSTRACT

A generative form of Artificial Intelligence now pervades all domains. Artificial intelligence technologies, especially ChatGPT, are increasingly prevalent in a multiplicity of fields, especially in education. This study investigated the impact of generative AI usage on student outcomes, analyzed usage patterns of ChatGPT and highlighted the challenges and advantages of integrating ChatGPT in higher education. Employing the descriptive survey method, the study's sample comprised graduate and post graduate students from Govt. Sadiq College Women University Bahawalpur, totaling (354) participants. Data collected through self-structured, closed-ended questionnaire was analyzed using SPSS software. Descriptive statistics along with correlation analyses and one-way ANOVA were used to analyze the data. The findings indicated ChatGPT is used by 51% students regularly and perceived as an effective way to rapidly complete academic tasks, provide personalized tutoring and provide 24/7 accessibility and alternative strategies, by most participant but they believe that over reliance on ChatGPT, limits student's exploration capabilities, critical thinking and academic honesty.

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1. Introduction

With time, the technology of today has become an integral aspect of life. In addition to changing people's lifestyles, technology has also had an impact on how we communicate, work and study (Rawas, 2024). Innovations of all kinds are coming out, improving the practicality and effectiveness of our work and hobbies. Artificial Intelligence has transformed several aspects of life. How we gather statistics, examine it and utilize the new knowledge to create preferable outcomes with the aid of this flexible tool, everyone can review it. AI education is believed to have an impact on future workforce development, economic growth and global competitiveness (Domínguez & Sandberg, 2024).

A new kind of Artificial Intelligence termed Generative AI (abbreviated as GEN AI), has emerged as a most recent advancement in technology. It is beginning to gain attention as a tool to act like humans. The artificial intelligence technique called "generative AI" is capable of generating text, images, audio and synthetic data, among other types of material (Rashid et al., 2024). Artificial intelligence (AI) will enable educational institutions to interpret and control a data-gathering process, which will then be integrated into an educational efficiency strategy (Teng et al., 2023). AI tools are essential for improving educational institutions' information management and administrative effectiveness (Venkateswaran et al., 2024). Numerous AI tools exist, including ALSA Speak, Janitor AI, Gemini, Blackbox AI and Chatbots. ChatGPT is one of the tools that became an interesting topic.

In 2018, Open AI (San Francisco, California) launched a Generative Pre-Trained Transformer (GPT), a type of Large Language Model (LLM) that endeavors to imitate human language undertaking capabilities. To manage numerous language-related tasks, comprising text production, question answering and transcription, it utilizes sturdy algorithms and profound education. It too comprehends context to generate responses that sound natural (Lund et al., 2023). In November 2022, Open AI released the ChatGPT-3.5 language model family and in March 2023, the ChatGPT-4 family was released (Skavronskaya et al., 2023).

Within a week of its beginnings, ChatGPT had one million users and within the first few months, it had 100 million active users and roughly calculated 6 billion monthly website views (Lungren et al., 2024). In light of its capacity to produce content and form huge quantities of text, it has gained popularity as a tool for education. Tasks including homework assignments, academic essays, exam-style questions and contract generation might all be done with ChatGPT. ChatGPT has the benefit of being adaptable to all educational levels, from the earliest school through higher learning. Furthermore, it can be applied to academic fields including engineering, law, medicine and journalism (Hadi et al., 2024).

ChatGPT can improve learning outcomes by increasing student motivation and participation in asynchronous online learning activities. ChatGPT has the potential to be an effective instrument for raising students' language proficiency. Students can practice having conversations by using ChatGPT, which will help them become more confident and fluent in the language. Students' listening and comprehension abilities can also be enhanced by this conversational practice since it exposes them to different speech structures and conversational patterns (Zhai&Wibowo, 2023).

The amount of time teachers spends getting ready for class could be greatly decreased by using ChatGPT. ChatGPT can quickly and effectively develop assignment plans, exams, competitions and more teaching details since it can generate automatic responses. ChatGPT is a valuable teaching tool that educational institutions should carefully implement. It may help students become more creative, offer individualized coaching and efficiently prepare them to engage with artificial intelligence systems in the workplace (Yalazi-Dawani, 2023).

Privacy is one of the main issues with ChatGPT in the learning environment. There is a chance that student data that ChatGPT gathers and keeps could be stolen, resulting in possible seclusion contraventions (Tlili et al., 2023). Furthermore, learners could feel uneasy disclosing private data to an AI-powered organization. As ChatGPT can produce responses that are like those of a human, there's a chance that students will use the program to make up answers to tests or assignments. This emphasizes how important it is for teachers to have policies in place to stop students from cheating when they use ChatGPT in the classroom (Adeshola & Adepoju, 2023; Cotton et al., 2024).The possibility of bias is another issue with ChatGPT in the classroom. Because ChatGPT picks up knowledge from statistics it is instructed on, incorrect information may cause the system to reinforce preconceived ideas(Božić & Poola, 2023).

Threats and new challenges have been introduced to education by Generative AI (ChatGPT). However, more chances impact the way students learn. In Pakistan, especially in Bahawalpur, there is little research on ChatGPT. In this research, the usage, possible benefits and challenges of university students with Generative AI (ChatGPT) were investigated. The aim of the study was to investigate the usage patterns, opportunities and challenges of using ChatGPT and its effect on the learning performance of university-level students. The objectives are to recognize students who use ChatGPT, to analyze opportunities and challenges for using ChatGPT among university students and to examine the impact ofutilizing ChatGPT on students’ academic performance in higher education.

The current analysis helps students recognize the opportunities in using ChatGPT. This study helps teachers train and guide their students about the optimistic usage of ChatGPT. This research is helpful for the administration to provide maximum advantages of ChatGPT for improving educational outcomes. Due to limited time and resources, the study was limited to only students from Government Sadiq College Women University Bahawalpur.

2. Literature Review

2.1 Generative AI

Tom Freston once said, "Revolution is holding two things that prevail and combining them in a contemporary way". This sentiment aligns with the revolution brought about by Generative Artificial Intelligence (GenAI). Historically, creative tasks such as writing, software development and music composition were considered human-only domains. However, with AI's emergence, particularly GenAI, machines now create content like text, images and audio, resembling human output. Models like DALL-E 2, GPT-3.5 and GPT-4 are central to this transformation (Cusumano et al., 2024).

2.2 Generative AI in Education

Generative AI promotes flexibility in education by enabling students to engage with content anytime, anywhere, through desktop or mobile devices, which is particularly useful for busy learners. Studies have shown that AI chatbots provide personalized learning support, enhancing student experiences and engagement (Chen et al., 2023). Many students believe that AI will have a significant impact on their future careers and academic pursuits, emphasizing the need for AI integration in curricula(Božić & Poola, 2023).

Generative AI plays a crucial role in higher education by enhancing educational practices through the generation of creative outputs in response to human inputs. Tools like DALL-E and Stable Diffusion are valuable for teaching in creative fields, while text-based AI generators, such as ChatGPT, help non-native English learners with writing and concept brainstorming. These AI tools also support research by aiding in data analysis, concept generation and information synthesis (Hadi et al., 2024).

2.3 Tools of Generative AI

Generative AI enables the creation of multimodal content, such as text, images, music, videos and 3D models. Tools like ChatGPT generate text, Mid journey produces images and Deep Brain creates videos. Advanced techniques like audio-visual association transformers and text-to-image models connect different types of generative content (Wang et al., 2024). These tools have significant applications across various fields, including producing artworks (Cetinic & She, 2022).The array of tools showcases the broad impact of AI across both humanities and sciences. Some of Artificial Intelligence tools are: Google Bard, Grammarly, Paradox, Research Rabbit, Wordtune, Canva: AI slide creator, Deep Dream, Writer AI, Replit AI, QuillBot AI, Janitor AI, Caffe, AIXcoder, Writesonic etc.

2.4 ChatGPT

ChatGPT, large language model (LLM) is able to generate conversations that seem natural and in some applications, provide contextually appropriate responses. ChatGPT comes in three popular variants, a more advanced GPT-4 model, ChatGPT Plus (a premium tier) and a free tier. The AI-powered system is employed address questions and support tasks like drafting emails and essays, developing software and additional responsibilities (Venkateswaran et al., 2024).

Collaboration between AI and humans is necessary to navigate challenges and capitalize on opportunities created by generative AI. Both humans and generative AI can collaborate in numerous ways. An example would be teachers integrating ChatGPT in their science teaching, carefully evaluating AI-generated content before adapting it for use in the classroom(Cooper, 2023).

2.5 Applications of ChatGPT

ChatGPT offers online tutoring by assisting learners with homework, assignments and projects, encouraging self-directed learning. It can support teachers by generating lesson plans, quizzes and grading, giving educators more time to create innovative teaching strategies. Additionally, ChatGPT facilitates independent learning by promoting virtual and in-person study environments through flipped classroom models. It also allows students to

explore subjects beyond the curriculum and offers immersive learning experiences via AI-powered virtual reality (Božić & Poola, 2023).

Students can utilize ChatGPT to organize ideas for writing and research projects, quickly generating outlines. It aids in drafting research papers by providing outlines and ideas, although researchers must carefully verify the AI-generated content to avoid errors(Božić & Poola, 2023). In healthcare, ChatGPT streamlines clinical processes, enhances diagnoses and advances healthcare education by offering real-time feedback. It helps create discharge summaries and shows promise in various medical applications (Sallam, 2023).

2.6 Opportunities of using ChatGPT in higher education

ChatGPT is an effective tool for assisting teachers in developing creative assessments and reducing workload. It supports creating projects, exams and assignments, allowing educators to provide immediate feedback and automatically grade student work(Sullivan et al., 2023). This promotes more personalized learning and gives educators time to focus on student development and professional growth (Sok & Heng, 2024). ChatGPT improves individualized learning by adjusting to specific student requirements, providing customized resources, comments and articles. It operates as a virtual tutor, offering study aids, promoting self-directed learning and enhancing language proficiency, collaboration and time management skills (Božić & Poola, 2023).

Academic writing can benefit from ChatGPT's semi-automated grading, feedback and grammar/sentence structure assistance. It can benefit non-native speakers a lot and make sure research is accurate by detecting mistakes (Sok & Heng, 2024). ChatGPT can automate administrative tasks like grading, student admissions and email summarization, reducing workload and improving administrative efficiency (Venkateswaran et al., 2024). ChatGPT assists in research by helping generate ideas, create outlines and develop research methods. It can streamline the research process and improve the precision and quality of academic writing (Lund et al., 2023)

2.7 Challenges and limitations of ChatGPT

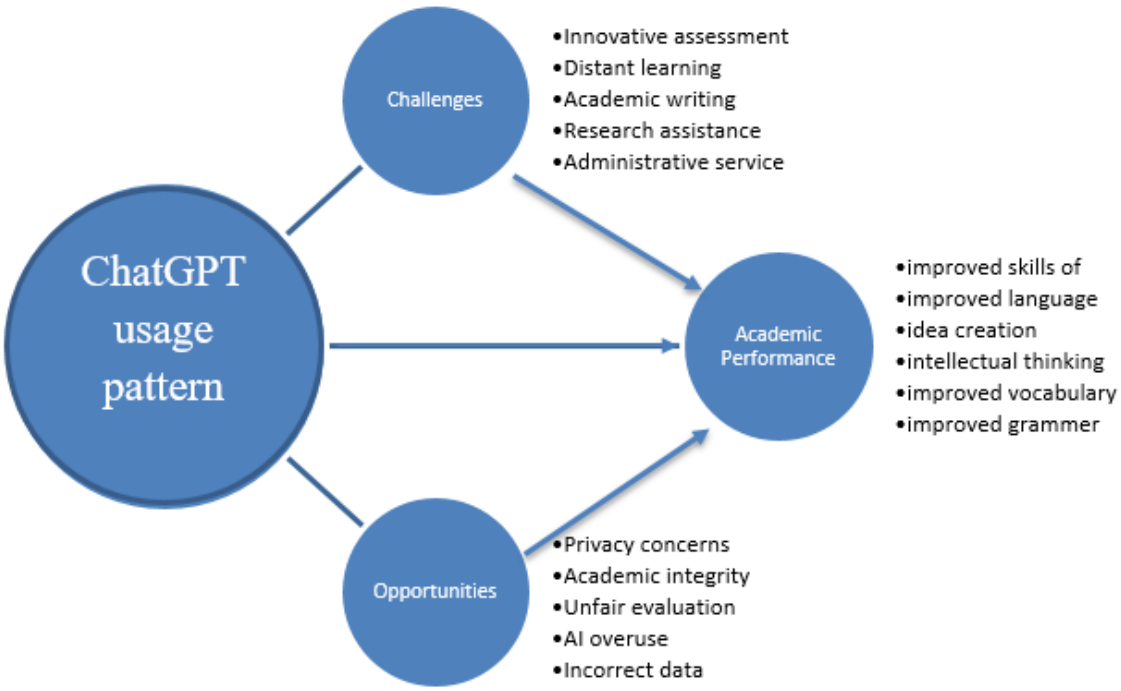
ChatGPT can lead to ethical concerns if students use its outputs without proper citation, resulting in plagiarism. Some institutions, like the University of Hong Kong have banned ChatGPT due to this risk (Hung & Chen, 2023). ChatGPT generates outputs that confuse the distinction between AI-generated content and student submissions, resulting in biased evaluation. This raises concerns over equity and the effects on pupils' academic performance and emotional health (Sok & Heng, 2024).

ChatGPT often generates inaccurate information, including fabricated references, leading to potential misinterpretation and flawed research if users rely on it without verification. ChatGPT has the potential to reveal sensitive information, prompting reservations around data exploitation and privacy violations. Students and educators may unintentionally provide personal information, rendering them susceptible to security threats. Excessive use of ChatGPT may hinder students' critical thinking, creativity and problem-solving skills, as they may bypass these processes by relying too much on AI for assignments (Božić & Poola, 2023). ChatGPT may struggle to grasp and respond to the chat’s emotions. While dealing with emotionally or highly charged matters, it may not yield sensitive replies(Belkhir, 2023).

2.8 Research gap

This research addresses a gap by offering statistically significant insights regarding AI usage habits, which have been overlooked by many previous studies. Prior research has broadly examined AI integration in education but has not thoroughly investigated how students perceive and employ generative AI tools, nor their direct impact on essential academic domains such as exploratory skills, critical thinking and academic integrity. It particularly analyzes student viewpoints from one school, allowing a comprehensive grasp of regional difficulties and benefits that wider research may have neglected. Furthermore, study addresses the research gap about the absence of empirical evidence regarding the specific effects of generative AI such as ChatGPT on learning outcomes and academic performance in higher education, especially at the graduate and postgraduate levels in this region.

Figure 1: Conceptual framework



3. Research Methodology

3.1 Design of the study

The research was quantitative in nature. The descriptive method of research was considered appropriate for the study among various other methods. The study was conducted through the survey method. The population of the study was university students in Bahawalpur. A sample was 354 university students of BS, ADP and MS programs at Government Sadiq College Women University Bahawalpur.

3.2 Population

All students at Government Sadiq College Women University Bahawalpur were part of the whole population.

3.3 Sample

GSCWU had a population of 6800 students. According to the table by Morgan, 5.2% of 6800 was 354. So, the sample size was 354. For our study, we selected 200 students from BS, 104 students from ADP and 50 students from MS classes. A simple random sampling technique was used for data collection.

3.4 Research Instrument

A self-structured, closed-ended questionnaire was created specifically for this study just to gather data. The questionnaire consisted of two sections. The first one was demographic information and the second one was 40 close-ended questions. These statements were divided into four factors. The factors were AI usage Trends, Opportunities, Challenges and its effect on Learning performance of students.

3.5 Validity and Reliability of Instrument

After the construction of the research tool, validity was determined by the field expert's perspective. The necessary amendments were made according to their proposed suggestions. The reliability of the instrument was calculated as 0.86 by applying Cronbach

Alpha. For pilot testing the researchers gave 30 questionnaires to random students to see any error in the questionnaire but it was clear without any ambiguity according to the students.

3.6 Theoretical Framework

The research underscores the increasing significance of generative AI, especially ChatGPT within educational settings. This concept theoretically supports that AI may transform conventional educational frameworks by providing tailored instruction and readily available learning resources. It emphasizes ideas of technological determinism, wherein technology influences educational methods, highlighting the equilibrium between improving learning results and cultivating autonomy and critical thinking(Dafoe, 2015).

From the perspective of social learning theory, ChatGPT may hinder collaborative learning opportunities and reduce social modeling by restricting peer interaction, which is crucial for the development of leadership and teamwork skills(Bandura, 1977). This is consistent with symbolic interactionism, which highlights that significant social roles and skills, including leadership are developed through interpersonal interactions that ChatGPT cannot entirely reproduce (Carter & Fuller, 2015).

The study aligns with constructivist theories, indicating that excessive dependence on AI could impede cognitive development, critical thinking and creativity(Hein, 1991). This theory emphasizes the significance of cooperative settings for cognitive and social development. Utilizing ChatGPT may promote solitary learning practices that undermine collaborative knowledge construction, resulting in diminished critical thinking and problem-solving skills. Consequently, students may depend on AI instead of participating in genuine social interactions, which are essential for the development of teamwork and leadership skills.

4. Data Analysis and Interpretation

The gathered data was examined utilizing the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages and mean scores, alongside correlation analyses and one-way ANOVA were employed to analyze the relationship between the use of AI and academic performance, faculty vise usage of ChatGPT as well as to pinpoint the opportunities and challenges associated with generative AI in education.

Table 1: Availability of internet resources

Sr. No.	Item	Frequency	Percentage
1	At home	135	38.1%
2	At university	49	13.8%
3	Everywhere	132	37.3%
4	Nowhere	38	10.7%
Total	Overall	354	100%

Table 1 shows the number of participants having availability of internet resources. Where 38.1% of users having the internet mainly from home, 13.8% accessing from university and 37.3% having access everywhere. While 10.7% participants have no access of internet at anywhere. Which shows that these participants cannot use AI in any way.

Table 2: Usage patterns of Generative AI tools like ChatGPT

Sr. No.	Item	Frequency	Percentage
1	Never used Generative AI technologies like ChatGPT	52	14.7%
2	Sometimes use Generative AI technologies like ChatGPT	185	52.3%
3	Often use Generative AI technologies like ChatGPT	78	22.0%
4	Always use Generative AI technologies like ChatGPT	39	11.0%
Total	Overall	354	100%

Table 2 reflects that 52.3% of participants sometimes use ChatGPT for learning purposes. 22% of participants often use ChatGPT and 11% always get help with ChatGPT to complete their tasks. And 14.7% of participants never used ChatGPT.

Table 3: Faculty vise usage pattern of ChatGPT

Sr#	Faculty	N (Sample Size)	Mean Usage	Standard Deviation	Standard Error	95% Confidence Interval (Lower Bound)	95% Confidence Interval (Upper Bound)
1.	Management Sciences	55	2.4303	.56900	.07672	2.2765	2.5841
2	Social Sciences	53	2.6541	.64371	.08842	2.4767	2.8315
3	Natural Sciences	164	2.3455	.59410	.04639	2.2539	2.4371
4	Arts and Humanities	82	2.6220	.60578	.06690	2.4888	2.7551
	Total	354	2.4689	.61290	.03258	2.4049	2.5330

Table 3 presents the results of One Way ANOVA to compare the average ChatGPT usage across the four faculties: 1=Management Sciences, 2= Social Sciences, 3= Natural Sciences and 4= Arts and Humanities. The data of students from Social Sciences faculty shows the highest level of ChatGPT usage with mean value (2.6914). While from Natural Sciences faculty students are found at lowest rate of ChatGPT usage with lowest mean (2.3455). Overall mean (2.4689) indicating moderate usage across all faculties.

Table 4: Descriptive Statistics and higher percentage

Sr#	Statements	Mean	High %age
1.	ChatGPT is useful for educational purposes.	3.08	89
2.	AI tools like ChatGPT will become usual in future.	3.17	87.6
3.	I am engaged in ChatGPT regularly.	2.62	51.4
4.	ChatGPT increases my performance and efficiency in study.	2.96	80.2
5.	I am doubtless and confident when I am using ChatGPT for academic purpose.	2.92	75.7
6.	Using ChatGPT seems like a wise idea.	2.94	80.9
7.	I am dependent on ChatGPT for completing my academic tasks.	2.49	53.7
8.	Teachers' ban ChatGPT for completing assignments.	2.40	56.5
9.	Responses from ChatGPT are reliable and accurate.	2.94	80.8
10.	The interaction with ChatGPT is clear and understandable.	3.01	83.1
11.	ChatGPT retrieves the most recent data for generating responses.	2.99	81.1
12.	ChatGPT can produce better results/responses that I can do in an assignment.	3.01	81.9
13.	ChatGPT is trustworthy for conducting the academic learning activities.	2.91	78.0
14.	ChatGPT enables me to accomplish academic tasks more quickly.	3.00	81.4
15.	ChatGPT can provide personalized tutoring.	2.83	72.0
16.	ChatGPT is accessible 24/7.	2.90	72.6
17.	ChatGPT can offer instant access to information and resources.	3.03	81.4
18.	ChatGPT can stimulate conversational exchanges and provide language correction.	3.00	77.4
19.	Language learners get benefit from interacting with ChatGPT.	3.06	79.9
20.	ChatGPT can assist students in understanding complex concepts.	3.00	79.1
21.	Students can seek additional explanations, examples, or alternative approaches from ChatGPT.	3.07	85.0
22.	There should be risks associated with ChatGPT sharing user data with third parties.	2.57	54.8
23.	ChatGPT leads to a decrease in critical thinking.	2.82	67.8
24.	ChatGPT makes decisions only based on information available on the internet.	2.92	76.5
25.	ChatGPT for completing a written assignment or examination perceived as cheating.	2.73	63.3
26.	ChatGPT might not fully understand the context of sensitive topics, potentially leading to inappropriate responses.	2.76	65.8
27.	Teachers and subject experts cannot detect assignments written by ChatGPT.	2.63	57.0
28.	ChatGPT lacks human qualities such as empathy and common sense reasoning.	2.85	70.3
29.	Students misuse the ChatGPT to generate plagiarized content.	2.83	69.5

30.	Relying just on ChatGPT for learning may limit the depth of exploration.	2.93	73.7
31.	Students are dependent on ChatGPT for their assignment.	2.98	74.9
32.	ChatGPT makes students too lazy to do their assignments.	2.97	73.1
33.	ChatGPT will limit opportunities to interact with others while completing coursework.	2.86	70.6
34.	ChatGPT will hinder development of skills such as teamwork and leadership.	2.89	72.0
35.	Students will lose their jobs (Data Analyst, Copywriting) in the future due to the advent of ChatGPT.	2.80	65.8
36.	Since using ChatGPT for educational purposes, my critical thinking ability has been enhanced.2.97	2.85	72.4
37.	Since using ChatGPT, my content ideas have improved.	2.90	75.4
38.	Since using ChatGPT, my vocabulary and grammar are good enough now.	2.98	77.7
39.	Since using ChatGPT, my intellectual ability has increased.	2.96	77.7
40.	Since using ChatGPT, my language skills have improved.	3.01	77.1

Table 4 presents a summary of perceptions regarding the opportunities and challenges of using ChatGPT and its effect on student's academic performance, where the Mean score (on a Likert scale) shows the level of agreement with each statement and the High % indicates the higher percentage of respondents who marked the statement with high rate (it might be agreement of disagreement). From analysis it is found that a significant number of respondents (89%) agreed that ChatGPT is useful for educational purposes with mean 3.08.

Majority of the respondents (87.6%) with Mean score (3.17) believed that usage of AI tools like ChatGPT will become common in future. Results present the over half of the respondents (51.4%)routinely use ChatGPT. 80.2% of participants perceive that ChatGPT improves learning outcomes with Mean score (2.9). Majority (75.7%) is confident with the use of ChatGPT for academic purposes with 2.9 Mean value. Same is the Mean for considering the choice of ChatGPT as a wise idea having 80.9% positive responses. More than half of the respondents (53.7%) denied to be dependent on ChatGPT for completion of their academic tasks (Mean score=2.4). According to 56.5% of respondents, Teachers discourage using ChatGPT for homework/ assignments with Mean score 2.4.

A notable portion (80.8%)has trust on the accuracy and precision of results of ChatGPT. Mean score, 2.9 shows optimistic perspective of participants for it. Majority (83.1%) with Mean score 3.0 believes on the clear and meaningful conversations with ChatGPT. 2.9Mean score indicating the agreement of 81.1% respondents about the recent and updated responses generation through ChatGPT. 81.4% Users appreciate its immediate access to information (Mean=3.03). Mean score 3.00 indicates that ChatGPT enables interactive communication and assists with language correction with agreement of 77.4% respondents. 79.9% believe that language learners gain assistance from interaction with it (Mean=3.06). According to 79.1% ChatGPT assists in elucidating complex topics (Mean=3.00). Majority of participants (85.0%) agreed that It provides alternate ways or multipleapproaches to complete any task (Mean=3.07).

2.57 Mean score indicates a strong acceptance by 54.8% users about concerns exist over ChatGPT's data sharing with third parties. A subset of users67.8% believes it may diminish critical thinking (with Mean=2.82). According to 76.5% ChatGPT predominantly utilizes internet-based data for decision-making with Mean value 2.92. Over half (63.3%) perceive the utilization of ChatGPT for assignments as a kind of cheating (Mean=2.73). 2.76 Mean score shows that there is concern of students (65.8%) about ChatGPT that may provide improper replies related to a restricted mastery of sensitive subjects. A significant majority (57.0%) agrees that educators may find it difficult to ascertain if assignments are authored by ChatGPT (Mean score=2.63). According to Mean scores 2.85, ChatGPT has a deficiency in empathy and pragmatic thinking and 70.3% respondents are agreed with it. 69.5% respondents witnessed that Students exploit ChatGPT for the purpose of plagiarism (Mean=2.83).

According to Exclusive dependence on ChatGPT, results show a substantial number (73.7%) agree that ChatGPT restricts comprehensive learning Mean score (2.93) proves acceptance of this statement. A significant number of students (74.9%) exhibit reliance on ChatGPT for their tasks (Mean=2.98). Mean score 2.97 shows agreement to the opinion of 73.1% students about ChatGPT promoting sluggishness and diminishing students' motivation to finish their work independently. 70.6% users are of belief that its utilization may reduce

student interaction with peers (Mean=2.86). ChatGPT may impede the refinement of the competencies of teamwork and leadership skills with (Mean=2.89) and 72.0% agreement. More than half (65.8%) are concerned about its impact on job displacement; loosing positions such as data analysts or copywriters according to 2.80 Mean score.

Users give perception of the impact of ChatGPT on their learning as 72.4% feel ChatGPT has enhanced their critical thinking ability (Mean=2.97). Many users (75.4%) have noticed that their ability to generate content ideas has improved with ChatGPT with Mean score=2.90. According to Mean score 2.98, there is positive opinion of users (77.7%) that ChatGPT has contributed to better vocabulary and grammar skills. Some users (77.7%) believe that their intellectual capacity has increased by the use of ChatGPT (Mean=2.96). 77.1% Users perceive that their overall language skills have enhanced since using ChatGPT according to Mean value (3.01).

Table 5: Pearson correlation coefficients between four variables

		ChatGPT usage	Opportunities	Challenges	Academic Performance
ChatGPT_usage	Pearson Correlation	1	.389**	.295**	-.041
	Sig. (2-tailed)		.000	.000	.442
	N	354	354	354	354
Opportunities	Pearson Correlation	.389**	1	.481**	.070
	Sig. (2-tailed)	.000		.000	.192
	N	354	354	354	354
Challenges	Pearson Correlation	.295**	.481**	1	.160**
	Sig. (2-tailed)	.000	.000		.003
	N	354	354	354	354
Academic Performance	Pearson Correlation	-.041	.070	.160**	1
	Sig. (2-tailed)	.442	.192	.003	
	N	354	354	354	354

Table 5 shows the correlations between ChatGPT Usage, Opportunities, Challenges and Academic Performance. There is a moderate positive (0.389) Pearson Correlation between usage of ChatGPT and opportunities. Which shows higher usage of ChatGPT is associated with perceiving more opportunities. The relationship is statistically significant at the 0.01 level. Pearson Correlation (0.295) indicates a weak to moderate positive correlation between ChatGPT usage and challenges, suggesting that more usage of ChatGPT is linked to experiencing more challenges and this is also statistically significant at the 0.01 level. A very weak negative Pearson Correlation (-0.041) found between ChatGPT usage and Academic Performance but about relationship between opportunities and challenges, a moderate positive Pearson Correlation (0.481) was found that means more opportunities are linked to more challenges which are statistically significant. Pearson Correlation (0.160) shows a weak positive correlation between Challenges and Academic Performance which indicates more challenges are slightly linked to higher Academic Performance which is statistically significant.

Generative artificial intelligence like ChatGPT has become widespread across all fields, especially in education. This study was designed to analyze usage of ChatGPT among university students. Significant findings reveal over fifty percent of pupils utilize ChatGPT consistently, demonstrating its extensive appeal. Anyhow its advantages in enhancing productivity and educational outcomes, challenges exist such as the misuse of ChatGPT, overreliance on it, reduced critical thinking and its academic integrity. This research examines these findings and provides recommendations for the effective integration of ChatGPT in educational settings.

5. Findings

Findings of the study associated with the objectives; according to first objective that related to usage pattern of ChatGPT, 10% out of all participants have no access to internet and ultimately ChatGPT. While over half of the students are using ChatGPT regularly. Findings also show ChatGPT usage across different academic faculties. Where the students from Social Sciences are found having highest level of AI usage followed by Art and Humanities and then from Management Sciences while least number of students using ChatGPT is from Natural Sciences. General perceptions of students and their practices for ChatGPT usage are found

as there is a huge agreement of students about the usefulness of ChatGPT for educational purposes and its future expectations that it will be commonly used. Users of ChatGPT believe that it improves learning outcomes and are confident to choose it and consider it a wise idea for academic purposes. They are not dependent on ChatGPT for completing their academic assignments. Most of the time their teachers discourage to use it.

Findings that meet the second objective, show the perception of students about the Opportunities they avail from ChatGPT include its accuracy and precision of results, recent and updated response generation and clear and its meaningful conversations. It accesses information immediately, interact efficiently and assists in language improvement. ChatGPT helps in explaining complex topics and provides alternative descriptions competently. In contrast with opportunities, findings show the concerns of students about the challenges of ChatGPT which include, privacy breeching, reduce critical thinking, practice for plagiarism, limited internet-based information that leads to the provision of inappropriate responses related to thoughtful subjects, failure of teaching experts to detect plagiarized material of students' assignments (taken from ChatGPT), lacking empathy, over reliance on it.

Its usage makes the students sluggish and reduces their independence, interaction with peers, leadership skills and team work abilities. It also pours the in students have fear of job displacement in future due to adoption of ChatGPT. According to the third objective; the impact of ChatGPT on students' learning, results reveal their improved skills of critical thinking, intellectual capacity, creation of content ideas, better vocabulary, grammar and language.

6. Discussion

The findings offer a multi-faceted view of ChatGPT's impact on students across various disciplines and highlight both its opportunities and challenges. Academic faculties use ChatGPT differently, according to the study. Use is highest in Social Sciences, followed by Arts and Humanities and lowest in Natural Sciences. Social sciences may rely increasingly on textual analysis and critical interactions, which AI techniques like ChatGPT may help with. Other study shows that ChatGPT simplifies academic writing and data processing, especially in non-quantitative fields (Mahapatra, 2024). Despite uneven use, over half of students use ChatGPT consistently, demonstrating its rising relevance in education. Around 10% lack internet connectivity, revealing a digital gap that may hinder equitable access to AI technologies in education(Bentley et al., 2024).

Students like ChatGPT's accuracy, up-to-date replies and language growth. It helps students comprehend and perform better by reducing complicated concepts and providing alternate explanations. These qualities make it valuable to many students, who believe it enhances learning results (Božić & Poola, 2023). ChatGPT's benefits may be offset by its tendency to reduce critical thinking, encourage copying and encourage overuse. ChatGPT may weaken students' peer interaction and leadership abilities, limiting their overall growth. Due to worries regarding student work validity, teachers oppose its usage in academic tasks. AI adoption may disrupt jobs, which worries students (Domínguez & Sandberg, 2024).

ChatGPT improves critical thinking, vocabulary and content production in students, despite concerns. These advantages match the platform's capacity to develop innovative ideas and explain hard topics, demonstrating it promotes intellectual progress when utilized properly (Rasul et al., 2023). ChatGPT's capacity to identify and analyze open-text answers and help ESL students write academically are notable AI contributions to higher education(Mahapatra, 2024). However, current limitations exist in Chabot's' linguistic capabilities, though improvements in natural language processing and AI are expected over time (Chaves et al., 2022).

7. Conclusion and Policy Recommendations

The results are concluded as the Social Sciences students use ChatGPT the most, followed by Arts and Humanities. Natural Sciences students are the least engaged. Over half of students utilize ChatGPT, demonstrating its growing relevance in education, yet 10% lack access due to internet limits, underscoring a digital divide. ChatGPT helps students learn, improve English, and simplify complicated topics, so they like it. Students see it as a good

academic tool and expect its use to grow. They avoid overusing it for tasks and professors discourage its usage. ChatGPT's accuracy, quickness and clarity appeal to students, however privacy, critical thinking, and plagiarism problems arise. AI may also reduce independence, peer interaction and leadership abilities, raising job displacement fears. Despite its limitations, ChatGPT improves student learning by boosting critical thinking, vocabulary, grammar, and content production. There are the following policy recommendations based on the findings;

- Institutions may integrate ChatGPT into curriculum to improve academic writing, research and text production activities, hence optimizing learning processes across many domains and disciplines of education.
- Professional training on the ethical and successful utilization of ChatGPT should be offered to educators, emphasizing the proper application of AI in educational settings. This can assist in alleviating problems associated with excessive dependence and plagiarism.
- Educators ought to promote the utilization of ChatGPT via activities that foster critical thinking, therefore aiding students in the development of cognitive abilities and the enhancement of creativity.
- Educational institutions and instructors should equip students for future employment markets by imparting abilities that align with AI technology.
- Research must be undertaken to evaluate the long-term effects of ChatGPT on educational results and student development in various educational settings and geographies.

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