

Emerging Trend of ChatGPT in Education and its Consequences

Shahzeen Laghari

shahzeenlaghari9@gmail.com

Lecturer, Department of Education, College Education Department, Govt. of Sindh

Dr. Tarique Bhatti

bhatti_tariq2007@yahoo.com

Associate Professor, Faculty of Education, University of Sindh Jamshoro, Sindh, Pakistan

Irum Kousar

irumkousar1@gmail.com

High School Teacher, School Education & Literacy Department, Govt. of Sindh

Ghulam Kubra

jiskanizk@gmail.com

M.Phil Scholar, Faculty of Education, University of Sindh Jamshoro, Sindh, Pakistan

Shahzeb Ahmed Khan

shahzeblaghari@gmail.com

Primary School Teacher, School Education & Literacy Department, Govt. of Sindh

Corresponding Author: * Shahzeen Laghari shahzeenlaghari9@gmail.com

Received: 25-11-2025

Revised: 30-11-2025

Accepted: 22-12-2025

Published: 27-12-2025

ABSTRACT

This study explored the emerging trend of ChatGPT in education and its various consequences. ChatGPT an artificial intelligence (AI) tool which got rapid growth in education has transformed the way of teaching and learning due to its human like capacity to process language, create content both written or spoken through natural language processing (NLP) and synthesize information by generating original responses. The study addresses two core objectives: (1) To analyze the implementations of ChatGPT in educational field. (2) To investigate the multifaceted consequences of ChatGPT on the quality of education. Two research questions guided this study: (1) What are the imlementations of ChatGPT in educational settings? (2) What consequences has ChatGPT implementation produced in the field of education? The research was guided by the null hypothesis (H_0) that the integration of ChatGPT in education has no statistically significant implementation and effect on teaching-learning effectiveness and academic integrity. The study employed a descriptive research design utilizing a survey method. A mixed-method approach was adopted. Tool of the research included a questionnaire administered to the sample population and document analysis to review research articles to get the particulars and related data. The population of the study consisted of faculty members of colleges and universities, research scholars and university students. Sample was driven by means of probability method. The findings of this study are intended for the educators, scholars and students aiming to highlight both the opportunities and challenges presented by ChatGPT in the field of education. The study seeks to promote the appropriate use of ChatGPT as a supportive tool to enhance educational experiences while avoiding its potential negative aspects.

Keyterms ChatGPT, Chatbot, Artificial Intelligence (AI), Education, Consequences.

INTRODUCTION

Artificial intelligence (AI) has emerged rapidly in recent years. Many artificial intelligence applications have been developed in various disciplines. AI has been trained to work like a human mind to perform day to day tasks. AI-powered software applications like Chatbots are designed to mimic human conversation either written or spoken using natural language processing (NLP) to understand questions to automatically response to them. The Google Brain team published the article "Attention is All You Need", in June 2017, in which a transformer model was proposed, which led the foundation for the development of an AI Generative Pre-trained Transformer (GPT) model (Tan, 2023). Through continuous efforts and improvement ChatGPT was officially released. It generates human like text-based responses on a given input. ChatGPT model is a chatbot with artificial intelligence by a private company OpenAI subsidized by Microsoft co-founded by Elon Musk in November 30, 2022. ChatGPT, an AI assistant chatbot got huge public attention since its development among students, professionals, researchers, policymakers and experts in the field of education. It has influenced different fields however, in the education it has shaped a new way of learning. ChatGPT attracted 100 million users within just two months of launch because of its potential and capacity setting a new record for the first time in 20 years surpassing the advent of the internet (Milmo, 2023; Park & Ahn, 2024).

Since the emergence of ChatGPT a new debate has started regarding the role of AI technologies in educational systems, on their appropriateness, influence on teaching-learning, on the development, evaluation and on the assessment of the students. Some practitioners regarded it as a great tool to facilitate learning and development however, others consider it as a threat for education.

ChatGPT in education has supported students by enhancing their creativity, active learning and autonomy while reducing workload and improving efficiency (Tan, 2023). ChatGPT is used for various purposes by the learners to do their academic tasks. It gives assistance to students in multifaceted ways therefore regarded as an aid in educational field by the users. As a transformative educational tool, ChatGPT will play a vital role by facilitating students with creative and innovative learning methodologies (Tan, 2023). The accelerated and global adoption of ChatGPT by both educators and learners accentuates the expanding significance and effect of AI tools in educational settings (Ahmed & Sab, 2023; Lo et al., 2024).

There are significant challenges and ramifications like increasing dependency on technology, under developed problem solving skills, reduced critical thinking, lack of quality of work as human minds work differently due to which originality and versatility of work will diminish, issue of plagiarism will rise and inaccuracy increases. Additionally privacy and security of data remains on high risk. The widespread adoption of ChatGPT resulted in a multitude of thoughtless or unverified material (Tan, 2023).

Rationale of the study

This study examined the emergent trend of ChatGPT in education and its various consequences. ChatGPT is an AI chatbot and virtual assistant to complete different tasks. As it generates human like conversation. Gill et al, (2024) in their study demonstrated that artificial Intelligence (AI) is increasingly adopting in different fields, including higher education. As a sophisticated AI language model, ChatGPT has significant potential for various applications. Its capacity to deliver detailed and articulate answers across many knowledge disciplines has proven beneficial in the fields of education and academic research (Jiao et al., 2023; Rudolph et al., 2023; Susnjak, 2022; Zhai, 2022; İpek et al., 2023). The rapidly growing use of ChatGPT in education has various implications. However, at the one hand it is a great support for educators but on the other side it also has threats as there may be less accuracy, less privacy of data and increasing risk of dependency on technology. Consequently, the present study explores both the emerging trend of chatGPT adoption in education and its multifaceted consequences.

Research Objectives

1. To analyze the implementations of ChatGPT in educational field.
2. To investigate the multifaceted consequences of ChatGPT on the quality of education.

Research Questions

The research addresses two core questions:

1. What are the imlementations of ChatGPT in educational settings?
2. What consequences has ChatGPT implementation produced in the field of education?

Reseach Hypothesis

H₀ The integration of ChatGPT in education has no statistically significant implementation and effect on teaching-learning effectiveness and academic integrity.

LITERATURE CITED

ChatGPT has been proved a valuable tool in developing students' writing skills. Through interaction with the system, students can receive grammatical corrections, style suggestions, and detailed feedback on their written work, enabling them to improve their communication and achieve greater effectiveness in writing expression (Osorio, 2023). Therefore this makes the tool highly effective for scientific writing, it is crucial to recognize that it should not replace human expertise. Writers must critically evaluate and provide the AI's output with their own knowledge and judgement. Research has examined various applications of AI such as personalized learning, adaptive assessments, predictive analytics, and chatbots, highlighting its potential to boost learning efficiency and provide tailored support for both students and teachers. However, risks and limitations linked with these technologies, such as data privacy, cultural and linguistic barriers, and ethical concerns must also be addressed (Wang et al., 2023; Rueda et al., 2023).

The integration of ChatGPT into education is characterized as a double-edged sword, that presents both transformative potential and significant challenges to the education sector. American linguist Chomsky on January 23, 2023, considered it a sophisticated form of a high-tech plagiarism, arguing that it bypasses genuine understanding and fails to contribute to real knowledge of language and cognition. The emergence of this tool will result in replacing simple knowledge imparted in traditional classroom system. The influence of ChatGPT on education is mainly seen in higher education therefore it is necessary to guidance students on its appropriate application. Furthermore, it was noted that ChatGPT also impact educational assessment and evaluation. However, some scholars believed that ChatGPT provides a very powerful information search engine and organization ability thus, it can be an effective AI teaching assistant, assist to develop course plans and questions in a short span of time and to help students in completing academic papers, programs, and tests. The evolution of ChatGPT is described in four key trends: a shift from semi-closed to open systems, from one-way to interactive two-way communication, from vague to highly precise responses, and from inefficiency to greater efficiency. Despite current debates, it is believed that ChatGPT will become integral to future education, potentially helping students cultivate more creative and advanced learning methods (Tan, 2023).

The advancements in technology and AI are fundamentally reshaping human cognition and behavior thus, teachers should be ready to respond to this new trend with developing forward thinking policies and

modernized curricula. The influence of AI can be seen in many industries and in human races as a whole, the positive influences Pokkakillath & Suleri mentioned are aiding the creation of teaching materials, discussion points, composing emails, reviews, novels, generating ideas, etc. Moreover, these tools are increasingly used to assist in the writing of academic articles and journal papers. However, a significant concern, is the questionable accuracy of the information these tools generate (OpenAI, 2023). A major challenge posed by this technology is the threat to academic when students engage in the unethical use of ChatGPT during assessment, for instance, to plagiarize content, submit AI-generated work as their own, obtaining answers without genuine effort. Such practices not only violate academic standards but can also hinder the development of essential analytical thinking and decision-making skills resultantly. ChatGPT serves as a valuable tool for students, educators and researchers but every technological advancement comes with some drawbacks. These include risk of academic integrity, biased evaluation, factual errors and over-reliance on AI resulting in limited development of crucial life skills. To maximize its benefits and minimize its risks, comprehensive training regarding use of AI tools are recommended for teachers and students (Pokkakillath & Suleri 2023).

METHOD

This research study was descriptive in nature in which mixed-method approach was employed. Tools of the research were document analysis and survey questionnaire. Document analysis of the articles was conducted to gain knowledge and data related to this study and closed ended questionnaire consist of different items was made to collect first hand data from the sample of 100 participants through online survey. Population of this study was consist of research scholars, faculty members and students of universities. Sample was taken by means of random sampling method. Data was analyzed using SPSS software version 26. Descriptive statistics are reported as frequencies and cumulative percentages for categorical data, and means and standard deviations for continuous variables.

DATA ANALYSIS

Table 1: Survey Results on Perceptions of ChatGPT in Education (N=100)

Survey Statement	Response	Frequency	Percent	Valid Percent	Cumulative Percent	Mean	Std. Deviation
ChatGPT is an aid in the field of education?	YES	92	92.0%	92.0%	92.0%	1.08	0.27
	NO	8	8.0%	8.0%	100.0%		
ChatGPT is a useful tool for college & university students?	YES	91	91.0%	91.0%	91.0%	1.09	0.29
	NO	9	9.0%	9.0%	100.0%		
ChatGPT can be used to improve research for research scholars?	YES	86	86.0%	86.0%	86.0%	1.14	0.35
	NO	14	14.0%	14.0%	100.0%		
ChatGPT has revolutionized teaching and learning positively?	YES	84	84.0%	84.0%	84.0%	1.16	0.37
	NO	16	16.0%	16.0%	100.0%		
	YES	68	68.0%	68.0%	68.0%	1.32	

ChatGPT is usually used for English writing?	NO	32	32.0%	32.0%	100.0%		0.47
All information provided by ChatGPT is reliable and authentic?	YES	32	32.0%	32.0%	32.0%	1.68	0.47
	NO	68	68.0%	68.0%	100.0%		
ChatGPT affects creativity and critical thinking?	YES	55	55.0%	55.0%	55.0%	1.45	0.50
	NO	45	45.0%	45.0%	100.0%		
ChatGPT can lead to plagiarism issues?	YES	85	85.0%	85.0%	85.0%	1.15	0.36
	NO	15	15.0%	15.0%	100.0%		
ChatGPT has a negative effect on academic integrity?	YES	55	55.0%	55.0%	55.0%	1.45	0.50
	NO	45	45.0%	45.0%	100.0%		
ChatGPT needs limitations on its use in Education?	YES	69	69.0%	69.0%	69.0%	1.31	0.46
	NO	31	31.0%	31.0%	100.0%		

Interpretation of Result

The survey was based on Yes/No questions (Yes =1 & No= 2). The mean closer to 1 shows a positive trend a stronger agreement with the statement and mean closer to 2 shows negative trend a stronger disagreement with the statement. ChatGPT is an aid in education with mean score 1.08 shows a positive trend with low standard deviation 0.27 shows a strong agreement among the respondents. Statement ChatGPT is a useful tool for college and university students shows a favourable trend with mean score 1.09 and consistency in responses with standard deviation 0.29. ChatGPT can improve research for scholars indicates a positive tendency with mean 1.14 and standard deviation 0.35 indicating modest diversity of responses. ChatGPT has revolutionized teaching and learning positively shows positive trend, with mean 1.16 and standard deviation 0.37 indicating some mixed views. ChatGPT is usually used for English writing indicate positive trend due to the mean 1.32 and standard deviation 0.47 showing bifurcated responses. All information provided by ChatGPT is reliable and authentic shows a negative trend with mean score 1.68 with standard deviation 0.47 as majority of the respondents disagreed with the statement. ChatGPT affects creativity and critical thinking a mean score 1.45 shows neutral to slightly positive response along with standard deviation 0.50 showing divided opinions on the statement. ChatGPT can lead to plagiarism issues, the mean score 1.15 shows positive trend as majority respondents believe plagiarism is a risk. The standard deviation 0.36 also shows agreement. ChatGPT has a negative effect on academic integrity with mean score 1.45 shows neutral result as this trend is neither strongly positive nor strongly negative with standard deviation 0.50 shows divided opinions. The statement ChatGPT needs limitations on its use in education shows positive trend with mean score 1.31 and standard deviation 0.46 shows moderate disagreement. In brief, this survey revealed a strong agreement on the utility of ChatGPT in education, however, its adoption has significant concerns regarding its reliability, academic integrity, and potential negative effects on thinking skills. Although, the tool is widely adopted and beneficial but its uses required careful management and engagement.

HYPOTHESIS TESTING

Regression Analysis

NULL HYPOTHESIS (Ho): The integration of ChatGPT in education has no statistically significant implementation and effect on teaching-learning effectiveness and academic integrity.

Table 2: Model Summary

Model Summary						
Dependent Variable	R	R ²	Adjusted R ²	F-statistic	p-value (Sig.)	Sample Size (N)
Teaching	.226	.051	.041	5.280	.024	100
Learning	.007	.000	-.010	0.004	.947	100

The correlation coefficient ($R = .226$) shows a small positive relationship between ChatGPT and Teaching. The model explains about 5.1% of the variance ($R^2 = .051$) in teaching effectiveness. ($F = 5.280, p = .024 < .05$). This means ChatGPT has a significant positive effect on Teaching effectiveness, leading to rejection of the null hypothesis (H_0) for Teaching.

Although the variance explained is small, it still indicates that ChatGPT contributes to improvements in teaching.

The correlation coefficient ($R = .007$) indicates virtually no relationship between ChatGPT and Learning. The model explains 0% of the variance ($R^2 = .000$) in learning outcomes. This shows that ChatGPT does not predict student learning in this dataset. ($F = 0.004, p = .947 > .05$). Therefore, ChatGPT has no significant effect on Learning. The null hypothesis (H_0) cannot be rejected for this model.

Table 3: Coefficients

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.176	.092		12.726	.000
	CHATGPT	-.005	.069	-.007	-.066	.947

a. Dependent Variable: LEARNING

The constant (1.176, $p < .001$) is significant, but the predictor ChatGPT is not ($B = -.005, p = .947$). This means that ChatGPT does not significantly contribute to predicting learning outcomes.

Result: The Null Hypothesis (H_0) is partially rejected and partially not rejected.

The analysis provides evidence that using ChatGPT has a significant positive impact on teaching effectiveness. However, in this specific study, it does not show a significant impact on student learning outcomes.

RESULT AND DISCUSSION

Data obtained from faculty members of colleges and universities, research scholars, and students of research degree programs specify ChatGPT as an aid in the field of education and considered it as a helpful tool for college and university students. Majority of respondents were of the view it can bring improvement in research and 84% believed it has revolutionized teaching and learning process in a constructive way. 68% respondents considered ChatGPT useful for English writing as people had difficulty in English write ups. Contrary to this, above 68% believed data provided by ChatGPT is not reliable, authentic and can leads to plagiarism. Additionally, it can affects creativity and critical thinking while also negatively impacting academic integrity and student development. Most respondents believed that some limitations should be placed on the use of ChatGPT in educational settings.

CONCLUSION

In conclusion, on the basis of findings emerging use of ChatGPT in education has both benefits and implications. It is considered as an efficient tool in education that helps in multifaceted tasks. It has given new ways of learning through personalized tutoring and support in a difficult areas of learning, engaging students with interactive dialogue, helps to generate more ideas, also improving English write ups and enhancing teaching learning process. Despite its benefits, ChatGPT can leads to plagiarism and inaccuracy of provided data, over reliance on AI tools affect the critical thinking, practical skills and students' integrity. There is no denying that ChatGPT has revolutionized the educational landscape. Therefore, to leverage its benefits and to mitigate its drawbacks responsible use of AI tools is of utmost importance.

RECOMMENDATION

- It is recommended to establish clear guidelines policy framework. Through educational institutions by adopting delicate and stratified policies that go beyond generic warnings to clearly define appropriate and inappropriate uses of AI tools like ChatGPT.
- Faculty should receive training on the proper use of AI tools in education to avoid plagiarism and inaccuracy and to make all the students aware of AI tools' usage. These trainings should also cover limitations and ethical considerations regarding these tools to make liable use of ChatGPT and can avoid negative consequences.
- The purposive use of ChatGPT should be made by teachers and students to enhance learning experiences. When teachers and students use ChatGPT with a clear purpose, it can add value to education.
- Students should prevent themselves from over reliance on ChatGPT as it may leads to dependency and incapability in practical skills like writing. To mitigate plagiarism and over-reliance assessments should focus on evaluating the learning process itself. By requiring students to hand in their rough drafts to show how they collaborated with AI tools.
- Some of the limitations should be imposed on the use of ChatGPT in education to avoid risks. There should be policies to forbid students from simply pasting a prompt and submitting the AI generated content as their own work.
- The role of ChatGPT is contingent on how it is integrated into the educational system. Thus, these recommendations advocate for a proactive, structured, and pedagogically informed approach

focusing on enhanced teaching effectiveness with ChatGPT and advancing educational values like integrity, critical thought and authentic learning.

REFERENCES

- Dan Milmo. 2023. ChatGPT reaches 100 million users two months after launch. The Guardian. Retrieved August 25, 2023 from <https://www.theguardian.com/technology/2023/feb/02/chatgpt-100-million-users-open-ai-fastest-growing-app>
- Dempere, J., Modugu, K., Hesham, A., & Ramasamy, L. K. (2023, September). The impact of ChatGPT on higher education. In *Frontiers in Education* (Vol. 8, p. 1206936). Frontiers Media SA.
- Gill, S. S., Xu, M., Patros, P., Wu, H., Kaur, R., Kaur, K., ... & Buyya, R. (2024). Transformative effects of ChatGPT on modern education: Emerging Era of AI Chatbots. *Internet of Things and Cyber-Physical Systems*, 4, 19-23.
- Grassini, S. (2023). Shaping the future of education: exploring the potential and consequences of AI and ChatGPT in educational settings. *Education Sciences*, 13(7), 692.
- Ipek, Z.H., Gözümlü, A.İ.C., Papadakis, S., & Kallogiannakis, M. (2023). Educational Applications of the ChatGPT AI System: A Systematic Review Research. *Educational Process: International Journal*, 12(3): 26-55.
- Jiao, W., Wang, W., Huang, J. T., Wang, X., & Tu, Z. (2023). Is ChatGPT a good translator? A preliminary study. *arXiv preprint arXiv:2301.08745*, 1(10).
- KK, M. A. (2023). Bibliometric Analysis of ChatGPT's Applications in Medicine: A Comprehensive Assessment of its Impact and Potential. *International Journal of Medicine & Public Health*, 13(2).
- Lo, C. K., Hew, K. F., & Jong, M. S. Y. (2024). The influence of ChatGPT on student engagement: A systematic review and future research agenda. *Computers & Education*, 219, 105100.
- Montenegro-Rueda, M., Fernández-Cerero, J., Fernández-Batanero, J. M., & López-Meneses, E. (2023). Impact of the implementation of ChatGPT in education: A systematic review. *Computers*, 12(8), 153.
- Park, H., & Ahn, D. (2024, May). The promise and peril of ChatGPT in higher education: opportunities, challenges, and design implications. In *Proceedings of the 2024 CHI conference on human factors in computing systems* (pp. 1-21).
- Pokkakillath, S., & Suleri, J. (2023). ChatGPT and its impact on education. *Research in Hospitality Management*, 13(1), 31-34.
- Susnjak, T., & McIntosh, T. R. (2024). ChatGPT: The end of online exam integrity?. *Education Sciences*, 14(6), 656.
- Tan, X. (2023). The Impact of ChatGPT on Education and Future Prospects. *Highlights in Science, Engineering and Technology*, 61, 138-143.
- Yu Fu . (2023). A research of the impact of ChatGPT on education. *International Conference on Machine Learning and Automation* DOI: 10.54254/2755-2721/35/20230354
- Zhai, X. (2022). ChatGPT user experience: Implications for education. Available at SSRN 4312418.