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The Digital Influence ChatGPT and its Role in Shaping Youth Cognitive Processes and Decision-Making

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Abstract: This study explores the influence of artificial intelligence (AI), particularly ChatGPT, on the cognitive development and mental processing of youth. The rapid integration of generative AI tools in educational settings raises concerns about their impact on learning, decision-making, and social interactions. Through a review of existing literature from 2017 to 2023, this research examines both the benefits and challenges associated with ChatGPT's use among young individuals. While studies highlight its potential in enhancing academic performance, facilitating knowledge acquisition, and supporting problem-solving, concerns are raised about cognitive drawbacks such as overreliance, diminished critical thinking, and reduced originality. Ethical issues, such as the potential for diminished skepticism and over trust in AI-generated information, are also discussed. The study emphasizes the need for a balanced approach in integrating AI into educational frameworks, ensuring it supports cognitive growth without hindering independent thought. The research concludes with recommendations for future studies that involve direct engagement with youth to better understand the long-term effects of AI on cognitive processes and inform educational strategies.

Keywords*: Artificial Intelligence, Chat GPT, Youth, Cognitive Processes, Development, Decision-making, Social Interactions.*

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I. INTRODUCTION

The swift evolution of artificial intelligence (AI) has significantly altered the ways individuals obtain, process, and understand information in contemporary society. One of the most transformative innovations in this domain is the development of generative AI tools, such as ChatGPT, which employ advanced natural language processing (NLP) techniques to engage in human-like interactions and produce coherent, relevant responses. As these technologies become increasingly embedded in various sectors—including education, healthcare, and social communication—they raise important questions about their influence on cognitive functioning, particularly among younger populations. This research critically explores the impact of AI, with a focus on ChatGPT, on the cognitive development and mental processing of youth, informed by recent scholarly insights. In their foundational work, Abdullah, Madain, and Jararweh (2022) outline the core technological mechanisms behind ChatGPT, along with its wide range of applications and societal effects. They underscore the dual nature of such AI tools: while offering valuable support for learning and productivity, they also present ethical and cognitive challenges. As young learners increasingly rely on tools like ChatGPT for knowledge acquisition, problem-solving, and academic decision-making, concerns emerge about possible consequences for memory development, critical analysis, and creative thinking. The educational landscape is perhaps one of the most affected areas. Studies by Alshater (2022) and Baidoo-Anu and Owusu Ansah (2023) emphasize the growing role of ChatGPT in enhancing student performance by simplifying access to complex knowledge and assisting with academic tasks. However, these researchers also warn of the potential drawbacks, such as reduced student engagement and limited independent thinking. Their findings stress the need for an educational framework that integrates AI responsibly while preserving essential cognitive skills that underpin deep learning and intellectual growth.

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Ethical considerations around AI also surface prominently in Chan's (2022) work, which discusses contrasting perspectives on AI technologies like GPT-3 and InstructGPT. By exploring utopian versus dystopian narratives in AI ethics, Chan highlights how differing views can shape user behavior and expectations—especially among youth. Overestimating AI's capabilities or failing to recognize its flaws can lead to diminished skepticism, misplaced trust, and shallow information processing. Furthermore, Chan and Hu (2023) investigate students' real-world experiences with generative AI in university settings. Their research reveals that while learners find AI tools beneficial in reducing academic stress and increasing efficiency, many also express apprehension about overdependence and a decline in originality. These concerns are closely related to essential cognitive dimensions, such as reflective thinking, critical evaluation, and information literacy. Deng and Lin (2023) provide a broad overview of ChatGPT's potential benefits and limitations. Their work reinforces the idea that AI can serve as a powerful enhancer of intellectual engagement when used thoughtfully. However, overreliance on such tools can weaken vital cognitive functions, including independent reasoning and problem-solving. From an educational policy perspective, Collins (2017) argues for a rethinking of curriculum design in light of technological advancements. He advocates for the prioritization of skills like critical thinking and ethical decision-making—capabilities that are increasingly necessary in navigating AI-generated information and ensuring sound cognitive development in an AI-integrated world. Deshpande and Szefer (2023) analyze the use of ChatGPT in an introductory engineering course, showing how AI can support learning in technical fields while simultaneously raising the risk of intellectual complacency. In parallel, studies by Cheng et al. (2023) and Doshi et al. (2023) address broader social and psychological effects of ChatGPT, including changes in communication patterns and youth attitudes toward knowledge authority. Taken together, these diverse studies highlight the urgency of examining the cognitive implications of generative AI tools like ChatGPT on young users. While such technologies offer clear advantages in facilitating learning and communication, they also carry the potential to reshape thought processes and reduce cognitive autonomy. This review seeks to critically analyze existing literature to better understand these dynamics and provide informed guidance for educators, policymakers, and scholars navigating this evolving digital era.

II. REVIEW OF LITERATURE

An expanding range of academic studies has examined the influence of generative artificial intelligence—particularly ChatGPT—across multiple fields, emphasizing its revolutionary benefits alongside potential drawbacks. In their work presented at the Ninth International Conference on Social Networks Analysis, Management and Security (SNAMS), Abdullah, Madain, and Jararweh (2022) explored the foundational technologies, application areas, and wider societal impact of ChatGPT. Their review-based study drew upon established AI frameworks and concluded that although ChatGPT promotes easier access to information and automation, it simultaneously raises significant ethical and cognitive issues, especially within the realms of education and social interaction. Focusing on academic settings, Alshater (2022), in the SSRN publication titled *"Exploring the Role of Artificial Intelligence in Enhancing Academic Performance: A Case Study of ChatGPT,"* carried out a case study to evaluate how ChatGPT affects student academic outcomes. Employing a qualitative methodology that combined student performance data and user experiences, the research showed that while students benefited from faster comprehension and help with academic writing, overdependence on the tool led to diminished levels of critical thinking and originality. In a related analysis, Baidoo-Anu and Owusu Ansah (2023) discussed the educational implications of generative AI in their SSRN article, *"Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning."* Their conceptual and analytical study emphasized the promise of ChatGPT in personalizing instruction, enhancing learner independence, and supporting teachers in instructional design. At the same time, they highlighted concerns that unbalanced reliance on the tool may encourage students to avoid foundational learning processes. From a philosophical and ethical standpoint, Chan (2022) provided a critical lens in the article published in *AI Ethics*, titled *"GPT-3 and InstructGPT: Technological Dystopianism, Utopianism, and 'Contextual' Perspectives in AI Ethics and Industry."* This study explored conflicting narratives surrounding artificial intelligence—ranging from overly optimistic to deeply pessimistic—and urged for a more grounded and contextualized view. Such polarized portrayals, the study suggests, can significantly shape how young people understand and interact with AI technologies. Building upon real-world student experiences, Chan and Hu (2023) explored higher education learners' views in their arXiv preprint *"Students' Voices on Generative AI: Perceptions, Benefits, and Challenges in Higher Education."* Using a mixed-method approach involving surveys and qualitative responses, their research uncovered a nuanced view among students. While many acknowledged the practical benefits and convenience of ChatGPT, they also voiced apprehensions about its trustworthiness, impact on originality, and the risk of cognitive complacency.

Deng and Lin (2023), writing in *Frontiers in Computational Intelligence Systems*, provided a comprehensive overview in their article *"The Benefits and Challenges of ChatGPT: An Overview."* Based on a literature review approach, they discussed how ChatGPT, if used within guided frameworks, could enhance intellectual development. However, unsupervised or excessive use might impair deeper cognitive abilities, such as problem-solving and independent

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reasoning. Deshpande and Szefer (2023), in their arXiv article *"Analyzing ChatGPT's Aptitude in an Introductory Computer Engineering Course,"* conducted an empirical investigation into ChatGPT's effectiveness in solving academic problems. Their findings indicated that while the tool excelled at addressing well-structured technical queries, students relying heavily on it exhibited less analytical engagement and a tendency to accept AI-generated responses without critical evaluation. Additionally, Cheng et al. (2023), writing in the *Annals of Biomedical Engineering*, used ChatGPT to interpret and analyze the 2022 Mpox outbreak. Their study demonstrated the model's utility in processing complex biomedical data and generating insightful reflections from an AI perspective. Lastly, in *The American Journal of Bioethics*, Doshi, Bajaj, and Krumholz (2023) reflected on the broader ethical ramifications of AI progress in their paper *"ChatGPT: Temptations of Progress."* They emphasized the importance of ethical responsibility, especially in deploying AI technologies for younger populations who are still developing core cognitive faculties.

III. METHODOLOGY

➢ *Aim*

The primary objective of this extensive study is to explore and analyze the influence of Artificial Intelligence, with a particular emphasis on Chat GPT, on the cognitive processes of the youth. The research seeks to offer a nuanced understanding of how AI-driven conversational agents impact the cognitive development, decision-making patterns, and social interactions of young individuals.

➢ *Objectives*

- To illustrate the influence of Chat GPT and similar AI-driven conversational agents on the cognitive development of youth across different age groups.
- To explore changes in decision-making processes among youth resulting from interactions with Chat GPT and the integration of AI in their daily lives.
- To understand the alterations in social interactions, communication patterns, and socio-emotional learning among young individuals due to engagement with AI-driven conversational agents.
- To identify potential benefits and challenges associated with the integration of AI, particularly Chat GPT, in shaping the cognitive processes of youth.

➢ *Procedure*

This study adopted a descriptive research design to analyze secondary data on the impact of AI and ChatGPT on youth cognitive processes. Relevant literature from 2017 to 2023 was sourced from databases like PubMed, IEEE Xplore, Google Scholar, and official publications. The review focused on studies related to cognitive development, decision-making, and social interaction. Using systematic and thematic analysis, the research identified key patterns and gaps, while ensuring ethical standards through proper citation and confidentiality.

IV. DISCUSSION

The analysis of existing literature reveals a nuanced impact of Artificial Intelligence (AI), particularly ChatGPT, on the cognitive development of youth. On one hand, studies emphasize the constructive role of ChatGPT in supporting academic learning and engagement. Alshater (2022) highlighted that ChatGPT enhances academic performance by simplifying complex topics and making information more accessible to students. Similarly, Baidoo-Anu and Owusu Ansah (2023) emphasized that generative AI tools, when appropriately integrated into educational settings, can boost learning efficiency and comprehension. Conversely, concerns have been raised about the potential cognitive drawbacks of overusing such technologies. According to Abdullah, Madain, and Jararweh (2022), an overreliance on ChatGPT may lead to a decline in mental effort and engagement, as students may become passive recipients of AI-generated knowledge rather than active thinkers. Chan and Hu (2023) supported this view, reporting that students acknowledged the advantages of AI but were also aware of its possible adverse effects, such as diminished originality and challenges in critically assessing AI-generated responses. Ethical and psychological dimensions add further depth to this discussion. Chan (2022) examined the contrasting narratives surrounding AI—both utopian and dystopian—and argued that young users may either blindly trust AI outputs or misuse them, based on unrealistic assumptions about the technology's capabilities. This overdependence may impair metacognitive functions like judgment, reasoning, and self-awareness. Deng and Lin (2023) also cautioned against uncritical use of ChatGPT, urging for a balanced approach that encourages human cognition while leveraging AI's capabilities. From a practical standpoint, Deshpande and Szefer (2023) observed that ChatGPT can support technical education, particularly in computer engineering. However, they also warned that excessive reliance on AI could lead to intellectual complacency. Reinforcing this, Collins (2017) advocated for a redefinition of educational priorities in a technology-driven age, emphasizing the cultivation of critical thinking, ethical awareness, and independent reasoning.

V. CONCLUSION

In conclusion, this study highlights the complex and dual-sided impact of AI, particularly ChatGPT, on the cognitive processes of youth. While generative AI tools like ChatGPT show significant potential in enhancing learning outcomes and supporting academic performance, they also present challenges related to overreliance, diminished critical thinking, and intellectual passivity. The findings underscore the need for a balanced integration of AI in educational settings, ensuring that its use fosters cognitive development

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without undermining essential skills such as creativity, problem-solving, and independent reasoning. Future research should aim to deepen our understanding through empirical studies, focusing on the long-term effects of AI usage on youth cognitive processes and exploring how different demographics interact with these technologies.

This study provides valuable insights but also has some notable limitations. The research relies solely on secondary data from existing literature, which restricts the depth of understanding regarding real-time, personal experiences of youth using AI technologies like Chat GPT. Since the analysis is based on previously published studies, it may not fully capture emerging trends or the individual variations in cognitive impacts that can arise in different contexts. Additionally, the studies reviewed differ in their research methodologies, demographic samples, and contextual focuses, potentially affecting the broader applicability of the findings. The absence of primary data collection also limits the ability to establish direct causal links between AI usage and changes in cognitive processes among youth.

To overcome these limitations, future research should involve direct engagement with youth users of AI technologies, utilizing empirical methods to gather firsthand data. Longitudinal and experimental studies would provide a clearer picture of how prolonged use of Chat GPT influences cognitive functions like memory, critical thinking, and decision-making. Further exploration into the role of factors such as age, educational background, and cultural context could refine our understanding of AI's impact across diverse groups. This research would be beneficial for educational institutions and policymakers, helping to develop informed guidelines and ethical frameworks that ensure AI tools support cognitive development without impeding independent thinking.

REFERENCES

[1]. Abdullah, M., Madain, A., & Jararweh, Y. (2022). ChatGPT: Fundamentals, applications, and social impacts. In *2022 Ninth International Conference on Social Networks Analysis, Management and Security (SNAMS)* (pp. 1–8). https://doi.org/10.1109/snams58071.2022.10062688

[2]. Alshater, M. M. (2022). Exploring the role of artificial intelligence in enhancing academic performance: A case study of ChatGPT. *SSRN Electron. J.* https://doi.org/10.2139/ssrn.4312358

[3]. Baidoo-Anu, D., & Owusu Ansah, L. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *SSRN Electron. J.* https://doi.org/10.2139/ssrn.4337484

[4]. Chan, A. (2022). GPT-3 and InstructGPT: Technological dystopianism, utopianism, and "contextual" perspectives in AI ethics and industry. *AI Ethics, 3*, 53–64. https://doi.org/10.1007/s43681-022-00148-6

[5]. Chan, C. K., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. *arXiv*. https://doi.org/10.48550/arXiv.2305.00290

[6]. Cheng, K., He, Y., Li, C., Xie, R., Lu, Y., Gu, S., et al. (2023). Talk with ChatGPT about the outbreak of Mpox in 2022: Reflections and suggestions from AI dimensions. *Ann. Biomed. Eng., 51*, 870–874. https://doi.org/10.1007/s10439-023-03196-z

[7]. Collins, A. (2017). *What's worth teaching?: Rethinking curriculum in the age of technology*. Teachers College Press.

[8]. Deng, J., & Lin, Y. (2023). The benefits and challenges of ChatGPT: An overview. *Front. Comput. Intell. Syst., 2*, 4465. https://doi.org/10.54097/fcis.v2i2.4465

[9]. Deshpande, S., & Szefer, J. (2023). Analyzing ChatGPT's aptitude in an introductory computer engineering course. *arXiv*. https://doi.org/10.48550/arXiv.2304.06122

[10]. Doshi, R. H., Bajaj, S. S., & Krumholz, H. M. (2023). ChatGPT: Temptations of progress. *Am. J. Bioethics, 23*, 6–8. https://doi.org/10.1080/15265161.2023.2180110

[11]. Else, H. (2023). Abstracts written by ChatGPT fool scientists. *Nature, 613*, 423–423. https://doi.org/10.1038/d41586-023-00056-7

[12]. Finnie-Ansley, J., Denny, P., Becker, B. A., Luxton-Reilly, A., & Prather, J. (2022). The robots are coming: Exploring the implications of OpenAI Codex on introductory programming. In *Proceedings of the 24th Australasian Computing Education Conference* (pp. 1–8). ACM. https://doi.org/10.1145/3511861.3511863

[13]. Gao, C. A., Howard, F. M., Markov, N. S., Dyer, E. C., Ramesh, S., Luo, Y., et al. (2022). Comparing scientific abstracts generated by ChatGPT to original abstracts using an artificial intelligence output detector, plagiarism detector, and blinded human reviewers. *bioRxiv*. https://doi.org/10.1101/2022.12.23.521610

[14]. Garvey, C. S. (2019). Artificial intelligence and Japan's fifth generation. *Pac. Hist. Rev., 88*, 619–658. https://doi.org/10.1525/phr.2019.88.4.619

[15]. Gong, T., Lyu, C., Zhang, S., Wang, Y., Zheng, M., Zhao, Q., et al. (2023). MultiModal-GPT: A vision and language model for dialogue with humans. *arXiv*. https://doi.org/10.48550/arXiv.2305.04790

[16]. Gordijn, B., & Have, H. A. (2023). ChatGPT: Evolution or revolution? *Med. Health Care Philos., 26*, 1–2. https://doi.org/10.1007/s11019-023-10136-0

[17]. Gozalo-Brizuela, R., & Garrido-Merchán, E. (2023). ChatGPT is not all you need: A state-of-the-art review of large generative AI models. *arXiv*. https://doi.org/10.48550/arXiv.2301.04655

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25apr987

[18]. Graham, F. (2022). Daily briefing: Will ChatGPT kill the essay assignment? *Nature*. https://doi.org/10.1038/d41586-022-04437-2
[19]. Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., et al. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learn. Individ. Differ., 103*, 102274. https://doi.org/10.1016/j.lindif.2023.102274