ISBN: 978-93-6773-974-7

A STUDY OF IMPACT OF AI TOOLS ON CREATIVITY AND IMAGINATIVE SKILLS OF STUDENTS

DR. KRITIKA MALHOTRA
ASSISTANT PROFESSOR
NATIONAL PG COLLEGE

ZEHRA AMAN
STUDENT
NATIONAL PG COLLEGE

KEYWORDS

CHATGPT, CREATIVITY, IMAGINATIVE SKILLS

ABSTRACT

The advent of AI tools like ChatGPT has sparked considerable debate regarding their impact on students' creativity and imaginative skills. On one hand, these tools offer unprecedented access to information and ideas, potentially enhancing students' creative capabilities. ChatGPT can generate diverse perspectives, assist in brainstorming sessions, and provide inspiration, thus fostering a rich environment for creative thought. It can help students refine their ideas, structure their thoughts, and overcome creative blocks, thereby supporting the development of imaginative skills. Conversely, there are concerns that reliance on AI tools may undermine students' intrinsic creativity.

The ease of obtaining AI-generated content might discourage independent thinking and originality, leading to a more passive learning approach. Students may become overly dependent on AI for ideas and solutions, which could stifle their ability to generate and develop concepts independently. Additionally, the quality and relevance of AI-generated content can vary, potentially introducing inaccuracies or biases that might mislead students. Moreover, the interactive nature of AI can both positively and negatively influence

creativity. While AI can simulate dialogue and debate, prompting deeper thinking and exploration, it lacks the nuanced understanding and emotional intelligence of human interaction, which are crucial for truly imaginative processes. The balance between utilizing AI as a supportive tool and maintaining active, independent cognitive engagement is essential. In conclusion, AI tools like ChatGPT have the potential to significantly enhance students' creativity and imaginative skills if used appropriately. However, educators must ensure that these tools are integrated in a manner that promotes active learning and critical thinking, preventing over-reliance and fostering a balanced development of creative abilities.

1. INTRODUCTION

Since past few years, the world order has been changed due to evolution of technology, drastic modernization and boom of Artificial Intelligence. The first working AI program was written in 1951 in the University of Manchester which was a checkers playing program by Christopher Strachey and also a chess playing program by Dietrich Prinz. The period from 1950 to 1956 was the birth phase off artificial intelligence. When most of the countries were indulge in fighting for their freedom, in some corner John Mccarthy was coining the term and the concept of Artificial Intelligence. Since then, humans are pushing AI to its horizons by exploring what is unknown to world. On November 30, 2022 OpenAI, a San Francisco based company launched ChatGPT, a free-to-use AI tool for solving all types of human-borne problems. According to a recent data published, the monthly active users of ChatGPT has crossed a milestone of 200 million users worldwide in June 2023. The estimated revenue earned by its parent company has reached $1.6 billion in 2023. With the arrival of ChatGPT, a common has also felt the power of AI.

The need for students to turn around chapters of books to make assignments and projects which usually took much larger time span became obsolete with the invention of AI tools like ChatGPT. Now it has become a matter of few seconds to write an assignment or a project on any topic by just asking AI about it. According to an article published in Medium, more engagement of AI in thinking and creating prospects will inadvertently lead to limiting human engagement in creating and

thinking prospects which is not favorable for any human being. It may lead to reduction of work load and efficiency in work done but ultimately if human efforts are zero or minimum then there will also be no need for humans. Furthermore, AI has the ability to replicate and reproduce the exact work with the use of patterns and algorithms which leads to obstruction in the way of new ideas. During recent times, almost every student has access of AI which is, no doubt, beneficial for them but making it a panacea is harmful for them. They must use it to facilitate thinking and imagining processes but not to substitute them.

2. LITERATURE REVIEW

Alexandara Harry (2023) in her research article "Role of AI In Education" concluded that AI has the potency to revolutionize the way the education system works making it more and more personalized and engaging for the students with the help of algorithms, machine learning and natural language processing systems. Personalized learning experience for every kid will make it easier for them to grasp concepts at their own pace and narrowing language barriers. Chatbots and automated grading and assessment system can save teachers time from unnecessary works and they can focus more on teaching practice. Although AI has immense benefits on education sector but there are challenges to overcome like the ethical issues, privacy issues, no human interface and interaction etc.

Alex Guilherme (2017) in his research article "AI and Education: The Importance of Teacher and Student Relations" concluded that techno-philia has a deep impact in changing the classroom relationships between teacher and students. The student's relation with technology has become stronger while the bond with the teacher has been weakened. He stated that in his position I in research design defended that we should not use technology to aid teaching and learning processes in the classrooms. There needs to be a balance between the technologization of learning and the provision student teacher relationship.

Catherine Felix (2021) in her research article "The Role of The Teacher and AI In Education" concluded that the involvement of AI in education sector is still in its infant stage and teachers becoming obsolete in teaching industry is a far thought but the AI has arrived and slowly and gradually pacing through all roads leading to this sector. Teachers play a critical role in rolling out of AI in education. the main problem is not the vanishing role of teachers but the problem is that how AI tools can be used by the teachers to self-pace with the upcoming challenges of AI. Afterall AI is driven by algorithms and human beings may be as well but they are algorithms of a wholly different level of complexity.

Carlo Perrotta and Neil Selwyn (2019) in their research article “Deep Learning Goes To School: Toward A Relational Understanding of AI In Education” concluded that AI is continuously developing and redeveloping various different techniques, algorithms, versions and methods. the challenge that is faced by the educational researchers and academicians will be to interrogate the assumptions in a critical and realistic view. The main theme off their research is that the value of combining a correct examination of algorithms with an experimental use of digital ethnographic methods.

ER Lai(2011) in his research article “Critical Thinking: A literature Review” concluded that critical thinking comprises of analyzing, judging and evaluating an argument and making decisions or solving problems by drawing inferences using inductive or deductive methods. Critical thinking and its development are an outcome of student learning which has to be developed within adolescent and teen years of a child. There are two aspects of critical thinking namely general aspect and domain-specific aspect. if the teachers want to successfully develop critical thinking skills, then they have to explicitly include the type of content inclined towards developing critical thinking skills.

Richard Paul and Linda Elder (2007) in their Book “The Miniature Guide to Critical thinking Concepts and Tools” concluded that critical thinking is the art of analyzing and evaluating thinking with a view to improve it. there are Universal Intellectual Standards which are applied when someone wants to check the quality of reasoning involved in solving a problem. These standards are namely Clarity, Accuracy, Precision, Relevance, Depth, Breadth, Logic, Significance and Fairness. It also stated some intellectual traits like intellectual humility, courage, empathy, autonomy, integrity, perseverance, confidence in reason and fairmindedness.

Géssica LEHMKUHL, Christiane GRESSE VON WANGENHEIM, Lúcia Helena MARTINS-PACHECO, Adriano F. BORGATTO, Nathalia DA CRUZ ALVES (2020) in their research article “SCORE – A Model for the Self-Assessment of Creativity Skills in the Context of Computing Education in K-12" developed a SCORE model (aSsessing COmputing cREativity) to evaluate and assess the creative skills of students. They studied factors like creative personality and curiosity, knowledge and skills expansion, connection, originality, boldness, flexibility, fluency, etc. They studied responses of 76 students and based on them drawn inferences like fluency and elaboration have high correlation. There are certain restrictions to the study also like the assessment of creativity and the complex study design of SCORE model.

Mogbel Alenizi (2008) in his research article "Assessment of Creativity in Education" concluded that the field of creativity is long and broader. Also, there is no definiteness and consensus in the definitions worldwide. He tested creativity based on 3 types of variables namely cognitive variables, environmental variables and personality variables and further divided it into Intelligence, Knowledge, Technical skills, Thinking styles (divergent/convergent), Politico-religious factors, Cultural factors, Socioeconomic factors, educational factors, Motivation, Extraversion/introversion, Non-conformity, Paradoxical traits and Interests. Many statisticians concur that a sample size of 100 is the minimum you need for meaningful results. If your population is smaller than that, you should aim to survey all of the members. The same source states that the maximum number of respondents should be 10% of your population, but it should not exceed 1000.13.

3. RESEARCH METHODOLOGY

3.1 OBJECTIVE OF THE STUDY

This research paper aims to study the impact of AI tools especially ChatGPT on students' creativity and imaginative skills among the undergraduate and postgraduate students.

3.2 DATA ANALYSIS

3.2.1 GENDER

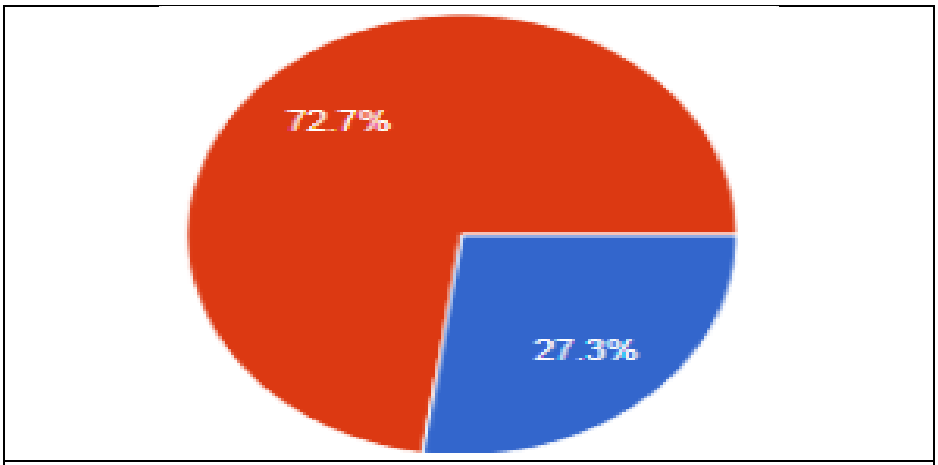

FIGURE. 1.1

In this research study 72.7% respondents are females whereas 27.3% are males.

3.2.2 AGE

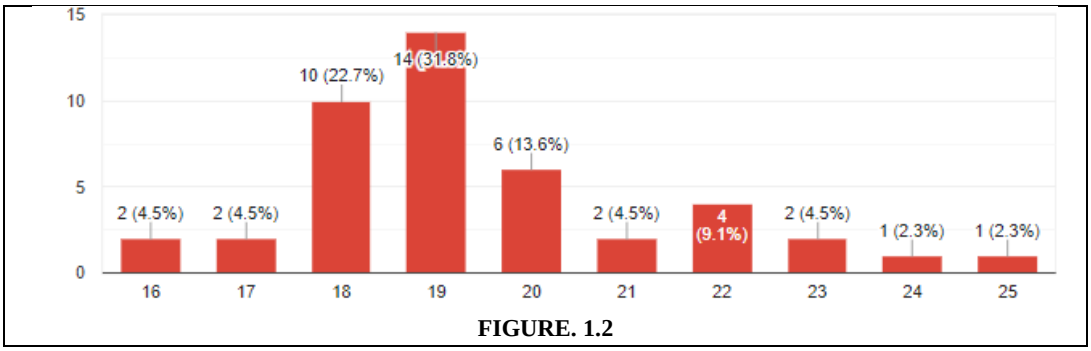

FIGURE. 1.2

Students from the age group of 16 to 25 years of age filled the questionnaire. Most of the response, about 31.8% were from the students in the age bracket of 18-19 years.

3.2.3 QUALIFICATION

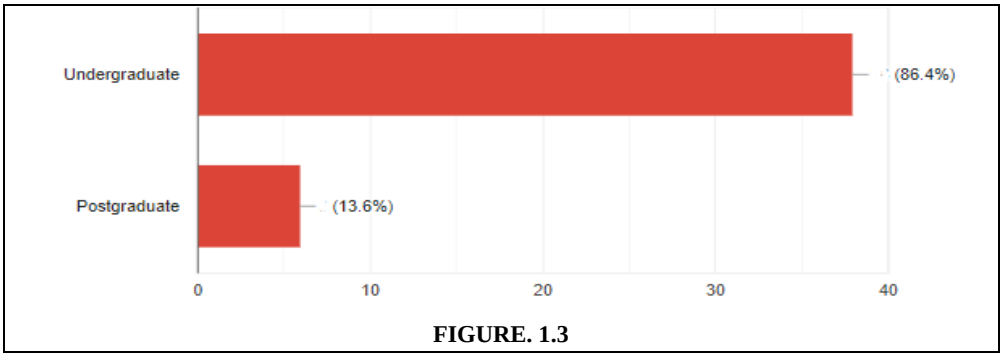

FIGURE. 1.3

The research was done on the students from higher education pursuing either their undergraduate or post graduate degree. Undergraduate students were 86.4% of the total responses received whereas postgraduate students were 13.6% of the study.

3.3.4 USAGE OF AI BY THE STUDENTS

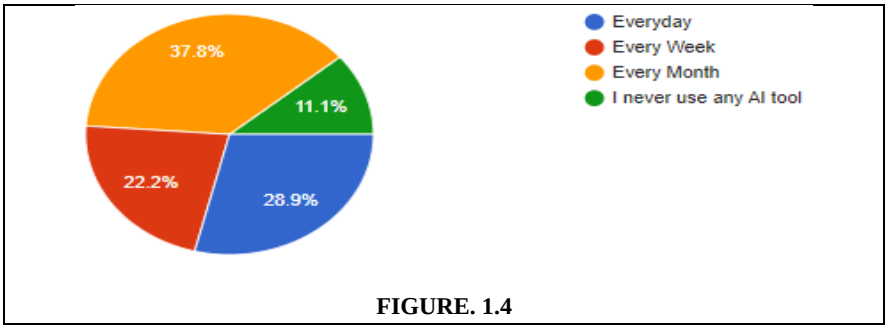

FIGURE. 1.4

In respect of the usage of AI tools, 28.9% students declared that they used AI on everyday basis, 22.2% used every week, 37.8% used every month and 11.1% have never used any AI tool.

3.3.5 PREFERANCE

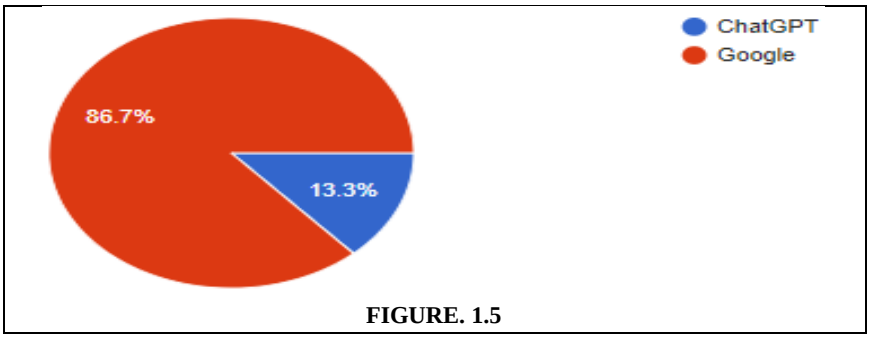

FIGURE. 1.5

Students preferred google over ChatGPT to search any new topic. About 86.7% respondents preferred google for first time search of any new topic whereas 13.3% respondents preferred ChatGPT over google.

3.3.6 MOST HELPFUL AI TOOL

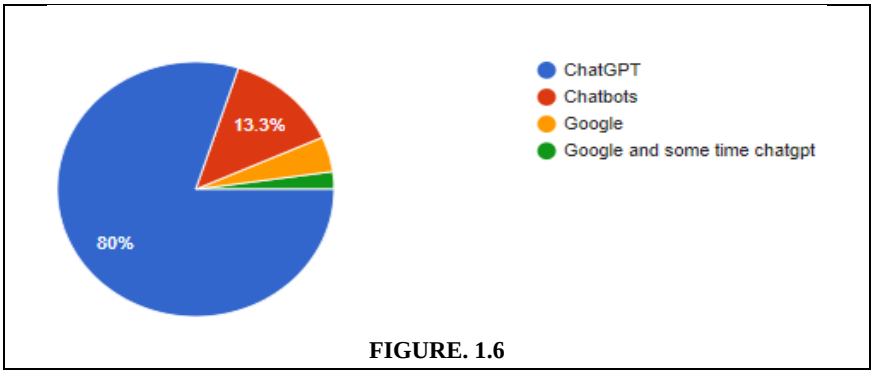

FIGURE. 1.6

About 80% of the respondents found ChatGPT the most helpful AI tool writing assignments and projects, 13.3% chose other Chatbots, 4.3% chose Google and 2.2% chose both Google and ChatGPT.

3.3.7 LAST WRITTEN ORIGINAL WORK

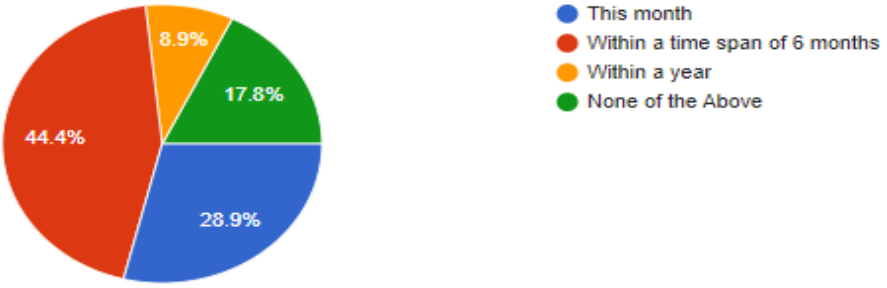

FIGURE. 1.7

44.4% students wrote any original work with 6 months, 298.9% wrote this month, 8.9% wrote within this year and 17.8% chose none of the above options.

4. REFERANCES

- Lai, E. R. (2011). Critical thinking: A literature review. Pearson's Research Reports, 6(1), 40-41.
- Paul, R., & Elder, L. (1992). Critical thinking: What, why, and how. New directions for community colleges, 77(2), 3-24.
- Harry, A. (2023). Role of AI in Education. Interdisciplinary Journal and Humanity (INJURITY), 2(3), 260-268.
- Guilherme, A. (2019). AI and education: the importance of teacher and student relations. AI & society, 34, 47-54.
- Felix, C. V. (2020). The role of the teacher and AI in education. In International perspectives on the role of technology in humanizing higher education (pp. 33-48). Emerald Publishing Limited.
- Perrotta, C., & Selwyn, N. (2020). Deep learning goes to school: Toward a relational understanding of AI in education. Learning, Media and Technology, 45(3), 251-269.
- Moore, B. N., & Parker, R. (2012). Critical thinking. McGraw-Hill.
- Lehmkuhl, G., von Wangenheim, C. G., Martins-Pacheco, L. H., Borgatto, A. F., & ALVES, N. D. C. (2021). SCORE–A model for the self-assessment of creativity skills in the context of computing education in K-12. Informatics in Education, 20(2), 231.
- Alenizi, M. (2008). Assessment of creativity in education. Online Submission.
- https://nikhilgautam01.medium.com/the-impact-of-ai-on-human-creativity-the-potential-reduction-in-creative-thinking-1c6f701e40bb