

Original Research Article

Impact of Artificial Intelligence Tools on the Learning Behaviour and Academic Engagement of Generation Z Students

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Abstract

It is evident that Artificial Intelligence (AI) now plays an important role in every student's life. It is being adapted progressively becoming an inevitable part of almost every student's academic performance. The use of AI tools such as ChatGPT, Gemini, Canva, and many more AI-based learning platforms support student learning effectively. These tools aid as search engine machines used to extract information. Students often use AI learning based platforms for synthesising challenging concepts, seeking creative assignment ideas. They also use AI tools for taming writing skills and specifically during preparation of their exam preparation. Generation Z, is known to be digitally native so they have grown up in an environment which is highly digital in nature. So they are highly privileged to secure an environment that not only supports but also openly accepts wide usage of AI based technologies. This adoption of AI based technology learning not only designs their day to day living easy, but also supports them in their learning processes. AI tools facilitate learning quicker in less time and features personalised learning. AI based learning tools are easily accessible for students as they are either free of cost or offered to students at lower costs. Although excessive dependence on AI based tools for learning is not fit for students as, it restricts their independent critical thinking blocking their creativity minds and hinders problem-solving abilities. The main purpose of the research paper was to scrutinize the impact of AI tools on the learning behaviour of Gen Z students. The study is an attempt to focus on gauging the frequency with which the Gen Z students use AI learning

tools, understanding the purpose of AI usage. An analysis is done through to pivot lenses on the influence of AI based learning on various parameters like learning efficiency, change academic engagement, and the perception of students. It will give a clear picture whether students hold AI based learning as an advantage or a possible limitation when adopted for educational purposes.

Keywords: Artificial Intelligence, AI Tools, Generation Z, Learning Behaviour, Students, Academic Engagement, Technology in Education

Introduction

As we are aware that Artificial intelligence (AI) has turned up quick attention, becoming a game-changing force impacting almost all industries significantly. Even the education sector is deeply impacted by the presence of AI, leading to the creation of learning tools, which are widely accessed by the Gen Z college students. Presence of AI based learning has completely revolutionized the patterns of teaching and learning. It has led to innovation, creative ideas, equal distribution, and easy accessibility of required information. This has led to paradigm shift from conformist and conventional models of learning to modern and upgraded personalized learning patterns. The access to flexible learning models has facilitated any time and anywhere learning for students. The learning system has now turned up to be data-centric in nature. Now even educational institutions have started organising seminars and workshops to facilitate and promote the use of AI in classrooms. Teachers who deliver education to Generation Z students are now a days given all the necessary training through various platforms to upgrade their knowledge and skills to ensure effective usage of AI based learning tools for delivering lectures. Students are utilizing AI tools based learning platforms to promote customized learning and foster student engagement.

Evolution of modern educational framework has turned out to be a vital component facilitating the effective use of Artificial Intelligence. The progressive usage of AI learning tools like Chat GPT, AI chatbots are being used extensively for learning purpose. Teachers have also been aware of smart tutoring tools, platforms of content creation for delivering lectures and information to students. AI based technologies have facilitated the presence and usage of customized learning models used by students for studying. Students also turn up with dynamic assignment framework, generate self and prompt notes, steadfast individual hitches using AI learning tools. Not only this but AI is also used extensively for research purpose, students conduct research related to various subjects that enhances their subject knowledge. Generation Z students are widely exposed to this digital environment majorly so they are the major users of AI based technologies. Infact this Generation Z students finds it very difficult to survive without technology, as they are more comfortable with digital education environment. The pattern of interaction among the Generation Z students has undergone reforms due to the enhanced availability of AI tools in education sector. Students have paused depending on teachers for subject knowledge or textbooks either. The availability of traditional search engine platforms are replaced by modern AI learning based system. Easy access to tailored learning support, prompt and simple explanations, precise summaries provide interactive learning and enhanced student experiences.

The presence of AI learning based education has improved the structure of education system, reforming it to be highly flexible in nature, easily accessible to all, and facilitating student engagement. Usage of AI tools in learning makes the students to shoulder accountability of information and education as they mobilise to personalised learning. They have freedom to explore various subject topics as per their preference and requirement.

The studying habits of the students as well as their physical presence in education participation are now adversely impacted. AI learning tools have led to various challenges due to excessive usage of AI learning tools. Relying too heavily on these tools for learning could hinder abilities and skills upto large extent. Their independent thinking abilities are untouched, dynamism in thoughts are completely ignored, creativity is hampered, and individual independent thoughts are undermined by excessive dependence on AI learning models. Their subject knowledge is incomplete when they seek readymade answers from AI, without even immersing self in the topic or subject.

As a coin has two sides, similarly the presence of AI tools in learning also has good and bad sides. It is essential to monitor the influence of AI in education sector. Students must be matured enough to gauge their dependence on AI platforms for learning. They should be confident and attentive while using AI platforms because these platforms are responsible for shaping their learning habits and outcomes. It is the need of an hour to measure the significance and impact of AI learning tools on the students of Generation Z. These tools have a direct influence on their life style and their daily experiences. They are adaptive to retrieving prompt info, personalised learning, captivating ideas, customised content on online platforms.

Review of literature

1. **Chan and Hu (2023)**, investigated the perceptions of students from college students in order to study their perceptions towards the use of generative AI technologies. The researchers attempted to measure various parameters, some of them were students desire to use AI, advantages they perceived through usage, their opinions towards AI generative tools and their opinion about its negative and positive aspects. The aim was to find out the integration of learning with AI technology. The findings revealed that the students has positively accepted the adoption of AI in learning, along with which they were also worried about it adverse effects. They reflected concerns towards accuracy, authenticity and ethic ability. They also used methods to monitor the change in their learning abilities for good.
2. **Baig and Yadegaridehkordi (2024)**, aimed to analyse the usage rate of Chat GPT by the students in higher education through secondary data analysis. The researchers attempted to review more than 57 research articles. The research pivoted lenses on the extensively used AI learning platform Chat GPT for academic purposes by almost every stakeholder. Chat GPT was used by the students for customised education, by teachers for generating effective summaries and presentations. The study pivoted light on the wide adoption and acceptance of Chat GPT across every terrain. The findings indicate there is a research gap, giving further opportunity for extended research. Chat GPT still continues to introduce reforms which will further lead to change in learning process which could be actually further studies.
3. A study on **why students use ChatGPT (2024)**, analysed various factors that motivated the students to engage learning through Chat GPT. Intentions of students to adopt personalised tools for learning were measured using dimensions like usefulness, perceived worth of AI learning tools. The study paved path for further research, researchers could conduct research to find out the need, purpose and factors that influence usage of AI in learning sector. Personalised learning along with prompt information access had motivated students to adopt AI methods in learning.
4. **Lo, Hew, and Jong (2024)** conducted a systematic review of 72 studies examining the influence of ChatGPT on student engagement. Their findings presented both positive and negative aspects of AI-supported learning. ChatGPT was associated with increased understanding, satisfaction, and engagement

in some contexts, while concerns were also raised about academic dishonesty, overreliance, and possible reductions in critical thinking. The authors suggested further research into students' study habits, self-regulation, and cognitive engagement.

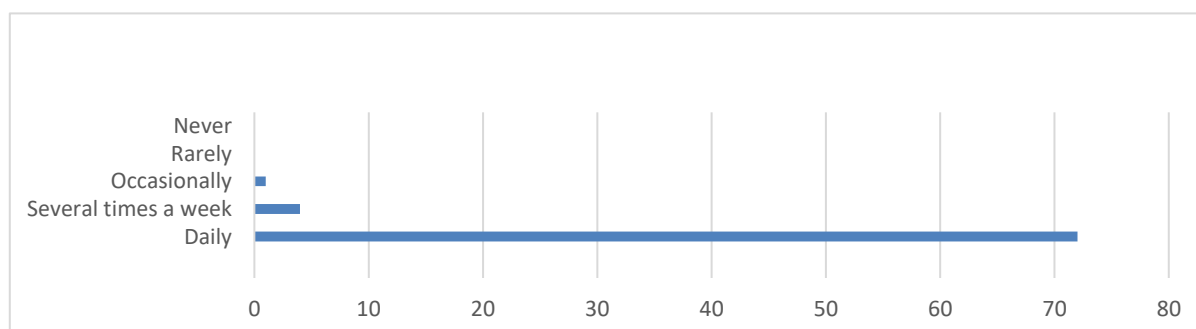
5. A **survey-based study conducted in the UAE (2024)**, attempted to examine college students to find out the relationship between usage rate of ChatGPT and student engagement with AI based learning technology. Factors such as cognitive thinking skills, achievements of scholars at university level academically. Primary data was collected from university students, in all 353 students represented the sample size of the study, pivoting significantly positive impact between usage of Chat GPT and the outcomes related to it. The findings concluded that the usage of AI learning models provided aids to the academic progress of the students. This led to the promotion of AI tools in learning leading to enhanced students learning involvement.

Objectives of the Study

1. To examine the use of AI tools among Gen Z students for academic purposes.
2. To assess the impact of AI tools on the learning behaviour of Gen Z students.
3. To understand the perception of Gen Z students towards AI-assisted learning.

Data Analysis and Interpretation

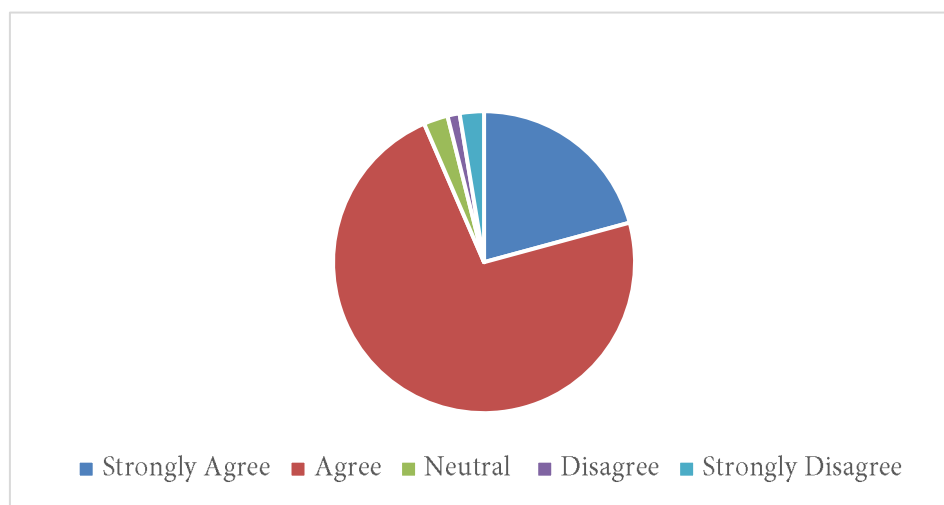
1. How frequently do you use AI tools such as ChatGPT, Gemini, or similar tools for academic purposes?



Interpretation

Out of the 77 students surveyed, 72 students 93.5% reported using AI tools daily, while 4 students 5.2% use them several times a week. Only 1 student 1.3% reported occasional use, and none of the respondents selected rarely or never. This clearly shows that AI tools have become a regular part of academic activities for most of the students surveyed. The very high percentage of daily users indicates that Gen Z students are increasingly comfortable incorporating AI into their everyday learning and academic work.

2. AI tools help me understand difficult concepts and topics more easily

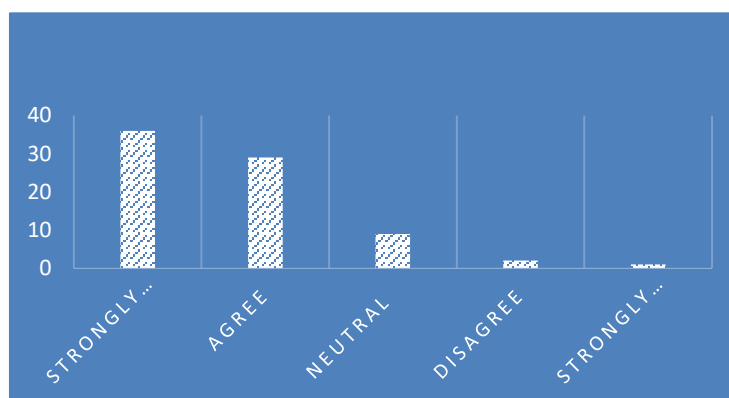


Interpretation:

The responses show a strong positive opinion towards AI-assisted understanding. 56 students 72.7% agreed that AI tools help them understand difficult concepts more easily, while 16 students 20.8% strongly agreed. Only 2 students 2.6% remained neutral, while 1 student 1.3% disagreed and 2 students 2.6% strongly disagreed. Overall, 93.5% of the respondents either agreed or strongly agreed that AI tools help them understand difficult topics.

This suggests that students mainly view AI as a useful support when they come across concepts that are difficult to understand through traditional learning methods.

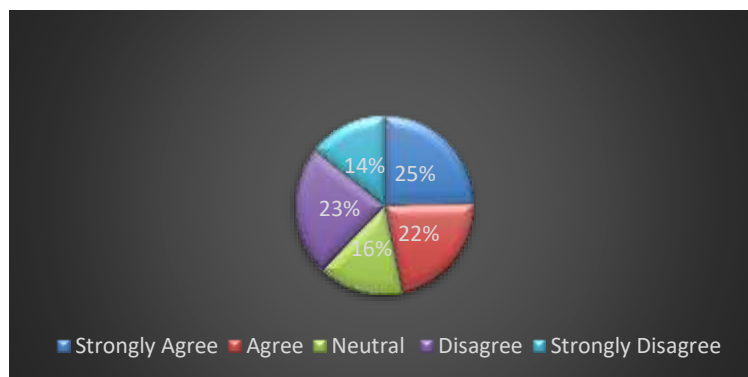
3. Using AI tools has improved my learning efficiency and study habits.



Interpretation:

The findings indicate that a large proportion of students feel that AI has improved the way they study. 36 students 46.8% strongly agreed with the statement, while 29 students 37.7% agreed. Together, this represents 84.5% of the respondents who feel that AI tools have had a positive influence on their learning efficiency and study habits. At the same time, 9 students 11.7% were neutral, while only 2 students 2.6% disagreed and 1 student 1.3% strongly disagreed. The responses therefore suggest that AI is not only being used frequently but is also perceived by most students as a tool that helps them manage their learning more efficiently.

4. I believe that frequent use of AI tools can reduce students' ability to think and solve problems independently.

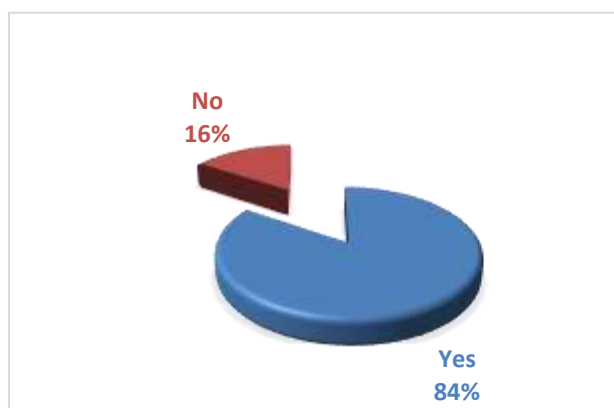


Interpretation

19 students 24.7% strongly agreed and 17 students 22.1% agreed that frequent AI use can reduce independent thinking and problem-solving abilities. Thus, 46.8% of the respondents expressed concern about this possible negative effect. On the other hand, 18 students 23.4% disagreed and 11 students 14.3% strongly disagreed with the statement. Another 12 students 15.6% remained neutral.

This shows that students do recognise the possible downside of excessive AI use, but there is no complete agreement on its impact. The responses indicate that while students appreciate AI as a learning support, almost half of them are also aware that depending too much on ready-made AI responses could affect independent thinking and problem solving skills.

5. Overall, I have a positive perception of using AI tools as a part of my learning process.



Interpretation

The overall perception of AI among the respondents is clearly positive. 65 students 84.4% answered Yes, indicating that they have a positive perception of using AI tools as part of their learning process. In comparison, 12 students 15.6% answered No.

The finding suggests that the majority of Gen Z students surveyed are comfortable with the inclusion of AI in education. Although some students may have concerns about its use, the overall response indicates that AI learning tools are largely viewed as a useful addition to the learning process.

Findings

Almost all the respondents around 93.5% which is a major portion indicate daily usage of AI tools for academic purposes by replacing classical learning methods, Leading to enhanced AI usage very high. Infact students view AI learning based models as a support to education and knowledge enhancement. Majority of the students 93.5% have either agreed or strongly agreed that AI based learning breaks complex and comprehensive topics into simplified and easier once, making learning effective. A large portion of respondents perceive AI learning technological methods to aid efficiency in learning. They have accepted that learning, using AI improves their learning pattern.

Students from Gen Z have strong presence of mind and are aware about the impact of using AI tools for learning. They have complete idea about the positive as well as the negative impact of the same. 47% of the total respondents which frequently use AI for academic purposes have experienced and also belief that AI has blocked their ability to make independent decisions and restricted their problem solving skills. On the contrary majority of the respondents 84.4% of students, carry a positive attitude and perception towards AI based learning and have accepted AI as an inevitable part of life. Their overall perception towards the switch from contemporary to modern AI learning system is positive.

It is found that Generation Z students have highly appreciate this new reform of customised learning through AI based learning, leaving enough consciousness of risk awareness among themselves being over dependent on it.

Conclusion

The main aim of the study was to understand the usage rate of AI tools by Generation Z and its influence on their learning behaviour. The responses received from total count of 77 students highlighted that using AI for academic learning has turned out to be an important part of education. AI has become an unvarying fragment of their academic structure. The study highlighted that 93.5% of Gen Z respondents use AI learning tools on daily basis, which designated the prompt acceptance of learning technologies by Gen Z students.

The findings reveal that Gen Z students have perceived AI as a customised, learning, useful tool. Majority of the responses reflected that AI assist them in synthesizing complex topics into simple once, making learning more effective and interesting. AI in academics has transformed their learning patterns by providing them prompt and concise explanation of concepts widens their subject knowledge through additional academic support.

Responses from Gen Z students also embark concern towards the adverse impact of AI learning tools for academic purpose. They perceive that AI in academics has hindered their critical thinking abilities and delivers a dissonance to their problem solving skills. For every bit happening in their day to day life they highly rely on AI, blocking their risk taking abilities. Convenient and prompt explanations stop them from actual exposure to experiential learning. It discourages them from working practically on actual problems in life.

Overall, the findings pivoted that students from Generation Z perceive a constructive insolvency towards Artificial Intelligence assisted learning models. AT the same time they are mature enough to recognise the prerequisite of AI usage rate in academics is within responsible framework.

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