Impact of ChatGPT on Student Critical Thinking and Learning Behaviour among Management Students

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***Abstract*—The rapid adoption of Artificial Intelligence (AI)-based tools such as ChatGPT has significantly transformed the learning environment in higher education. Management students increasingly utilize ChatGPT for academic activities including assignments, idea generation, summaries, and concept clarification. While ChatGPT offers advantages such as accessibility, speed, and personalized learning support, concerns have emerged regarding its influence on students' critical thinking ability and learning behaviour. This study investigates the impact of ChatGPT usage on critical thinking and learning behaviour among management students. Data were collected through a structured questionnaire administered to management students using a five-point Likert scale. Statistical tools such as percentage analysis, correlation analysis, and regression analysis were employed to interpret the findings. The study identifies both positive and negative implications of ChatGPT usage in management education and provides recommendations for responsible AI integration in academic learning environments.**

***Index Terms*—ChatGPT, Artificial Intelligence, Critical Thinking, Learning Behaviour, Management Education, Higher Education, Student Learning**

I. INTRODUCTION

Artificial Intelligence is rapidly reshaping the educational landscape across the world. AI-powered tools have become increasingly common in higher education institutions due to their ability to provide quick access to information, personalized responses, and academic assistance. Among these tools, ChatGPT developed by OpenAI has gained significant popularity among students. Management students are increasingly using ChatGPT for assignments, presentations, report writing, brainstorming, coding assistance, and examination preparation.

The accessibility and convenience offered by AI tools have improved learning efficiency and reduced time spent on information gathering. However, excessive dependency on AI-generated responses may affect students' independent analytical ability, problem-solving skills, creativity, and critical thinking capability.

Critical thinking is considered one of the most important competencies in management education. It enables students to evaluate information critically, make informed decisions, solve problems, and apply conceptual knowledge effectively. Similarly, learning behaviour reflects students' engagement, curiosity, self-learning ability, academic participation, and motivation toward learning.

The present study aims to examine the impact of ChatGPT on student critical thinking and learning behaviour among management students and identify both opportunities and challenges associated with AI-assisted learning.

The objectives of this study are:

a. To study the usage pattern of ChatGPT among management students.
b. To examine the impact of ChatGPT on students' critical thinking ability.
c. To analyse the influence of ChatGPT on learning behaviour.
d. To identify the perceived benefits and challenges of ChatGPT usage in management education.
e. To provide recommendations for responsible use of AI tools in higher education.

The growing use of ChatGPT in management education has created both opportunities and concerns for educators and institutions. While students benefit from instant academic assistance and improved learning accessibility, there are increasing concerns regarding overdependence on AI-generated content, reduced analytical thinking, passive learning behaviour, and decline in independent problem-solving ability. Most existing studies focus broadly on

AI adoption in education; however, limited empirical research specifically examines the impact of ChatGPT on critical thinking and learning behaviour among management students in the Indian higher education context.

Therefore, this study attempts to analyse how ChatGPT influences students' academic learning patterns and critical thinking capability.

II. LITERATURE REVIEW

Holmes, Bialik, and Fadel (2019) examined the role of Artificial Intelligence in higher education and identified that AI technologies are transforming traditional teaching-learning systems through adaptive learning, automation, and personalized academic support. The study highlighted that AI tools improve accessibility, engagement, and learning efficiency among students. However, concerns regarding ethics, academic dependency, and data privacy were also emphasized.

Kasneci et al. (2023) investigated the opportunities and challenges associated with ChatGPT in educational environments. The researchers found that ChatGPT assists students in summarization, brainstorming, concept clarification, and assignment support. The study concluded that ChatGPT enhances learning convenience and productivity but may reduce independent effort and critical engagement when excessively used.

Tlili et al. (2023) analysed the impact of generative AI tools on students' critical thinking ability and cognitive engagement. The findings revealed that AI tools support quick problem-solving and idea generation; however, overdependence on AI-generated responses negatively affects analytical thinking, creativity, and reasoning ability. The authors stressed the need for responsible AI usage in education.

Alamri, Watson, and Watson (2020) studied learning behaviour in digital learning ecosystems and observed that technology-enabled learning improves participation, self-learning behaviour, and flexibility among students. However, the study also identified that excessive dependence on digital tools may reduce deep learning practices and independent exploration.

Crompton and Burke (2023) conducted a systematic review on Artificial Intelligence adoption in higher education institutions. The study found that students perceive AI tools as useful in improving academic productivity, reducing workload, and enhancing accessibility of information. The researchers recommended incorporating AI literacy and ethical AI usage practices into curriculum design.

Lo (2023) examined the implications of ChatGPT in business and management education. The study identified that management students frequently use ChatGPT for presentations, assignments, report writing, and idea generation.While the tool supports academic convenience and creativity, the author raised concerns regarding originality, academic honesty, and reduction in independent analytical thinking.

Paul and Elder (2014) emphasized that critical thinking is an essential competency in higher education and professional learning. Their study highlighted that students must develop analytical reasoning, evaluation ability, and reflective thinking to solve real-world problems effectively. Excessive technological dependency without reflective engagement may weaken cognitive processing and independent judgement.

Martin and Bolliger (2018) explored student engagement in online learning environments and found that digital tools improve communication, interaction, and academic participation. The study concluded that technology-enabled learning environments positively influence student motivation and participation when properly integrated into academic processes.

Cotton, Cotton, and Shipway (2023) studied faculty perceptions regarding ChatGPT and academic integrity in higher education. The researchers found growing concerns among educators regarding plagiarism, overreliance on AI-generated content, and reduced originality in student submissions. The study recommended redesigning assessments to encourage application-based and analytical learning.

Zimmerman (2002) examined self-regulated learning behaviour among students using educational technologies. The study concluded that technology can support self-learning, academic planning, and independent learning behaviour. However, students require proper guidance and monitoring to ensure that technology supports learning rather than replacing active cognitive engagement.

Most existing studies focus broadly on Artificial Intelligence adoption, online learning, and technology acceptance in education. Limited empirical studies specifically analyse the impact of ChatGPT on critical

thinking ability and learning behaviour among management students in the Indian higher education context. Therefore, this study attempts to address this research gap by examining the relationship between ChatGPT usage, critical thinking, and learning behaviour among management students.

III. METHODOLOGY

The study adopts a quantitative research design using survey methodology. Primary data were collected using a structured questionnaire distributed among management students pursuing PGDM/MBA programs.

A total sample size of 200 respondents was considered for the study using the convenience sampling method. Secondary data were collected from journals, research articles, conference papers, and online academic databases. The collected data were analysed using various statistical tools such as Percentage Analysis, Correlation Analysis, Regression Analysis, and Mean Analysis.

These tools were used to interpret the responses and identify the relationship between ChatGPT usage, critical thinking, and learning behaviour among management students. The questionnaire used for the study was divided into three sections. The first section collected demographic information of the respondents, the second section focused on ChatGPT usage patterns among students, and the third section consisted of statements related to critical thinking and learning behaviour. A five-point Likert Scale was used for collecting responses, where 1 represented Strongly Disagree, 2 represented Disagree, 3 represented Neutral, 4 represented Agree, and 5 represented Strongly Agree.

H1 There is a significant relationship between ChatGPT usage and critical thinking ability among management students.

H2 There is a significant relationship between ChatGPT usage and learning behaviour among management students.

H3 Higher dependency on ChatGPT negatively affects independent analytical thinking among management students.

H4 ChatGPT usage positively influences academic engagement and self-learning behaviour among management students.

IV. RESULTS AND DISCUSSION

Table 1. Frequency of ChatGPT Usage among Students

Usage Frequency	Students	%
Daily	72	36%
Frequently	68	34%
Occasionally	42	21%
Rarely	18	9%

Interpretation: The analysis indicates that nearly 70% of students use ChatGPT either daily or frequently for academic purposes, reflecting high adoption of AI-assisted learning among management students.

Table 2. Student Responses on Critical Thinking

Statement	Mean Score
ChatGPT helps me understand concepts better	4.12
I verify ChatGPT responses before accepting them	3.48
Dependency on ChatGPT reduces my independent thinking	3.91
ChatGPT improves my analytical ability	3.54

Interpretation: The findings indicate that ChatGPT supports conceptual understanding; however, excessive dependency may reduce independent analytical thinking and problem-solving engagement among students.

Table 3. Student Responses on Learning Behaviour

Statement	Mean Score
ChatGPT improves learning accessibility	4.26
ChatGPT motivates self-learning	3.88
I rely on ChatGPT instead of multiple academic sources	3.95
ChatGPT increases academic efficiency	4.1

Interpretation: Students reported positive influence of ChatGPT on learning accessibility and efficiency. However, some respondents admitted increased dependency on AI-generated information rather than

independent exploration.

Table 4. Correlation between ChatGPT Usage and Critical Thinking

Variables	Correlation Value (r)	Significance
ChatGPT Usage & Critical Thinking	-0.42	Significant

Interpretation: The negative correlation value indicates that higher dependency on ChatGPT moderately reduces independent critical thinking ability among management students.

Table 5. Correlation between ChatGPT Usage and Learning Behaviour

Variables	Correlation Value (r)	Significance
ChatGPT Usage & Learning Behaviour	0.61	Significant

Interpretation: The positive correlation suggests that ChatGPT positively influences learning behaviour by improving accessibility, academic efficiency, and self-learning support.

Table 6. Regression Analysis Results

Hypothesis	Beta Value	Result
H1	-0.38	Supported
H2	0.57	Supported
H3	-0.41	Supported
H4	0.49	Supported

Interpretation: Regression analysis indicates that ChatGPT usage has a significant impact on both critical thinking and learning behaviour. While moderate usage improves learning efficiency and engagement, excessive dependency negatively affects independent analytical thinking.

V. CONCLUSION

The study reveals that ChatGPT acts as a powerful supplementary learning tool for management students. Many students reported frequent usage of ChatGPT for assignments, concept clarification, idea generation, presentation preparation, and other academic support activities. Students perceived ChatGPT as a time-saving, convenient, and easily accessible learning tool that enhances academic efficiency and supports self-learning. The findings indicate that moderate usage of ChatGPT helps students improve conceptual understanding and facilitates idea exploration and academic engagement.

However, the study also highlights certain concerns associated with excessive dependency on AI-generated responses. Increased reliance on ChatGPT was found to reduce independent analytical thinking, critical evaluation, deep learning, and problem-solving engagement among students.

Some respondents admitted that they depended more on AI-generated information rather than conducting independent research or referring to multiple academic sources. The study identified a significant relationship between ChatGPT usage and student learning behaviour, while excessive dependency negatively influenced certain dimensions of critical thinking ability. Overall, the findings suggest that ChatGPT can serve as an effective supplementary learning tool when used responsibly and ethically. Therefore, educational institutions should focus on promoting responsible AI usage practices and redesign assessment methods to encourage analytical thinking, independent learning, creativity, and critical evaluation skills among students rather than complete academic dependency on AI tools.

The study concludes that ChatGPT has both positive and negative implications for management students' critical thinking and learning behaviour. While the tool enhances learning convenience, accessibility, and academic efficiency, excessive dependency may weaken independent analytical thinking and reduce deep cognitive engagement. Management institutions should integrate AI literacy, ethical AI usage practices, and critical thinking-oriented pedagogies within the curriculum to ensure balanced utilization of AI tools in education.

VI. RECOMMENDATIONS AND FUTURE SCOPE

The study suggests several recommendations for the effective and responsible use of Artificial Intelligence tools in management education. Educational institutions should develop clear AI usage guidelines for students to ensure ethical and academic integrity in learning practices. Faculty members should focus on designing application-oriented and analytical assessments that encourage critical thinking rather than rote dependence on AI-generated responses.

AI literacy and responsible AI usage training should also be incorporated into the management curriculum to help students understand the appropriate use of AI tools in academics. Students should be encouraged to validate AI-generated information using multiple academic sources to improve reliability and analytical evaluation skills.

Additionally, institutions should strengthen critical thinking-based classroom activities to enhance independent reasoning and problem-solving abilities among students.

Future research can be extended in several directions. Comparative studies may be conducted across different academic disciplines to understand variations in AI usage and learning behaviour.

Longitudinal studies can be undertaken to examine the long-term impact of AI dependency on students' critical thinking abilities. Experimental studies may also be conducted to measure learning outcomes before and after AI integration in classrooms. Further research can additionally compare the influence of ChatGPT usage between undergraduate and postgraduate students.

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