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“THE IMPACT OF GENERATIVE AI TOOLS ON THE CREATIVE THINKING OF MANAGEMENT STUDENTS IN BENGALURU”

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Abstract:

The integration of Generative AI tools into learning platforms has revolutionized learning practices, especially in management where creativity and problem-solving skills are highly valued. This study examines the effects of generative AI tools on the ability of management students to think creatively at Bangalore. Five leading universities in Bangalore will participate in the study including Bengaluru City University, Christ University, Jain University, PES University, and Bangalore University.

The quantitative research methodology will be used in the study employing structured questionnaire distributed to 136 management students in all five universities by convenience sampling technique. Variables under investigation include the frequency of use of the tools, perception of the extent of enhancement in idea generation, originality, and critical thinking by the students. Descriptive, correlation, and regression analyses will be employed in data analysis.

The anticipated results suggest that the generative AI tools significantly improve ideation processes and diversification of ideas. However, over-reliance on them might undermine the capacity of the students to engage in critical and independent thinking. The study seeks to establish how AI can be integrated into management education in a manner that promotes innovation without compromising cognitive autonomy of the learners.

Key Words: Generative AI, Creative Thinking, Management Students

1.1 INTRODUCTION

The advent of Generative AI tools in management education is getting influenced in many ways, which include faster ideation, problem solving, and task- based learning of students. Bangalore is an important center for both education and technology, where institutes like Bengaluru City University, Christ University, Jain University, PES University, and Bangalore University are witnessing more usage of such tools among their management students.

Though AI makes it easier for students to generate ideas quickly and gather information from different sources, it gives rise to some concerns regarding how much effect AI might have on their independent thinking capabilities. The following research is intended to investigate how generative AI tools affect the creativity of management students in Bangalore.

1.2 REVIEW OF LITERATURE

The study reveals ChatGPT's effectiveness in engaging students, nurturing critical thinking, and fostering creativity in management education. Ethical concerns regarding information authenticity and bias are addressed. Insights from student and teacher perceptions offer valuable pedagogical implications for AI's role in management education. (2024). The analysis of the data collected shows that the over-reliance of students on such generative AI tools might hinder students' ability to think creatively to some extent. The chapter also suggests some of the strategies that can be adopted by teachers to ensure students' capabilities are assessed accurately (2024)

This research examines the complex relationship between usage of Chat Generative Pre-Trained Transformer (ChatGPT) amongst student and their creativity, learning and assessment using empirical data collected from postgraduate students. In addition, the study explores the student's intrinsic motivation for usage to understand student categories. This research seeks to provide further insights into this artificial intelligence tool in enhancing the educational ecosystem for all stakeholders concerned. (2025). Today's era is AI era. Artificial intelligence is playing major roles in design education. The integration of artificial intelligence (AI) in design education is a compelling and transformative topic. Our major objective of the research is to investigate how AI has impacted in design education in India toward creativity, productivity, efficiency, psychology, and ethical aspects toward responsible AI. The findings will shed light on the opportunities and challenges in preparing future designers for a technology-driven world. (2025)

This study employs a systematic literature review approach to address a research question, "What is the impact of Generative AI on the critical thinking skills of undergraduates?" About half of the thirty selected papers suggest that Generative AI benefits undergraduate critical thinking, but limitations in study design prevent generalisation. Other inconclusive studies highlight the need for further research to address research gaps. (2024). The conclusion is that this article has provided a very good understanding of how artificial intelligence has influenced the creative thinking abilities of Gen Z in Ahmedabad. The outcomes in terms of overall perceptions of the ability of AI to positively affect creativity are generally consistent across age groups, thus forcing one to dismiss prevailing assumptions that exist in terms of generational differences in technology usage. (2024).

The primary aim of this research study is to examine university students' opinions on using ChatGPT in learning. This study used a survey method for which a well-structured online questionnaire was designed to gather data from postgraduate students at Mangalore University. The findings showed that the primary purpose of 336 (87.5%) students using ChatGPT was to prepare for examinations, and 318 (82.8%) of them used ChatGPT to organise notes. About 322 (83.9%) users 'Strongly agree' and 33 (8.6%) 'Agree' with the statement 'I believe that using ChatGPT has increased the convenience of completing my academic tasks', followed by 302 (78.7%) of the students 'Agree' and 67 (17.4%) 'Strongly agree' with the statement 'I believe that answers/responses from ChatGPT are reliable and accurate'. Data analysis discovered that students usually had positive feelings about using ChatGPT for learning. (2025). This study explores the impact of generative AI on student behavior, critical thinking, and motivation among CBSE high school students in Coimbatore. Data from 383 students were analyzed using correlation and regression techniques. Findings show AI enhances engagement, problem-solving, and enthusiasm for learning. Student behavior strongly correlates with critical thinking and motivation. AI tools foster independent thinking and active participation. However, balanced AI implementation is crucial for student development. Educators can use these insights to integrate AI effectively. Future research should explore AI's impact on diverse learning styles. Understanding AI's role can refine teaching strategies. (2025)

1.3 RESEARCH GAP

Although there have been many attempts to integrate generative AI tools into higher education, empirical studies have not been conducted yet to determine the actual effects that these tools might have on the creative thinking ability of management students, especially those in Bangalore. The available literature concentrates mainly on the efficiency and advantages of AI tools but does not pay attention to the analysis of the effect they have on creative thinking and idea generation. In addition, no information is provided about the comparison of the same phenomenon at different educational establishments (e.g., Bengaluru City University, Christ University, Jain University, PES University,

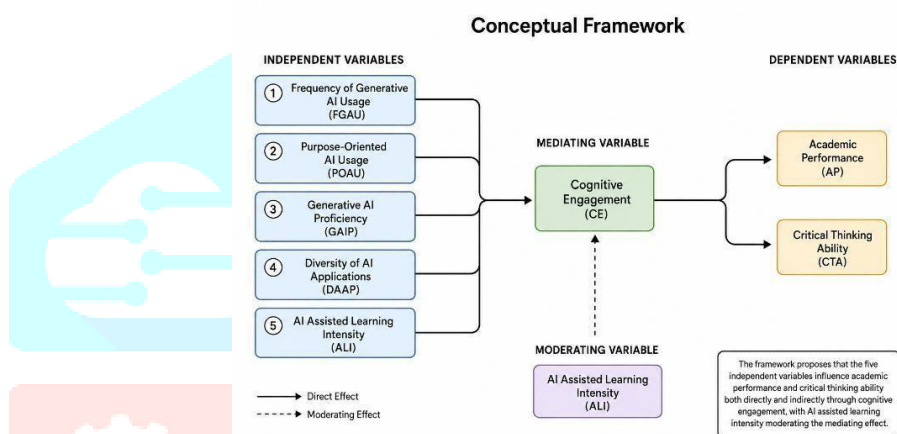
and Alliance University).

1.4 RESEARCH QUESTION

How do generative AI tools influence the creative thinking abilities of management students in Bangalore, in terms of idea generation, originality, critical thinking, and dependence on technology?

1.5 RESEARCH OBJECTIVE

1. To examine the extent of usage of generative AI tools among management students in Bangalore.
2. To identify the relationship between the frequency of AI tools usage and originality in idea generation.
3. To analyze the impact of generative AI tools on the creative thinking abilities of management students.



1.6 RESEARCH HYPOTHESIS

H1: Frequency of Generative AI Usage (FGAU), Purpose-Oriented AI Usage (POAU), Generative AI Proficiency (GAIP), and Diversity of AI Applications (DAAP) have a significant positive influence on the Creative Thinking Ability (CTA) of management students.

H2: Cognitive Engagement (CE) mediates the relationship between Generative AI usage variables and Creative Thinking Ability (CTA), while AI-Assisted Learning Intensity (ALI) significantly moderates this relationship.

1.7 RESEARCH METHODOLOGY

This research uses quantitative methodology for studying the impact of generative artificial intelligence software on the creativity skills of management students from Bangalore. The data collection involved the use of a structured questionnaire which was distributed to 150 respondents using a convenience sampling method in five universities in Bangalore: Bengaluru City University, Christ University, Jain University, PES University, and Alliance University. Variables include the frequency of AI software utilization, creativity in idea generation, originality, and critical thinking skills. Correlation and regression analysis were applied for discovering relationships among variables.

1.8 DATA ANALYSIS AND INTERPRETATION

Correlation Matrix								
		FGAI	POAI	GAIP	DAIP	AILI	CE	CTA
FGAI	Pearson's r	—						
	p-value	—						
POAI	Pearson's r	0.902	—					
	p-value	< .001	—					
GAIP	Pearson's r	0.548	0.677	—				
	p-value	< .001	< .001	—				
DAIP	Pearson's r	0.87	0.87	0.647	—			
	p-value	< .001	< .001	< .001	—			
AILI A	Pearson's r	0.919	0.874	0.603	0.911	—		
	p-value	< .001	< .001	< .001	< .001	—		
CE	Pearson's r	0.756	0.736	0.778	0.74	0.763	—	
	p-value	< .001	< .001	< .001	< .001	< .001	—	
CTA	Pearson's r	0.866	0.842	0.57	0.824	0.843	0.746	—
	p-value	< .001	< .001	< .001	< .001	< .001	< .001	—

Pearson correlation analysis showed a significant relationship between CTA and all other independent variables in the study. CTA is strongly correlated with FGAI, $r = 0.866$, $p < 0.001$; POAI, $r = 0.824$, $p < 0.001$; DAIP, $r = 0.824$, $p < 0.001$; and AILIR, $r = 0.843$, $p < 0.001$. The relationship between CTA and GAIP was moderate, $r = 0.570$, and $p < 0.001$. All the results indicate that all the independent variables predicting variables in the study had a significant association with a higher level of relationship with CTA. Since all the hypotheses are accepted.

Multiple Linear Regression Analysis

Model Fit Measures		
Model	R	R ²
1	0.884	0.781

Model Coefficients - CTA				
Predictor	Estimate	SE	t	p
Intercept	-0.0283	0.1913	-0.148	0.883
FGAI	0.462	0.1361	3.394	< .001
POAI	0.2067	0.1186	1.743	0.084
GAIP	0.0387	0.0699	0.554	0.58
DAIP	0.1615	0.1222	1.321	0.189
AILI	0.1265	0.1318	0.96	0.339

Multiple regression analysis was conducted to test the influence of FGI, POAIU, GAIP, DAIAP, and AILI on CTA. The overall model was statistically significant, which explained 78.1% of variance in CTA, $R = 0.884$ and $R\text{-squared} = 0.781$. Among all the predictors of independent variables, only FGI significantly predicted CTA with $\beta = 0.462$, $t = 3.394$, and $p < 0.001$, indicating a significant effect on CTA, and all other predictor variables, POAI ($p = 0.84$), GAIP ($p = 0.58$), DAIP ($p = 0.189$), and AILI ($p = 0.339$), did not significantly predict CTA. This result suggests that FGI is one of the most significant predictors of CTA amongst other variables in this study.

Mediation Analysis

Mediation Estimates						
Effect	Estimate	SE	Z	p	% Mediation	
Indirect	-0.0309	0.02412	-1.28	0.2	14.3	
Direct	0.1854	0.02566	7.23	< .001	85.7	
Total	0.1545	0.00505	30.56	< .001	100	
Path Estimates						
			Estimate	SE	Z	p
Overall gen Ai	→	CE	0.138	0.00468	29.56	< .001
CE	→	CTA	-0.224	0.17682	-1.26	0.206
Overall gen Ai	→	CTA	0.185	0.02566	7.23	< .001

The mediation analysis was done to examine the impact of the mediating role of CE between the overall generative AI factors and the CTA. The total effect of overall generative AI factors on CTA was significant, with $\beta = 0.15$, $z = 30.56$, and $p < 0.001$. The direct effect in the model is significant with $\beta = 0.185$, $z = 7.23$, $p < .001$, accounting for 85.7% of the total effect, but the indirect effect through CE was not significant, $\beta = -0.0309$, $z = -1.28$, $p = 0.2$, highlighting that CE did not mediate the relationship between overall generative AI and CTA. Furthermore, the path of CE to CTA also remained non-significant, with $\beta = -0.224$ and $p = 0.206$. Therefore, the mediation hypothesis was not supported.

1.9 FINDINGS OF THE ANALYSIS

Based on the results obtained from the correlation analysis, it is evident that all the independent variables positively correlated with Creative Thinking Ability (CTA). More specifically, it can be stated that FGAI positively correlated with CTA to the greatest degree of magnitude ($r = 0.866$, $p < 0.001$). Then followed by AILI ($r = 0.843$, $p < 0.001$), POAI ($r = 0.842$, $p < 0.001$), and DAIP ($r = 0.824$, $p < 0.001$). The last variable was GAIP, which positively correlated with CTA moderately well ($r = 0.570$, $p < 0.001$). In other words, all the variables mentioned above were found to significantly correlate with the dependent variable, thus confirming the hypotheses posed in the study.

Further investigation of the influence of the independent variables' combined effect on CTA was conducted with the help of multiple regression analysis. According to the results obtained, the model appeared to be statistically significant ($R = 0.884$, $R^2 = 0.781$) and explained up to 78.1% of the variance in the dependent variable. It should be noted that only FGAI among all the predictor variables had a significant impact on the dependent variable ($\beta = 0.462$, $t = 3.394$, $p < 0.001$). Thus, it can be argued that FGAI was the strongest predictor of creative thinking ability in management students.

Finally, the mediation analysis was conducted for assessing the possible mediating effect of Creative Engagement (CE) on the relationship between generative AI factors as a whole and CTA. The total and direct effects were found to be statistically significant ($p < 0.001$). However, the same does not apply to the indirect effect, which turned out to be insignificant ($p = 0.200$). Furthermore, the connection between CE and CTA was also insignificant.

1.10 LIMITATIONS OF THE RESEARCH

Limitations of the study might have influenced the quality of the data obtained during the interpretation of findings. First, the study only targeted management students in Bangalore, reducing the possibility of the applicability of findings to any other region or academic discipline. Second, a rather small sample size was employed during the study, which might mean that it was not fully representative of all students. Third, personal biases, misleading, or incorrect aimed from participants using self-reported surveys.

Moreover, the cross-sectional approach to conducting this study made it impossible to observe the dynamics of perceptions and creativity over time. In addition, the study did not examine other relevant aspects affecting creativity and the use of generative AI. Finally, as is the case with correlation analysis, this type of statistical method does not allow establishing any causality between the factors being studied.

1.11 SCOPE FOR FUTURE RESEARCH

Future researchers can develop the research by taking students from various disciplines and universities, as well as students located in different geographic locations, to generalize the results obtained. Another way of advancing the research is by taking a large number of participants and a longitudinal research design to find out the effects of generative AI on the creativity level of the learners over time. The effect of generative AI on other factors that may affect creativity, such as critical thinking, academic achievement, digital literacy, innovation skills, and psychology-related elements, can be explored further. Comparing the findings between students at various education levels (undergraduates and postgraduates) or even comparing them between those in urban and rural settings can contribute more to the development of knowledge.

1.12 SUGGESTIONS

Based on the findings of the study, educational institutions should encourage the responsible and effective use of generative AI tools to enhance students' creative thinking ability. Training programs, workshops, and awareness sessions can be conducted to improve students' understanding and practical usage of AI technologies. Since Fear of Generative AI (FGAI) emerged as the strongest predictor of creative thinking ability, institutions should focus on reducing misconceptions and promoting positive attitudes toward AI adoption. Faculty members should integrate AI-based learning activities, brainstorming exercises, and innovation-driven assignments into the curriculum to improve creativity among students. Furthermore, colleges should establish ethical guidelines for AI usage to ensure balanced and productive learning. Continuous monitoring and support can also help students effectively utilize generative AI tools for academic and creative development.

1.13 CONCLUSION

From the study, it is evident that there is a great influence from generative AI factors on the creative thinking ability of management students at the Bangalore Institute of Technology. The correlation analysis found positive and high correlations between creative thinking ability and the chosen generative AI factors, hence proving that greater usage and exposure to AI leads to higher creativity levels. Through the regression analysis, it was found that Fear of Generative AI (FGAI) is the most influential factor on the creative thinking ability of the respondents. The findings from mediation analysis indicated that creative engagement does not have a significant mediating effect on the influence of generative AI factors on creative thinking ability. In conclusion, the study has proven that generative AI factors are vital in enhancing the creativity of students. It is recommended that educational institutions should ensure that there is responsible use of AI technology.

1.14 REFERENCES

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