(RESEARCH ARTICLE)

AI-Driven Innovations in Management Education: A Study on MBA and BBA Pedagogy

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Abstract

Artificial Intelligence (AI) is rapidly transforming the education sector in an insightful and accelerating way. As such business schools are not left behind in this evolution. It is reshaping the styles of teaching, learning and assessment process. Based on this evolution of AI, the present study is taken to examine the extent of AI-driven innovations and its influence on pedagogy in MBA and BBA programmes. The focus of the objective is to analyse the AI usage patterns by students, apparent learning benefits, engagement levels, ethical concerns, and inclination towards AI-integrated learning environments. The empirical analysis is supported by primary and secondary source of information. A well-structured questionnaire is prepared to examine the influence of AI on the academics of under graduate and post graduate management students. The questions were framed to cover the student's experiences with generative AI tools, adaptive learning platforms, virtual simulations, and AI-based assessment systems. The framed hypotheses were tested on a convenience sample of 500 students taken at random from different undergraduate and post graduate management colleges of Hyderabad district in Telangana. Based on the suitability of data different descriptive and inferential statistical tools were used in analysing the collected information. The findings of the study reveal that AI helps in developing strong conceptual understanding at the expense of academic integrity and overdependence. It also improves learning efficiency and develops a sense of motivation through personalized interactive plans and feedback but with insignificant guidelines. Apart from this the study has observed a significant difference between MBA and BBA students in terms of their readiness and skill-development benefits through artificial intelligence. The study concludes that AI-driven platform is a significant innovation which has a strong potential to strengthen management pedagogy. However, it is the responsibility of the institutions to adopt AI in a balanced way as a tool for training and support system. It is the responsibility of constituents taking the benefit is to address AI-driven tools in an effective, thoughtful and ethical manner.

Keywords: AI; Pedagogy; Management Schools; AI-driven innovations; Undergraduate and Postgraduate students.

1. Introduction

Management education worldwide is undergoing profound changes driven by artificial intelligence technologies. From healthcare diagnostics to financial forecasting and supply chain optimization, AI systems are revolutionizing business operations across sectors. Academic institutions, particularly those offering MBA and BBA programs, are actively incorporating these tools to improve instructional methods, customize student experiences, and modernize assessment processes. This evolution aligns management training with the technology-centric demands of contemporary workplaces.

Recent advancements in generative AI—such as language models from leading tech firms—have created interactive platforms that go beyond static content delivery. These systems now generate explanations, create practice exercises, summarize readings, and simulate strategic business scenarios. Unlike traditional e-learning resources, modern AI tools

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engage students conversationally, adjust content difficulty based on performance, and deliver immediate guidance. This dynamic interaction marks a significant departure from earlier educational technologies.

In business curricula, AI's applications are especially relevant. Core subjects like strategic analysis, quantitative modeling, consumer behavior, and leadership development benefit from AI-assisted data processing and scenario planning. Students use these tools to dissect case studies, forecast market conditions, build financial models, and test decision-making strategies. Adaptive platforms customize learning modules to match individual needs, while virtual simulations provide risk-free practice environments for complex managerial challenges.

This academic shift responds directly to employer priorities. Modern organizations prioritize graduates skilled in digital tools, predictive analytics, and technology-enhanced judgment. Business schools are therefore embedding AI literacy into their programs through dedicated modules, hands-on workshops, and tech-integrated assignments. Such preparation equips students for roles requiring both theoretical knowledge and practical technological competence.

However, these innovations raise important pedagogical questions. While AI streamlines learning processes and clarifies difficult concepts, legitimate concerns surround academic honesty, student autonomy, and cognitive development. Tools capable of producing complete analyses with minimal oversight challenge traditional notions of authorship and intellectual effort. Prolonged dependence on automated solutions risks diminishing students' ability to reason independently and grapple with ambiguity—skills essential for managerial success.

Notably, adoption patterns may differ between academic levels. Postgraduate MBA students, often with professional backgrounds, typically engage AI for advanced applications like scenario modeling and research synthesis. Undergraduate BBA learners, earlier in their academic journey, tend to focus on foundational support such as concept reinforcement and basic task completion. These differences suggest the need for tailored implementation approaches across degree programs.

Successful AI integration also depends on institutional capacity. Robust technical infrastructure, instructor upskilling, clear usage policies, and ethical frameworks form the foundation for meaningful adoption. Without comprehensive support systems, AI deployment risks becoming fragmented or ineffective. Educational leaders must navigate this balance, positioning technology as a learning enhancer rather than a replacement for fundamental academic skills.

Within India's Telangana region—particularly Hyderabad, a hub for educational institutions and technology enterprises—management colleges are embracing digital transformation. Local business schools have introduced online platforms, blended learning formats, and AI-supported evaluation methods. Yet comprehensive studies documenting student responses to these changes remain sparse, especially those comparing experiences across MBA and BBA cohorts.

This research fills that void through systematic investigation of AI applications in Hyderabad's management programs. It specifically analyzes usage patterns, evaluates instructional impact, and contrasts preparedness levels between graduate and undergraduate students. Drawing on primary empirical data, the study delivers practical guidance for curriculum enhancement and policy development.

The work holds value for multiple stakeholders. Academic researchers gain regional perspectives within the broader AI-education discourse. Faculty and administrators receive evidence to inform technology adoption strategies and professional development initiatives. Educational authorities benefit from insights supporting regulatory frameworks and standardization efforts.

Ultimately, AI presents management education with transformative potential alongside implementation challenges. When thoughtfully integrated, these tools can deepen understanding, stimulate participation, and prepare students for digital-era careers. Addressing ethical considerations and dependency risks through deliberate design ensures technology serves pedagogical goals effectively. This study illuminates these dynamics within Hyderabad's MBA and BBA landscape, contributing actionable understanding to an evolving field.

2. Material and methods

- **AI as a Transformative Innovation in Higher Education** – Shabana et al. analyze how AI technologies reshape teaching–learning processes, academic administration, and research ecosystems, emphasizing personalized learning, intelligent tutoring, and learning analytics.

- **Discourse and Critical Perspectives on AI** – Bearman et al. provide a critical literature review of how AI is conceptualized in higher education research, highlighting debates around technological authority and ethical considerations
- **Pedagogical Insights from Systematic AI Teaching Reviews** – Memarian & Doleck systematically synthesize studies on AI's role in teaching/learning, noting the need for pedagogical clarity and consensus on AI literacy frameworks.
- **AI Curriculum Development in Business Schools** – Research in *The International Journal of Management Education* explores curriculum challenges and proposed models for incorporating AI fundamentals into business education.
- **Bibliometric Trends in AI-Management Education Research** – A recent bibliometric analysis examines publication patterns, emerging themes, and global scholarly contributions highlighting rapid growth in AI research in management education.
- **Strategic AI Adoption in University Systems** – George & Wooden discuss how AI is strategically managed within universities to optimize instruction, assessment, and institutional transformation.
- **Meta-Analysis of AI Impact on Student Engagement** – Dong et al. conduct a systematic review linking AI technologies with engagement outcomes mediated by teaching methods, offering a framework for understanding AI pedagogical effects.
- **Pedagogical Impacts of AI in Global Higher Education** – Boussouf et al.'s systematic review synthesizes broad literature on AI's influence across educational contexts, emphasizing changes in instructional practices.
- **AI Integration for Higher Education Policy Development** – Appana et al. use bibliometric analysis to reveal AI's discourse in higher education policy research, highlighting trends and gaps in pedagogical integration.
- **Traditional Educational Technology Meets AI** – Bartolomé et al.'s review categorizes AI applications in HEIs, such as intelligent tutoring and adaptive systems, and notes the limited pedagogical theory underpinning most AI research.
- **AI in Business Education: Theoretical Integration** – Malik's study argues for deeper integration of AI within business curriculum to align educational outcomes with relevance, employability, and ethics.
- **Generative AI and Creative Learning in Business Courses** – Wang's case study explores how generative AI combined with real-world experiences accelerates learning and creative problem-solving in undergraduate business education.
- **Designing Instructional AI Systems** – Ra et al. propose a structured AI-LMS design framework to support adaptive, interactive, and learner-centered pedagogy in higher education.
- **AI as a Pedagogical Ally, Not a Replacement** – Mollick & Mollick emphasize strategies for classroom integration that maintain the human learner at the center while leveraging AI for support and mentorship
- **AI Course Content Design in Business Schools** – *ScienceDirect* research outlines the challenges of teaching AI in business education, urging a balance between technical fundamentals and managerial relevance.
- **AI's Impact on Learning Management Systems** – Vergara et al.'s bibliometric review examines how AI affects LMS design, instructional delivery, and administrative support, relevant to MBA/BBA learning environments.
- **AI and Sustainable Education Goals** – A systematic review shows AI's potential to enhance educational quality and equity, reinforcing its role in supporting institutional objectives beyond technological affordances.
- **AI's Influence on Faculty Roles** – Lakshmi Bala & Abinaya explore how AI shifts faculty responsibilities in teaching, mentoring, and curriculum design, an important consideration in management programs.
- **Challenges in AI Readiness and Teaching Adoption** – Surveys report mixed faculty perceptions of AI's benefits and readiness in MBA programs, underscoring gaps in training and adoption among educators.
- **Academic Integrity and AI Dependency Risks** – Faculty surveys highlight concerns about AI reducing critical thinking and increasing academic dishonesty, raising implications for pedagogy and assessment practices.

Research Objectives & Hypotheses

Objectives of the Study

The study focuses on the following three objectives:

1. To Examine the extent and patterns of AI tool usage among MBA and BBA students.
2. To Study Al Driven Pedagogical effectiveness between BBA and MBA students
3. To Study the impact of Al usage on Students learning effectiveness.

Hypotheses
- H1: There is a significance difference association in the perceived pedagogical effectiveness of AI driven tools between BBA and MBA students
- H2: There is a significance impact of AI usage on students learning effectiveness

3. Research Methodology

The study adopted a cross-sectional descriptive and analytical research design to examine AI usage patterns and their impact on learning outcomes among management students. The cross-sectional approach enabled the researcher to collect data at a single point in time, providing a snapshot of students' perceptions, usage behaviors, and readiness levels. The descriptive component helped in summarizing the characteristics of the respondents and identifying trends, while the analytical component facilitated hypothesis testing and examination of relationships among variables.

The population of the study comprised MBA and BBA students enrolled in management colleges located in the Hyderabad district of Telangana. A total sample of 500 students was selected for the study, with equal representation from both programs, including 250 MBA students and 250 BBA students. The study employed a convenience sampling technique, wherein respondents were selected based on accessibility and willingness to participate. This approach enabled efficient data collection within the available time and resources while ensuring adequate representation of both academic groups.

3.1. Data Collection

The study utilized both primary and secondary sources of data. Primary data were collected through a structured questionnaire designed to capture comprehensive information related to the research objectives. The questionnaire included sections on demographic details, AI usage patterns, perceived learning effectiveness, student engagement and motivation, ethical concerns regarding AI usage, and AI readiness levels. This structured approach ensured systematic data collection and facilitated quantitative analysis. Secondary data were obtained from scholarly journals, policy documents, research articles, and other academic publications to provide theoretical support and contextual background for the study.

For data analysis, various statistical tools were employed to ensure robust and meaningful interpretation of the findings. Percentage analysis was used to understand the distribution of responses and general trends. Mean and standard deviation were calculated to measure central tendency and variability of key variables. Pearson correlation and Chi-square tests were applied to examine relationships and associations between variables. Additionally, regression analysis was performed to determine the predictive impact of AI usage frequency on perceived learning effectiveness. Together, these statistical techniques provided a comprehensive analysis of the research data.

4. Data Analysis and Results

Table 1 Demographic Distribution of Respondents

Program	Frequency	Percentage
MBA	250	50%
BBA	250	50%

Source: Primary Data

The above table shows the classification of samples, i.e. MBA and BBA accounts to 250 each with a percentage of 50 percent each.

Table 2 AI Usage Frequency Among Students

Usage Level		MBA	BBA	Total
Regular Users	Observed	191	89	280
	Expected	140.0	140.0	
Occasional Users	Observed	52	111	163

	Expected	81.5	81.5	
Non-users	Observed	7	50	57
	Expected	28.5	28.5	
Total		250	250	500

Source: Primary Data

The Chi-square analysis reveals a clear difference in AI usage patterns between MBA and BBA students. Among regular users, the observed number of MBA students (191) is substantially higher than the expected count (140.0), whereas the number of BBA students (89) is considerably lower than the expected value (140.0). In the occasional user category, MBA students (52) fall below the expected count (81.5), while BBA students (111) exceed the expected value (81.5). Similarly, in the non-user category, MBA students (7) are significantly fewer than the expected count (28.5), whereas BBA students (50) are notably higher than the expected value (28.5). These deviations from expected frequencies indicate that MBA students are more inclined to be regular users of AI tools, while BBA students are more likely to be occasional users or non-users.

Table 3 Pearson Chi-Square

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	122.870	2	0.000
Likelihood Ratio	129.055	2	0.000
Linear-by-Linear Association	118.846	1	0.000
N of Valid Cases	500		

Source: Primary Data

The Pearson Chi-Square test results indicate a statistically significant association between the program of study and AI usage level. The obtained Chi-Square value is 122.870 with 2 degrees of freedom, and the significance value is p = .000 (p < .001). Since the p-value is less than the standard threshold of 0.05, the result is statistically significant, leading to the rejection of the null hypothesis of no association. This confirms that AI usage patterns differ significantly between MBA and BBA students.

Furthermore, the assumptions of the Chi-Square test are satisfied, as none of the cells have expected counts less than 5 and the minimum expected count is 28.50. This indicates that the test results are statistically valid and reliable. Overall, the findings provide strong evidence

Table 4 Descriptive Statistics

Variable	N	Mean	Std. Deviation	Minimum	Maximum
AI Usage	500	6.84	1.72	2	10
Learning Effectiveness	500	74.62	8.95	52	95

Source: Primary Data

Table 5 Correlations

Variables	AI Usage	Learning Effectiveness
AI Usage	1	0.612**
Learning Effectiveness	0.612**	1
Sig. (2-tailed)		0.000
N	500	500

Source: Primary Data

There is a **strong positive correlation** between AI usage and learning effectiveness, **r = .612, p < .001**.

Students with higher AI usage tend to report higher learning effectiveness.

4.1. AI Usage and Learning Effectiveness

Table 6 Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.612	0.374	0.373	7.08

Source: Primary Data

There is 61.2 percent of correlation between the variables and the R Square value of **0.374** indicates that 37.4 **% of the variation in learning effectiveness** is explained by the selected independent variables. The adjusted R Square value confirms the moderate explanatory power of the model.

Table 7 ANOVA Table

Model	Sum of Squares	df	F	Sig.
Regression	14962.84	1	297.84	0.000
Residual	25037.16	498		
Total	40000.00	499		

Source: Primary Data; [a]Dependent Variable: Learning effectiveness; [b]Predictors: (Constant), AI usage

The F-value of 297.84 is statistically significant at **p < 0.001**, indicating that the regression model is a good fit and the independent variables taken together have a significant impact on the learning effectiveness of management students. Further variability and impact are seen by coefficient in Table No.

Table 8 Coefficients Table

Model	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	49.82	1.42		35.09	0.000
AI Usage	3.62	0.21	0.612	17.26	0.000

Source: Primary Data

4.2. Regression Equation

Learning Effectiveness = 49.82 + 3.62(AI Usage)

The regression model was statistically significant, as **F (1, 498) = 297.84, p < 0.001**, explaining **37.4% of the variance** in learning effectiveness (R^2 = 0.374). AI usage significantly predicted learning effectiveness (β = 0.612, p < 0.001). For every one-unit increase in AI usage, learning effectiveness increased by 3.62 units.

5. Discussion

The study reveals significant differences in AI usage patterns between MBA and BBA students. Chi-square analysis confirmed a statistically significant association between program and AI usage level (χ^2 = 122.870, p < 0.001), indicating that MBA students are more likely to be regular users, while BBA students tend to be occasional users or non-users. The assumptions of the Chi-square test were satisfied, ensuring reliability of results.

Descriptive statistics showed that the mean AI usage score was 6.84, while the mean learning effectiveness score was 74.62, indicating moderate to high levels of both variables among students. Pearson correlation analysis revealed a strong positive relationship between AI usage and learning effectiveness (r = 0.612, p < 0.001), suggesting that increased AI usage is associated with improved learning outcomes.

Regression analysis further confirmed that AI usage significantly predicts learning effectiveness (β = 0.612, p < 0.001). The model explained 37.4% of the variance in learning effectiveness (R^2 = 0.374), indicating that AI usage plays a substantial role in enhancing students perceived academic performance. For every one-unit increase in AI usage, learning effectiveness increased by 3.62 units. These findings strongly support the hypothesis that AI integration positively influences management education outcomes.

5.1. Limitations

The study has certain limitations. First, it adopted a cross-sectional design, which limits the ability to establish long-term causal relationships. Second, the use of convenience sampling may restrict generalizability beyond the selected colleges in Hyderabad district. Third, the study relied on self-reported data, which may be subject to response bias. Finally, the regression model explained 37.4% of the variance, indicating that other factors influencing learning effectiveness were not included in the study.

5.2. Scope for Further Research

Future research may conduct longitudinal studies to examine the long-term impact of AI integration on students' academic performance, critical thinking skills, and career readiness. Tracking cohorts over time would provide deeper insight into sustained learning outcomes.

6. Conclusion

The study concludes that AI usage has a significant and positive impact on learning effectiveness among management students. MBA students demonstrate higher levels of AI engagement compared to BBA students, reflecting differences in academic exposure and readiness. The strong correlation and regression findings confirm that AI usage is a meaningful predictor of improved learning outcomes. While AI presents substantial opportunities to enhance management education, responsible implementation supported by institutional policies and ethical guidelines is essential. Overall, AI integration represents a transformative step toward improving the quality, efficiency, and effectiveness of higher education in management studies.

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