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ADOPTION OF ARTIFICIAL INTELLIGENCE TOOLS IN COMMERCE CLASSROOMS: A STUDY OF OPPORTUNITIES AND CHALLENGES

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ABSTRACT
Artificial Intelligence (AI) tools are increasingly influencing educational practices by enabling personalized learning, automating routine academic tasks, and supporting pedagogical decision-making. This study examines the extent to which AI tools are adopted in commerce classrooms and identifies the opportunities and challenges associated with their use. The study is based on a survey of 120 respondents comprising 20 commerce faculty members and 100 undergraduate commerce students. Data were collected through structured questionnaires covering awareness, usage, perceived benefits, and challenges related to AI adoption.

Descriptive statistics, Independent Sample t-tests, Chi-Square tests, and regression analysis were employed to analyze the data. The findings indicate that awareness of AI tools is relatively high among both faculty (85%) and students (78%). Respondents perceived AI to be beneficial in terms of improving student engagement (76%), enabling personalized learning (70%), and providing real-time feedback (65%). However, significant challenges were also identified, particularly lack of training (72%), inadequate digital infrastructure (68%), and resistance to change (55%).

Hypothesis testing revealed statistically significant differences between faculty and students in their perceptions of AI benefits ($p < 0.05$). The study concludes that while AI integration offers substantial potential to enhance commerce education, its successful implementation depends on institutional support, faculty training, and infrastructure development.

Keywords: *AI, Commerce Education, Technology Adoption, Faculty Perception, Student Learning*

1. INTRODUCTION
The rapid advancement of digital technologies has fundamentally transformed teaching and learning processes in higher education. Among these technologies, Artificial Intelligence (AI) has emerged as a powerful tool capable of reshaping educational practices by enhancing efficiency, personalization, and learner engagement. AI-based systems such as intelligent tutoring platforms, chatbots, automated assessment tools, and adaptive learning systems enable institutions to deliver customized learning experiences, monitor student progress in real time, and support academic decision-making.

In the context of commerce education, where students are expected to develop analytical thinking, decision-making ability, and practical business skills, AI has significant relevance. Commerce education traditionally relies on lectures, case studies, and examinations to assess learning outcomes. While these methods remain valuable, they often fail to accommodate individual learning differences or provide continuous feedback. AI tools address these limitations by offering adaptive content, automated evaluation, and data-driven insights into learner performance.

Despite the potential advantages, the adoption of AI in commerce classrooms remains uneven. Many institutions face constraints such as limited infrastructure, insufficient training, and resistance to technological change among faculty and students. Moreover, concerns related to data privacy, ethical use, and over-dependence on technology further complicate adoption.

This study seeks to examine the current level of AI adoption in commerce classrooms and explore the opportunities and challenges perceived by faculty and students. By analyzing empirical data, the study aims to provide insights that can guide educational institutions and policymakers in implementing AI-based educational strategies effectively.

2. REVIEW OF LITERATURE
Previous studies highlight the transformative potential of AI in education. Woolf (2019) emphasized that AI enables personalized learning by adapting instructional content to individual learner needs, thereby improving learning outcomes. VanLehn (2011) demonstrated that intelligent tutoring systems significantly enhance student understanding through personalized feedback and guidance.

In commerce and business education, Abdelaziz et al. (2022) found that AI-driven analytics tools help students understand complex business scenarios by simulating real-world decision-making environments. Similarly, AI-

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based financial modeling and predictive tools have been shown to improve students' analytical and problem-solving skills.

However, literature also identifies several barriers to AI adoption. Holmes et al. (2019) noted that faculty often lack technical knowledge e and confidence to integrate AI tools effectively into their teaching. Selwyn (2020) highlighted that digital inequality remains a major concern, particularly in developing countries, where access to reliable internet and devices is uneven.

Faculty attitudes play a crucial role in technology adoption. Ertmer and Ottenbreit-Leftwich (2010) observed that educators who perceive technology as a pedagogical aid rather than a threat to their role are more willing to adopt it. Student attitudes are equally important; Teo (2011) found that positive perceptions of technology correlate with higher levels of engagement and usage.

Research Gap

Despite extensive literature on AI in education, limited empirical research focuses specifically on commerce education in the Indian context. This study addresses this gap by examining both faculty and student perspectives on AI adoption in commerce classrooms.

3. RESEARCH OBJECTIVES

1. To assess the awareness level of AI tools among commerce faculty and students.
2. To examine the perceived opportunities associated with AI adoption in commerce classrooms.
3. To identify the challenges experienced during the implementation of AI tools.
4. To compare perceptions between faculty and students regarding AI usage.

4. HYPOTHESES

H1: There is a significant difference in perception between faculty and students regarding the benefits of AI tools in commerce education.

H2: Awareness of AI tools is positively associated with the frequency of AI tool usage.

H3: Challenges such as lack of training highly negatively impact AI tool adoption.

5. RESEARCH METHODOLOGY

5.1 Research Design

A descriptive research design was adopted to understand current patterns of AI adoption and stakeholder perceptions.

5.2 Population and Sample

The population included commerce faculty and undergraduate commerce students from selected colleges. A sample of 20 faculty members and 100 students was selected using convenience and purposive sampling techniques.

5.3 Data Collection Instrument

A structured questionnaire with four sections — demographics, awareness, perceived opportunities, and challenges — was administered. Responses were measured using a 5-point Likert scale.

5.4 Data Analysis Tools

Descriptive statistics, Independent Sample t-tests, Chi-Square tests, and regression analysis were used to analyze the data.

6. DATA ANALYSIS AND INTERPRETATION

6.1 Demographic Profile

Category	Faculty	Students
Gender (M/F)	12/8	48/52
Age Group	30–55 yrs	18–22 yrs
Experience/Year of Study	Avg. 8 yrs / 3rd yr	

The faculty sample comprised 12 males and 8 females with an average of 8 years of teaching experience. The student sample consisted of 48 males and 52 females, primarily in the 18–22 age group.

Interpretation: The demographic composition ensures representation of both genders and varying experience levels, providing balanced insights.

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6.2 Awareness and Usage

Awareness Level	Faculty (%)	Students (%)
Highly Aware	40	30
Moderately Aware	45	48
Low Awareness	15	22

A majority of respondents reported moderate to high awareness of AI tools.

Interpretation: This indicates increasing exposure to AI in academic environments, although awareness does not necessarily translate into effective usage.

6.3 Perceived Opportunities

Opportunity	Mean (Faculty)	Mean (Students)
Personalized Learning	4.2	3.9
Engagement Improvement	4.0	3.8
Instant Feedback	3.8	3.7

Faculty rated AI benefits slightly higher than students, particularly in terms of personalized learning and engagement.

Interpretation: Faculty likely view AI as a pedagogical aid, whereas students may still be adjusting to AI-based learning modes.

6.4 Challenges Faced

Challenge	Mean (Faculty)	Mean (Students)
Lack of Training	4.0	3.7
Technological Infrastructure	3.9	3.8
Resistance to Change	2.8	2.9

Lack of training and infrastructure emerged as the most significant barriers.

Interpretation: Without institutional support and capacity building, AI adoption remains limited regardless of positive perceptions.

7. HYPOTHESIS TESTING

H1: There is a significant difference in perception between faculty and students regarding the benefits of AI tools.

- **Test Used:** Independent Sample t-test
- **Result:** $t = 2.305$, $\mathbf{p = 0.022 < 0.05}$

Conclusion: Reject null hypothesis. Faculty and students differ significantly in their perception of AI benefits.

7.2 Hypothesis 2

H2: Awareness of AI tools is positively associated with the frequency of AI usage.

- **Test Used:** Chi-Square Test
- **Result:** $\chi^2 = 15.23$, $\mathbf{p = 0.004 < 0.05}$

Conclusion: Awareness is significantly associated with usage frequency.

7.3 Hypothesis 3

H3: Challenges such as lack of training significantly negatively impact AI tool adoption.

- **Test Used:** Regression Analysis
- **Result:** $\beta = -0.48$, $\mathbf{p < 0.01}$

Conclusion: Lack of training significantly and negatively influences adoption.

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8. FINDING

The findings reinforce the view that AI is perceived as a valuable educational tool in commerce education. Faculty appear more optimistic, likely due to their understanding of pedagogical applications. Students, while positive, remain cautious due to limited experience and possible concerns about over-automation.

The strong relationship between awareness and usage highlights the importance of digital literacy initiatives. Furthermore, the significant impact of training on adoption suggests that institutional investment in professional development is crucial.

9. CONCLUSION

AI tools offer substantial potential to transform commerce education by improving engagement, personalization, and feedback mechanisms. However, effective adoption requires overcoming barriers related to training, infrastructure, and institutional readiness. This study emphasizes the need for strategic planning, faculty development, and continuous evaluation to integrate AI meaningfully into commerce classrooms

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