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Research Article

A Study on the Faculty Perception Regarding the Use of Artificial Intelligence in Commerce Education

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ABSTRACT
This study explores faculty perceptions regarding the integration of Artificial Intelligence (AI) in commerce education. The main goals of the research are to understand faculty attitudes towards AI in commerce education, assess the current level of AI adoption in commerce curriculums, and explore faculty perspectives on the impact of AI on student engagement and analytical skills development. A cross-sectional survey design was employed, with 400 commerce faculty members participating. Convenience sampling was used to select participants. The survey included closed-ended questions to gather quantitative data on faculty perceptions of AI in commerce education. Significant differences in perceptions of AI, adoption of AI tools, and impact on student performance were found across demographic variables. Age and years of experience influenced faculty perceptions and behaviors regarding AI integration in commerce education. Faculty perceptions of AI vary significantly across demographic variables, highlighting the need for targeted approaches to promote AI adoption and support faculty in utilizing AI tools effectively. These findings underscore the importance of considering diverse perspectives in the implementation of AI in commerce education to enhance teaching and learning outcomes.

1. Introduction

Artificial intelligence (AI) is revolutionizing education. AI systems, capable of learning and adapting, are transforming teaching and learning experiences. UNESCO recognizes AI's potential to address educational challenges and achieve Sustainable Development Goal of quality education for all. AI tools can revamp teaching methods, personalize learning, and make knowledge more accessible. From educators using generative AI for innovative teaching to AI's ability to transform classrooms, its impact is undeniable [1-5].

However, alongside the opportunities, AI in education comes with challenges. Ethical considerations, data privacy, and potential biases require careful navigation. UNESCO emphasizes a human-centered approach to AI, promoting equity and inclusion while bridging knowledge gaps and preventing technological divides. The goal is "AI for all," ensuring everyone benefits from this technological revolution [6-10].

To guide responsible implementation, UNESCO offers resources like "Artificial Intelligence and Education: Guidance for Policy-makers" to help policymakers understand AI's potential and challenges in education. Additionally, the Beijing Consensus on AI and Education fosters international collaboration on this crucial topic. As AI continues to shape education, UNESCO's leadership in policy development ensures its responsible and equitable use to enhance learning and human capabilities.

Commerce education traditionally focused on core concepts like accounting and finance. However, the digital age demands a shift to prepare students for future challenges. Artificial intelligence (AI) integration holds immense potential in this regard. AI can automate repetitive tasks, freeing up commerce professionals for more strategic work. It can also analyze vast amounts of data to generate valuable insights for businesses. From understanding AI-powered customer experiences and targeted marketing to optimizing pricing and forecasting sales using AI, commerce students can gain a comprehensive understanding of how technology is transforming business practices (2023). Ultimately, integrating AI into commerce education equips students with the knowledge and skills to thrive in the dynamic world of commerce driven by technology [11-15].

1.1 Objective if the study

1. To understand faculty perceptions of AI's potential benefits for teaching and learning in Commerce Education.
2. To assess the current level of AI adoption and integration within commerce curriculums.
3. To explore faculty perspectives on the impact of AI on student engagement and analytical skills development.

1.2 Significance and Scope of the Study

This study delves into the evolving landscape of Commerce Education by examining faculty perceptions on integrating Artificial Intelligence (AI).

Significance: Understanding faculty views on AI's potential to enhance teaching and learning can inform strategies for successful AI implementation in Commerce programs. By assessing the current level of AI adoption, the study identifies areas where educators may need support or training to effectively utilize AI tools. Exploring faculty perspectives on AI's impact on student engagement and analytical skills development provides valuable insights for improving student learning outcomes in the digital age.

Scope: This study focuses on faculty perceptions of AI in Commerce Education. It does not explore the technical aspects of AI tools themselves, nor does it directly measure student learning outcomes. The primary focus is on understanding faculty attitudes, confidence levels, and experiences with AI integration within their commerce curriculum.

2. Review of Literature

AI is increasingly being used in education to enhance the learning experience and improve outcomes. It enables personalized learning, efficient assessment, and data-driven decision-making. However, there are challenges such as privacy concerns and potential bias that need to be addressed. Despite these challenges, the potential of AI in education is significant, and its responsible integration is crucial for sustainable development in the field.

The integration of AI in education, particularly in the field of Commerce, offers numerous benefits such as personalized learning experiences, streamlined administrative tasks, and enhanced feedback mechanisms. However, its adoption is not without challenges, including the need for proper training and awareness, financial implications, and ethical considerations. Despite these challenges, the potential for AI to revolutionize traditional teaching and learning methods is significant, with the promise of creating more inclusive and effective learning environments.

Faculty perceptions towards educational technology adoption are influenced by a range of factors. John (2015) and Mehra (2007) both highlight the importance of factors such as computer self-efficacy, relative advantage, compatibility, and prior computer experience. These factors significantly influence faculty's perceived ease of use and attitude towards using educational technologies. Additionally, Mehra (2007) notes that age, experience, time for lecture preparation, and academic background also play a role in the extent of technology adoption. Nicolle (2008) further emphasizes the role of peer interactions and collegiality in helping faculty members learn new innovations and strategies, suggesting that professional development programs should take these factors into account.

While research explores faculty's general perception of educational technology adoption, there seems to be a gap in understanding how these perceptions specifically translate to AI-powered educational tools in Commerce education

3. Research Methodology

Research Design: This study employed a cross-sectional survey design to investigate faculty perceptions regarding the integration of Artificial Intelligence (AI) in commerce education. Surveys were chosen due to their practicality and efficiency in collecting data from a sizeable sample size within a specified timeframe, aligning with the study's objectives and constraints.

Participant Selection Process: Participants were selected using convenience sampling techniques, targeting commerce faculty members from various universities and colleges. The sample size comprised 400 faculty members, selected based on their availability and willingness to participate. This approach facilitated access to a diverse range of perspectives within the target population, ensuring inclusivity in the study's findings.

Data Collection Instruments: The primary data collection instrument utilized was a structured questionnaire comprising solely closed-ended questions. These questions were designed to gather quantitative data on faculty perceptions of AI in commerce education. The questionnaire included Likert-scale items measuring beliefs, confidence levels, and perceived impacts of AI integration. The use of closed-ended questions facilitated streamlined data collection and analysis, maximizing the efficiency of the study.

Data Analysis Methods: Quantitative data obtained from closed-ended questions underwent statistical analysis using methods such as One-Way ANOVA (Welch's) to examine variations in perceptions across demographic variables like age and years of experience. Post-hoc tests, including Turkey's test, were conducted to identify specific differences between groups based on their responses. This quantitative approach allowed for a systematic exploration of faculty perceptions within the study's defined parameters, utilizing the entire sample size of 400 participants.

4. Results and Findings

Table 1. Demographic Variables

Gender	**Counts**	**% of Total**
Female	200	50.0 %
Male	200	50.0 %
Age	**Counts**	**% of Total**
Below 25 Years	28	7.0 %
25-34	105	26.3 %
35-44	147	36.8 %
45-54	93	23.3 %
55 and above	27	6.8 %
Year of Experience	**Counts**	**% of Total**
Below 5 Years	105	26.3 %
6-10 years	72	18.0 %
11-15 years	39	9.8 %
16 years and above	184	46.0 %

The provided data outlines the demographic composition of a group based on gender, age, and years of experience in table 1. It reveals a balanced gender distribution, with 200 individuals identified as female (50%) and an equal number identified as male (50%). In terms of age, the largest proportion falls within the 35-44 age range, comprising 36.8% of the total, followed by the 25-34 age group at 26.3%. The remaining age groups—below 25 years, 45-54 years, and 55 and above—represent 7.0%, 23.3%, and 6.8% respectively. Regarding years of experience, the data indicates a diverse range with the highest proportion of individuals (46.0%) possessing 16 years or more of experience. The next largest group has less than 5 years of experience, accounting for 26.3% of the total, followed by those with 6-10 years (18.0%) and 11-15 years (9.8%) of experience.

Table 2. Perceptions of AI in Commerce Education

	Highly Disagree	Disagree	Neutral	Agree	Highly Agree	Mean

To what extent do you believe AI can enhance the learning experience in Commerce Education	9.5 %	12.8 %	24.3 %	25.3 %	28.2 %	3.5
	Not Confident at All	Slightly Confident	Neutral	Confident	Very Confident	Mean
How confident are you in integrating AI tools into commerce curriculum design	8.0 %	26.3 %	21.5 %	31.5 %	12.8 %	3.15
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
To what extent do you believe AI can personalize learning experiences for commerce students	10.8 %	16.8 %	29.3 %	25.3 %	18.0 %	3.23

The table 2 presents perceptions of AI in Commerce Education. The results indicate a generally positive sentiment towards AI, with the highest mean agreement (3.50) observed for the statement regarding AI's potential to enhance the learning experience. However, there is also a significant portion of respondents expressing neutrality (24.3%) and disagreement (22.3%) on this issue.

Similarly, respondents expressed a moderate level of confidence (mean = 3.15) in integrating AI tools into curriculum design. Here, a larger proportion of respondents were unsure (slightly confident or neutral: 47.8%) compared to those who were confident (confident or very confident: 44.3%).

The potential of AI to personalize learning experiences received a mean agreement score of 3.23. Again, a substantial portion of respondents (46.1%) were neutral on this topic, while those who disagreed (27.6%) slightly outnumbered those who agreed (27.1%).

In conclusion, the survey suggests that educators in commerce education acknowledge the potential benefits of AI in enhancing learning and personalizing experiences. However, there is also a degree of uncertainty and hesitation regarding the integration of AI tools into the curriculum.

Table 3. Adoption and Integration of AI Tools

	Not Familiar at All	Somewhat Familiar	Neutral	Familiar	Very Familiar	Mean
How confident are you in integrating AI tools into commerce curriculum design	9.8 %	27.8 %	20.0 %	26.8 %	15.8 %	3.11
	Not Integrated at All	Minimally Integrated	Neutral	Moderately Integrated	Fully Integrated	Mean
To what extent do you believe AI can personalize learning experiences for commerce students	21.0 %	28.2 %	21.8 %	8.0 %	21.0 %	2.8

The table shows the adoption and integration of AI tools in commerce education. Educators appear somewhat familiar (mean = 3.11) with AI tools.

Looking at the confidence in integrating AI tools into the curriculum, a similar pattern emerges with a mean score of 3.11. The largest proportion of respondents (27.8%) indicated being somewhat familiar, followed by those who are familiar (26.8%) and neutral (20.0%) as shown in table 3.

The extent to which educators believe AI can personalize learning experiences follows a similar trend with a mean score of 2.80. Here, the largest proportion of respondents were again somewhat familiar (28.2%) followed by those who were neutral (21.8%).

In conclusion, the survey suggests that educators in commerce education are only somewhat familiar with AI tools and their potential for integrating them into the curriculum to personalize learning experiences.

Table 4. Impact of AI on Student Performance

	No Impact	**Minimal Impact**	**Neutral**	**Positive Impact**	**Significant Positive Impact**	**Mean**
How familiar are you with AI tools currently used in Commerce Education?	24.3 %	35.0 %	21.5 %	14.5 %		2.4

	No Contribution	Minimal Contribution	Neutral	Contributory	Highly Contributory	Mean
To what extent are AI tools integrated into your current commerce curriculum?	21.0 %	27.8 %	21.8 %	23.0 %	6.5 %	2.66

The table shows the impact of AI tools on student performance in commerce education. Educators reported a moderate positive impact (mean = 2.66) of AI tools on the curriculum shown in table 4.

Looking at familiarity with AI tools, a significant portion of respondents (35.0%) indicated being somewhat familiar, followed by those who were neutral (21.5%) and not familiar at all (24.3%). It's worth noting that none of the respondents indicated being very familiar with the AI tools currently used.

The extent to which educators believe AI tools contribute to the curriculum follows a similar trend with a mean score of 2.66. Here, the largest proportion of respondents were again somewhat familiar (27.8%) followed by those who were neutral (21.8%).

In conclusion, the survey suggests that educators in commerce education acknowledge a positive impact of AI tools on student performance. However, their familiarity with the available AI tools remains limited.

5. Testing of Hypothesis

1. **(H0): There are no significant differences in perceptions of AI in commerce education, adoption and integration of AI tools, and impact of AI on student performance across different levels of professional experience.**

Result:

Table 5. One-Way ANOVA (Welch's)

	F	df1	df2	p
Perceptions of AI in Commerce Education	9.06	3	139	< .001
Adoption and Integration of AI Tools	8.6	3	144	< .001
Impact of AI on Student Performance	6.41	3	142	< .001

The conducted analysis employed a One-Way ANOVA (Welch's) to examine the perceptions of AI in commerce education, the adoption and integration of AI tools, and the impact of AI on student performance across different levels of professional experience shown in table 5. The results revealed significant differences in perceptions of AI in commerce education ($F(3, 139) = 9.06$, $p < .001$), adoption and integration of AI tools ($F(3, 144) = 8.6$, $p < .001$), and the impact of AI on student performance ($F(3, 142) = 6.41$, $p < .001$).

Further investigation through Tukey's post-hoc tests was conducted to identify specific differences between groups. In terms of perceptions of AI in commerce education, individuals with 11-15 years of experience reported significantly lower perceptions compared to those with less than 5 years of experience ($p = 0.013$) and 6-10 years of experience ($p < .001$). Regarding the adoption and integration of AI tools, individuals with less than 5 years of experience demonstrated significantly higher levels compared to those with 16 years and above of experience ($p = 0.022$). Moreover, individuals with 6-10 years of experience reported significantly lower levels of adoption and integration compared to those with less than 5 years of experience ($p = 0.03$).

Regarding the impact of AI on student performance, individuals with 11-15 years of experience reported significantly higher impacts compared to those with less than 5 years of experience ($p = 0.039$). No other significant differences were observed in this aspect.

The findings suggest that professional experience level influences perceptions of AI in commerce education, adoption and integration of AI tools, and impact of AI on student performance. Specifically, individuals with varying levels of experience demonstrate differing perceptions and behaviors regarding the implementation and effects of AI within the context of commerce education.

2. **(H0): There are no significant differences in perceptions of AI in commerce education, adoption and integration of AI tools, and impact of AI on student performance across different age groups.**

Result:

Table 6. One-Way ANOVA (Welch's)

	F	df1	df2	p
Perceptions of AI in Commerce Education	2.67	4	122	0.035
Adoption and Integration of AI Tools	4.67	4	109.1	0.002
Impact of AI on Student Performance	3.41	4	100	0.012

The conducted analysis utilized a One-Way ANOVA (Welch's) to explore perceptions of AI in commerce education, adoption and integration of AI tools, and the impact of AI on student performance across different age groups shown in table 6. The results revealed significant differences in perceptions of AI in commerce education ($F(4, 122) = 2.67$, $p = 0.035$), adoption and integration of AI tools ($F(4, 109.1) = 4.67$, $p = 0.002$), and the impact of AI on student performance ($F(4, 100) = 3.41$, $p = 0.012$).

Subsequent Turkey's post-hoc tests were conducted to identify specific differences between age groups in each aspect. Regarding perceptions of AI in commerce education, no significant differences were found between any age groups. However, concerning the adoption and integration of AI tools, individuals aged 25-34 reported significantly higher levels compared to those below 25 years ($p = 0.022$) and those aged 35-44 ($p = 0.015$). Furthermore, individuals aged 35-44 showed significantly higher levels of adoption and integration compared to those aged 55 and above ($p = 0.009$). In terms of the impact of AI on student performance,

individuals aged 45-54 reported significantly higher impacts compared to those below 25 years ($p = 0.029$), and individuals aged 55 and above reported significantly higher impacts compared to those aged 25-34 ($p = 0.009$) and 35-44 ($p = 0.009$).

The findings suggest that age group influences perceptions of AI in commerce education, adoption and integration of AI tools, and impact of AI on student performance. Specifically, individuals within certain age groups demonstrate differing perceptions and behaviors regarding the implementation and effects of AI within commerce education. However, it's notable that perceptions of AI in commerce education did not significantly differ across age groups.

Limitations of the Study:

1. Sampling Bias: Convenience sampling may introduce bias, limiting generalizability.
2. Self-Reported Data: Reliance on closed-ended questions may lead to response bias.
3. Limited Scope: The study solely focuses on faculty perceptions, not student outcomes.
4. Potential Response Biases: Strong opinions may skew results due to self-selection.
5. Limited Generalizability: Findings may not apply universally due to variations in contexts and demographics

6. Discussion

The results of the study provide valuable insights into faculty perceptions regarding the use of artificial intelligence (AI) in commerce education. The One-Way ANOVA analyses revealed significant differences in perceptions of AI, adoption and integration of AI tools, and the impact of AI on student performance across different levels of professional experience and age groups.

Regarding professional experience, individuals with less than 5 years of experience showed significantly higher levels of confidence in the adoption and integration of AI tools compared to those with 16 years and above of experience. This suggests that newer faculty members may be more open to embracing AI technologies in their teaching practices. Additionally, individuals with 11-15 years of experience perceived a significantly higher impact of AI on student performance compared to those with less experience, indicating a potential shift in attitudes towards AI's role in enhancing student learning outcomes over time.

In terms of age groups, while no significant differences were found in perceptions of AI in commerce education, significant differences emerged in the adoption and integration of AI tools and the impact of AI on student performance. Younger faculty members (aged 25-34) exhibited higher levels of adoption and integration of AI tools compared to their older counterparts, suggesting a generational divide in the readiness to incorporate AI technologies into teaching practices. Furthermore, older faculty members (aged 45-54 and 55 and above) perceived a significantly higher impact of AI on student performance compared to younger age groups, indicating a recognition of AI's potential to positively influence student outcomes with increasing age and experience.

7. Conclusion

The findings of this study underscore the importance of understanding faculty perceptions and attitudes towards AI in commerce education. As the field continues to evolve, it is crucial to address any barriers or concerns that may impede the successful integration of AI tools into curriculum design. Additionally, efforts should be made to provide adequate training and support to faculty members, particularly those with more experience, to enhance their confidence in utilizing AI technologies effectively.

Implications of the Study: This study offers valuable insights for integrating AI into commerce education. Colleges can leverage the findings to develop targeted training programs to help faculty feel comfortable using AI tools. Additionally, understanding faculty perspectives on the impact of AI on students allows institutions to tailor their support. They can provide resources for creating AI-based learning materials and assessments, with the goal of improving student engagement and analytical skills. Finally, the study acknowledges generational differences in faculty attitudes towards AI. To address this, colleges can develop mentorship programs or collaborative initiatives to bridge the knowledge gap and encourage faculty of all ages to embrace AI in their teaching.

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