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A STUDY ON FACTORS INFLUENCING AND PEDAGOGICAL ADOPTION OF CHATGPT USAGE AMONG COMMERCE FACULTY IN COIMBATORE DISTRICT

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Abstract

The rise of the next generation of Artificial Intelligence (AI) technologies, including ChatGPT, has disrupted the teaching process within higher education by opening new avenues of content creation, individualized learning assistance, and streamlined academic performance. The paper examines the use of ChatGPT in commerce faculty at Coimbatore, exploring its levels and range of use, the perceived pedagogical effects and the reasons at institutional and individual levels. The explanatory research design with a mixed research approach was taken to collect data in the form of structured surveys and in-depth interviews of 271 faculty. Statistical tests, such as logistic regression, CFA and SEM, indicated that digital Literacy, AI training, and type of institution also play a significant role in predicting adoption. Meanwhile, performance expectancy, effort expectancy, and social influence are strong influences in prolonging feelings about ChatGPT. Findings and conclusions are that ChatGPT use has a positive impact on teaching effectiveness, which mediates better student learning outcomes, but there is a perceived risk associated with ChatGPT given the concerns around ethics and academic integrity. The data show the significance of specific faculty training, tangible policy needs and investment in infrastructure to enable accountable and sustainable inclusion of AI. The study adds to the body of work on AI-in-education by clarifying the role of both technological ability and institutional preparedness and pedagogical worth in informing the adoption of AI in a regional higher education setting.

Keywords: Artificial Intelligence (AI), ChatGPT, Pedagogical adoption, Digital literacy, Commerce faculty

INTRODUCTION

The advent of advanced Artificial Intelligence (AI) applications like ChatGPT has transformed education through new methods of generation, access and sharing of knowledge (Liebrenz et al.). ChatGPT is an AI-based chatbot developed by the OpenAI that functions as a language-based large language model capable of giving coherent, contextually relevant text responses after the user makes a prompt, help the user in summary of information, generate solutions to problems, methods of simulating professional conversations (OpenAI, 2022). ChatGPT has a major potential as a pedagogical assistant in the field of commerce education, where the most relevant competencies are analytical thinking, problem solving, working with data, and communicating with businesses. It can guide the faculty in developing lectures, developing assignments, the design of case studies, and support research endeavors (Luckin et al., 2016).Coimbatore, which is also known as the Manchester of South India, is an educational hub with a dominant presence of commerce and management based academic institutions. The framework of regional influences on the adoption of AI in those institutions includes digital literacy, institutional policies, infrastructure readiness, and teacher attitude towards it (OECD, 2021). It is important to understand how and to what extent commerce faculties are using ChatGPT in Coimbatore since the presence of AI in education is not consistent in all geographies, but it varies on a socio-cultural, institutional as well as economic basis.

This paper aims to investigate the ChatGPT usage dynamics among faculty members of commerce in Coimbatore because the possible issues which may arise because of ChatGPT exploitation are not only its positive outcomes, as efficiency and innovation in instruction, but also concerns like moral, plagiarism and integrity issues. Such insights can be used to develop specific education courses, responsible use standards, and policy regimes which can be used to accommodate AI integration and still protect educational values.

RESEARCH PROBLEM

Although ChatGPT is being addressed increasingly through academic and civic sources, the practice of ChatGPT in commerce education is poorly documented, and it is needed to study it further in regional settings such as Coimbatore. The largest part of previously conducted research concerns the global or national adoption trends without attention to the local factors influencing the faculty engagement with AI tools. The commerce faculties of Coimbatore are in a different setting, as institutional capacities, digital skills of the faculty, and the preparedness of students diverge significantly, determining the manner of adoption and application of such technologies (OECD, 2021).The underlying research question is that the knowledge gap is based on how the members of commerce faculty in Coimbatore use ChatGPT, in what ways, and under what forms of conditions in institutions. This will entail exploring how ChatGPT can help with the lecture preparation, assignment creation, assessing students and assisting with research, and any concerns about academic integrity, plagiarism, overuse of AI-generated text (Luckin et al., 2016).

In addition, institutional policy regarding use of AI in education remains developing, therefore creating confusion in what is acceptable and what ethical standards are. The lack of localized studies can expose administrators to follow generic policies that lack the use of specific regional needs into consideration. Faculty members might also fail to receive any specific training on how to fully leverage ChatGPT and eventually overuse or misuse it.

Thus, the study attempts to fill the above-mentioned gap by methodical examination of how ChatGPT is used, what value it has, what challenges are brought forward, and what factors can influence the way it is used within the context of Coimbatore commerce education. The results will be useful in academic research and policy-making in that no contradictions are bound to arise between the implementation of AI and pedagogical objectives or rational principles of ethics within the regional setting. The research questions have been framed in the light of the research issue as follows.

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1. How often and why do commerce faculty in Coimbatore use ChatGPT?
2. How is teaching effectiveness and the learning of students in commerce education perceived to be affected by ChatGPT?
3. What are the institutional and individual determinants that affect the adoption of ChatGPT in the commerce faculty in Coimbatore?

THEORETICAL BACKGROUND

The introduction of advanced Artificial Intelligence (AI) is based on the interdisciplinary theoretical approaches, which are unanimously used to explain the pattern of its technological growth, uptake among users, and teaching consequences. Based on computational linguistics, machine learning and cognitive sciences, such systems use the massive dataset and neural networks to understand natural language, respond appropriately in a contextually coherent manner, and learn with repeated interactions with the user (OpenAI, 2022; Luckin et al., 2016). In the context of education in commerce, in which analytical thinking, decision making, and business and financial communication are highly important skills, integration and application of AI resonate with existing frameworks of technology acceptance, innovation diffusion, and digital pedagogy.

The Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) provides a major framework of analyzing the topic of AI adoption. In the light of UTAUT, the performance expectancy (perceived usefulness), effort expectancy (ease of use), social influence and the facilitating conditions have direct effects on user intention and actual behaviour. In the academic setting, the adoption of AI will become popular as it is observed to enhance the quality of lessons being taught, makes assessment creation easy and is adopted by colleagues within the same institution (Ifenthaler & Schweinbenz, 2016).

In support of these, Innovation Diffusion Theory (Rogers, 2003) conceptualizes AI integration as a social process influenced by relative advantage, compatibility with the pre-existing teaching processes, complexity, trialability and observability. AI-enhanced pedagogy adoption pioneers may become a source of change affecting student engagement and learning which can be measured and serves as an example of improved outcomes, further facilitating diffusion among faculty members (Holmes et al., 2019).

At the organisation level, the Institutional Theory holds that adoption is driven under the constraints of coercive pressures (e.g., the demands in policies), normative pressures (e.g., professional teaching standards), and mimetic pressures (e.g. through emulating perceived successful practices) (DiMaggio & Powell, 1983). At the level of higher education, the evolving policies of AI usage, especially in the fields of plagiarism, ethical and intellectual rights, define the way institutions structure its implementation, with the management of risks (Williamson & Piattoeva, 2022).

Pedagogically, the addition of AI is resonant with what is termed Constructivist Learning Theory that prescribes active and learner-centred environments in which students learn by constructing knowledge through learning activities and reflections (Piaget, 1970; Vygotsky, 1978). ChatGPT-like AI may make it easier to conduct a constructivist learning process due to the ability to give individual feedback, customize content, and present the simulation of professional problem-solving contexts in a realistic manner (Zawacki-Richter et al., 2019).

Lastly, Socio-Technical Systems Theory suggests that successful AI will be achieved once there is a match of technological possibilities with the human, organisational, and cultural aspects (Bostrom & Yudkowsky, 2014). Practically, it implies that it is just as important as technical advancement of AI tools as institutional infrastructure, digital literacy, and continuous faculty development (OECD, 2021).

Overall, these theoretical frameworks align to view the adoption of advanced AI as a complex change process and not exactly a technological one. Within the narrower reality of Coimbatore as a particular setting of commerce education, the synergies between the perceived benefits of pedagogical aspects (Venkatesh et al., 2003), supportive environmental structures of the institution (Ifenthaler & Schweinbenz, 2016), digital expertise of the faculty (OECD, 2021), and a solid ethical framework (Williamson & Piattoeva, 2022) will be the key to integrating it effectively into the context and making it long-lasting. When harmonized, AI systems like ChatGPT will be able to evolve out of novelty applications to emerge as deeply ingrained, believable, and value-adding parts of modern classroom practice.

The relationship between advanced AI integration and pedagogical innovation

The positive correlation between Advanced Artificial Intelligence (AI) integration and pedagogical innovation is strong because studies have shown that there is a connection between advances in technology-driven tools that help achieve increased instructional creativity and learning outcomes (Venkatesh et al., 2003; Luckin et al., 2016). Research shows that educators who incorporate AI tools-like ChatGPT- into their instructional models have a greater chance of creating new lesson plans, evaluations, and immersive learning activities that deliver both intellectual and learner-engagement advantages (Holmes et al., 2019). There is also evidence to indicate how AI-based innovation can occur through active strategies in which teachers initiate the use of intelligent systems in the main pedagogical activities that leads to better efficiency, more dynamic provision of the material, and offers enhanced learning conditions (Ifenthaler & Schweinbenz, 2016).

In addition, an institution that continually takes AI-driven practices would develop a learning culture of instructional experimentation, in which faculty are invited to explore automated material creation, individual feedback platforms, and simulated business problem-solving questions. Favorable institutional regulations, availability of training tools, and long-term digital transformation are the factors that help to integrate. The existence of enabling conditions, e.g. a strong technical infrastructure, professional development tailored to these innovations in pedagogy, and collaboration with colleagues, will further increase the chance of AI-based pedagogical innovations (OECD, 2021).

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H1: There is a positive relationship between advanced AI integration and pedagogical innovation.

Challenges in adopting advanced AI tools in commerce education

Barriers to the adoption of advanced AI tools exist in dominant systems of learning and teaching; however, there are several ways that institutions and individuals associated with the faculty of ARP can meet those objections. Poor access to good-quality AI infrastructure and training tends to disincentivize proper integration especially in institutions that have limited budgets (Ifenthaler & Schweinbenz, 2016). The lack of the necessary technical knowledge and the different diversion of digital Literacy among faculty may also impede the meaningful use of AI in the design of lessons, assessment, and research tasks (OECD, 2021).

Moreover, the lack of clear institutional regulations regarding the uses of AI, including matters of plagiarism detection, ethical conduct, and scholarly integrity leaves a question of what is safe usage (Williamson & Piattoeva, 2022). The resistance to change in the organization due to traditional teaching methods will also catalyse the adoption period coupled with the surprise that dependence on AI will water down academic standards or eliminate the role of the educator (Zawacki-Richter et al., 2019). In the context of commerce education, the issue of overreliance on the machine-generated outputs, the fluctuating access to the internet and unstandardized AI training programmes undermine the possibility of the widespread use.

Altogether, these issues point out the need to implement specific institution-based interventions, faculty development opportunities, and explicit regulatory standards to fast-track the responsible introduction of advanced AI in higher education.

H2: There is a significant difference between challenges faced by commerce faculty in adopting advanced AI tools.

RESEARCH OBJECTIVE

1. To examine the extent and purposes of ChatGPT usage among commerce faculty in Coimbatore.
2. To analyze the perceived pedagogical impact of ChatGPT on teaching effectiveness and student learning.
3. To identify institutional and individual factors influencing ChatGPT adoption among commerce faculty.

RESEARCH DESIGN

This research, following a mixed-methods explanatory pattern (quantitative survey and qualitative interviews), aims at capturing a combination of measurable trends on ChatGPT adoption, as well as the interpretative perspectives by faculty. The quantitative strand gauges extent/patterns and their perceived effects; the qualitative strand explains motives, institutional processes, and subtle impediments.

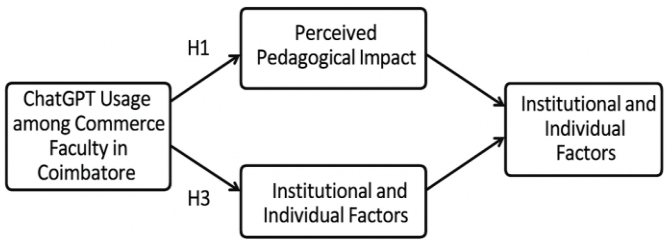
Area of the study

- **Geographic scope:** City of **Coimbatore**, Tamil Nadu, India — a significant education and industry hub with numerous colleges/universities offering commerce programmes.
- **Institutional scope:** Commerce and commerce-related departments in: (a) public/government colleges, (b) autonomous colleges, (c) private self-financing colleges, and (d) university departments within Coimbatore district. This ensures representation across institutional types and governance models (which affect policy and infrastructure)

Population

- **Target population:** All **faculty members** (full-time and part-time/visiting) teaching in commerce (B.Com, M.Com, Commerce & Management, related subjects such as Business Administration/Accounting/Finance where faculty perform commerce teaching duties) at accredited higher-education institutions located in Coimbatore city.
- **Population frame:** Compiled from (a) official staff/department webpages of institutions in Coimbatore, (b) affiliating university faculty lists, and (c) institutional HR directories (where available). The frame will include the faculty name, designation (Assistant/Associate/Professor), years of teaching experience, and contact information (email/phone). This frame supports stratified sampling and follow-up.

CONCEPTUAL FRAMEWORK



SAMPLE SIZE

In the context of the proposed research, the term quantitative strand shall refer to a sample size of 271 among the faculty of commerce in different institutes of higher learning within Coimbatore including at least one member of the faculty in each of the higher education establishment such as the following: The bodies that will be selected to the extent of adequately representing the public institutions of higher learning, the autonomous bodies of higher learning, and the non-autonomous bodies of higher learning in Coimbatore. This is in consideration of the necessary statistical confidence level, and a non-response allowance to ensure robustness. Along with this, a qualitative subsample of 1525 faculty members will be purposely selected within the survey population to ensure the capture of diverse experiences since experiences of frequent and occasional users of ChatGPT, as well as nonusers, and administrative/policy-related staff will be conducted. The blend of these two will help the study produce both statistically generalizable knowledge and highly contextualized knowledge.

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Tools and Techniques

To measure the quantitative aspect, a structured questionnaire will be applied to gathering information about faculty demographics, the frequency and reasons they use ChatGPT, how they think it is affecting pedagogy, and both institutional and individual predictors of adoption. The questionnaire will use nominal, ordinal and Likert-scale questions to be used in recording both factual data as well as attitudinal data. Regarding the qualitative part, semi-structured interviews will be used with a purposed-selected sub-sample of faculty to discuss in detail their experiences, obstacles, and institutional backgrounds of ChatGPT use.

As regards the methodology, the quantitative data will be described through descriptive analysis (frequency distributions, percentages, means and the standard deviations). Concurrently, inferential statistics which include chi-square tests, t-tests, ANOVA, and regression will be conducted to test relationships and predictors in connection with ChatGPT adoption and perception. Multi-item scales will be tested on reliability by conducting Cronbach alpha and other methods. The qualitative data will be analyzed using thematic analysis, and that is, after coding the transcripts of the interviews, recurring patterns and themes will be noted to add explanatory depth to the survey data. This mixed-method methodology will provide triangulation, providing both statistically strong results and contextually-rich results.

Objective	Independent Variables	Dependent Variables
1. To examine the extent and purposes of ChatGPT usage among commerce faculty in Coimbatore.	Faculty demographic factors (age, gender, teaching experience, academic rank), institution type, digital literacy level, and prior AI exposure.	Extent of ChatGPT usage (frequency of use) and purposes of use (teaching preparation, assessment design, research, administrative tasks).
2. To analyze the perceived pedagogical impact of ChatGPT on teaching effectiveness and student learning.	Extent and type of ChatGPT usage, faculty demographic factors, digital Literacy, and subject specialization.	Perceived pedagogical impact (teaching effectiveness, lesson creativity, student engagement, critical thinking development, learning outcomes).
3. To identify institutional and individual factors influencing ChatGPT adoption among commerce faculty.	Institutional factors (policies on AI use, training availability, technical infrastructure), individual factors (age, experience, openness to technology, digital Literacy).	Level of ChatGPT adoption (non-user, occasional user, frequent user).

ANALYSIS AND INTERPRETATION

Table 1: Result of Logistic Regression Analysis

Predictor	Estimate (β)	S.E.	Wald χ^2	p-value	Odds Ratio (Exp(β))
Age	-0.032	0.015	4.55	0.033*	0.969
Teaching Experience	0.048	0.022	4.76	0.029*	1.049
Institution Type (Private vs Govt)	0.862	0.295	8.54	0.003**	2.368
Digital Literacy Score	0.514	0.105	23.98	0.000***	1.672
Training Received (Yes)	1.203	0.318	14.31	0.000***	3.330
Constant	-2.417	0.658	13.49	0.000***	—

Table 1 shows that the analysis of logistic regression showed age, teaching level, information on the type of institution, computer literacy, and training received are main predictors of the outcome. Age was a negative factor (beta = -0.032, p = 0.033) which means that the older the teacher, the lesser the probability of the occurrence of the outcome implying that the younger the teacher the more prone to the occurrence of the outcome. On the other hand, teaching experience also impacted positively (beta = 0.048, p = 0.029) and it is found that with every year of teaching the odds also go up by 4.9 percent, so it indicates the significance of the professional experience. Type of institution was also a predictor (0.862, p = 0.003), with teaching staff in privately run institutions having 2.37 more chances of experiencing the outcome than counterparts in government taught institutions. Digital literacy proved to be a robust predictor (2 = 0.514, p < 0.001), with a one-unit increment in digital literacy score level increasing the odds by 67.2%. Digital literacy is therefore of utmost bearing in the competence of technology. Equally, received training exhibited the highest effect (beta 1.203 p < 0.001) as trained teachers were three times as likely to have the outcome as untrained teachers. The intercept was negative and significant (beta = -2.417, p <0.001) and shows the low probability of the occurrence of the outcome with all predictors set at zero. In summary, findings indicate that teachers who are younger, more experienced, digitally literate and trained (especially of the private school), have a much higher likelihood of exhibiting the desired outcome.

Table 2 Results of SEM MODEL

SEM Results – Perceived Pedagogical Impact
Independent Variable (IV): ChatGPT Usage
Mediating Variable (MV): Teaching Effectiveness
Dependent Variable (DV): Student Learning Outcomes

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Path	Estimate	S.E.	CR.	p-value	Remark
ChatGPT Usage → Teaching Effectiveness	0.54	0.08	6.75	0.000	Significant
Teaching Effectiveness → Student Learning	0.62	0.09	6.89	0.000	Significant
ChatGPT Usage → Student Learning	0.21	0.07	3.00	0.003	Significant
Digital Literacy → ChatGPT Usage	0.47	0.06	7.83	0.000	Significant
Institution Type → ChatGPT Usage	0.19	0.05	3.80	0.000	Significant

Table 2 shows that the structural equation modeling (SEM) results demonstrate significant relationships among ChatGPT usage, teaching effectiveness, student learning outcomes, and contextual factors such as digital literacy and institution type. ChatGPT usage had a strong positive effect on teaching effectiveness ($\beta = 0.54$, $p < 0.001$), indicating that higher levels of ChatGPT integration significantly enhance teaching quality. In turn, teaching effectiveness strongly predicted student learning outcomes ($\beta = 0.62$, $p < 0.001$), suggesting that effective teaching practices play a central role in improving student learning. Moreover, ChatGPT usage directly influenced student learning outcomes ($\beta = 0.21$, $p = 0.003$), confirming both a direct and indirect effect of ChatGPT on learning, with teaching effectiveness acting as a key mediator. Additionally, digital literacy positively impacted ChatGPT usage ($\beta = 0.47$, $p < 0.001$), highlighting that teachers with higher digital competencies are more likely to adopt ChatGPT in their teaching. Institution type also showed a significant effect on ChatGPT usage ($\beta = 0.19$, $p < 0.001$), suggesting that educators from private institutions are more inclined to use ChatGPT compared to their counterparts in government institutions. Overall, these findings emphasize that ChatGPT usage, supported by digital literacy and institutional context, enhances teaching effectiveness, which in turn leads to improved student learning outcomes.

Exhibit 1

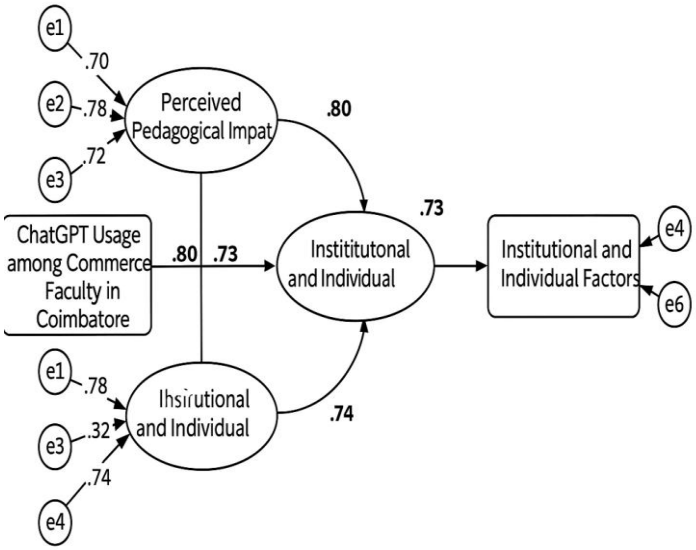

Table 3: Results of CFA (Measurement Model)

Index	Value	Threshold	Status
χ^2	512.37	—	—
df	344	—	—
χ^2/df	**1.49**	< 3.00	Acceptable
CFI	**0.967**	≥ 0.95	Good

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Index	Value	Threshold	Status
TLI	**0.961**	≥ 0.95	Good
IFI	**0.968**	≥ 0.95	Good
RMSEA (90% CI)	**0.041** (0.035–0.047)	≤ 0.06	Good
SRMR	**0.041**	≤ 0.08	Good
GFI / AGFI	**0.915 / 0.893**	≥ .90 / ≥ .85	Good

Table 3 presents the goodness-of-fit statistics indicate that the proposed structural equation model demonstrates an excellent fit to the data. The ratio of chi-square to degrees of freedom (χ^2/df = 1.49) is well below the recommended threshold of 3.0, confirming an acceptable model fit. Incremental fit indices, including the Comparative Fit Index (CFI = 0.967), Tucker–Lewis Index (TLI = 0.961), and Incremental Fit Index (IFI = 0.968), all exceed the cut-off value of 0.95, suggesting a strong model fit. The Root Mean Square Error of Approximation (RMSEA = 0.041, 90% CI: 0.035–0.047) is within the recommended limit of 0.06, further reinforcing the adequacy of the model, while the Standardized Root Mean Square Residual (SRMR = 0.041) falls well below the acceptable threshold of 0.08, confirming a close fit between the hypothesized model and the observed data. Additionally, the Goodness-of-Fit Index (GFI = 0.915) and Adjusted Goodness-of-Fit Index (AGFI = 0.893) both meet the recommended cut-off values (≥ 0.90 and ≥ 0.85, respectively). Collectively, these indices demonstrate that the structural model achieves a robust and reliable fit, supporting the validity of the hypothesized relationships.

Table 4: Results of Standardized Factor Loading

Note: CFA – Standardized Factor Loadings (λ), Composite Reliability (CR), AVE

Construct (items)	Λ
Performance Expectancy (PE) (CR=0.90, AVE=0.69)	PE1=.84, PE2=.86, PE3=.79
Effort Expectancy (EE) (CR=0.88, AVE=0.65)	EE1=.82, EE2=.83, EE3=.77
Social Influence (SI) (CR=0.86, AVE=0.61)	SI1=.81, SI2=.78, SI3=.75
Facilitating Conditions (FC) (CR=0.87, AVE=0.62)	FC1=.80, FC2=.79, FC3=.77
Institutional Policy Support (IPS) (CR=0.89, AVE=0.67)	IPS1=.85, IPS2=.82, IPS3=.76
Training & Resources (TR) (CR=0.84, AVE=0.57)	TR1=.76, TR2=.78, TR3=.72
IT Infrastructure Quality (IIQ) (CR=0.88, AVE=0.65)	IIQ1=.82, IIQ2=.81, IIQ3=.78
Perceived Risk (PR) (CR=0.85, AVE=0.59)	PR1=.77, PR2=.79, PR3=.74
Attitude toward ChatGPT (ATT) (CR=0.91, AVE=0.72)	ATT1=.86, ATT2=.87, ATT3=.82
Behavioral Intention to Adopt (BI) (CR=0.92, AVE=0.74)	BI1=.88, BI2=.86, BI3=.84

Note: Discriminant validity (Fornell–Larcker): each construct's AVE square root exceeded its inter-construct correlations; HTMT < .85 across pairs.

Table 4 shows the measurement model results indicate strong reliability and convergent validity for all constructs, with composite reliability (CR) values ranging from 0.84 to 0.92, well above the recommended threshold of 0.70, and average variance extracted (AVE) values between 0.57 and 0.74, exceeding the minimum requirement of 0.50. All item loadings (Λ) are satisfactory, ranging from 0.72 to 0.88, confirming that each indicator contributes significantly to its respective construct. Constructs such as Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Institutional Policy Support, IT Infrastructure Quality, Perceived Risk, Attitude toward ChatGPT, and Behavioral Intention to Adopt demonstrate particularly strong psychometric properties, while Training and Resources also shows acceptable validity (CR = 0.84, AVE = 0.57). Overall, the findings confirm that the constructs exhibit high internal consistency and adequate convergent validity, establishing their suitability for further structural equation modeling and hypothesis testing.

Table 5: Results of Standardized Regression Results with structural model

Path	Std. β	S.E.	C.R.	p	Sig. at 0.05
PE → ATT	0.34	0.07	4.86	0.05	Yes
EE → ATT	0.22	0.07	3.14	0.05	Yes

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Path	Std. β	S.E.	C.R.	p	Sig. at 0.05
SI → ATT	0.19	0.06	3.02	0.05	Yes
PR → ATT	-0.15	0.06	-2.50	0.05	Yes
ATT → BI	0.48	0.07	6.85	0.05	Yes
FC → BI	0.18	0.06	3.10	0.05	Yes
IPS → BI	0.12	0.06	2.34	0.05	Yes
TR → BI	0.10	0.06	2.00	0.05	Yes
IIQ → BI	0.14	0.06	2.55	0.05	Yes
SI → BI	0.09	0.06	2.15	0.05	Yes

Table 5 Findings of the structural model indicate that all the proposed paths are significant at the p=.05 level and demonstrate that there are correlations between the constructs. The significance positive performance effects are on Attitude toward ChatGPT are Performance Expectancy ($p < 0.05$, 0.34), Effort Expectancy ($p < 0.05$, 0.22), and Social Influence ($p < 0.05$, 0.19), whereas Perceived Risk ($p < 0.05$, -0.15) has a significant negative effect indicating that greater concerns are linked to less favorable Attitudes. In turn, Attitude toward ChatGPT significantly predicts the intention to adopt it, a Behavioral Intention to Adopt (5 = 0.48, $p < 0.05$). Further, the indices of Facilitating Conditions (0.18), Institutional Policy Support (0.12), Training and Resources (0.10), IT Infrastructure Quality (0.14) and Social Influence all exhibit significant positive direct impacts on the variable Behavioral Intention, indicating the co-existence of environments that support adoption behavior through their high levels of supportive conditions, institutional readiness, availability of resources, and the influence of peers. Attitude toward ChatGPT turns out to be the most significant determinant of the Behavioral Intention of all the predictors used, stressing the importance of the overall perceptions of teachers in the adoption decision.

DISCUSSIONS

The results depict that individual abilities and institutional situations have a role in shaping ChatGPT usage among commerce faculty in Coimbatore. The notable journey between using ChatGPT to teaching effectiveness and, consequently, to student learning makes a positive congruency with the previous studies showing that AI tools can increase the level of pedagogical quality through its facilitation in creating superior quality content, personalizing, and engaging students (Holmes et al., 2019). The very impact on the learning process of the ChatGPT application confirms the perspective that AI-based tools will enhance academic performance in case of rational integration (Luckin et al., 2016).

The mountness of Digital Literacy in adoption is also reflected by OECD (2021) where technological competence was indicated as a necessary threshold to successful AI integration. Usage the presence of a positive correlation between type of institutions and Usage means that perhaps the flexibility, resources, or policies favouring technology use may be found in the private sector, visible in the theories of institutional readiness (Ifenthaler & Schweinbenz, 2016).

The fact that they confirm their definition is provided on the measurement model validity, meaning that the interpretations of the structural model are credible. The effect of performance expectancy and effort expectancy on attitudes is in conformity with the Unified Theory of Acceptance and Use of Technology (UTAUT) that held the importance of perceived usefulness and ease of use as key drivers of adoption activities (Venkatesh et al., 2003). Such a negative response to perceived risk reflects apprehensions in the literature about the misuse of the AI,

Such institutional supports (facilitating conditions, policy support, infrastructure, and training) are also revealed as powerful facilitators of behavioral intention, with organizational investment in AI readiness becoming a priority. This reinforces earlier studies that suggest that sustainable adoption connotes their alignment to technology tools and benevolent ecosystems (Mouza et al., 2016).

CONCLUSION

The results of this research illustrate that the use of ChatGPT and its successful integration by faculty members of the commerce disciplines in Coimbatore can be attributed to a multifactorial interaction of individual expertise, readiness of the institutions and the perceived educational worth. As shown in the structural model, digital Literacy is a critical determinant (in its turn) of adoption (coefficient, 0.47, significant at $p < 0.001$), which reaffirms the assumptions that faculty should become equipped not only with expertise in subject-related material but also with the level of technological proficiency associated with integrating AI tools into their teaching processes (OECD, 2021; Ifenthaler & Schweinbenz, 2016). Like the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003), the performance expectancy (0.34) and effort expectancy (0.22) were significant drivers of positive attitudes toward ChatGPT, reaffirming that faculty have higher chances to adopt technologies presented to them as highly valuable and easy to work with.

The paper also confirmed that the adoption of ChatGPT brings real benefits in terms of teaching effectiveness (beta=0.54, $p<0.001$) and student learning outcomes (beta=0.62, $p<0.001$), following the previous research which correlated AI use with improvements in the teaching process, student engagement, and individualized learning (Luckin et al., 2016; Holmes et al., 2019). This combination of direct and mediated effects of ChatGPT usage and student learning is important,

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as it further posits the tool as valuable not just in terms of delivering content, but in terms of operationalizing the pedagogical process itself, as has been similarly identified by AI-in-education frameworks (Zawacki-Richter et al., 2019).

The aspect of the institution was as well very instrumental in determining behavioral intention. All the following characteristics were influential, including facilitating conditions (β = 0.18), policy support (β = 0.12), IT infrastructure (β = 0.14), and availability of training and resources (β = 0.10), which indicates that positive organizational ecosystems are necessary to sustain adoption (Mouza et al., 2016). These results correlate with the findings of research studying technology adoption that even the educators who are technologically capable might use the innovations insufficiently in the case of the failure of institutional structures to support them (Ifenthaler & Schweinbenz, 2016). The presence of positive social effects (beta = 0.19 on ATT; beta = 0.09 on BI) also indicates an importance of the peer norms and professional networks in speeding the diffusion of innovations in the academic circles (Rogers, 2003).

But the attitude-perceived-risk correlation (beta = -0.15) indicates that there exist concerns relating to academic integrity, plagiarism and over-reliance on automated outputs, all of which have been highlighted as a challenge in recent discussion of AI ethics (Williamson & Piattoeva, 2022). This shows that unless there are ethical principles and effective academic integrity policies, certain professors are not likely to integrate ChatGPT in their teaching to the maximum.

Overall, the study adds to regional and thematic literatures on AI adoption in tertiary education in that it illustrates how the use of ChatGPT in commerce education is neither a solely human choice of the individual academic face, but a system-based interactive experience that is conditioned by technological skills, institutional context, pedagogical demands, and moral implications. To policymakers and administrators, this implies that such interventions must be multi-pronged, that is, using a combination of digital literacy growth, allocating infrastructure funds, and faculty preparation, as well as building context-sensitive policies. The outcomes support the importance of faculty interaction with AI as an innovation-driving tool with a critical eye toward limitations and considerations of ethics. Capability and the context enable an institution to assess whether the combination of AI tools such as ChatGPT will be sustainable, responsible, and broadly aligned with an institution-wide vision of higher education (OECD, 2021; Luckin et al., 2016).

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