

## Article

# Faculty Perceptions and Practical Challenges in Integrating Generative AI into Business Education

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**Abstract:** This study examines faculty perceptions and practical challenges regarding generative AI in business higher education. It employs a mixed-methods analytical paradigm that combines a qualitative research design with natural language processing (NLP) techniques to conduct a systematic analysis of in-depth, semi-structured interview data from 10 business faculty members. The study comprehensively employed word frequency statistics, the LDA topic model, and SnowNLP sentiment polarity analysis to characterize, from multiple dimensions, the faculty group's cognitive landscape, usage logic, and practical dilemmas regarding generative AI tools. The results show that faculty members generally hold a highly positive attitude toward AI (with a mean sentiment score of approximately 0.98); however, at the practical level, they exhibit an implicit usage pattern characterized by openness in efficiency-related scenarios and convergence in evaluation-related scenarios. There is a significant stratification in the dimensions of focus among faculty members of different ranks: lecturers emphasize operational skills and tool integration, while associate professors place greater emphasis on content quality control and ethical standards; LDA thematic analysis identified three core issues: the efficiency of case-based teaching, the cultivation of business simulation and analytical skills, and training needs and assessment reform, collectively revealing the inherent tension between efficiency improvement and competency development. This study supplements existing qualitative evidence on AI-enabled education research from the perspective of faculty members and provides empirical references for business schools to formulate differentiated training strategies and optimize teaching reform plans for human-machine collaboration.

**Keywords:** Generative Artificial Intelligence; Business Higher Education; Teacher Cognition; Natural Language Processing

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## 1. Introduction

In recent years, generative artificial intelligence has rapidly penetrated the field of higher education. The powerful natural language processing and data analysis capabilities of large-scale generative AI have greatly facilitated innovation and reform in business education and curriculum design [1]. This is primarily manifested in intelligent data-driven approaches and smart course simulations, making it the emerging enabling field that has benefited the most. Existing research has mainly focused on how AI technology supports student-centered learning [2] and the technical implementation of intelligent grading [3]. It is worth noting, however, that the true drivers of generative AI's application in courses are business educators working at the forefront of practice; they are the key actors in reconciling the tensions between technological capabilities and educational needs. Nevertheless, existing research has significant gaps in exploring the actual usage patterns, cognitive processes, and practical adaptation strategies of frontline business educators. This gap hinders the development of practical guidance measures and training systems tailored to educators' needs [4].

This study aims to break away from the conventional framework dominated by one-way technical analysis and explores "how to understand and harness the intrinsic motivation of business faculty in introducing generative AI tools into their courses." Through the analysis of in-depth interview data from 10 business faculty members, combined with in-depth exploration using NLP technology, this study ultimately leverages these deeply grounded, frontline data analyses to bridge the gap in AI-enabled research regarding the understanding of faculty's underlying needs and practical support. It aims to advance the adaptation of business higher education to the demands of the era of intelligent transformation and to provide targeted recommendations for business schools to optimize the educational integration of generative AI tools.

## **2. Related Works**

In recent years, research on AI-assisted teaching both domestically and internationally has primarily focused on improving teaching efficiency in areas such as lesson preparation, test creation, and personalized learning. Studies based on the UTAUT and self-determination theory frameworks indicate that university faculty acceptance of generative AI has increased to some extent [5], but the main driving factors are performance needs and social influence, with a reduction in autonomy serving as a significant limiting factor [6]. Empirical findings show that generative AI can significantly improve work efficiency; however, in specific applications within the business discipline particularly the integration of case-based teaching and practical courses there is a mismatch between instruction and the actual business environment [7]. Nevertheless, existing research has not delved deeply into the proactive role transformation of instructors in this new technological environment [8].

Furthermore, ethical boundaries in the use of AI tools have not yet received sufficient attention. Despite the necessity of cultivating ethical awareness among instructors, empirical findings indicate that existing training primarily focuses on technical proficiency rather than ethical judgment or business-specific issues such as data privacy [9]. Similarly, research in the Chinese educational context indicates that while 80% of faculty have integrated generative AI into formative assessment, adoption rates drop significantly in summative assessment an area where academic integrity and algorithmic transparency are more sensitive issues [4].

In summary, previous studies have generally focused on verifying technology feasibility driven by efficacy, while leaving a gap in addressing deeper level contradictions such as ethical constraints and shifts in the faculty's role. Research in the specific disciplinary context of business schools has focused primarily on the effectiveness of tools, with little attention paid to the adaptation mechanisms among faculty. Current research on the application of generative AI in business education predominantly employs methods such as focus groups and questionnaire analysis to explore educators' technology adoption behaviors [8]. This study will employ qualitative text analysis to supplement the blind spots of quantitative research, focusing on "what" faculty members say and "why" they say it.

## **3. Methodology**

This study employs a qualitative research design and integrates natural language processing (NLP) technology for text mining and auxiliary analysis, with the aim of thoroughly exploring business faculty members' cognitive frameworks and practical challenges regarding the application of generative AI. The research data were derived from in-depth semi-structured interviews with 10 business faculty members (see Table 1 for details). The respondents included lecturers and associate professors, and the courses they taught spanned diverse business disciplines such as the digital economy, financial management, marketing, business statistics, and international trade practices. The interview guide centered on eight open-ended questions covering the current status of AI use, opportunities and challenges, major difficulties, role transitions, and

recommendations for reform. This study strictly adheres to academic ethical standards; all respondents have been anonymized, and the interview data is used solely for the academic analysis of this study.

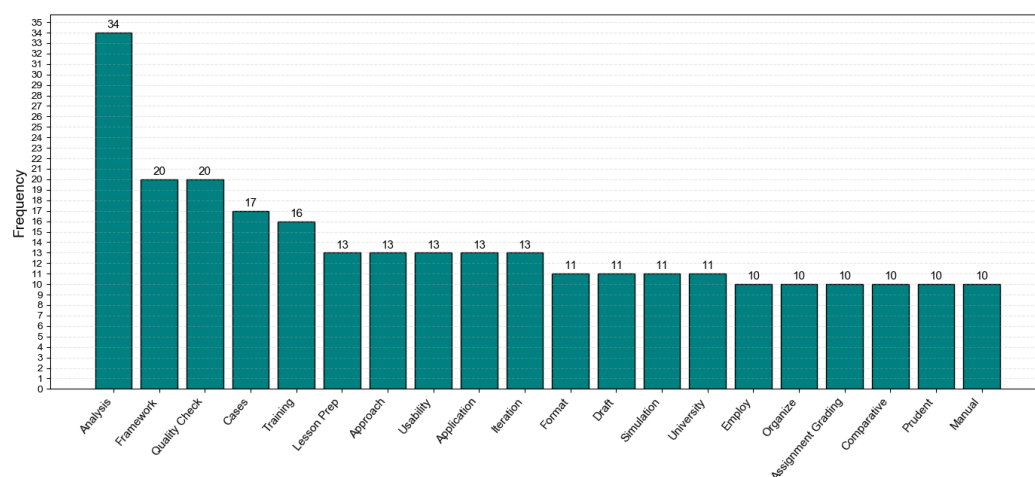
**Table 1.** Interview Question

| Item | Interview Question                                                                                                                                                              |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Do you currently use generative AI tools in your teaching? For which teaching aspects do you mainly use them (e.g., lesson preparation, case design, assignment grading, etc.)? |
| 2    | What opportunities and challenges do you think generative AI brings to business teaching (e.g., case teaching, business simulation)?                                            |
| 3    | What are the main difficulties you have encountered when trying to integrate AI tools into instructional design (e.g., technology, time/effort, ethical concerns)?              |
| 4    | How do you view your own transition between the roles of "knowledge transmitter" and "AI collaboration coach"?                                                                  |
| 5    | At what level do you consider your current AI teaching application ability? What training or support would you like to receive?                                                 |
| 6    | Does students' use of AI for learning support affect academic integrity or competence development? How have you responded to this?                                              |
| 7    | In your opinion, which teaching scenarios in business courses are most suitable for introducing AI tools (e.g., case reasoning, business decision simulation)?                  |
| 8    | What specific suggestions do you have for the university to promote "human-machine collaborative" teaching reform?                                                              |

In terms of the specific analytical approach, we first used Python to perform Chinese word segmentation and word frequency analysis. We then employed the LDA topic model to identify the core issues of concern among the teaching community, and combined this with the SnowNLP tool to conduct sentiment analysis, in order to quantitatively assess the attitudes of different teachers toward the application of AI in teaching, as well as any group differences.

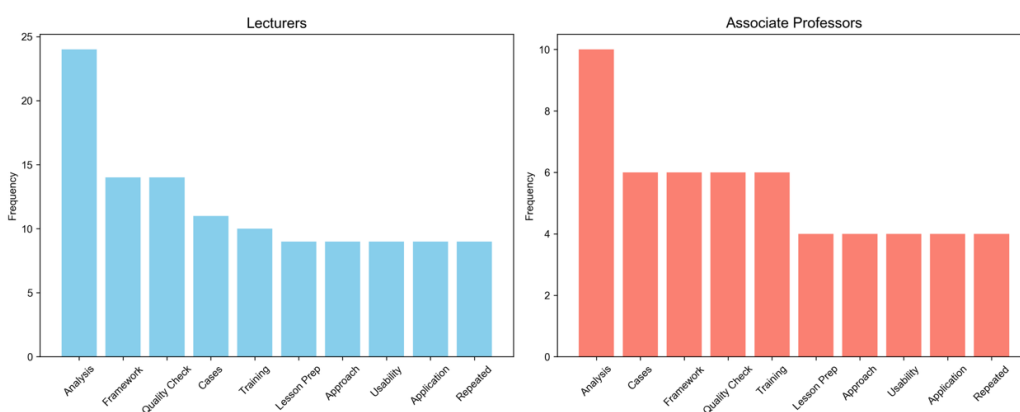
#### 4. Results

According to the high-frequency word statistics in Figure 1, the keyword most frequently mentioned by business faculty when discussing the application of generative AI in teaching is "analysis," appearing 34 times far exceeding other terms. This indicates that faculty generally view AI tools as closely linked to the development of business analytical skills. "Framework" and "quality control" tied for second place, each appearing 20 times, reflecting faculty's strong emphasis on the systematic nature of knowledge structures and the reliability of output content when using AI. "Case studies" and "training" followed closely behind with 17 and 16 mentions, respectively, indicating that case-based teaching remains the primary context for AI integration, while faculty members also express a strong desire to enhance their own skills. It is worth noting that "lesson preparation" and "draft" appeared 13 and 11 times, respectively, while "assignment grading" appeared only 10 times and was semantically linked to terms such as "manual" and "prudent." This distribution clearly reveals that teachers currently view AI as an assistant for pre-class preparation rather than a tool to aid in assessment. The consistent appearance of terms such as "simulation," "plan," and "data" also confirms the business education field's particular preference for scenario-based simulations and quantitative analysis.



**Figure 1.** Top 20 Keywords in Teachers' Responses

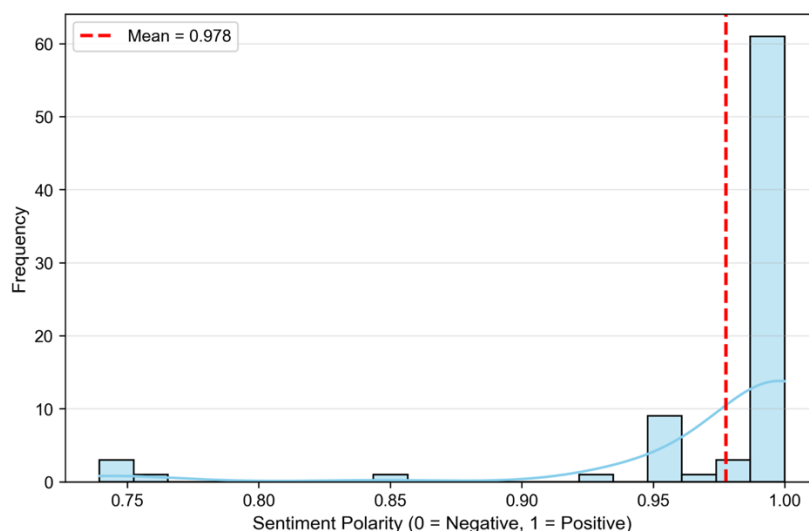
From the perspective of the professional title comparison in Figure 2, the high-frequency terms among lecturers are concentrated on operational-level vocabulary such as lesson preparation, case studies, first drafts, and refinement. This reflects their greater reliance on AI tools in daily teaching preparation, as well as a stronger focus on how to transform AI-generated content into ready-to-use teaching materials. Associate professors, on the other hand, tend to use terms at a higher level of abstraction such as "analysis," "framework," "data," and "accuracy" indicating that their focus regarding AI applications in teaching has shifted from operational efficiency to content quality and the rigor of disciplinary logic. Lecturers mentioned "training" significantly more frequently than associate professors, indicating that the former have a more urgent need for skill enhancement, while associate professors place relatively greater emphasis on ethics and standards a finding consistent with the greater responsibilities, they bear in course design and academic oversight due to their academic rank. There was little difference in the frequency of the terms "case studies" and "simulations" between the two groups, suggesting that case-based teaching and scenario simulations are AI application scenarios recognized by faculty members across all ranks. Overall, lecturers tend to view themselves more as tool users, while associate professors tend to see themselves more as content reviewers; this difference in perception provides valuable insights for the university in designing tiered training content.



**Figure 2.** Top 10 Keywords by Academic Rank

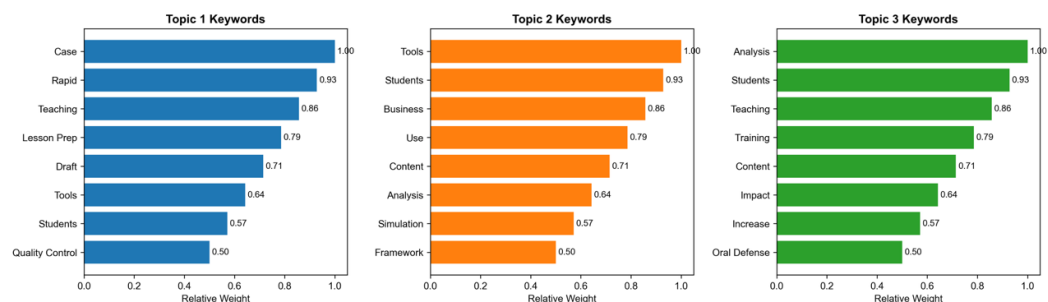
In Figure 3, the results of the sentiment polarity analysis of teachers' interview responses show that the overall sentiment scores fall within the range of 0.75 to 1.00, with a mean of approximately 0.98, exhibiting a highly positive, unimodal distribution. Sentiment scores in the 0.99 to 1.00 range appeared most frequently, with 60 occurrences,

indicating that the vast majority of teachers hold a clearly positive attitude toward the application of AI in teaching. The number of samples with scores below 0.90 was extremely small, indicating a high degree of consensus within the teacher group regarding their willingness to adopt AI tools. This result aligns with the actual behavior observed in the LDA thematic analysis, where teachers generally positioned AI as a tool to assist in lesson preparation, reflecting that teachers' performance expectations regarding AI's ability to enhance teaching efficiency have been preliminarily validated. It is worth noting that this high concentration of sentiment polarity does not equate to teachers' complete trust in the comprehensive application of AI. Considering the frequency of keywords such as "quality control," "oral defense," and "impact" in the thematic analysis, teachers continue to exercise cautious professional judgment at the operational level. Their positive attitude is more a reflection of their recognition of AI tools' potential rather than a disregard for their current limitations.



**Figure 3.** Overall Sentiment Distribution of Teacher Responses

The results of the LDA topic modeling in Figure 4 show that business faculty members' perceptions of AI applications in teaching can be summarized into three core themes. Theme 1 focuses on case-based teaching and lesson preparation efficiency. Its core terms include "case," "rapid," "teaching," "lesson preparation," "draft," "tool," "students," "quality control," and "framework," reflecting that faculty members view AI as a tool to assist in the rapid generation of case materials and the organization of knowledge frameworks. Theme 2, with keywords such as "business," "use," "content," "analysis," "simulation," "students," and "framework," points to the value of AI in business simulation scenarios and comparative analysis of multiple solutions, emphasizing the tool's role in training business judgment. Theme 3 revolves around training, content, analysis, impact, enhancement, oral defense, students, and teaching, highlighting instructors' focus on AI-assisted training needs, adjustments to assessment methods, and the evaluation of student competencies. The three themes share cross-thematic terms such as "students," "analysis," and "tools," indicating that while the instructor community is concerned with AI-driven efficiency improvements, they also generally prioritize maintaining students' analytical abilities and controlling the boundaries of tool usage reflecting the tension between teaching efficiency and competency development.



**Figure 4.** LDA Topic Keywords

## 5. Discussion

The findings of this study reveal, from multiple perspectives, the cognitive logic and practical constraints involved in business faculty members' integration of generative AI into teaching. An analysis of high-frequency terms indicates that faculty members do not view AI as a simple text-generation tool, but rather as a cognitive scaffold that assists in constructing business analysis frameworks and facilitating scenario simulations. The frequent co-occurrence of terms such as "quality control," "draft," and "refinement" reveals a typical "generation-review" usage paradigm: instructors use AI as an initial source of material, while the true educational value is still supplemented by human judgment and professional experience, reflecting their clear understanding of AI's limitations. Differences in academic rank reveal structural characteristics of cognitive differentiation within the group. Lecturers focus on operational efficiency, while associate professors pay closer attention to content quality and ethical standards. This misalignment in their competency expectations suggests that a one-size-fits-all training design would struggle to address the practical needs of different ranks.

The highly positive sentiment does not imply that the faculty has no reservations. Combined with the frequent appearance of terms such as "oral defense," "assessment adjustments," and "student impact" in LDA Theme 3, it can be inferred that behind their positive attitude lies deep-seated anxiety regarding academic integrity and competency evaluation. The fact that faculty members choose to adjust assessment methods rather than restrict AI use reflects their practical wisdom in seeking a dynamic balance between empowerment and oversight.

Overall, business faculty's current use of generative AI exhibits the typical characteristics of "high acceptance, low depth," and the lack of institutional support and ethical training is the core bottleneck constraining its deeper integration.

## 6. Conclusion

Through NLP mining and qualitative analysis of in-depth interview data from 10 business faculty members, this study systematically reveals the cognitive landscape and practical challenges faced by frontline instructors in integrating generative AI. The study found that business faculty generally recognize the value of AI as an aid in case-based teaching and lesson preparation; however, its overall application remains limited to the role of a lesson preparation assistant, with significant gaps in integration regarding assessment, ethics, and in-depth instructional design. There are marked differences among faculty members of different ranks regarding their perception of the tools' role and their support needs, calling for a differentiated training system; behind the faculty's high level of positive sentiment lie deep-seated concerns regarding the cultivation of students' competencies and academic integrity, and they have already developed preliminary coping strategies by adjusting assessment methods. These findings provide empirical evidence for business schools to formulate tiered policies for AI integration in teaching and to build a new ecosystem of human-machine collaborative teaching.

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