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Developing and Assessing Teacher Performance Models: Emphasizing Critical Thinking and Innovation in Teaching Practices

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Abstract: The 21st century is the era of knowledge economy, and talents have become the decisive factor for economic and social development. At present, the economic competition at home and abroad is getting more and more intense, and the essence of economic competition is the competition of talents. How to find talents, acquire talents, evaluate talents and reasonably use talents are the core contents of human resources development and management nowadays. The researchers hope to develop and validate a teacher performance assessment model that integrates the dimensions of critical thinking and innovative teaching to support educators in improving teaching effectiveness in the current rapidly changing educational environment. Through quantitative analyses of 300 Chinese university teachers, this study provides insights into how critical thinking and innovative teaching work together to improve teachers' teaching performance. The study used structural equation modelling (SEM) to analyse the direct effects of critical thinking and innovative teaching on teachers' performance and their interactions, while considering the moderating effects of teachers' background variables (e.g., educational background, years of teaching experience, etc.). The results of the study showed that critical thinking and innovative teaching had a significant positive impact on improving teacher performance and there was a positive interaction effect between them. Teachers are the main contributors to the enhancement of innovation in colleges and universities, and the study of teacher performance appraisal for the enhancement of innovation in colleges and universities actually aims to find out the key performance indicators of teachers that have an important impact on the enhancement of innovation in colleges and universities, and then improve the performance appraisal of teachers in order to effectively enhance the innovation in colleges and universities. Based on the findings, the researcher proposes a set of practical tools for teacher performance assessment, which provides a scientific basis for university administrators and policy makers to promote the improvement of education quality, and provides new perspectives and empirical evidence to promote the scientific and systematic evaluation of teacher performance.

Keywords: Teacher performance assessment, Critical thinking, Innovative teaching, Structural equation modelling

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PENGENALAN / *INTRODUCTION*

Background of the study

In today's rapidly changing global educational environment, higher education institutions face unprecedented challenges and opportunities(Rajasingham,2011). With the rise of the knowledge economy and the acceleration of technological innovation, there is an urgent need in the field of education to develop students who can think critically and innovate to meet the complex demands of the future society (Hart & Samouilova, 2023). At present, knowledge economy and knowledge innovation have become the mainstream of leading the world development, and the competition between countries has been increasing the dependence on knowledge and technology. The trajectory of the world's scientific and technological development shows that it is only through innovation that a country can stand out in the fierce international competition. In this context, the role of teachers has become particularly important, not only as transmitters of knowledge, but also as the key to guiding students to think critically and innovate (Abendan, 2023). Therefore, constructing a model that accurately assesses and promotes teachers' performance in critical thinking and innovative teaching is of great significance in enhancing teaching quality and student learning outcomes. However, existing teacher performance assessment systems tend to focus on traditional teaching skills and knowledge transfer and lack a systematic assessment of teachers' critical thinking and innovative teaching abilities. Differences in culture and education systems make it difficult to directly apply teacher performance assessment models from Western countries to the context of Chinese higher education. Therefore, exploring a performance appraisal model that suits the characteristics of Chinese higher education teachers, which can promote their professional growth and improve the quality of education, has become an important issue in current educational research (Lee, 2019). Brennan (2014) says that higher education is an important foundation and leading force for the establishment of an innovative country, a field of human social practice, whose connotation and extension are always in a process of change and development. The development of the performance evaluation model not only provides a new perspective for understanding the multidimensional composition of teacher performance, but also provides a scientific decision-making tool for university administrators to optimise the allocation of faculty resources and promote educational innovation and the comprehensive development of students' abilities.

Problem Statement

University is a place of knowledge production and dissemination, and teaching and research are two basic tasks of university teachers（Snellman,2015）. For universities, both tasks are very important, and they determine the long-term reputation and social value of universities. However, at present, due to the existence of the phenomenon that universities emphasise scientific research over teaching, there is also an imbalance between teaching and scientific research in the performance evaluation of university teachers, which tends to emphasise the guiding role of scientific research in the evaluation of teachers' performance, ignoring the role of teachers as professional educators, who undertake the social responsibility of cultural transmission, teaching and educating people, and the role of being the main implementer of the school's educational functions(Almufarreh, 2023). Although critical thinking and innovative teaching are widely recognised as core elements of education in the 21st century (Griffin, 2014), these two dimensions are often under-appreciated and under-evaluated effectively in the current higher education assessment system. Existing teacher performance assessment models mostly focus on teaching skills, mastery of course content, and student satisfaction, but less on whether teachers are able to stimulate students' critical thinking and innovation. As education becomes more internationalised, educational practices need to take into account the impact of

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cultural differences on teaching methods and performance assessment. Especially in China, where educational traditions differ significantly from those of Western countries, educators need to develop teacher performance assessment models that are more appropriate for localised contexts.

Research Objectives

1. To develop and validate a teacher performance assessment model that emphasises critical thinking and innovative teaching.
2. To examine in depth how critical thinking and innovative teaching affect teacher performance.
3. To assess how faculty members' educational backgrounds, years of teaching experience, etc. affect the application and effectiveness of critical thinking and innovative teaching in teaching practice.
4. To provide higher education administrators and policy makers with strategic recommendations on optimising teacher performance assessment systems and promoting teacher professional development.

Research Questions

1. What are the multidimensional components of critical thinking and innovative teaching in teacher performance?
2. How do critical thinking and innovative teaching interact with each other to affect teacher performance?
3. How do variables such as teachers' educational background and years of teaching experience moderate the effects of critical thinking and innovative teaching on teacher performance?
4. How can existing models of teacher performance assessment be optimised based on the findings of the study?

Significance of the Study

From the theoretical significance, at present, teaching performance evaluation activities of teachers in colleges and universities have been widely carried out and have become an important content of school assessment of teachers, which provides a favourable guarantee for colleges and universities to achieve scientific management and improve teaching quality (Xin, 2022). The evaluation of teachers' teaching work includes the evaluation of the teaching process and the evaluation of teaching results. The course elements in the teaching process are more complex, including teachers, students, teaching content, teaching methods, the teaching environment and other uncertain factors. Teacher-student relationship is largely reflected in the non-linear relationship between teachers and students in the process of common inquiry, a two-way communication rather than one-way control. By exploring in depth the impact of critical thinking and innovative teaching on teacher performance, this study provides specific strategies and methods for colleges and universities to help educators design and implement teaching and learning activities more effectively, thereby enhancing teaching quality and student learning outcomes. The thesis examines the issue of teacher performance appraisal from the perspective of integrating critical thinking and innovative teaching, and forms a theoretical framework for promoting innovation in colleges and universities by exploring the influence of teacher performance appraisal index system on the index system of innovation in colleges and universities and refining the key performance appraisal indexes affecting the improvement of innovation in colleges and universities (Xin,2022).

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From a practical point of view, educational innovation can promote national innovation, and the construction of an innovative country ultimately depends on innovative talents, while the cultivation of innovative talents depends on higher education. Enhancing the innovation power of colleges and universities by constructing a scientific and reasonable teacher performance appraisal system will effectively enhance the national innovation power (Lv, 2022). Scientific performance appraisal can not only promote teachers to improve their performance in a targeted way, but also quickly improve the innovative power of colleges and universities and enhance the core competitiveness of colleges and universities. The results of the study help to identify the key factors affecting teachers' adoption of critical thinking and innovative teaching strategies, and provide a basis for the design of teachers' professional development planning and education and training programmes. Oriented towards enhancing the innovative power of colleges and universities, in-depth study of the role of teacher performance indicators on the enhancement of college and university innovation mechanism, so as to effectively promote the synergistic development of colleges and universities and teachers.

LITERATURE REVIEW

Conceptual Research

a. Research on Teacher Performance Evaluation in Colleges and Universities

Performance evaluation refers to the evaluation of the work process of the evaluated person to consider, and assess the degree of their completion of the work of the post to achieve the effect (Amin, 2022), including the employee's responsibility for the work, professional quality, development potential, and its completion of the work of the number of quality social and economic benefits, the impact of the organisation's development and contribution, etc., it is based on the pre-determined objectives and standards, select the corresponding indicators of the object, to take a scientific and reasonable evaluation method, to assess the evaluated person to complete the work of the teacher, and to assess the performance of the evaluated person (Hartmann, 2012). It is a human resource management activity that selects corresponding index objects and adopts scientific and reasonable evaluation methods according to the pre-determined work objectives and standards, and evaluates the completion of work and potential development of the evaluated person. Performance evaluation is related to employee promotion, compensation and welfare, training and further education, recruitment planning, career planning and other human resources management activities, is the premise and basis for correct personnel decision-making, decision-making is the result of the continuation and expansion of the evaluation. Performance evaluation of college teachers is a specific application of performance evaluation theory in the special object of college teachers. In view of the specificity of the profession of college teachers, the meaning of performance evaluation of college teachers also has a different definition from the general sense of performance evaluation, that is, the performance evaluation of college teachers refers to "a process used by colleges and universities to measure and evaluate the performance and quality of work of teachers for a certain period of time, and to assist teachers in their growth," i.e., the reality of the role of the teacher's activities (which have been achieved), the performance of the teacher's performance evaluation. It is an activity that evaluates the real (what has been achieved) or potential (what has not yet been achieved but could be) value of a teacher's role activities(Allen,2020).

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b. Innovative teaching and learning in higher education

Innovation is the activity of an individual or a group of people to produce something new, unique, socially or personally valuable, based on a certain purpose and using known information. Innovativeness refers to the ability to implement innovative activities. Innovative power in higher education refers to the ability of higher education institutions to rely on teachers and administrators in a series of innovative activities such as knowledge creation, innovative talent training, and the creation of scientific research results in the process of exploring unknown fields. The main body of innovative teaching in colleges and universities is the teacher, whose innovation is reflected in three aspects, namely, the innovation in teaching, such as the innovation of teaching means, teaching methods, teaching process; the innovation in scientific research is mainly the innovation of academic results, academic value, etc.:The innovation in social service or discipline development is mainly the contribution of academic research to the enterprise or society. It is worth pointing out that, although the innovation of teaching in universities is a systematic concept, including both the output of scientific research results and the ability to transform the hard indicators, including the philosophy of school running, culture and system, and other soft indicators, and dynamic changes（Kusumaningrum，2019）.

c. Critical thinking

Critical thinking refers to the advanced thinking method and form in which individuals can flexibly use their existing knowledge and experience to choose problems and solutions, identify assumptions, analyse and reason on the basis of reflection, and make reasonable judgments and correct trade-offs in complex situations（Lee,2024）. Its core concern is the relationship between logical knowledge and logical thinking ability, or more generally, the relationship between knowledge and ability, the essence is to know people and things through questioning, through the analysis of judgement to check their own thinking and that of others, the application of various fields is not to passively wait, or passively listen to the instructions, or people in the cloud, but to actively participate in the corresponding activities, through the reflection of the Critical Thinking is based on a good understanding of the concept of "critical thinking". Critical thinking is based on good judgement, using appropriate evaluation criteria to judge and think about the true value of things. Halpern (1998) explored the cognitive process of critical thinking and its development from the perspective of cognitive psychology, which provided a theoretical basis for the teaching of critical thinking, and Kuhn (1999) found that by guiding students to participate in argumentative activities, critical thinking development could be promoted. Walker (2003) proposed to integrate critical thinking teaching into the teaching and learning activities of various disciplines. Domestic scholars Ying Yuwei (2016) explored the cultivation path of college students' critical thinking ability, such as optimising the curriculum and creating a critical atmosphere. It is a rigorously understood, critical attempt to make objective judgements about what is good or bad, characterised by careful analysis and judgement. There are two key points in understanding this concept:① Critical thinking has a rigorous set of criteria for testing the fairness of thinking: clarity, accuracy, relevance, depth, breadth, and logic. ② Critical thinking requires overcoming egocentricity, daring to question oneself, and being as objective as possible. Not only are more critical thinkers less susceptible to outside distractions and able to resist the influence of bias, they can also overcome their own limitations and resist self-centred thinking.

A Review of Domestic and International Research

Exploring a teacher performance assessment model that incorporates critical thinking and innovative teaching is undoubtedly a challenging and far-reaching task（Cooper,2023）. In

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the current wave of education reform, critical thinking and innovative teaching have become the direction markers of our endeavours, while teacher performance assessment is an important engine to promote teachers' professional growth and improve teaching quality. Numerous scholars, both domestic and foreign, have made in-depth excavation of this topic from different perspectives. Regarding the teaching of critical thinking, Ennis (1985) has outlined its core outline for us, from clarifying the problem to information collection, and then to the screening of information sources and the refining of conclusions. aul and Elder (2008) have further emphasised the urgency of fostering the quality of students' critical thinking, and have given practical teaching strategies. Our domestic scholar Zhou Yong (2008) also provides new ideas for undergraduate teaching by analysing the barriers to critical thinking development.

In the arena of innovation teaching, Beghetto (2010) put forward a striking idea that innovation teaching should focus on the development of students' creativity, and introduced the novel concepts of "small creativity" and "pre-innovation" for us. Plucker et al. (2004) revealed the practice of innovation teaching, such as using open-ended questions to stimulate students' divergent thinking. Plucker et al. (2004) revealed the practice of innovative teaching, such as using open-ended questions to stimulate students' divergent thinking, while Xiang Xianming and other scholars in China also painted a vivid picture of innovative teaching in 2002, which is full of elements of inspiration, inquiry and cooperation. education. Zhu Zhiting et al. (2009) discussed the implementation conditions of innovative teaching, including teacher creativity and innovative learning atmosphere. Jin Jiawei (2023) summarised the implementation strategies of innovative teaching, such as case study teaching method and brainstorming method.

Turning to the key aspect of teacher performance assessment, Milanowski (2011) made a pertinent suggestion in 2011: to closely link teachers' teaching practice with students' learning outcomes as the cornerstone of assessment.Harris et al. (2014) emphasised three major attributes of assessment criteria: consistency, fairness and operability. Our scholar Wang Hongqi built a solid theoretical framework for teacher performance assessment in 2007 and analysed the problems in assessment at that time.Simpson and Courtney (2008) proposed "reflection and innovation in teaching" as a dimension of teacher assessment, stressing that teachers should have the ability of self-reflection, critical thinking and innovation. Nelsen (2015) found that when teachers implement teaching strategies that are conducive to the development of students' critical thinking and innovative thinking in the classroom, students' academic performance improves significantly. Chen Satellite and Guo Jixue (2019) constructed an assessment model for teacher professional development based on core literacy, which involves the cultivation of critical thinking and innovative awareness.

Synthesising these valuable research results, we can clearly see that constructing a teacher performance assessment model that integrates critical thinking and innovative teaching needs to be considered from multiple dimensions: we need to deeply understand the connotations of critical thinking and innovative teaching, and explore their vivid demonstration in teaching (Netshitangani, 2018); we need to establish comprehensive and detailed assessment content and standards, covering all aspects of teaching design, teaching behaviour and students' learning outcomes; to design scientific and reasonable assessment procedures and methods, so that multiple forms of assessment, such as lesson observation and evaluation, student evaluation and teachers' self-evaluation, reflect each other (Tuytens & Devos, 2017); and lastly, we need to construct an efficient feedback mechanism, so that it can become a strong impetus for teachers' professional growth . All of this requires a close combination of theory and practice, and requires researchers to have a full understanding of and respect for the uniqueness of different disciplines and school years.

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METODOLOGI / *METHODOLOGY*

Research Sample and Research Sample Size

In this study, 300 Chinese university teachers were selected as the research sample. The gender distribution of the research sample shows a perfect balance, with 50 per cent male and 50 per cent female. This equal gender ratio helps to ensure that the results of the study are not affected by gender bias, thus enabling a more comprehensive understanding of teachers' performance in different gender contexts. With an age range of 30-55 years and a base requirement of at least three years of teaching experience, the near-even age distribution ensured that teachers from the middle-aged to near-retirement age were included, thus allowing for the analysis of teacher performance at different stages of the life cycle. The selection of the sample was carried out through stratified random sampling method to ensure the representativeness and diversity of the sample. The sample size and population were chosen because they better reflect the general characteristics of the Chinese college teacher population, while the sample size is sufficient for effective statistical analyses.

Research Methods

This study used questionnaire-based quantitative analysis and structural equation modelling (SEM). The questionnaire design contains indicators that measure critical thinking skills, innovative teaching practices, and teacher performance. The results of the questionnaire survey will be processed through quantitative analysis methods and then structural equation modelling will be used to explore the direct impact of critical thinking and innovative teaching on teacher performance and their interactions.

Data Analysis

The collected questionnaire data will first be analysed by descriptive statistics to get a basic picture of the sample. Subsequently, factor analysis was used to verify the construct validity of the questionnaire. Structural equation modelling will be used to analyse the relationship between critical thinking and innovative teaching and teacher performance, while considering the moderating role of teachers' personal background variables (e.g. age, gender, years of teaching experience, etc.). Data analysis will be done using statistical software such as SPSS and AMOS.

FINDINGS AND DISCUSSION

Table 1

Variable	Count	Mean	Std Dev	Min	25th Percentile	50th Percentile	75th Percentile	Max
Critical Thinking	300	4.243	0.442	3.508	3.859	4.268	4.635	4.985
Innovative Teaching	300	4.121	0.606	3.091	3.609	4.146	4.651	5.181
Educational Background	300	1.443	0.694	1.000	1.000	1.000	2.000	3.000
Teaching Satisfaction	300	2.922	0.284	2.236	2.728	2.918	3.146	3.563
Teacher Performance	300	1.477	0.171	1.004	1.362	1.475	1.595	1.902

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It can be observed in the data that the mean values for critical thinking and innovative teaching are close to 4 or more out of 5, indicating that the majority of teachers in the simulated dataset performed well on these two dimensions. The mean for Educational Background is close to 1.443, reflecting the dominance of undergraduate degree holders in the sample. The means for both teaching satisfaction and teacher performance are in the upper middle range, indicating that, overall, the quality of teaching and the performance of teachers are rated relatively positively. However, the presence of standard deviations suggests that there is still some fluctuation and variation across the variables, which suggests that we need to take into account the effects of individual differences when analyzing the data.

Table 2

/	**Critical Thinking**	**Innovative Teaching**	**Educational Background**	**Teaching Satisfaction**	**Teacher Performance**
Critical Thinking	1.000	-0.095	-0.131	0.353	0.301
Innovative Teaching	-0.095	1.000	0.084	0.832	0.672
Educational Background	-0.131	0.084	1.000	0.029	0.084
Teaching Satisfaction	0.353	0.832	0.029	1.000	0.823
Teacher Performance	0.301	0.672	0.084	0.823	1.000

The correlation analysis table reveals the strength and direction of the correlation between the study variables. The significant finding was a strong positive correlation between teaching satisfaction and innovative teaching (0.832), implying a strong link between the use of innovative teaching strategies and high teaching satisfaction. In addition, strong positive correlations were also shown between teacher performance and teaching satisfaction (0.823) and innovative teaching (0.672), which emphasizes the key role of innovative teaching and teaching satisfaction in improving teacher performance. The correlations between critical thinking and the other variables, although relatively low, still indicate their importance in educational practices. The results of these correlation analyses provide valuable insights into the need to focus more on the promotion of innovative teaching and teaching satisfaction in educational practice.

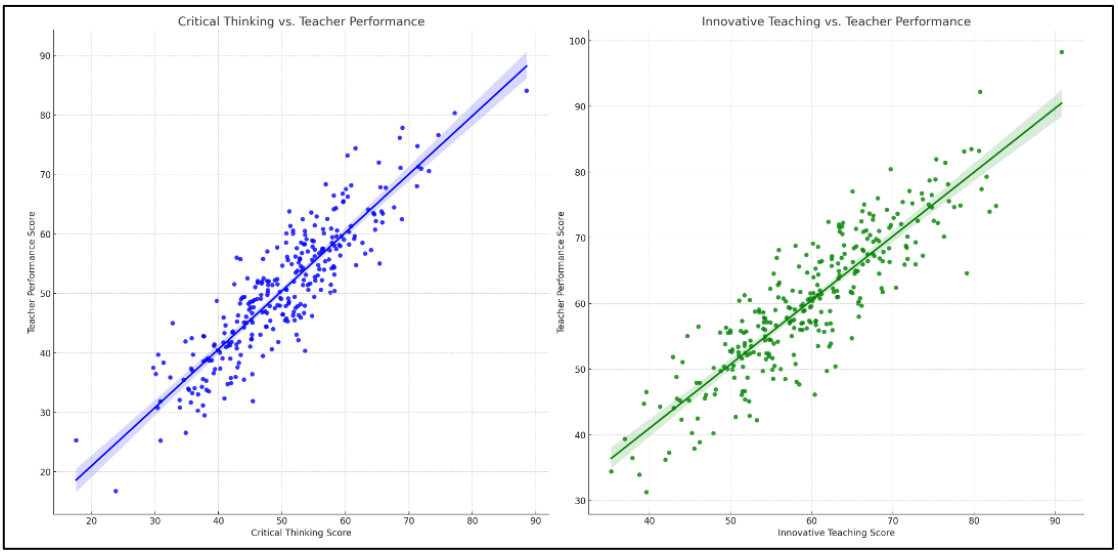

Figure 1

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The scatterplot presented exemplifies the interplay between critical thinking, innovative teaching, and teacher performance, revealing far-reaching implications for future educational strategies. In the plot of critical thinking versus teacher performance, the dense clustering of points along the upward trend line indicates that teachers who score higher in critical thinking tend to have correspondingly higher performance ratings. This pattern suggests not just correlation, but also causation. Critical thinking is not just an educational term, but a tangible asset that, when utilized effectively in teaching practice, can enhance the entire educational experience. This intuitive evidence strengthens the argument for an educational framework that prioritizes analytical skills, suggesting that critical thinking should be integrated into the fabric of teacher development programs.

Similarly, the graph of innovative teaching versus teacher performance makes a strong case for the role of innovation in pedagogy. The concentration of data points near the upward-sloping regression line suggests a strong link between innovative pedagogy and teacher performance. This suggests that educational innovation-whether through technology integration, novel assessment methods, or creative instructional design-translates into improved teaching effectiveness. The inference is clear: both educators who break with traditional paradigms and innovative teaching methods improve teaching effectiveness.

CONCLUSION

The pursuit of excellence in education is a never-ending process that requires us to continually re-evaluate teaching methods and performance assessment frameworks. This study reveals the critical role of critical thinking and innovative teaching in shaping the educational experience and improving teacher performance. The findings emphasize the urgency of incorporating these elements into the core of teaching practices and assessment criteria.

Critical thinking is an essential catalyst for educational progress. It empowers students to navigate the complexities of the modern world, question assumptions, and develop novel solutions to unprecedented challenges（Meirbekov,2022）. By developing critical thinking skills, we equip learners with the intellectual agility to thrive in an era of rapid change and uncertainty. Additionally, findings highlight the positive impact of critical thinking on teacher performance, suggesting that educators who embrace this way of thinking are better equipped to stimulate intellectual curiosity, foster analytical rigor, and develop the next generation of innovators.

Innovative teaching has also proven to be a transformative force in education. It challenges the traditional boundaries of knowledge dissemination and encourages educators to explore uncharted pedagogical territory (Yu, 2021). Through innovative teaching methods, classrooms become vibrant incubators of creativity where students actively participate in the learning process and where their ideas can take flight. The strong link between innovative teaching and teacher performance underscores the imperative of fostering a culture of experimentation and risk-taking in our educational institutions.

Moreover, this study reveals the synergy between critical thinking and innovative teaching. When these two elements are perfectly aligned, they catalyze a virtuous cycle of intellectual growth and instructional improvement. Critical thinking fosters the intellectual curiosity needed for innovative teaching, while innovative teaching provides fertile ground for the development of critical thinking skills. This symbiotic relationship underscores the need for a holistic approach to educational reform, one that recognizes the interconnectedness of these important components.

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As we plan for the future of education, it is incumbent upon us to embrace the findings of this study and translate them into workable strategies. Universities must prioritize the professional development of educators by providing them with the tools and resources to develop critical thinking and innovative teaching practices. Curricula should be redesigned to place greater emphasis on analytical reasoning and creative problem solving to prepare students for the challenges of the 21st century.

In addition, performance assessment frameworks must evolve to reflect the multidimensional nature of teaching excellence. Traditional metrics that emphasize content delivery and student satisfaction alone are no longer sufficient. In its place, we must develop comprehensive scoring rubrics that accurately assess educators' ability to foster critical thinking, promote intellectual curiosity, and embrace pedagogical innovation.

In our pursuit of educational excellence, we must remain vigilant against complacency and stagnation. The findings of this study sound a clarion call for ongoing self-reflection, experimentation, and adaptation. Only by embracing a growth mindset and fostering a culture of curiosity can we truly unleash the transformative potential of education.

Looking ahead, let us be even more determined to recognize that critical thinking and innovative teaching are not just buzzwords, but powerful catalysts for educational change. By incorporating these elements into our education systems, we can lay the foundation for generations of learners to become not just consumers of knowledge, but builders of a better future.

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