

# Innovative teaching strategies, student engagement, and academic achievement in Chinese higher vocational colleges

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## Abstract

This study utilized a descriptive design aiming to comprehensively describe and analyze the current status of the implementation of innovative teaching strategies, students' engagement in learning, and the overall performance of academic achievement in Chinese higher vocational colleges and universities. A representative sample of higher vocational institutions from different regions of China with a total of 3,000 students was selected as the study population. A total of 425 respondents were selected coming from institutions in developed regions on the east coast, emerging economic zones in the center, and underdeveloped regions in the west, aiming to cover the diversity and regional characteristics of China's higher vocational education. This study examined the relationship between innovative teaching strategies, student engagement, and academic achievement. More specifically, the study described the demographic profile of respondents in terms of sex, grade level, and major; determined the respondents' innovative teaching strategies in terms of innovative teaching content, innovative teaching methods, and innovative teaching evaluation, and integrative dimensions; evaluated participants' student engagement in terms of behavioral engagement, cognitive engagement, and affective engagement; assessed participants' academic achievement in terms of school cultural capital, classroom culture, and academic performance; tested the difference of responses when grouped according to profile variables; tested relationship among innovative teaching strategies, student engagement and academic achievement; and proposed a program to improve the teaching innovation capacity of art and design majors in Chinese institutions of higher education. The majority of respondents were undergraduate students with a balanced gender distribution, with slightly more males than females. The majority of the respondents agreed on the importance of innovative teaching strategies, particularly recognizing innovative teaching methods, and claimed that the content, teaching evaluation and integration dimensions also are needed to be innovative. The majority of respondents agreed on the importance of student engagement, particularly in terms of behavioral engagement, but also recognized the role of cognitive and affective engagement. The majority of respondents also agreed with the importance of the school's cultural capital,

classroom culture and academic performance on academic achievement with a favorable attitude. There was no significant difference on innovative teaching strategies after grouping students according to their profiles. There was a positive correlation between innovative teaching strategies, student engagement and academic achievement. A proposed program on enhancing innovative teaching strategies, student engagement, and academic achievement was designed based on the results.

**Keywords:** innovative teaching strategies, student engagement, academic achievement, Chinese higher vocational colleges

## **Innovative teaching strategies, student engagement, and academic achievement in Chinese higher vocational colleges**

### **1. Introduction**

As an important part of China's vocational education system, higher vocational education plays an irreplaceable role in promoting social and economic development and meeting the demand for industrial talents. However, with the continuous development of the economy and the upgrading of industrial structure, higher requirements have been put forward for the quality and effectiveness of higher vocational education. The traditional teaching mode has been difficult to meet the rapidly changing social and economic needs, and how to improve the quality of teaching and the learning effect of students has become an urgent problem in the current education field.

In this context, the introduction of innovative teaching strategies is regarded as an effective way to improve the teaching methods of higher vocational education and enhance the quality of education. Chen (2019) showed that innovative teaching strategies emphasize the teaching concepts of student-centered, project-based learning and collaborative learning, aiming to stimulate the students' interest in learning and enhance their practical application ability and innovative thinking through innovative teaching methods. In addition, the degree of student engagement, as an important indicator of teaching effectiveness, is often closely related to academic performance. Innovative teaching strategies can not only improve the teaching effect, but also promote students' deep participation, which also has an important impact on the improvement of academic performance. Although innovative teaching strategies have been widely researched and applied both at home and abroad, there is a lack of systematic empirical research and in-depth analysis on how effective their specific implementation is in Chinese higher vocational institutions.

In view of this, this study aims to explore the effective construction and implementation of innovative teaching strategies in Chinese higher vocational colleges and universities, and to analyze their effects on student engagement and academic performance, with a view to providing theoretical basis and practical guidance for the reform of teaching and learning in higher vocational education. The study aimed to construct a set of scientific evaluation system, to test the role of innovative teaching strategies on the improvement of teaching quality through practice, and to contribute to the cultivation of professionals adapted to the needs of the society in China's higher vocational colleges and universities. Innovative teaching strategies have been widely explored and practiced in higher vocational colleges and universities as the core means to improve the quality of education. These strategies often emphasize student-centeredness, stimulate students' interest and motivation in learning through flexible and diverse teaching methods, and then cultivate their innovative thinking and practical ability. However, Gong (2018) showed that how effective the implementation of innovative teaching strategies actually is and whether it really improves students' academic performance remains a concern for educators and researchers.

Student engagement is one of the most important indicators for assessing teaching quality and learning effectiveness. In higher vocational colleges and universities, the depth and breadth of student participation directly reflect their commitment to the learning process and their mastery of knowledge and skills. Ji (2020) proved that with the continuous updating of the concept of education, student participation is no longer just a passive role of knowledge acceptance but is transformed into an active knowledge constructor and problem solver. Therefore, how to effectively promote student participation, so that it becomes a powerful hand to promote the improvement of teaching quality, has also become an important issue facing higher vocational colleges and universities at present. Student engagement refers to the depth and breadth of participation shown by students in the teaching and learning process. It not only reflects the degree of students' commitment to the learning process, but also their level of mastery of knowledge and skills. Liu et al. (2019) study pointed out that

with the continuous updating of the concept of education, students have changed from passive recipients of knowledge to active knowledge constructors and problem solvers. Therefore, effective promotion of student participation is the key to improving teaching quality, which is particularly important in higher education institutions.

Academic performance, as the most direct standard for measuring students' learning effectiveness, has always been the core element in the education evaluation system. Liu (2022) showed that in higher vocational colleges and universities, students' academic performance is not only related to their graduation and employment but is also a kind of comprehensive expression of the knowledge, skills and abilities they have gained during the period of schooling. Analyzing the relationship between academic performance and innovative teaching strategies and student participation helps gain a deeper understanding of the effectiveness of teaching reform, and also provides an important basis for further optimizing teaching strategies and improving students' academic performance. Academic performance refers to the results achieved by students through various forms of assessment (e.g., exams, assignments, projects, etc.) during the learning process. Academic performance not only reflects students' academic ability and learning outcomes, but also serves as an important basis for assessing the quality of teaching and learning.

In summary, this paper aimed to determine the relationship among innovative teaching strategies, student engagement, and academic performance in higher vocational colleges in China. It was expected that the in-depth study of these three aspects would reveal the internal logic and law of teaching reform in higher vocational colleges and provide theoretical and practical guidance for improving the quality of higher vocational education and cultivating more high-quality technical and skilled talents. The beneficiaries of this study included administrators and educators of higher vocational colleges and universities, who can obtain effective teaching and management strategies; students of higher vocational colleges and universities, who may improve their academic performance and career competitiveness in a more positive learning environment; education policy makers, who would formulate policies to improve the quality of higher vocational education accordingly; and enterprises and industries, who may be better able to meet the needs of higher vocational colleges and universities due to the high-quality talents they cultivate.

**Objectives of the Study** - The purpose of this study was to determine the relationships among innovative teaching strategies, student engagement, and academic achievement in Chinese higher vocational colleges in order to propose an enhancement program based on the results. More specifically, the study intended to assess teachers' innovative teaching strategies in terms of teaching content, teaching methods, teaching evaluation, and integrative dimensions; evaluate student engagement in terms of behavioral, cognitive, and emotional engagement; assess participants' academic achievement in terms of school cultural capital, classroom culture, and academic performance; test relationships among innovative teaching strategies, student engagement, and academic achievement; and propose a program on enhancing the teaching innovative strategies, student engagement, and academic achievement of art and design majors in Chinese higher vocational colleges.

## 2. Methods

**Research Design** - This study applied a descriptive research method, aiming at comprehensively describing and analyzing the current situation of the implementation of innovative teaching strategies in China's higher vocational colleges and universities, the specifics of students' engagement in learning, and the overall performance of students' academic achievement. In addition, the intrinsic connection between the three was explored with a view to providing empirical support for the improvement and development of teaching and learning in higher vocational education. The descriptive research method was chosen because it is the most fitting design for this study.

**Participants of the Study** - In this study, the selection of the sample was crucial for obtaining reliable results. In order to gain a comprehensive understanding of the implementation of innovative teaching strategies in

Chinese higher vocational institutions and their impact on student engagement and academic achievement, a representative sample of higher vocational institutions from different regions of China with a total of 3,000 students was selected as the study population. Using Raosoft, 351 samples were calculated with a confidence level of 95 percent and expanded to 425 respondents for greater reliability of results. The sample institutions included developed regions on the east coast, emerging economic zones in the center, and underdeveloped regions in the west, aiming to cover the diversity and regional characteristics of China's higher vocational education.

**Instrument of the Study** - This study used a questionnaire as a research instrument which was divided into four sections. The first section was a personal information sheet, which included the sex, grade, and major of the participants. The second part was Innovative Teaching Strategies, which included Innovative Teaching Content, Innovative Teaching Methods, Innovative Teaching Evaluation, and Innovative Comprehensive Dimensions, with a total of 30 items, adapted from Sun (2020), "Multi-dimensional Questionnaire for Research on Teaching Strategies for Cultivating Innovative Ability in Elementary School Robotics Teaching." The third part was Student Engagement, which encompassed Behavioral Engagement, Cognitive Engagement, and Emotional Engagement, with a total of 30 items, adapted from Lin (2023), "A Study of Strategies for Improving Student Engagement in Elementary School Information Technology Classrooms." The fourth part was Academic Achievement, which contained three parts: School Cultural Capital, Classroom Culture, and Academic Performance, adapted from "Research on Multidimensional Questionnaire on Factors Influencing College Students' Academic Performance from the Perspective of Cultural Capital."

The Cronbach Alpha coefficient was used as a measure, with higher values indicating better internal consistency. According to the assessment criteria proposed by George and Mallery (2020), all the indicators had Cronbach Alpha coefficients of 0.9 or above and were therefore rated as "excellent". This suggests that these pedagogically relevant indicators demonstrate a high degree of internal consistency in measuring their corresponding constructs or attributes and are reliable and valid measurement tools. Specifically, the indicators of innovative content, innovative teaching methods, innovative teaching evaluation, integration dimension, behavioral engagement, cognitive engagement, affective engagement, school cultural capital, classroom culture, and academic performance all showed excellent internal consistency.

**Data Gathering Procedure** - To ensure the completeness and representativeness of the data in this study, the data collection methodology adopted diverse strategies to collect data. Quantitative data were mainly derived from questionnaires, which were specifically designed to assess students' engagement and academic performance, as well as students' perceptions and experiences of innovative teaching strategies in higher education institutions. The questionnaire design synthesized the results of the preliminary literature review to ensure the relevance and scientific validity of the questionnaire items. The questionnaires were distributed online in an anonymous manner to encourage students to reflect their opinions honestly. To increase the recall rate, the study provided a small incentive to motivate students to participate. To ensure the representation of the samples and the authenticity of the data, this study strictly adhered to the principle of random sampling in the sample selection process, and obtained sample information through multiple channels, including the student profile information in the academic affairs system, as well as the questionnaire on the basic situation filled out by the students themselves. All the data collection work obtained the consent of the corresponding institutions and participating students and promised to be used only for academic research purposes and to protect personal privacy. Through this series of thorough preparation and operation, this study constructed a sample database with a reasonable structure and wide coverage, which laid a solid foundation for the subsequent data analysis.

**Data Analysis** - Weighted mean and ranking identified innovative teaching strategies (content, methods, evaluation), student engagement (behavioral, cognitive, affective), and academic achievement (school cultural capital, classroom culture, academic performance). Pearson's  $r$  examined relationships among innovative teaching strategies, student engagement, and academic achievement. Proposals were made based on these analyses.

**Ethical Considerations** - In this study, strict ethical principles were followed during data collection to ensure that the information security and privacy of all participants were protected. The researcher received from the Ethics Review Committee the permit to conduct the study. Informed consent was obtained from each participant prior to the study, and a commitment was made that all information collected would be used for research purposes only and not for any commercial or other purposes. In addition, the data collection process ensured that the content covered by the questionnaire was logical and relevant, thus facilitating an effective data analysis session.

### 3. Results and discussion

**Table 1**

*Summary Table on Innovative Teaching Strategies*

Indicators	Weighted Mean	Verbal Interpretation	Rank
Innovation in Teaching Content	2.86	Agree	4
Innovative Teaching Methods	2.99	Agree	1
Innovations in Teaching Evaluation	2.91	Agree	2
Integrative Dimensions	2.89	Agree	3
Composite Mean	2.91	Agree	

*Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree*

Table 1 presents the summary of results on Innovative Teaching Strategies. The composite mean of 2.91 indicates that the respondents generally agreed. Among the items cited, Innovative Teaching Methods got a weighted mean of 2.99, which ranked first. Innovative teaching methods may include a variety of forms, such as flipped classroom, project-based learning, co-operative learning, etc. All these methods emphasize students' active participation and hands-on practice and are designed to enhance students' learning interest and effectiveness. Students believe that these innovative teaching methods not only make the classroom livelier and more interesting, but also help them better understand and master what they have learned, and cultivate their innovative thinking and practical skills. At the same time, these methods also promote communication and co-operation among students and enhance teamwork. Therefore, higher vocational colleges and universities can continue to promote and innovate their teaching methods, and flexibly use a variety of teaching methods in combination with the actual needs of students and professional characteristics, in order to further enhance the quality of teaching and the learning effect of students.

It was followed by Innovations in Teaching Evaluation with a weighted mean of 2.91. Students believe that the innovation in teaching assessment has enabled them to focus less on the final examination results and more on the accumulation of knowledge and enhancement of abilities in the learning process. The diversified assessment methods give them the opportunity to demonstrate their learning outcomes from different perspectives and gain a more comprehensive understanding of their own learning. At the same time, process evaluation also made them pay more attention to the details and feedback in the learning process, adjusting their learning strategies in time to improve their learning outcomes. This kind of evaluation not only enhances students' independent learning ability, but also develops their critical thinking and teamwork ability. The innovation of teaching assessment has a positive impact on students, making them pay more attention to the learning process and enhancing their independent learning ability and teamwork ability. Higher vocational colleges and universities can continue to promote and improve the innovations in teaching assessment to provide students with a more comprehensive and diversified evaluation method to further stimulate their learning motivation and potential.

Integrative Dimensions got a weighted mean of 2.89. The method not only focuses on students' knowledge mastery, but also places emphasis on students' ability development, affective attitudes and values, and other aspects of growth. By adopting diversified assessment methods and combining process and summative assessment, teachers are able to gain a more comprehensive understanding of students' learning status and provide students with personalized feedback and suggestions. This comprehensive approach to teaching and assessment helps to promote the overall reform and development of education and teaching, motivate students to

take an active part in the learning process, and cultivate the ability of independent and lifelong learning. Therefore, "Integrative Dimensions" is regarded as a forward-looking and practical teaching concept and method, which is of great significance in promoting the comprehensive development and progress of education and teaching and is worth promoting and improving in higher vocational colleges and universities.

Meanwhile, items such as Innovation in Teaching Content ( 2.86 ) was rated the least. Teaching content innovations may include the introduction of new course topics, the adoption of the latest academic research findings, or a closer integration of theory with practical examples. Although these innovations aim to make the teaching content more relevant to the needs of the times and enhance students' learning interest and practical application ability, judging from the ratings, it is possible that some students encountered certain challenges in accepting these new contents. In addition, it may also be because teachers fail to fully consider students' receptivity and feedback when introducing innovative content, resulting in teaching effects that fail to meet expectations. To address this situation, higher vocational institutions can further investigate students' expectations and suggestions on teaching content innovation and optimise the design and implementation of innovative content. Teachers should actively communicate with students and adjust teaching strategies in a timely manner to ensure that the innovative content can effectively improve students' learning effect and practical application ability.

**Table 2**  
*Summary Table on Student Engagement*

Indicators	Weighted Mean	Verbal Interpretation	Rank
Behavioral Engagement	2.96	Agree	1
Cognitive Engagement	2.90	Agree	3
Emotional Engagement	2.94	Agree	2
Composite Mean	2.93	Agree	

*Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree*

Table 2 presents the summary table on the evaluation on student engagement. The composite mean of 2.93 indicates that the respondents generally agreed. Among the items cited, Behavioral Engagement had a weighted mean of 2.96, which ranked the highest. The level of behavioral engagement has a direct impact on student learning. Students with high behavioral engagement are more likely to participate actively in class and engage in in-depth communication and discussion with their teachers and classmates so as to better understand and master their knowledge. At the same time, they will also be more active in completing homework and revision after class to consolidate what they have learned. On the contrary, students with low behavioral engagement may behave negatively in class and lack the necessary learning behaviors after class, which often leads to poor learning outcomes. Students should also be aware of the importance of behavioral input and actively participate in the learning process to better achieve their learning goals.

Emotional Engagement which got a weighted mean of 2.94 has a profound effect on students' learning outcomes. When students are enthusiastic and interested in learning, they are more likely to be fully engaged in their studies, actively explore new knowledge, and maintain a positive mindset in the face of challenges. On the contrary, if students are anxious or bored with learning, their learning effectiveness will often be affected and they may even be resistant to learning. Students should also learn to adjust their emotional state and face learning with a more positive mindset so as to achieve better learning results.

Meanwhile, items such as Cognitive Engagement with a weighted mean of 2.94 was rated the least. Cognitive engagement is a crucial part of the learning process for students. It is directly related to the development of students' in-depth understanding of knowledge and their ability to apply it. When students are actively engaged in cognitive activities, they are more likely to develop critical thinking, improve their problem-solving skills and apply what they have learned to new situations. Therefore, insufficient cognitive engagement may result in students learning superficial, fragmented knowledge that lacks depth and breadth. The assessment system should take into account the cognitive input of students in a more holistic manner and give it the importance it deserves. Students themselves should realize the importance of cognitive engagement and

actively participate in cognitive activities to improve their learning and thinking. By working together, we can help students achieve deeper learning and development.

**Table 3**  
*Summary Table on Academic Achievement*

Indicators	Weighted Mean	Verbal Interpretation	Rank
School Cultural Capital	2.91	Agree	1
Class Culture	2.88	Agree	2.5
Academic Performance	2.88	Agree	2.5
Composite Mean	2.89	Agree	

*Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 - 1.49 = Strongly Disagree*

Table 3 presents the summary table of results on academic achievement. The composite mean of 2.88 indicates that the respondents generally agreed. Among the items cited, School Cultural Capital had a weighted mean of 2.91 and ranked first. School cultural capital refers to the non-material resources such as cultural heritage, values, behavioral norms and school environment accumulated by the school. These resources have a profound impact on students' learning and development, character building and social skills. A school with rich school cultural capital is often able to provide students with a more comprehensive and in-depth educational experience, helping them to develop better both academically and in terms of personality. The importance of school cultural capital should be fully recognized, and efforts should be made to create a positive, healthy and upwardly mobile school cultural atmosphere, so as to provide strong support for the all-round development and growth of students.

It was followed by Class Culture and Academic Performance with a weighted mean of 2.89. Class culture refers to a common value, behavioral norms and learning atmosphere formed within a class. A good class culture can stimulate students' interest in learning, enhance their motivation to learn, and thus improve their academic performance. At the same time, class culture can also cultivate students' teamwork spirit, communication ability and social responsibility, providing strong support for students' overall development. Teachers can shape the class culture by organizing various class activities, formulating class rules and regulations, and strengthening class discipline management to create a more favorable environment for students' learning and growth. At the same time, students should also actively participate in the construction of class culture, and jointly create a harmonious, mutually supportive and enterprising class atmosphere.

**Table 4**  
*Relationship between Innovative Teaching Strategies and Student Engagement*

Innovation in Teaching Content	r-value	p-value	Interpretation
Behavioral Engagement	.629**	0.000	Highly Significant
Cognitive Engagement	.627**	0.000	Highly Significant
Emotional Engagement	.587**	0.000	Highly Significant
<b>Innovative Teaching Methods</b>			
Behavioral Engagement	.619**	0.000	Highly Significant
Cognitive Engagement	.632**	0.000	Highly Significant
Emotional Engagement	.628**	0.000	Highly Significant
<b>Innovations in Teaching Evaluation</b>			
Behavioral Engagement	.667**	0.000	Highly Significant
Cognitive Engagement	.629**	0.000	Highly Significant
Emotional Engagement	.621**	0.000	Highly Significant
<b>Integrative Dimensions</b>			
Behavioral Engagement	.621**	0.000	Highly Significant
Cognitive Engagement	.641**	0.000	Highly Significant
Emotional Engagement	.655**	0.000	Highly Significant

*Legend: Significant at p-value < 0.01*

Table 4 presents the correlation between Innovative Teaching Strategies and Student Engagement. The computed r-values indicate a strong direct correlation and the resulted p-values were less than the alpha level. This means that significant relationship exists and implies that the better is the innovative teaching strategies, the more that students are engaged. In other words, the researcher in this analysis provided strong evidence that there



is indeed a significant relationship between innovative teaching strategies and student engagement. When teachers use more innovative teaching strategies, student engagement tends to follow. This finding is an important guideline for educational practice, which emphasizes the positive role of innovative teaching strategies in increasing student engagement.

For example, they can try to adopt new teaching modes such as project-based learning and flipped classroom in order to stimulate students' interest and motivation in learning. At the same time, educators can also make use of modern technological means, such as multimedia teaching and online interactive platforms, to enrich the teaching means and improve the teaching effect. In summary, the results of the analysis of this table reveal a significant positive correlation between innovative teaching strategies and student engagement. This finding not only provides us with an important theoretical basis, but also offers useful insights for educational practice. Educational institutions and educators should pay full attention to the application of innovative teaching strategies in order to achieve better results in enhancing student engagement.

**Table 5**  
*Relationship between Innovative Teaching Strategies and Academic Achievement*

Innovation in Teaching Content	r-value	p-value	Interpretation
School Cultural Capital	.614**	0.000	Highly Significant
Class Culture	.620**	0.000	Highly Significant
Academic Performance	.602**	0.000	Highly Significant
<b>Innovative Teaching Methods</b>			
School Cultural Capital	.630**	0.000	Highly Significant
Class Culture	.632**	0.000	Highly Significant
Academic Performance	.646**	0.000	Highly Significant
<b>Innovations in Teaching Evaluation</b>			
School Cultural Capital	.630**	0.000	Highly Significant
Class Culture	.614**	0.000	Highly Significant
Academic Performance	.624**	0.000	Highly Significant
<b>Integrative Dimensions</b>			
School Cultural Capital	.617**	0.000	Highly Significant
Class Culture	.636**	0.000	Highly Significant
Academic Performance	.631**	0.000	Highly Significant

*Legend: Significant at p-value < 0.01*

Table 5 shows the association between innovative teaching strategies and academic achievement. The computed r-values indicates a strong direct correlation and the resulted p-values were less than the alpha level. This means that there was significant relationship exists and implies that the better is the innovative teaching strategies, the better is the academic achievement. This finding provides strong evidence that there is indeed a significant positive correlation between innovative teaching strategies and academic achievement. In other words, when teachers use more innovative teaching strategies, students' academic achievement tends to increase accordingly. This result has far-reaching implications for educational practice, which emphasizes the important role of innovative teaching strategies in improving students' academic achievement.

Educators need to continually explore and experiment with new teaching methods and approaches to stimulate students' interest and motivation in learning and to promote their deep learning and thinking. For example, the adoption of new teaching modes such as project-based learning and inquiry-based learning can provide students with more opportunities for practice and space for independent enquiry, thus helping to enhance their academic achievements. In summary, the results of the analyses in this table clearly indicate a significant positive correlation between innovative teaching strategies and academic achievement. This finding not only provides us with an important theoretical basis, but also offers useful insights into educational practice. Educational institutions and educators should pay full attention to the application of innovative teaching strategies in order to achieve better results in enhancing students' academic achievement.

Table 6 displays the relationship between student engagement and academic achievement. The computed r-values indicate a strong direct correlation and the resulted p-values were less than the alpha level. This means that significant relationship exists and implies that the more that the student are engaged, the better is the

academic achievement. This finding provides strong evidence that there is indeed a significant positive correlation between student engagement and academic achievement. In other words, when students' engagement increases, their academic achievement tends to increase accordingly. This result is a far-reaching guide for educational practice, which highlights the importance of enhancing student engagement in improving academic achievement. Educators need to create positive learning environments and adopt diverse teaching methods and approaches in order to stimulate students' interest and motivation in learning and prompt them to participate more actively in the learning process. For example, by organizing activities such as group discussion and cooperative learning, students' sense of participation can be enhanced, and their learning motivation and academic achievement can be boosted.

**Table 6**  
*Relationship between Student Engagement and Academic Achievement*

Behavioral Engagement	r-value	p-value	Interpretation
School Cultural Capital	.628**	0.000	Highly Significant
Class Culture	.642**	0.000	Highly Significant
Academic Performance	.651**	0.000	Highly Significant
Cognitive Engagement			
School Cultural Capital	.609**	0.000	Highly Significant
Class Culture	.670**	0.000	Highly Significant
Academic Performance	.632**	0.000	Highly Significant
Emotional Engagement			
School Cultural Capital	.637**	0.000	Highly Significant
Class Culture	.649**	0.000	Highly Significant
Academic Performance	.652**	0.000	Highly Significant

Legend: Significant at  $p$ -value < 0.01

In summary, the results clearly indicate a significant positive correlation between student engagement and academic achievement. This finding not only provides an important theoretical basis, but also offers useful insights into educational practice. Educational institutions and educators should pay full attention to the enhancement of student engagement in order to achieve better results in improving students' academic achievement.

**Table 7**  
*A Proposed Program on enhancing Teaching Innovative Practices, Student Engagement, and Academic Achievement in Chinese Higher Education Institutions*

Key Result Areas	Objectives	Strategies/ Activities	Success Indicators	Persons Involved
Innovative Teaching Strategies	To implement innovative teaching and learning strategies with integrated dimensions, students' innovative thinking, practical skills and academic performance are significantly enhanced, while developing innovative individuals.	<i>Strategy 1: Design questions at different levels</i> Problems should be categorized into basic, intermediate and advanced levels and should be progressively made more difficult so that students can improve their abilities in solving problems. <i>Strategy 2: Have interdisciplinary integration</i> Problems should address points from multiple disciplines and encourage students to integrate knowledge from different disciplines to solve complex problems.	Participation in classroom discussions and practical activities increased to over 90 per cent.  More than 85% of students actively engaged in project-based learning and gamified instruction	Teachers Students
1.1 Integrative Dimensions				
1.2 Innovation in Teaching Content	To enrich the teaching content, cutting-edge knowledge, practical cases, interdisciplinary integration, and other elements are integrated into the curriculum, aiming to enhance students' interest in	<i>Strategy 1: Conduct regular assessment and updating of course content</i> Regularly evaluate and update course content to ensure coverage of the latest academic research and industry advances. <i>Strategy 2: Collaborate with Industry Experts or Scholars</i>	The proportion of cutting-edge knowledge in the course content reaches 30 per cent or more.  Student satisfaction with the mastery of	School Management Teachers Industry partners Students

	learning, practical abilities, and innovative thinking, ultimately cultivating high-quality talents with an innovative spirit and competitiveness.	Invite industry experts or scholars to give guest lectures to share the latest knowledge and practical experience.	cutting-edge knowledge in the curriculum reaches 85 per cent or more.	
Student Engagement	To enhance students' emotional involvement in the teaching and learning process, stimulate their interest and motivation in learning, and cultivate their sense of creativity and emotional resonance, ultimately aiming to improve the effectiveness of teaching and students' sense of achievement.	Create a learning environment that is open, inclusive and encourages experimentation and mistakes.  Emphasize the process of learning and the value of exploration, not just outcomes.	Student satisfaction with the learning environment is at least 90 per cent.  More than 85 per cent of students actively share their personal experiences and feelings in the classroom.	School Management Teachers Students
2.1 Emotional Engagement				
2.2 Cognitive Engagement	To calibrate students' level of cognitive engagement, enabling them to gain a deeper understanding of what they are learning and take the initiative in thinking and exploring, ultimately fostering innovative thinking and problem-solving skills	<i>Strategy 1: Create an Open and Inclusive Learning Environment</i> Maintain a learning environment where students are encouraged to experiment and make mistakes. <i>Strategy 2: Emphasize the value of the learning process and exploration</i> Emphasize the value of the learning process and exploration rather than just focusing on the end result.	Students achieve 85 per cent or more mastery of core concepts.  Students achieve 85 per cent or more engagement and completion in deep learning tasks.	School Management Teachers
3 Academic Achievement	To create a positive classroom culture, one that fosters creativity and cooperation, aiming to enhance student achievement and motivation	<i>Strategy 1: Establish classroom rules and regulations that encourage creativity, cooperation, and active learning</i> Establish clear classroom rules and regulations that emphasize values that encourage creativity, collaboration and active learning. <i>Strategy 2: Organize activities to enhance class cohesion and sense of belonging</i> Organize class activities such as team building and cultural days to enhance class cohesion and sense of belonging.	Students agree with at least 90 per cent of class rules and regulations.  Student participation in class activities is at least 85 per cent.	Teachers
3.1 Academic Performance				

#### 4. Conclusions and recommendations

The majority of respondents agree on the importance of innovative teaching strategies, particularly recognizing innovative teaching methods, and felt that the content, teaching evaluation and integration dimensions also needed to be innovated. The majority of respondents agree with the importance of student engagement, particularly in terms of behavioral engagement, but also recognized the role of cognitive and affective engagement. Respondents mostly agree with the importance of the school's cultural capital, classroom culture and academic performance on academic achievement with a favourable attitude. There is a positive correlation among innovative teaching strategies, student engagement and academic achievement. A program on enhancing innovative teaching strategies, student engagement, and academic achievement has been proposed based on the results.

Schools may further enhance the building of school cultural capital, including the promotion of positive values, the creation of a favourable academic atmosphere, as well as the provision of a wealth of learning resources and support services for the holistic development of students. Teachers may continue to innovate teaching methods and contents, focusing on fostering students' cognitive and affective engagement, while paying

attention to students' individual differences and providing personalized guidance and support to stimulate students' interest and potential in learning. Students may actively participate in the activities organized by the school, make full use of the learning resources provided by the school, take the initiative to communicate and interact with teachers and classmates, and continuously improve their academic ability and comprehensive quality. In response to the enhancement of academic achievement, schools may further strengthen the school's cultural capital to create a positive learning atmosphere, as well as to optimize the classroom culture in order to promote students' academic performance and all-round development. The proposed plan may be studied, implemented, and evaluated. By school administrators, supervisors, and teachers. Future researchers may further focus on the relationship between school cultural capital, classroom culture, and academic achievement, and conduct more in-depth studies to explore more effective strategies for academic achievement enhancement, and provide stronger support for students' all-round development.

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