

Exploring the Teaching Growth and Development of College Teachers in the Context of Informatization

Na Qu¹, Qinghui Wang²

¹School of Economics and Management, Taishan University, Tai'an, Shandong, China

²School of Arts, Taishan University, Tai'an, Shandong, China

Abstract: *This paper explores the issue of teaching growth and development of college teachers under the background of information technology. It analyzes and discusses five aspects, namely, education and teaching concept, teacher and teaching association, the growth path of college teachers, the direction of teaching development of college teachers, and strategies and suggestions for teaching innovation of college teachers. This paper argues that the growth and development of college teachers' teaching is a complex and dynamic process, which requires college teachers to constantly update and optimize their education and teaching concepts, pay attention to and satisfy students' learning needs and interests, select and use suitable teaching contents and methods, design and produce creative teaching forms and methods, explore and practice new or effective teaching models, and demonstrate and evaluate their teaching effects and quality, to realize the novelty or effectiveness of teaching and to improve or break through the level or level of teaching. This paper hopes to provide some useful methods and opinions for the growth and development of college teachers' teaching, as well as some useful bases and references for the research and evaluation of education.*

Keywords: college and university faculty; teaching growth and development; educational and pedagogical philosophy; teaching innovation.

1. INTRODUCTION

With the development of information technology and the popularization of information technology applications, college education, and teaching are also facing new opportunities and challenges, and college teachers, as the main body and promoter of education, need to continually adapt and lead the high-quality development of education, and to realize the innovation and enhancement of education. Teaching growth and development of college teachers is a complex and dynamic process, involving education and teaching concepts, teachers and teaching associations, college teachers' growth paths, the direction of development of teaching, and the strategy of teachers' teaching innovation, etc. It is an important and hot topic in recent educational research. The purpose of this paper is to explore the issues of teaching growth and development of college teachers under the background of informatization, to provide some useful methods and opinions for college teachers, and also to provide some useful bases and references for the research and evaluation of education.

The research purpose of this paper is to analyze and discuss the problems of teaching growth and development of college teachers in the context of information technology, and to put forward the paths, directions, methods, and strategies of teaching growth and development of college teachers. For college teachers, this paper can help them understand and recognize their teaching growth and development status and needs, improve and optimize their education and teaching concepts, select and apply suitable teaching contents and methods, design and produce creative teaching forms and methods, explore and practice new or effective teaching modes, demonstrate and evaluate their teaching effects and quality, to achieve novel or effective, and to enhance or break through the level or level of teaching. For educational researchers, this paper can provide them with a research case and reference on the growth and development of college teachers' teaching in the context of informatization, some useful data and information for their educational research and evaluation, and some useful insights and references for their educational theories and practices.

2. EDUCATION AND TEACHING PHILOSOPHY

2.1 What is Education

2.1.1 The nature and impact of education

Education is a social activity aimed at the formation of human beings and the promotion of social progress. The essence of education is human development, and the purpose of education is human perfection. The influence of education is enormous, and education can change the destiny of people and the face of society. Education is the cornerstone of human civilization and the driving force of human development. Education is a social need and a personal right. Education is an investment and a return. Education is a responsibility and an obligation.

2.1.2 Impact and contribution of labor and technology to education

The evolution and change of education is driven by the evolution and change of labor and technology. Labor is the fundamental way in which human beings transform nature and society, and technology is the crystallization and embodiment of human intelligence and creativity. Labor and technology continue to create new educational needs and possibilities, as well as new educational challenges and requirements. Education, in turn, influences and promotes the evolution and innovation of labor and technology, forming a dynamic and interactive relationship. With the development and popularization of information technology, education, and teaching are also facing new opportunities and challenges, and there is a need to adapt to and lead the high-quality development of education, and to achieve innovation and enhancement of education.

2.2 What is teaching

2.2.1 Comparison of positive and negative teaching cases

Teaching is a specific form and process of education that involves interaction and communication between teachers and students based on certain content, methods, and objectives. Teaching and learning can be interpreted through several positive and negative examples.

Table 1: Positive and negative teaching comparison cases

Positive Case	counter case
Math teachers use real-world problems to guide students to explore mathematical patterns and stimulate interest and thinking	Physics teachers only teach concepts and formulas and neglect experiments and applications, making students lose interest
Language teachers use multimedia to show the background of literary works to trigger students' emotions and imagination	History teachers emphasize historical facts and ignore ideas and meanings, causing students to lose interest
English teachers use task-based teaching to promote language use and communicative competence	Music teachers focus on knowledge and skills and neglect musical expression, causing students to lose enthusiasm

These cases illustrate how good and excellent teaching depends not only on the content and methodology of the teacher, but also on the purpose and effectiveness of the teacher's teaching, and the teacher's influence and impact on the students.

2.2.2 Evolution of education to keep up with changing times

The evolution of education is adapted and harmonized with the changes of the times. The changes of the times are the driving force and direction of education, and the evolution of education is the demand and reflection of the times. The changes of the times are mainly reflected in the following aspects:

Table 2: Impact of changing times on education

Type of change	Implications	give an example
Changes in society	Educational objectives, content, methods, evaluation, etc.	Fostering internationally-minded and information-literate citizens in a globalized and diversified society
Changes in technology	Educational resources, tools, platforms, environments, etc.	Information technology development has made education digital, intelligent, and personalized, such as cloud computing, big data
Changes in students	Educational processes, methods, strategies, effects, etc.	Diversity, initiative, and creativity of students increase, and education needs to respect individual differences and needs

The evolution of education should keep pace with the changes of the times, and constantly adjust and improve the concepts and practices of education to adapt and lead the high-quality development of education, and to realize the innovation and enhancement of education.

2.2.3 Good teaching requires maintaining traditions and continuing to innovate

Teaching is a special art, with its traditions and rules, as well as its innovations and changes. Good teaching needs to maintain tradition and constantly innovate, inheriting and carrying forward the classics and wisdom of teaching, as well as exploring and practicing the novelty and effectiveness of teaching. Teaching that maintains tradition and is constantly innovative requires the following:

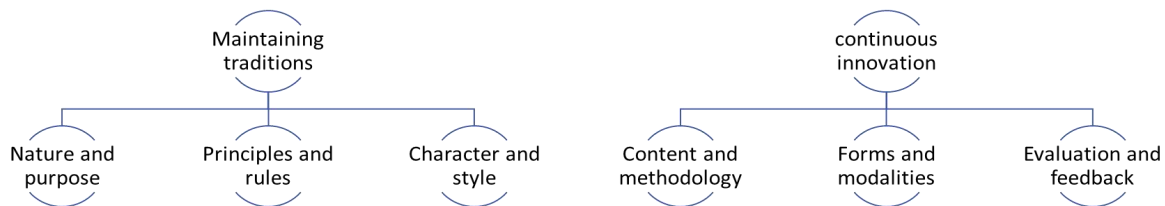


Figure 1: Schematic diagram of retention and innovation in teaching and learning

- (1) Maintaining the essence and purpose of teaching and learning, i.e. putting people at the center of learning, promoting teaching for learning and learning for teaching, and facilitating the all-round development and lifelong learning of students.
- (2) Maintain the principles and rules of teaching and learning, i.e., student-centered, learning-oriented, pedagogical, and activity-based, to achieve effective and efficient teaching and learning.
- (3) Maintaining the characteristics and style of teaching, i.e., reflecting teachers' personality and expertise, demonstrating teachers' enthusiasm and charisma, winning students' respect and trust, and stimulating students' interest and motivation.
- (4) Innovative content and methods of teaching, i.e., updating and enriching the knowledge and skills of teaching in the light of the needs and developments of the times, and designing and adopting diverse and effective teaching content and methods for teaching.
- (5) Innovative forms and modes of teaching and learning, i.e. new and flexible forms and modes of teaching and learning that take advantage of the possibilities and opportunities of science and technology to expand and optimize the resources and tools for teaching and learning, and to explore and practice teaching and learning.
- (6) Evaluation and feedback of innovative teaching, i.e., focusing on the process and results of teaching, collecting and analyzing data and information on teaching, evaluating and providing feedback on the effectiveness and quality of teaching, and improving and upgrading the level and standard of teaching.

2.2.4 The key to quality teaching and learning is practical results

The quality and merit of teaching are ultimately measured by the actual outcomes of teaching, i.e. the impact and effect of teaching on teachers and students. The actual outcomes of quality teaching can be measured in several ways:

- (1) Impact and influence on teachers, i.e. whether teaching improves their professional competence and performance, enhances their confidence and satisfaction in teaching, promotes their career development and professionalism, and enhances their pedagogical innovation and contribution.
- (2) The impact and effect on students, i.e. whether teaching promotes students' academic performance and progress, increases their interest and motivation in learning, develops their learning abilities and literacy, and promotes their personality development and all-round development. For students, teaching is not about what teachers say, but about how much students grow from start to finish.

(3) Impact and influence on society, i.e. whether teaching and learning meet and adapt to the needs and expectations of society, contribute to and reflect the progress and development of society, nurture and export the talents and resources of society, and promote and facilitates innovation and change in society.

The actual outcomes of quality teaching are the ultimate purpose and standard of teaching and learning, as well as its highest value and significance. The actual outcomes of quality teaching depend not only on the content and methodology of the teacher, but also on the purpose and effectiveness of the teacher's teaching and the teacher's influence and impact on the students.

3. TEACHERS AND THE TEACHING CONNECTION

3.1 Teaching and learning is a process of cooperation exploration and interaction between teachers and students

3.1.1 Deeper exploration of the nature of teaching and learning

Based on the previous definition and analysis of teaching, we can further understand that teaching is a process in which teachers and students work together and explore and interact. Teaching is not a one-way transfer or inculcation of knowledge and skills, but a two-way exchange and co-construction of meaning and value. Teaching is not the passive acceptance or repetition of information and facts, but the active inquiry and discovery of problems and solutions. Teaching is not a closed or isolated activity or process, but an open and connected network or system.

Teaching is a process of cooperation exploration and interaction between teachers and students, which means that both teachers and students have their roles and responsibilities as well as their rights and interests in teaching. Teachers and students should respect each other, trust each other, support each other, and promote each other in teaching, to realize the harmony and win-win situation of teaching.

3.1.2 Context of learning

Learning is the core and essence of teaching and learning, as well as its ultimate purpose and standard. Learning is the process and outcome of learners acquiring, constructing, applying, and transforming knowledge and skills. Learning can be influenced by a variety of factors, such as learners' prior knowledge, motivation, interest, attitudes, strategies, and feedback, as well as the content, methods, environment, and evaluation of learning. Learning can also have different levels, types, and modes, such as surface learning, deep learning, strategic learning, declarative learning, procedural learning, conceptual learning, experiential learning, collaborative learning, and self-regulated learning.

The connotation of learning is multidimensional and complex, and the quality and effectiveness of learning are determined by a combination of factors. The quality and effectiveness of learning depend not only on the subjective efforts and abilities of learners, but also on the pedagogical guidance and support of teachers, as well as on the external conditions and environment of learning. The quality and effectiveness of learning are reflected not only in the mastery and application of learners' knowledge and skills, but also in the development and change of learners' thinking and feelings, as well as in the shaping and enhancement of learners' personality and character.

3.2 Teacher development

3.1.1 Roles and Responsibilities of Teachers

Teachers' roles and responsibilities are the functions and responsibilities that teachers play and assume in the teaching and learning process and situations. Teachers' roles and responsibilities can be categorized into different categories such as pedagogical roles, managerial roles, social roles, and personal roles. Teachers' roles and responsibilities can also be changed and adapted to the changing times and the development of teaching and learning. The roles and responsibilities of teachers include the following:

Table 3: Teacher Roles and Responsibilities Orientation

character	Description of Duties
teaching role	Design and implementation of teaching content and methods
	Guiding student learning and development
	Evaluation and feedback on teaching effectiveness
	Improvements to enhance teaching and learning
management role	Managing and coordinating teaching resources and tools
	Maintaining an optimal teaching and learning environment
	Establishment of rules for the implementation of teaching
	Dealing with Conflicts over Teaching and Learning
social role	Participation in Contributing to Teaching and Learning Reform Innovations
	Communication and cooperation with teachers and students
	Social communication services with parents
	Promoting progress in the development of teaching and learning
personal role	Learning to update teaching knowledge and skills
	Reflective Improvement of Teaching Philosophy Practice
	Exploring Innovative Enhancements in Practice Teaching
	Achieving professional development for the teaching profession

3.1.2 Teacher Professional Development

Teacher professional development is the process and outcome of teachers improving and enhancing their professional competence and performance through various activities and resources. Teacher professional development can have different purposes, such as updating teachers' knowledge, improving teachers' skills, changing teachers' beliefs, developing teachers' attitudes, reinforcing teachers' ethics, and constructing teachers' identities. Teacher professional development can also take different forms, such as formal or informal, individual or collective, planned or spontaneous, short-term or long-term, online or offline. Activities and resources for teacher professional development can include the following:

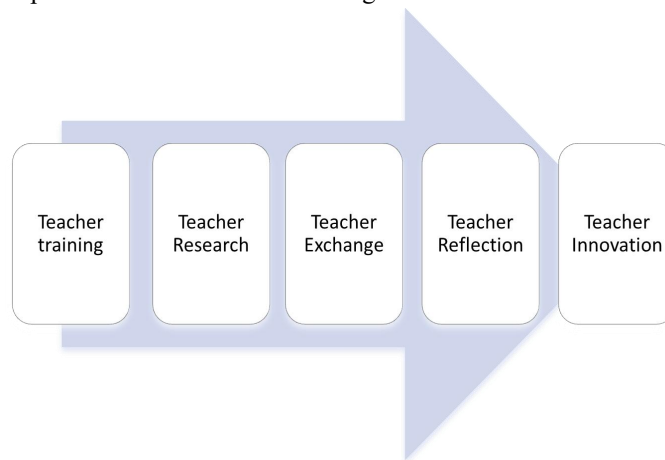


Figure 2: Map of teacher professional development activities and resources

(1) Teacher training: Teacher training refers to the participation of teachers in teacher training programs or courses organized or accredited by education departments or institutions to acquire or update teachers' knowledge, skills, certificates, and so on. Teacher training can be categorized into induction training, in-service training, and professional training.

(2) Teacher research: Teacher research refers to teachers' participation in or conduct of research activities related to teaching and learning to explore or solve problems or issues in teaching and learning, and to enhance or improve the theory or practice of teaching and learning. Teacher research can be categorized into individual research, group research, school-based research, and action research.

(3) Teacher exchange: Teacher exchange refers to the exchange or cooperation of teachers with other teachers or scholars in teaching to share or learn from the experience or achievements of teaching, and to expand or optimize

the vision or resources of teaching. Teacher exchanges can be categorized into same-school exchanges, cross-school exchanges, domestic exchanges, and international exchanges.

(4) **Teacher Reflection:** Teacher reflection is the process of reviewing or evaluating one's teaching to examine or analyze the process or results of teaching, and to identify or improve the strengths, weaknesses, or problems of teaching. Teacher reflection can be categorized into self-reflection, peer reflection, and expert reflection.

(5) **Teacher innovation:** Teacher innovation refers to teachers' creation or reform of the content, method, form, and way of teaching to realize the novelty or effectiveness of teaching and to enhance or break through the level or level of teaching. Teacher innovation can be categorized into teaching content innovation, teaching method innovation, teaching form innovation, teaching method innovation, and so on.

(6) **Teacher professional development** is an important way and means for teachers' pedagogical growth and development, as well as an important basis and guarantee for their pedagogical innovation and improvement. Teacher professional development requires the initiative and activeness of teachers, as well as the support and services of education departments and institutions.

3.1.3 Professional development of teachers

Teacher professional development refers to the characteristics and standards that teachers possess and follow in their teaching practice and development. Teacher professional development is a higher and deeper level of teacher professional development, as well as a higher goal and a higher realm of teacher teaching growth and development. Teacher professional development can be reflected in the following aspects:

Table 4: Elements of professional development of teachers

Elements of professional development for teachers	descriptive
Teachers' knowledge	Knowledge needed and used by teachers in teaching, including subject matter knowledge, educational knowledge, pedagogical knowledge, student knowledge, environmental knowledge, etc.
	Teachers continue to acquire and update knowledge to adapt and lead changes and developments in teaching and learning
Teachers' skills	Skills that teachers need and use in teaching, including instructional design skills, instructional delivery skills, instructional evaluation skills, instructional reflection skills, and instructional innovation skills
	Teachers continuously improve and optimize their skills to achieve and ensure effective and efficient teaching and learning
Teachers' beliefs	Teachers' beliefs and attitudes about teaching, including beliefs about the purpose of teaching, beliefs about the content of teaching, beliefs about teaching methods, beliefs about teaching evaluation, and beliefs about teaching improvement
	Teachers continually examine and adjust beliefs to align with and promote the theory and practice of teaching and learning
teacher attitude	Teachers' feelings and values about teaching, including attitudes of enthusiasm for teaching, attitudes of responsibility for teaching, attitudes of cooperation in teaching, attitudes of respect for teaching, and attitudes of innovation in teaching
	Teachers continually develop and demonstrate attitudes that influence and motivate the process and outcomes of teaching and learning
teacher ethics	The norms and guidelines that teachers follow in teaching, including teachers' ethics toward themselves, teachers' ethics toward their students, teachers' ethics toward their colleagues, and teachers' ethics toward society
	Teachers continually reinforce and adhere to ethics to safeguard and enhance the quality and standards of teaching and learning
Teacher identity	Teachers' perceptions and identifications of their teacher identities and roles, including teachers' identities, teachers' professional identities, teachers' organizational identities, and teachers' social identities
	Teachers continue to construct and develop identities to support and facilitate their instructional growth and development

Teacher professional development is the core and key to teachers' pedagogical growth and development, as well as the driving force and direction of their pedagogical innovation and improvement. Teacher professional development requires self-driven and self-monitoring by teachers, as well as guidance and evaluation by education departments and institutions.

4. PATHWAYS FOR TEACHER GROWTH IN HIGHER EDUCATION

4.1 Deep cognizance of China's higher education entering a new era

Chinese higher education has made great development and achievements since the reform and opening up, and has made important contributions to the construction and development of the country and society. At the same time, Chinese higher education is facing new situations and tasks and needs to enter a new stage and level. The characteristics and requirements for Chinese higher education to enter a new era are mainly as follows:

4.1.1 Shift from scale expansion to quality improvement

China's higher education has realized a historic leap from elite education to mass education, with the popularization rate of higher education reaching more than 50 percent and the scale of higher education ranking first in the world. However, the quality of higher education has yet to be improved, the connotation of higher education has yet to be strengthened, and the effectiveness of higher education has yet to be enhanced. Therefore, China's higher education needs to shift from scale expansion to quality improvement, focusing on improving the quality and level of higher education and enhancing the international competitiveness and influence of higher education.

4.1.2 Shift from knowledge transfer to capacity development

Chinese higher education traditionally focuses on the transmission of knowledge, emphasizing students' knowledge mastery and skills training and neglecting their ability cultivation and quality improvement. However, with the changes and development of society, the updating and innovation of knowledge are becoming faster and faster, the value and significance of knowledge are becoming more and more relative, and the demand and importance of ability are becoming more and more prominent. Therefore, China's higher education needs to shift from knowledge transfer to ability training, focusing on cultivating students' innovation ability, entrepreneurial ability, collaboration ability, communication ability, independent learning ability, etc., and improving students' comprehensive quality and resilience.

4.1.3 Shift from teacher-led to student-led

Chinese higher education has traditionally been teacher-driven, emphasizing the teaching authority and professionalism of teachers and neglecting the learning subject and personality of students. However, with the diversification and initiative of students, students' learning needs and interests are becoming more and more individualized, students' learning methods and approaches are becoming more and more diversified, and students' participation and control of learning are becoming more and more intense. Therefore, Chinese higher education needs to change from teacher-led to student-led, focusing on respecting and paying attention to students' differences, needs, and interests, stimulating and cultivating students' learning motives and goals, guiding and supporting students' learning processes, and strategies, and on evaluating and giving feedback on students' learning effects and outcomes.

4.1.4 Moving from closed isolation to open integration

Chinese higher education has traditionally been closed and isolated, emphasizing the autonomy and independence of education and neglecting the openness and integration of education. However, with the globalization and diversification of society, the needs and trends of internationalization and cross-culturalization of education are becoming more and more obvious, interdisciplinary and cross-field exchanges and cooperation in education are becoming more and more frequent, and the possibilities and opportunities of informatization and intelligence in education are becoming more and more extensive. Therefore, Chinese higher education needs to change from closed and isolated to open and integrated, focusing on embracing and appreciating the diversity and richness of education, focusing on participating in and benefiting from the internationalization of education and cross-cultural exchanges and cooperation, focusing on the use and development of informatization of education and intelligent

resources and tools, and focusing on promoting and facilitating the interdisciplinary and cross-field innovations and changes in education. For example, the integration of education with psychology, economics, sociology, and science and technology.

A deep cognition of the characteristics and requirements of China's higher education entering a new era is the premise and foundation of the growth and development of college teachers' teaching, as well as the motivation and direction of their teaching innovation and improvement.

4.2 Understanding the New Needs of Chinese Higher Education in the New Era

As Chinese higher education enters a new era, it faces not only new situations and tasks, but also new needs and expectations. The new needs of Chinese higher education in the new era are mainly as follows:

4.2.1 The need to train high-quality personnel to meet the needs of national and social development

High-quality talents are fundamental to and guarantee the development of the country and society, and higher education is the main channel and way to cultivate high-quality talents. Chinese higher education in the new era needs to cultivate high-quality talents who meet the needs of the development of the country and society, that is, talents with firm ideals and beliefs, good moral qualities, solid professional knowledge, broad international vision, strong social responsibility, excellent innovative ability, and outstanding leadership.

4.2.2 The need for high-quality education that meets the diversified needs of individuals and societies

The diversified needs of individuals and society are the driving force and direction of education, and high-quality education is the means and result of meeting the diversified needs of individuals and society. In the new era, Chinese higher education needs to provide high-quality education that meets the diversified needs of individuals and society, i.e., education with relevance, flexibility, effectiveness, and innovation that can meet the needs of individuals for learning interests, development potential, career planning, and lifelong learning, as well as the needs of society for economic development, scientific and technological progress, cultural prosperity and national rejuvenation.

4.2.3 The need to build an efficient education adapted to the development of internationalization and information technology

The development of internationalization and informatization is an opportunity and challenge for education, and high-efficiency education is a condition and guarantee to adapt to the development of internationalization and informatization. In the new era, China's higher education needs to build high-efficiency education adapted to the development of internationalization and informatization, i.e., education with openness, integration, intelligence, and personalization, which can make use of the resources and tools of internationalization and informatization to improve the quality and level of education, and to enhance the competitiveness and influence of education.

4.3 New requirements for professional development of teachers on the organization of University teachers

Teacher professional development is the core and key to the growth and development of college teachers' teaching, as well as the driving force and direction of college teachers' teaching innovation and improvement. Teachers' professional development has put forward new requirements for college teachers' organizations, mainly as follows:

4.3.1 Need to establish and improve systems and mechanisms for the professional development of teachers

The system and mechanism of teachers' professional development is the guarantee and support of teachers' professional development, including the goals and standards of teachers' professional development, the plan and arrangement of teachers' professional development, and the evaluation and incentive of teachers' professional development. Teachers' organizations in higher education need to establish and improve the system and mechanism of teachers' professional development to clarify and regulate the direction and requirements of teachers' professional development, and to coordinate and promote the process and results of teachers' professional development.

4.3.2 Need to provide and optimize resources and services for teachers' professional development

Resources and services for teachers' professional development are the conditions and means for teachers' professional development, including activities and projects for teachers' professional development, platforms and tools for teachers' professional development, and guidance and consultation for teachers' professional development. Teachers' organizations in higher education need to provide and optimize the resources and services for teachers' professional development to enrich and satisfy the needs and interests of teachers' professional development, and to improve and ensure the quality and effects of teachers' professional development.

4.3.3 The need to foster and promote a culture and climate for the professional development of teachers

The culture and atmosphere of teachers' professional development is the motivation and direction of teachers' professional development, including the concepts and values of teachers' professional development, the beliefs and attitudes of teachers' professional development, and the styles and characteristics of teachers' professional development. Higher education teachers' organizations need to cultivate and promote the culture and atmosphere of teachers' professional development to stimulate and cultivate the motivation and goals of teachers' professional development, and to guide and support the process and strategy of teachers' professional development.

5. DIRECTIONS FOR TEACHING DEVELOPMENT FOR HIGHER EDUCATION TEACHERS

5.1 Innovation as a source of teacher development

Innovation is the source of teacher development, as well as the goal and standard of teacher development. Innovation is a teacher's continuous exploration and practice of new teaching contents, methods, forms, approaches, etc., to achieve novelty or effectiveness in teaching, and to enhance or break through the level or proficiency of teaching. Innovation is a teacher's continuous reflection and improvement of his/her teaching philosophy and practice in teaching to conform and promote the theory and practice of teaching and to enhance or improve the quality or effectiveness of teaching. Innovation is a teacher's continuous learning and updating of his/her pedagogical knowledge and skills to conform to and lead changes and developments in teaching and learning, and to enhance or ensure the competitiveness or impact of teaching and learning.

Innovation is the source of teacher development, which means that teachers need to have the awareness and motivation to be innovative in their teaching, to dare to try and practice new teaching contents, methods, forms, approaches, etc., and to dare to challenge and break through their level or level of teaching. Innovation is the source of teacher development, which also means that teachers need to have the ability and level of innovation in teaching, to be able to design and adopt new teaching contents, methods, forms, approaches, etc., and to be able to evaluate and give feedback on their level or level of teaching. The fact that innovation is a source of teacher development also means that teachers need to have the conditions and environment to be innovative in their teaching, to be able to access and utilize new teaching resources and tools, to be able to participate in and benefit from new pedagogical exchanges and collaborations, and to be able to contribute to and promote new pedagogical reforms and changes.

5.2 Three main elements of pedagogical innovation developed by teachers

The three main elements for teachers to carry out teaching innovation are teachers' innovative thinking, innovative behavior, and innovative results. Teachers' innovative thinking is the premise and foundation for teachers to carry out teaching innovation, teachers' innovative behavior is the process and means for teachers to carry out teaching innovation, and teachers' innovative results are the results and standards for teachers to carry out teaching innovation.

5.2.1 Teachers' innovative thinking

Teachers' innovative thinking refers to the innovative ways and methods of thinking that teachers use in teaching, including identifying problems, analyzing problems, solving problems, and evaluating problems. Teachers' innovative thinking requires teachers to have the following characteristics:

Table 5: Characteristics of Teachers' Creative Thinking

敏锐性	教师能够敏锐地发现教学中存在的问题或难题
	教师能够敏锐地捕捉教学中的机遇或可能性
	教师能够敏锐地感知教学中的变化或趋势
逻辑性	教师能够逻辑地分析教学中的问题或难题
	教师能够逻辑地推理教学中的机遇或可能性
	教师能够逻辑地解释教学中的变化或趋势
创造性	教师能够创造地解决教学中的问题或难题
	教师能够创造地利用教学中的机遇或可能性
	教师能够创造地应对教学中的变化或趋势
批判性	教师能够批判地评价教学中的问题或难题
	教师能够批判地审视教学中的机遇或可能性
	教师能够批判地反思教学中的变化或趋势

5.2.2 Teachers' Innovative Behavior

Teachers' innovative behavior refers to the innovative behaviors and activities that teachers implement in teaching, including designing instruction, implementing instruction, evaluating instruction, and giving feedback. Teachers' innovative behaviors require teachers to have the following kinds of abilities:

Table 6: Teachers' Innovative Behavioral Competencies

Teachers' capacity for innovative behavior	descriptive
design ability	According to the purpose and object of teaching, select suitable teaching contents and methods, creatively design teaching programs and materials, and optimize the teaching environment and atmosphere.
Implementation capacity	Adapts teaching strategies and techniques to the teaching process and context, effectively manage instructional activities and communication, and promotes active and cooperative student learning.
Evaluation capacity	Collect and analyze instructional data and information to assess student achievement and progress, evaluate own teaching effectiveness and quality, and give relevant feedback.
feedback capability	Based on evaluation and feedback, solve teaching problems, summarize teaching experience, and improve and enhance teaching.

5.2.3 Teachers' Innovations

Teachers' innovative outcomes are the results and contributions of innovations created and demonstrated by teachers in teaching, including teaching papers, teaching cases, teaching projects, and teaching awards. Teachers' innovative achievements require teachers to have the following characteristics:

Table 7: Characteristics of teachers' innovations

Characteristics of Teacher Innovations	descriptive
novelty	Innovative outcomes reflect teachers' unique creativity, go beyond teaching routines, and generate attention and interest.
validity	Innovations reflect the professionalism of teachers, are in line with the theoretical practice of teaching, and influence the improvement of the quality of teaching results.
communicability	Innovations can be exchanged and shared with other teachers and scholars, and the service can be promoted in the social sector to facilitate the development and progress of teaching and learning.

The three main elements for teachers to carry out pedagogical innovation are important contents and directions for teachers' pedagogical growth and development, as well as important bases and goals for teachers' pedagogical innovation and improvement. The three main elements of teachers' teaching innovation need to be synthesized and coordinated by teachers, as well as supported and served by education departments and institutions.

6. STRATEGIES AND SUGGESTIONS FOR TEACHING INNOVATION FOR HIGHER EDUCATION FACULTY

6.1 Teachers themselves

First of all, teachers should raise their awareness of innovation. Teachers should realize the importance and necessity of teaching innovation, have the spirit and attitude of daring to innovate and being willing to innovate, and have the motivation and goal of continuous innovation and sustained innovation. Secondly, teachers must have innovation abilities. Teachers should learn and master the knowledge and skills of teaching innovation, apply and develop the way of thinking and methods of teaching innovation, and participate in and utilize the activities and resources of teaching innovation. Again, teachers should summarize and refine the experience and lessons of teaching innovation, evaluate and feedback on the effect and quality of teaching innovation, and exchange and share the results and contributions of teaching innovation.

6.2 Treatment of students

6.2.1 Attention to Student Differences

Teachers should respect and pay attention to students' differences, needs, and interests, and should design and implement appropriate teaching content and methods, and provide and optimize personalized teaching services and support according to students' characteristics and levels.

6.2.2 Motivating students

Students' interest in and control of pedagogical innovations may be lacking, and teachers need to understand and satisfy students' motivations and goals, and stimulate and cultivate students' interest in and enthusiasm for learning through interesting content and methods of teaching to increase and ensure students' participation in and control of their learning.

6.2.3 Promotion of Student Competencies

Teachers should guide and support students' active and cooperative learning, and should promote and develop students' innovation, entrepreneurship, collaboration, communication, independent learning, etc., and improve and enhance students' comprehensive quality and resilience through effective teaching activities and communication.

6.3 Content aspects of teaching

6.3.1 Updating of teaching content

Teachers should select and organize new or valuable teaching content according to the purpose and target audience of their teaching, to adapt to and lead changes and developments in teaching and learning, and to improve the quality and standard of teaching and learning.

6.3.2 Optimization of Teaching Content

Teachers need to use and adapt appropriate teaching content according to the process and context of teaching to achieve and ensure effective and efficient teaching and learning, and to enhance the effectiveness and value of teaching and learning.

6.3.3 Creating Pedagogical Content

Teachers are expected to design and produce creative instructional content based on the outcomes and standards of instruction to create and optimize an attractive instructional environment and climate that enhances engagement and interaction.

6.4 Teaching methods

6.4.1 Selection of teaching methods

Teachers have to select and organize suitable teaching methods according to the purpose and object of teaching to adapt and lead the changes and development of teaching and improve the quality and level of teaching.

6.4.2 Adapting teaching methods

Teachers have to use and adjust appropriate teaching methods according to the process and context of teaching to realize and ensure effective and efficient teaching, and to enhance the effectiveness and value of teaching.

6.4.3 Innovative teaching methods

Teachers are expected to design and adopt new or effective instructional methods based on the outcomes and standards of instruction to create and optimize an attractive instructional environment and climate that enhances engagement and interaction.

6.5 Forms of Instruction

6.5.1 Exploring teaching and learning styles

Teachers should explore and practice new or flexible teaching methods, such as online teaching, blended teaching, flipped teaching, micro-teaching, etc., according to the purpose and target audience of teaching, to utilize and develop the information of education and intelligent resources and tools, and to expand and optimize the vision and resources of teaching.

6.5.2 Practical teaching methods

Teachers should use and manage effective teaching methods, such as online platforms, teaching software, teaching applications, and teaching equipment, according to the process and context of teaching, to realize and ensure effective and efficient teaching, and to enhance the effectiveness and value of teaching.

6.5.3 Innovative forms of teaching and learning

Teachers are expected to use and develop new or attractive forms of instruction, such as cartoons, animations, games, simulations, and experiments, to enhance and improve the fun and effectiveness of instruction, depending on the outcomes and standards being taught.

6.5.4 Evaluating teaching methods

Teachers are required to collect and analyze data and information on teaching styles, such as student feedback, evaluation of teaching, and results of teaching, to evaluate and provide feedback on the strengths, weaknesses, and problems of teaching styles, to improve and enhance the level and sophistication of teaching styles, based on the results and standards of teaching and learning.

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Author Profile

Na Qu, Lecturer, Taishan University, Research Direction: Regional Economy

Qinghui Wang, Lecturer, Taishan University, Research Direction: Apparel Marketing