

# *Construction and Practice of Research-Based Teaching Mode Based on the Cultivation of Applied Talents*

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**Abstract:** The research focuses on the cultivation goals of applied talents, with a student-centered education philosophy and the fundamental goal of cultivating high-quality talents with solid theoretical foundations, strong practical and innovative abilities. The course "Design Fundamentals" is taken as the research object, and a hybrid teaching reform combining online and offline is adopted to construct a research-oriented teaching model based on the cultivation of applied talents. Teaching tests are conducted to solve the problems faced by traditional teaching with a scientific top-level design and innovative hybrid teaching approach. Teaching practice has proven that this teaching model can continuously stimulate students' learning interest and motivation, ensure that the curriculum has sufficient challenges, and thus improve their practical and innovative abilities.

With the advent of the knowledge economy era, the demand for talent in society is undergoing significant changes. In addition to emphasizing professional knowledge, there is a greater focus on comprehensive qualities and the ability to apply knowledge. Traditional talent training models do not place enough emphasis on cultivating students' ability to apply knowledge and their innovative spirit. As a result, the trained talents may become disconnected from society and not recognized, thereby affecting students' employment prospects. Therefore, reforming and innovating the training model for applied talents to enhance their knowledge application ability is an intrinsic need and external requirement for higher education reform. Currently, implementing research-based teaching has become an essential support for cultivating high-quality innovative talents in universities and is also a fundamental direction for the reform and development of university education.

As a hot topic in current educational reform, research-based teaching has been extensively and deeply researched and practiced, with relevant studies both domestically and internationally yielding significant scientific results. Yu Guozhong interpreted the connotation of research-based teaching in universities, pointing out its theoretical basis and model selection [1]. Zhang Dianbing elucidated the basic connotation of research-based teaching in modern universities and proposed implementation strategies: changing teaching concepts, creating problem situations, developing curriculum resources, and reforming teaching evaluations [2]. There is a high consensus both domestically and internationally on the urgent need for research-based teaching reform in universities and the importance of training applied talents. However, most studies focus on interpreting research-based teaching itself, with insufficient research on the implementation paths and methods of research-based teaching. Especially lacking are studies on how research-based teaching can cultivate applied talents.

Therefore, this paper attempts to break traditional teaching concepts and models and explore a new

educational concept of "student-centered, teacher-led" based on the requirements of training applied talents. The aim is to construct a hybrid research-based teaching model for training applied talents and to conduct practical tests of this teaching model in the "Design Fundamentals" course to verify its effectiveness in professional courses.

## 1. The Connotation of Research-Based Teaching

Domestic experts and scholars have interpreted the connotation of research-based teaching from different perspectives. In his book, Wang Sheng points out that "research-based teaching refers to a teaching philosophy, teaching model, and teaching method in which teachers complete subject teaching tasks by initiating, promoting, supporting, and guiding students' research-based learning activities" [3]. The Ministry of Education's Guidelines for the Implementation of Research-Based Learning in General High Schools defines research-based learning as "learning activities where students, under the guidance of teachers, select and determine research topics from their study and social life, and acquire, apply knowledge, and solve problems in a manner similar to scientific research" [4]. Zhong Zhixian emphasizes that research-based teaching advocates problem-situation teaching, immersing teaching in meaningful real-world problems. Students develop autonomous learning, innovative, collaborative learning, problem-solving, and communication skills through problem-solving [5]. Professor Xia Jinwen believes that research-based teaching is an organic combination of teacher "teaching" and student "learning", reflecting not only a teaching method and model but also a teaching philosophy.

Summarizing different experts' viewpoints, this paper posits that research-based teaching is a teaching method that integrates the research of "teaching" and "learning". This teaching approach can cultivate students' advanced innovation, practical application, and cooperative communication skills, reflecting the basic requirements of modern higher education teaching and the spirit of universities.

## 2. Objectives of Training Applied Talents

Applied talents mainly refer to high-level specialized talents with broad knowledge, strong practical abilities, learning, and adaptability, and high comprehensive quality. The objectives of training applied talents are to cultivate talents with practical application and innovative abilities to meet the needs of social and economic development. Specifically, the objectives of training applied talents are as follows:

First, the primary goal is to cultivate students' practical abilities. Through practical activities, students apply theoretical knowledge to real problems, gain practical experience, and develop problem-solving skills, becoming competent for actual work with good professional qualities.

Second, innovative ability. Applied talents should possess innovative abilities, capable of identifying problems in practice and proposing innovative solutions.

Third, teamwork ability. Applied talents should have a good sense of teamwork and the ability to collaborate with others to solve complex problems.

Fourth, comprehensive quality. Applied talents need professional knowledge and technical skills and good humanistic qualities, social responsibility, and comprehensive qualities, demonstrating social responsibility and professional ethics.

Fifth, lifelong learning ability. As society continuously changes and knowledge rapidly updates, applied talents should have lifelong learning abilities, continuously updating their knowledge and skills with autonomous learning and innovative thinking.

In summary, the objectives of training applied talents are to cultivate students' practical abilities, innovative abilities, teamwork abilities, comprehensive qualities, and lifelong learning abilities, training more applied talents for society.

### **3. Research-Based Teaching Model for Training Applied Talents**

The research-based teaching model for training applied talents centers on developing technical application talents, focusing more on practicality, applicability, and technicality. The teaching content emphasizes a "broad", "specialized", and "interdisciplinary" knowledge structure. The teaching process emphasizes training students' practical abilities in job skills and business experience, communication abilities, innovation abilities in applying theory to real-world problems, fostering stronger autonomous learning abilities and job applicability.

This study proposes constructing and practicing a research-based teaching model for training applied talents, aiming to meet the industry's demand for applied talents. The model is applied and tested in professional courses, promoting the updating of educational concepts, improving teaching methods, strengthening students' knowledge application abilities, and enhancing students' design literacy and comprehensive abilities.

Design Fundamentals is an important foundational course for the Art Design major. As a theoretical and practical course in the Fine Arts major direction, it involves related theories from physics, chemistry, psychology, aesthetics, and logic. The course plays a crucial role in bridging foundational and professional courses for Fine Arts majors. Supported by the Huanghuai College Teaching Research Project, the course Design Fundamentals was reformed and practiced, focusing on course objectives, teaching content, teaching strategies, evaluation and feedback, and learning support. The research aimed to improve students' abilities to combine theory and practice, enhance their comprehensive abilities, and promote employment, constructing a research-based teaching model for training applied talents and achieving positive results[6].

#### **3.1. Updating Teaching Concepts**

The course breaks traditional teaching concepts and models. According to the requirements for training applied talents, it explores new educational concepts based on OBE (Outcome-Based Education), emphasizing "student-centered, outcome-oriented, and continuous improvement." The course revolves around student development, aligning learning, teaching, and assessment to comprehensively enhance knowledge, abilities, and qualities. The main teaching method is task-driven, with each class designed with learning tasks from low to high levels to stimulate students' initiative and collaborative learning.

#### **3.2. Setting Teaching Goals Based on Student Conditions**

Based on student conditions, the teaching goals are designed following the SMART principles (Specific, Measurable, Achievable, Realistic, Timely), aiming to improve students' basic knowledge and theories, cultivate high-quality innovative talents, and promote the coordinated development of knowledge, abilities, and qualities.

#### **3.3. Reorganizing Teaching Content**

Under the new educational concept of "student-centered, teacher-led," the teaching content is reorganized by designing knowledge units and skills points around core concepts in a modular and thematic framework. The course is divided into three modules: plane composition, color composition, and graphic carrier application, guiding students to explore new visual languages from diverse perspectives, combining theory with practice, and integrating art and technology.

#### **3.4. Innovating Teaching Methods**

The course adopts a blended online and offline teaching method to enhance students' "autonomous learning" abilities. With task-driven teaching, students' learning is flexible, allowing them to ask

questions and get feedback online, supported by a robust evaluation system.

### 3.5. Diversified Evaluation

The course uses a diversified evaluation method combining online and offline, in-class and out-of-class, continuous assessment, and final exams. Evaluation includes teacher evaluation, peer evaluation, and self-evaluation, promoting a comprehensive assessment approach.

### 3.6. Practical Effects

The research-based teaching model for training applied talents in the Design Fundamentals course has achieved significant learning outcomes. Students are attentive, proactive, collaborative, and innovative, enhancing their confidence, willingness to participate in projects, and responsibility. The harmonious teacher-student relationship and interactive classroom atmosphere foster an environment conducive to achieving learning objectives.

## 4. Conclusion

In conclusion, constructing a research-based teaching model for training applied talents transforms learning activities into intrinsic behaviors, stimulating students' interest and creating an equal, democratic, and open teaching atmosphere. This enhances teacher-student interaction, promotes emotional and knowledge exchanges among students, and encourages autonomous and exploratory learning, improving the effectiveness of teaching activities. Teaching practice activities demonstrate that training applied technical talents should focus on students' practical abilities, innovative abilities, teamwork abilities, comprehensive qualities, and lifelong learning abilities to adapt to socio-economic development, laying a solid foundation for students' future work and training more applied talents for society. The proposed model, involving updated teaching concepts, goal-setting based on student conditions, reorganized teaching content, innovative teaching methods, and diversified evaluation, can continuously stimulate students' interest and motivation, ensuring challenging courses, and improving students' practical and innovative abilities.

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