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Exploration of the Construction Strategies for a Research-Oriented University Classroom

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Abstract: *The current university classrooms are confronted with the dual pressures of the information explosion in the Internet era and learning fatigue among Z-generation college students. Creating a research-oriented university classroom is to establish a high-quality classroom that can stimulate students' interest in autonomous learning, promote their deep and broad learning, and enhance their comprehensive quality. By incorporating authentic and interesting research questions, creating a friendly and collaborative classroom environment, and providing precise and timely feedback after class, students can thrive academically. Feedback, university courses are equipped with the golden elements of high-level, innovative, and challenging courses, thus improving their attractiveness and effectiveness.*

Keywords: *research oriented Teaching; course in Colleges and Universities; strategy*

1. Introduction

Higher education is facing unprecedented challenges and opportunities. With the rapid development of science and technology, the deepening of globalization and the increasing demand for innovative talents in society, the traditional college classroom teaching model has been unable to meet the requirements of cultivating talents with critical thinking, innovative ability and problem-solving ability in the new era. Therefore, the construction of research-oriented university classroom has become one of the important directions of higher education reform. In the 21st century knowledge economy system, innovation ability is the core element of national competitiveness, and higher education, as an important base for knowledge innovation, dissemination and application, the innovation of its teaching mode plays a decisive role in cultivating innovative talents to meet the needs of the future society. It has become an important trend of education reform to construct a research-oriented university classroom, that is, to integrate research activities into the daily teaching process, so that students can learn actively and deeply in the process of exploring the unknown and solving problems.

The 11th China University Teaching Forum in December 2018 pointed out that Chinese gold courses should have advanced, innovative, and challenging qualities. Golden courses are a subtle metaphor for good university classrooms, and the high-level, innovative, and challenging qualities that Chinese "golden courses" need are interrelated and mutually supportive. High order is the foundation, innovation is the driving force, and challenge is the goal. Only courses that simultaneously possess these three characteristics can truly cultivate high-quality talents with innovative spirit and practical ability.

The core idea of research-oriented university classroom is "student-centered", which emphasizes guiding students to learn in practice and study in learning through problem-driven and project-oriented learning methods. This teaching mode not only pays attention to students' knowledge mastery, but also attaches importance to their ability training. By participating in research activities, students can experience the process of scientific research and understand the essence of scientific methods, thus cultivating their lifelong learning ability and the spirit of continuous innovation.

2. Definition of research-oriented teaching

Research led teaching and learning is a student-centered teaching model that focuses on cultivating students' independent thinking and innovation abilities. It covers two dimensions: research guided learning and research driven teaching. The former refers to the cultivation of critical thinking, communication, cooperation, and innovation abilities in students, driven by scientific questions, to fully stimulate their curiosity, motivation, and potential for learning, actively collect information, and

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independently seek answers. Through this process, students gradually improve their comprehensive literacy in the lifelong learning process, in order to cope with the challenges brought by future uncertainty; The latter, for the teaching of teachers, requires breaking through traditional knowledge points in curriculum design, teaching methods, implementation process, and teaching evaluation. Based on the fields encompassed within the taught curriculum knowledge system, we should commence by examining relevant phenomena, problems, confusions, future challenges, or current social realities. By integrating classic literature with the latest cutting-edge research, we can formulate topics for students to contemplate and discuss. This approach fosters the talent cultivation concept that emphasizes "professional basic knowledge, practical innovation ability, and comprehensive scientific research literacy." It guides students in their thinking, learning, and problem-solving processes, while also offering necessary guidance and support in their exploratory learning endeavors.

The relationship between research-oriented teaching mode and university gold courses is close and complementary [1]. In terms of consistency of teaching concepts, similarity of teaching methods, and cutting-edge teaching content, it emphasizes the comprehensive cultivation of student abilities. It not only focuses on the level of knowledge mastery of students, but also on the improvement of their practical ability, innovation ability, and comprehensive quality. Research oriented teaching aims to improve students' practical skills through practical projects and experiments, cultivate their self-learning ability, exploratory spirit, and critical thinking ability. This is in line with the requirements of the Golden Course, which requires the integration of knowledge, ability, and quality cultivation in the curriculum, allowing students to have advanced thinking and comprehensive ability accumulation to solve complex problems[2].

3. Reasons for establishing research-oriented classrooms in university courses

Compared with the traditional classroom, the research-based teaching classroom shows remarkable differences and innovations, and its core goal is to build a high-quality learning environment that can stimulate students' interest in autonomous learning, promote deep learning and extensive reading, and comprehensively improve students' comprehensive quality. This teaching mode is not only a simple adjustment of teaching methods, but also a profound change of learning concept and education mode, aiming at promoting the learning revolution to the quality revolution.

Specifically, the reasons why research-oriented classrooms need to be established in university courses are as follows:

(1)In terms of academic performance, Generation Z college students exhibit significant learning fatigue towards traditional teaching methods

From the perspective of students, most of the current college students are the generation born between 1996 and 2010, known as Generation Z. Generation Z is a digital primordial generation, an aborigine of the Internet and new media. It has been immersed in digital virtual cyberspace since childhood, and is good at using the network to build knowledge. The community of Generation Z college students is centered around their interests and preferences, lacking acceptance of deep content and resisting unified and logically organized expressions. The stereotype of repeated indoctrination in theoretical teaching and the convenience of knowledge acquisition in the internet era often lead to phenomena such as student absenteeism and lack of interest in learning in class, and a reluctance to spend time on in-depth learning, resulting in unsatisfactory classroom attendance and head up rates, and poor achievement of teaching objectives. The main reason is that students do not feel the joy and happiness of discovering and acquiring knowledge during the learning process, do not experience the usefulness of the knowledge they have learned, and are not able to apply what they have learned. As a result, they gradually lose interest in learning and develop learning fatigue[3].

(2)In terms of teaching, the Internet era has increased the difficulty of university curriculum construction

The rapid development of information technology, especially the rapid spread and barrier free access to knowledge through the Internet, the thousands of national high-quality resource sharing courses and open courses that the country has focused on building, as well as the large number of online course resources such as TED, NetEase open courses and Love courses, has enabled all people to learn the most authentic famous school courses and obtain the most cutting-edge scientific and technological knowledge without leaving home . This trend poses a great challenge to traditional university education. If we do not change the rote, knowledge based classroom education and shift towards education aimed at

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cultivating innovative abilities, traditional university education will face the risk of being eliminated. In addition, the openness, immediacy, decentralization, and flattening of online learning spaces weaken the uniqueness of higher education[4]. The multi-channel and openness of knowledge acquisition enable students to freely enter and exit this space and obtain new cognition[5]. The authority of teachers in disseminating knowledge is diluted. If teachers find it difficult to interact with college students, they cannot establish a solid trust and convincing discourse power.

4. Strategies of classroom construction in research universities

Research-oriented university classroom deeply adheres to the student-centered teaching concept, which not only leads the reform of higher education and teaching methods, but also realizes the organic integration between the leading role of teachers in teaching and the role of college students as the main body of learning under the guidance of the teaching principle of "teaching by learning". By carefully setting real questions, this kind of classroom can stimulate students' deep thinking, significantly improve the proportion of teacher-student interaction in teaching, ensure the real occurrence of learning activities, fundamentally break the stereotype of traditional classroom indoctrination of knowledge, and build a university learning environment full of high-order thinking, innovative spirit and challenging atmosphere.

Specifically, the research-oriented classroom reconstruction needs to be deepened and innovated from three aspects: conducting problem research, stimulating students' interest in learning, creating a friendly classroom environment, promoting real learning, accurately feeding back learning results, and truly experiencing the benefits of learning. The specific contents are as follows:

(1) Conducting authentic research on problems and arousing students' interest in learning

Problem awareness is the starting point of research-oriented teaching, with problem design as the main thread and arousing students' active thinking as the focus. Constructivism holds that learners can construct their own understanding of meaning. Learning occurs in real learning tasks and should be problem driven. As a typical form of meaningful learning, learning requires more authentic "learning tasks". It should not start from theory or principles, but rather create problem situations, use interesting, engaging, and authentic questions, and help students form a sense of problem awareness or ownership in learning[6]. Only in the context of a problem or in the face of real problems, can the cognitive or emotional conflicts within students be triggered, leading to a desire for thinking and an interest in learning. In fact, only in problem situations can students develop a stronger sense of "task" or "purpose" towards learning. Conducting authentic research on problems is the key to arousing students' interest in learning. Realistically studying problems is challenging, practical, and exploratory, which can stimulate students' curiosity and thirst for knowledge[7]. When students face a real research problem, they feel interesting and excited, and actively think, explore, and solve the problem. This sense of participation and achievement will further stimulate students' learning motivation, making them more interested in learning

A research-oriented university classroom should treat knowledge points as problems and hand over the research and problem-solving process to students. Teachers can design research projects that are realistic and challenging by combining subject knowledge with the actual situation of students. These projects can be research questions within disciplines or interdisciplinary research questions. By participating in these projects, students can gain a deeper understanding of subject knowledge and research methods, while cultivating their research abilities and innovative thinking. University courses cover a wide range of knowledge, and each important principle or concept has a certain origin behind it, such as real-life social phenomena, specific historical backgrounds, etc. By grasping the relevant background, students can be guided to understand more abstract knowledge, making it clear that the theoretical viewpoints taught in theory courses are not empty things, but reflections of specific real-life problems. Then, the knowledge acquired through understanding can guide personal practice, achieving the cognitive process from concrete to abstract to concrete. [8] Change the phenomenon of students becoming absent-minded listeners in teaching. In the process of posing, contemplating, and solving problems, Teachers should guide students to become masters of their own learning, enabling them to achieve deep understanding of the course content, emphasize the teaching reform logic that fosters self-construction, where students learn through the course and ultimately enhance their analytical and cognitive abilities[8], encourage students to consciously apply what they have learned to both academic practice and the challenges of life.

(2) Creating a friendly classroom environment to facilitate authentic learning

In the era of the internet, face-to-face communication has become a very important teaching method

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in the teaching process. Improving the efficiency of communication and strengthening the depth of learning are important guarantees for the realization of research-based teaching. According to the learning pyramid theory of American scholar Edgar Dale, the knowledge retention rate of active learning (discussion, practice, teaching to others) is significantly higher than that of passive learning (listening, reading, listening, demonstrating). A research-oriented classroom is no longer about teachers unilaterally imparting knowledge, but rather trying to encourage students to transform from passive listeners to active participants in the course. Teachers should focus their teaching on guiding students to ask questions, conduct research and discussion, and search for answers through literature. They should shift from simple knowledge teaching to cultivating students' literacy and abilities, increasing the time for communication and interaction, and allowing learning to truly occur.

A research-oriented university classroom should build a classroom environment that weaves each student into an overall research network, where each student leverages their strengths and each group maintains consistency in direction and rhythm. Through the collective network, each student is driven to work together in an interactive and collaborative manner to complete learning tasks[9]. Collaborative learning is a strategy of organizing students to learn through small groups or teams. The collaborative work of group members is an organic component of achieving class learning goals. Individuals (students) in group collaborative activities can share the information and learning materials they explore and discover during the learning process with other members of the group, and even with other groups or the entire class. In this process, in order to achieve group learning goals, students can use forms such as dialogue, discussion, and debate among individuals to fully argue about problems, in order to obtain the best way to achieve learning goals. The teacher first designs the basic questions of the learning theme, so that learners can communicate with the goal of solving the theme or problem[10]. Establish learning groups through task division, define the roles of group members, define the responsibilities of each group member, design the process of group learning, prepare materials for each individual, discuss and communicate with each other based on their cognitive structure, cultivate students' collaborative spirit and exploration ability, transform teachers and students into a more intimate learning community, and make the classroom more intelligent and community-based. Teachers should put down their dignity and establish equal and democratic relationships with students, so that they can feel respected and cared for, thereby stimulating their enthusiasm for learning. Teachers should provide students with diverse learning resources, such as books, the internet, and experimental equipment, to meet their diverse learning needs, help broaden their horizons, and deepen their understanding. Teachers should encourage students to actively participate in classroom discussions, express their own opinions and ideas, while listening to the opinions of others, and cultivate their critical thinking and communication skills.

(3) Accurate feedback on learning outcomes, truly experiencing the benefits of learning

Compared with traditional teaching, the research-oriented education model emphasizes more on the acquisition of abilities and learning performance, using quantifiable, visual, and empirical results to motivate the learning community to achieve learning goals[11]. This requires educators to not only focus on students' knowledge mastery during the teaching process, but also to provide accurate feedback to help students deeply understand the learning content, experience the sense of achievement and value of learning. Research oriented teaching is not only a teaching process but also a research process. When designing learning objectives, it is necessary to follow the structural framework of the curriculum objectives for conceptualization, and as a research oriented solution purpose, it should reflect specific micro characteristics. Based on the content of the textbook and the actual situation, it is important for teachers to establish research project goals. After the project goals are completed, it is important for teachers to provide students with high-quality feedback from different sources. This feedback is the end of the previous research project in research-based teaching and also the beginning of the next research project[12].

The behavioral subject of goal setting is students, and the behavioral verbs should be specific, measurable, and evaluable. The ultimate direction of the goal is the expected results after the research. Therefore, in the context of the continuous increase in the proportion of process based assessment in the country's curriculum, precise design of process based immediate feedback links, such as case writing, classroom debate, questionnaire survey, paper writing and other process based and participatory learning assessment forms, guide students to combine professional learning with practical application. While affirming the achievements of student self-directed learning, teachers should also timely and accurately point out errors and shortcomings, and further systematically elaborate on relevant topics. The guiding role of teachers is fully reflected in the summary and evaluation process. The completion of research topics has given rise to new research topics or directions, and the depth and breadth of student learning knowledge have been further expanded. This helps students in a spiral of content memorization, thinking

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ability, and mission responsibility from quantitative to qualitative, from simple to complex, and from concrete to abstract, enhancing their research experience and learning comprehension.

5. Conclusion

Innovation in teaching in universities is particularly urgent in the current educational environment. With the rapid development of society and the rapid advancement of technology, traditional teaching models have gradually revealed their limitations, making it difficult to meet the growing academic needs of students and meet the diverse requirements of future career development. A research-oriented university classroom can better solve the pain points of traditional teaching, better reflect the future oriented education concept, attract students to think with real problems, maintain the learning community of teachers and students on the basis of group participation, and empower a precise and real-time evaluation system for course teaching with modern information technology, thereby greatly improving the effectiveness of university classroom teaching. This teaching method not only meets the academic needs of students, but also cultivates their comprehensive qualities and adaptability, laying a solid foundation for future career development and social adaptation. Therefore, universities should actively explore and practice teaching strategies for research-oriented university classrooms, making greater contributions to cultivating high-quality talents with innovative spirit and practical abilities.

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References

[1] ZHANG X J, XI Y M, ZHAO L: Research oriented education: student-centered teaching innovation and cases [M]. Beijing: Machinery Industry Press, 2017.
[2] ZHANG X J: Teaching innovation for the future: concepts, design, and cases [M]. Beijing: Machinery Industry Press, 2017.
[3] Tatiana S, Hanna J, Kristiina M .The relationship between secondary school students' situational interest and their collaborative learning interactions [J].SN Social Sciences, 2023, 3(8):1-10.
[4] ZHAO H F, WU K N, FENG Z, et al. Title: dilemma, critical path and curriculum practice of research-oriented teaching reform [J]. Chinese Geological Education, 2022, 31 (2): 26-31.
[5] ZHOU Y Q, WAN S Y: Classroom teaching in the context of "Internet plus": analysis and thinking based on MOOC, micro class and flipped classroom China's education informatization 2016 (02): 10-12+39.
[6] Tanaka Y, Mitsuishi T, Ohkawa Y, et al.A Study on Quantification of "KOSEN" Students' Consciousness of Learning by Using "Learning Scene Labels" Considering Variation in Free Descriptions [J]. Transactions of Japanese Society for Information and Systems in Education, 2022, 39(2):309-314.
[7] Eustaqio A, Mauli da Gorráitz, Lora S C .How the active learning method affects students' desire to learn[J].International Journal of Curriculum Development, Teaching and Learning Innovation, 2022, 30(11):1-10.
[8] Wang J Y, ZHANG M Y Analysis of research-oriented teaching in ideological and political theory courses [J]. Heilongjiang Researches on Higher Education, 2019 (12): 102-105.
[9] XUE M, GAO T J, ZHAO Y. Design and case analysis of network collaborative learning environment for middle school physics [J]. China Education Informatization · Basic Education, 2007 (4): 24-27.
[10] Picard M, Scott-Boyer M P, Bodein A, et al. Target repositioning using multi-layer networks and machine learning: The case of prostate cancer[J].Computational and Structural Biotechnology Journal, 2024, 24:464-475.
[11] HE Y: Research oriented teaching in design fundamentals - taking the teaching organization of "Urban Public Space Research and Analysis" as an example. china architecture education 2020 (01): 72-78.
[12] Bai W, Geng G, Fu X .Research on the Optimization Method of Project-Based Learning Design for Chinese Teaching Based on Interference-Tolerant Fast Convergence Zeroing Neural Network[J]. International Journal of Computational Intelligence Systems, 2024, 17(1):1-10.