Examining the impact of classroom teaching reforms and virtual learning environments

Song Shiyong

School of Political Science and Law, Qilu University of Technology (Shandong Academy of Sciences), Jinan City, Shandong Province, China.
Email: songshiyong@qlu.edu.cn

ABSTRACT

Break through the identity characteristics of the virtual teaching and research office at present and provide ideas for how the virtual teaching and research office can become the platform for theoretical and practical teaching. Without considering insufficient funds, this paper analyzes and discusses the ideal construction of virtual teaching and research offices from three aspects: team building, platform construction, sustainable development construction, etc. Theoretical and practical instructors should enter the classroom in a variety of forms together, directing students as they engage in professional learning without relying on rigidly constructed platform resources. As long as the team members have the same ideas, can cooperate sustainably, and truly consider students, the construction goal of the virtual teaching and research room can be achieved. The Virtual Teaching and Research Room is a cross-professional and cross-regional collaborative teaching model that has emerged in recent years with the continuous growth of the demand for teaching specialization and practice and the continuous improvement of Internet technology. Although the virtual teaching and research office theoretically has an unmatched advantage over traditional physical teaching and research rooms, However, in practice, it is too difficult to implement it universally due to the limited funds of colleges and universities. This article provides a reference path for implementing and applying virtual teaching and research rooms in teaching process.

Keywords: *Funding, Platform, Sustainable development, Team, Virtual teaching and research office.*

Highlights of this paper

- In theory, virtual teaching and research office can effectively promote the teaching academic community. The construction and development provide theoretical support for relevant teaching, intellectual support for relevant social services, and also provide assistance for the improvement of the theoretical and practical literacy of team members.
- In practice, virtual teaching and research offices have not really been popularized and promoted in colleges and universities. At present, colleges and universities still treat the construction of virtual teaching and research offices as teaching and research projects. Limited funds are limited to project expenditure and cannot support the construction of virtual teaching and research offices needed for professional development. However, because this article is a classroom teaching reform paper, it is only studied at the technical level.
- At the technical level, the construction of virtual teaching and research rooms should start with team building (integrate colleges and universities + docking practice), platform construction (column section + featured content), and sustainable development construction (column section + featured content). These are three aspects of strength.

1. INTRODUCTION

How can we improve the level and academic level of university teaching and talent training? This is a major problem facing the development of higher education in all countries in the world today. The virtual teaching and research activities of information technology support provide a new idea for solving this problem, and the organizational form of the virtual teaching and research office has emerged.
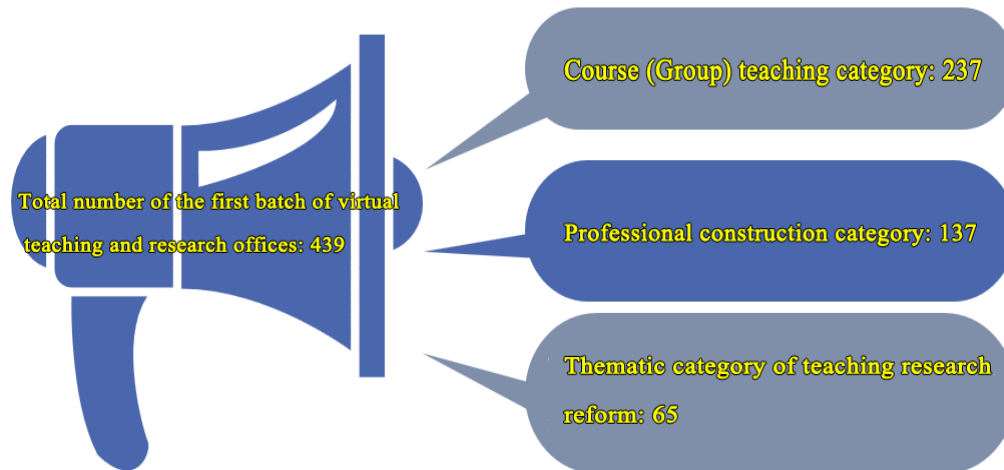
The virtual teaching and research office breaks through the geographical limitations of the traditional teaching and research office and can carry out cross-disciplinary, cross-school, and even cross-international teaching and research cooperation. The virtual teaching and research office can effectively promote the construction and development of the teaching academic community, provide theoretical support for relevant teaching, provide intellectual support for relevant social services, and also provide assistance for the improvement of team members' theoretical and practical literacy. The construction of virtual teaching and research rooms has incomparable advantages in the traditional sense, but it has not really been promoted in teaching practice. The reasons need anticipation and thorough examination.

2. CURRENT RESEARCH AT HOME AND ABROAD

Research on the formation and development of virtual teaching and research offices in Boyer (1990), the president of the Carnegie Teaching Foundation put forward the important concept of "teaching academia" (Boyer, 1990). In 1991, a new generation of learning and scientific research organizations was born in the United States (Zheng, 2011). The new generation of learning science puts forward the question, "How do people learn?" (Bransford, Brown, & Cocking, 2000). The rise of online course activities in colleges and universities originated with the Open Courseware (OCW), proposed and advocated by the Massachusetts Institute of Technology (MIT) in 2001. In 2012, it developed into a new trend called "Mu Ke", which is a profound historical change in the field of curriculum teaching in colleges and universities. The development of foreign courses is promoted through cooperation between universities and enterprises. China has received the policy and financial support of the government and the education administrative department earlier, has attracted a strong attraction to enterprises, and has become an important growth point in the informatization of higher education. It is this background and conditions that activate the teaching and research offices of colleges and universities in China, a form of grassroots teaching and research organization, and the curriculum teaching activities combined online and offline have developed into a virtual teaching and research room with unique characteristics of China (Sang, Jia, Jiao, Xie, & Hu, 2021).

Research on the content and shortcomings of the virtual teaching and research office virtual teaching and research room, yes A new product of the integration of grassroots teaching organizations and information technology, With the characteristics of efficiency and convenience, diversified forms, integration and intersection, and dynamic openness, it is a flexible and flexible teacher-teaching development community.

February 2022 our country's The Ministry of Education announced the first batch of pilot projects for the construction of virtual teaching and research offices in China, a total of 439. In the first batch of 439 virtual teaching and research rooms, there are 237 courses (groups) taught, 137 in professional construction, and 65 in teaching and research reform Figure 1.

Figure 1. China The first batch of pilots for the construction of virtual teaching and research offices Quantity.

From the perspective of the scope of construction, the virtual teaching and research rooms of colleges and universities have been divided into internal, regional, and national. Mould Three categories Figure 2.
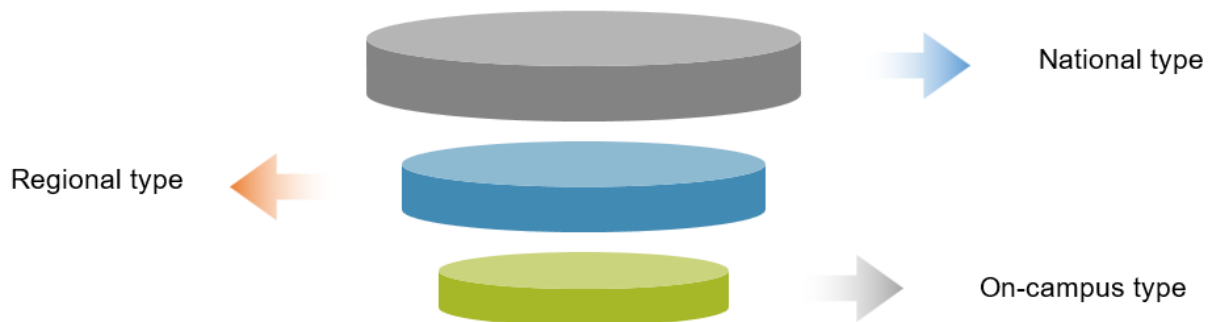
Figure 2. Types of teaching and research offices in colleges and universities.

The formation of the virtual teaching and research office follows a "top-down" approach, as directed by the Higher Education Department of the Ministry of Education. The lack of proper comprehension and awareness regarding the establishment of virtual teaching and research offices, as supported by government documents and universities, has resulted in unclear guidelines, constructional processes, and operational methods for such offices. The construction of the virtual teaching and research office and curriculum teaching practice research and reform pilot promotion and implementation are insufficient. There are a series of problems, such as serious homogeneous competition in the construction and development content, repeated participation of personnel, the low construction promotion, and insufficient post-investment and development motivation. The reason is that the generation

54

mechanism of China's virtual teaching and research office has not been systematically studied, the growth model has not been clear, and the evaluation strategy has not been improved (Zu, Ma, & Qiao, 2022).

In recent years, the application of educational technology in social work has developed rapidly. Although it has increased, there is limited empirical research on its impact (Sanchez Mayers, Schwartz, Curran, & Fulghum, 2019). The research on the virtual teaching and research office's characteristic development mechanism and operation mechanism is still in its infancy. Although many universities have virtual teaching platforms, teachers are also eager to use these platforms to achieve better teaching results at first, but later they found that the competent departments in universities seem to change virtual teaching platforms too frequently and need to be replaced every few years. No one is responsible for the maintenance of existing virtual teaching platforms, resulting in a certain waste of resources (Schug, 2020). Therefore, actively explore the virtual teaching and research room. Features in different courses and majors, the law of development, and How Giving full play to the maximum effect of the virtual teaching and research office has become an important task in developing and researching of the virtual teaching and research office at this stage.

3. VIRTUAL TEACHING AND RESEARCH OFFICE CONSTRUCTION METHOD

"Practical research + comparative research" method, in terms of team building and platform construction, involves whether the subject and content of the virtual teaching and research office are reasonable and effective. The builder of the virtual teaching and research office can consider combining their existing construction resources to investigate the successful experience of other majors and universities in the construction of virtual teaching and research offices as the basis and support for their own construction, learn from each other's strengths and weaknesses, take fewer detours, and strive for greater results with the least investment.

"Online integration + offline cooperation" method, the construction of a virtual teaching and research office is relatively difficult. From a formal point of view, as long as the team building and platform are completed, it can be regarded as the completion of the construction of a virtual teaching and research office, but the sustainable development of the virtual teaching and research office is a test of how the construction of virtual teaching and research office affects the substantive standard. Today, with the popularization of networking, there are more and more virtual things, but the corresponding people miss the physical display of reality more and more. On the one hand, the virtual teaching and research office caters to the current situation of rapid discovery of networkization, but when the craze recedes, how to develop sustainable development is the core issue that the builder of the virtual teaching and research office should really consider. Online integration was the original intention of the virtual teaching and research office, and it was also the original intention to effectively give full play to high-quality teaching and academic resources. However, as a regular thing, healthy development is inseparable from its internal cohesion. The fundamental reason for this cohesion is that each team member should have an emotional link to maintain this virtual thing. The emotional link cannot be achieved by network resources alone, and the corresponding offline cooperation has become the key to the healthy development of the virtual teaching and research office. There are many modes of offline cooperation, but driven by common interests, members work together to carry out academic exchange activities, jointly produce academic results, and jointly lead students to provide social services. This is the core content of various cooperation models, which should be used as key support for sustainable development after the construction of the virtual teaching and research office.

4. CONSTRUCTION OBJECTIVES OF VIRTUAL TEACHING AND RESEARCH OFFICE

4.1. Team Objectives

With the help of the virtual teaching and research room, set up a stable teaching and research theoretical and practical team to ensure the orderly and in-depth development of teaching and research, actively provide social services when necessary, and realize the transformation and upgrading of the social productive forces of the humanities and social sciences.

4.2. Objectives of the Platform

Explore the construction and orderly operation of the virtual teaching and research office platform based on the above team. Build a stable Internet teaching and research platform for this teaching team, realize resource sharing, actively connect international resources when necessary, and truly realize the vision of Internet.

5. KEY CONTENTS OF THE CONSTRUCTION OF VIRTUAL TEACHING AND RESEARCH OFFICE

5.1. Team Cohesion Build

The Virtual Teaching and Research Office is voluntarily formed by theoretical course teachers with common interests and a sense of mission and front-line practical experts in this professional field to build a teaching team that integrates theory and practice, which can have its own outstanding professional characteristics in the integration of science, education, and social services.

Teachers who need to participate in the construction of virtual teaching and research rooms have commonalities in teaching objectives, professional interests, professional fields, personal morals, etc., form a real teaching and scientific research team, and cooperate to carry out teaching and academic research, and the real team cohesion will gradually condense.

5.2. Platform Construction

The virtual teaching and research office platform is based on the construction of a public information platform. By building a virtual teaching and research office platform, it mainly implements the following functions:

1. Support the teaching and research office to carry out collaborative teaching and research activities, such as initiating and participating in activities, sharing relevant materials, etc. Collaborative teaching and research include collaborative teaching and research projects, collaborative teaching design, collaborative preparation of teaching materials, collaborative construction of teaching video resources, collaborative construction of exercise banks and topic banks, etc.

2. Support the teaching and research office to carry out collaborative teaching and research activities through video conferencing, voice conferencing, and other means.

3. Support the teaching and research office to share, disseminate, and apply teaching results, etc.

4. Publish and display the activity scenarios and results of the virtual teaching and research office.

5. Organize various trainings in virtual teaching and research rooms, such as live video broadcasts, teaching case exhibitions, etc.

6. CONSTRUCTION PATH OF VIRTUAL TEACHING AND RESEARCH OFFICE

The construction path of virtual teaching and research rooms should start with the three modules of team building, platform construction, and sustainable development. Next, the author takes the Big Data Intellectual

Property Virtual Teaching and Research Office as an example to explain it in detail Figure 3.
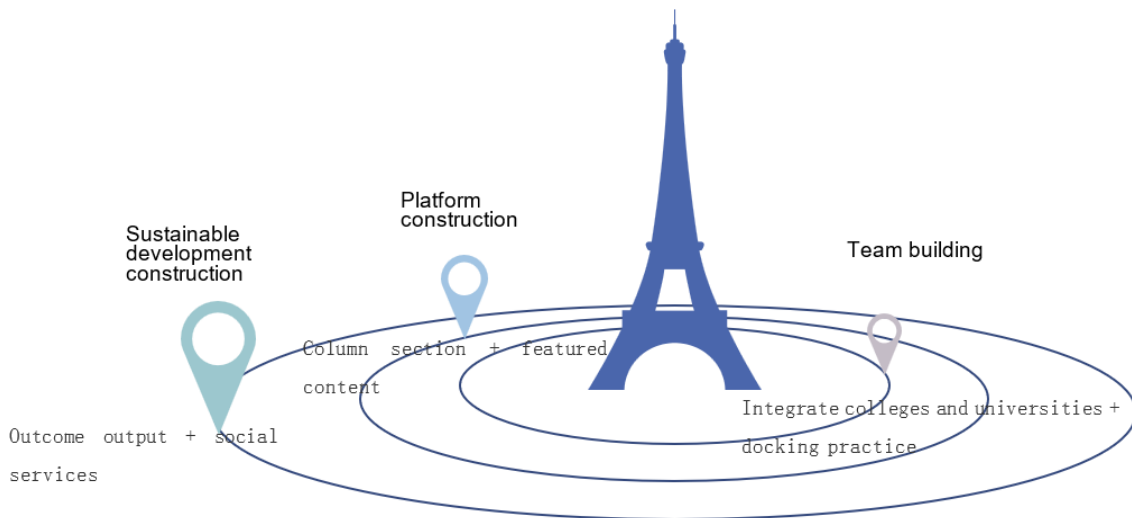

Figure 3. Schematic diagram of the construction path of virtual teaching and research office.

6.1. Team Building

Team building is the basic work for the construction and sustainable development of virtual teaching and research offices, which mainly follows the Integrate Colleges and Universities + Docking practice, the basic principles are mainly focused on the following four aspects:

6.1.1. Integration of Professional Teachers on Campus

Let's take the virtual teaching and research room of big data intellectual property as an example. As a characteristic course for law majors, intellectual property should be combined with big data to make characteristics. Teaching content such as big data should be introduced in an orderly manner, and on-campus, the academic backbones of the Department of Computer Science and Technology and the Department of Mathematics and Artificial Intelligence are integrated. They are invited to enter the law major classroom, bringing students the theoretical and practical cutting-edge knowledge of digital intellectual property rights, effectively expanding the academic vision of law students, and deepening the teaching effect. Therefore, the construction of virtual teaching and research rooms is inseparable from the organic integration of teachers from the above-mentioned parties, which provides strong basic support for the teaching and research of intellectual property in law majors and the organic integration with the national Internet and national strategy.

6.1.2. Integration of Professional Teachers in Colleges and Universities Inside and Outside the Province

Intellectual property rights have been deeply integrated into the networked society of the traditional form. The most typical manifestation is the digitalization of intellectual property rights. If teaching is still carried out only according to the traditional model, it is bound to be seriously disconnected from the development of networks, resulting in the social employment of students. This is a failure of higher education and cannot be tolerated. Based on the above considerations, we have actively established profound cooperative contacts with universities inside and outside the province and carried out continuous cooperative relations in teaching and scientific research related to big data and intellectual property rights, providing strong professional resources for the construction of virtual teaching and research offices.

6.1.3. Integration of Big Data + Intellectual Property Talents at the Practical Level (Domestic)

The charm of jurisprudence is not only theory but also practicality. In practice, we can establish good cooperative relations with practical units inside and outside the province, such as intellectual property offices at all levels, intellectual property judicial departments, intellectual property attorneys of intellectual property agency enterprises, etc. And maintain sustainable two-way benign interactive exchanges in teaching, academic, and other aspects insist on inviting experts from practical units to participate in the whole process of teaching, and provide practical assistance for the improvement of the professional ability of teachers and students in law and the improvement of social service capabilities.

6.2. Platform Construction

The construction of the platform is the content support of the construction of the virtual teaching and research office, which mainly follows the "column section + featured content construction" principles:

6.2.1. Construction of Existing Online Teaching Resource Sharing Modules for Theoretical Team Members

Because the Virtual Teaching and Research Office of Big Data and Intellectual Property insists that its team members come from various universities in China, including cutting-edge excellent teachers at home and abroad for digital intellectual property teaching and academics, its existing teaching resources can be shared and used as team teaching materials. On this basis, it explores a realistic path for integrating the teaching process of big data and intellectual property teachers in different colleges and universities to improve the quality of teaching.

6.2.2. Practical Team Achievements (Domestic) Integrated into the Construction of Theoretical Teaching Modules

Although the practical team organically integrates the process of data intellectual property teaching in different forms into the teaching process, it should also integrate into the virtual teaching and research laboratory in different forms, such as analyzing typical cases with theoretical teachers, jointly declaring teaching and scientific research topics, and jointly writing academic papers, so as to better promote the virtual teaching and research office to become deeper and more practical.

6.2.3. The Construction of Theoretical and Practical Team Integration and Communication and Collaborative Development Module

The common understanding of theoretical and practical resources has two aspects: formal integration and substantive integration. The construction of virtual teaching and research offices should focus more on the substantive integration and coordinated development of the two to achieve a win-win situation for all parties. This kind of integration and win-win results can provide more and more in-depth resource support and output for big data and intellectual property teaching and academics for law majors.

6.3. Sustainable Development

Sustainable development is an important indicator to test the effectiveness of the construction of virtual teaching and research offices. The test standard is outcome output + social services":

6.3.1. Promote the Theoretical and Practical Team to Carry Out Regular Online and Offline Academic Exchanges to Enhance the Realistic Sense of Virtual Teaching and Research Rooms

The essential feature of the virtual teaching and research room is that virtual network resources are used for realistic teaching, but if it is only based on network resources and lacks realistic personnel communication links, the virtual teaching and research office will not be sustainable and will not give full play to its due teaching and academic effect. Therefore, on the basis of the integration and win-win integration of network resources, the virtual teaching and research office enhances the sense of reality of virtual resources through the academic exchange links of offline team members, so as to ensure the realistic "feelings" of the virtual teaching and research office and effectively promote the orderly promotion of various works.

6.3.2. Encourage Team Members to Cooperate in the Theoretical and Practical Construction Results to Achieve the Theoretical Goal of Teaching and Research

The virtual teaching and research office itself is based on the common interests of all team members, at least the consistency of teaching and academic direction, so that everyone can have the motivation to carry out various collaborative projects in depth. Therefore, it is necessary to encourage team members to carry out free combination theoretical cooperation and exploration in specific fields of data intellectual property rights, provide more theoretical materials and point of view collisions for professional theoretical teaching, and bring more wonderful teaching results to students.

6.3.3. Explore Using Theoretical Practical Tutors to Lead Professional Students in the "1+1+1" Model to Carry Out In-Depth Social Services and Achieve the Practical Goals of Teaching

The fundamental nature of education lies in the acquisition and dissemination of knowledge and skills. The central focus of education consistently revolves around students, with teachers serving as the custodians of this fundamental element. The complete connotation of teachers here includes the organic integration of theoretical teachers in colleges and universities and other practical tutors from this field. The test of education does not depend on how much theoretical knowledge students have learned but more on how they can solve practical problems when they face them. Practical teaching objectives should become the same standard as theoretical teaching objectives to assess the teaching effect. The virtual teaching and research office should explore the ways to sort out practical teaching goals with a model integrated into social services.

REFERENCES

Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate princeton, N.J.: The carnegie foundation for the advancement of teaching*. Retrieved from https://digitalcommons.georgiasouthern.edu/ct2-library/121

Bransford, J., Brown, A., & Cocking. (2000). *How people learn: Brain, mind, experience, and school*. Washington, D.C: National Academies Press.

Sanchez Mayers, R., Schwartz, R., Curran, L., & Fulghum, F. H. (2019). Using a virtual agency to teach research. *Journal of Teaching in Social Work, 39*(4-5), 477-488. https://doi.org/10.1080/08841233.2019.1657219

Sang, X., Jia, Y., Jiao, J., Xie, Y., & Hu, Y. (2021). Theoretical and practical exploration of the construction of virtual teaching and research offices in colleges and universities. *Chinese Higher Education Research, 11*, 91-97. https://doi.org/10.16298/j.cnki.1004-3667.2021.11.14

Schug, K. A. (2020). Living the virtual life: Transitions in teaching and research. *LC-GC North America, 38*(7), 422-423.

Zheng, X. (2011). The glorious process of learning and studying the creation of new disciplines: Exploring the way to learn scientific success. *Open Education Research, 17*(1), 42-50. https://doi.org/10.13966/j.cnki.kfjyyj.2011.01.009

Zu, Q., Ma, H., & Qiao, H. (2022). Research on the construction of virtual teaching and research office from the perspective of synergy theory. *Teaching at Chinese Universities, 5*, 51-74.