



# The impact and pathways of virtual faculty on the implementation behaviour of change in the physical education and health curriculum

Cheng-Dong Zhu<sup>a</sup>, Jian-Min Huang<sup>b</sup>, Xin-Miao Zhang<sup>c\*</sup>

College of Physical Education, Liaoning Normal University, Dalian, Liaoning, 116000, China

<sup>a</sup>625127414@qq.com, <sup>b</sup>18363655348@163.com, <sup>c\*</sup>497708820@qq.com

**Abstract.** The construction of virtual faculty platform combines traditional education and teaching methods with modern technology means, builds an online teaching environment through the virtual faculty platform, introduces a blended teaching mode, improves the degree of students' participation in the courses with the help of modern technology means, and makes up for the shortcomings of traditional faculty in terms of diversification of teachers, flattening of management of faculty, and sharing of results in the cloud. This study takes physical education and health courses as an example to explore the direction of curriculum reform in the context of the new liberal arts, the innovation of new teaching resources, the problems faced by the discipline in the construction of curriculum ideology, and the impact of the construction of the virtual teaching and research office on this phenomenon. In this way, it can improve the quality of teaching and provide useful exploration and experience for the innovation and development of education and teaching field.

**Keywords:** virtual faculty, physical education and health, curriculum reforms.

## 1 Introduction

With the rapid development of modern society, physical education and health education is playing an increasingly important role in shaping the comprehensive quality of students and promoting the all-round development of individuals. However, the traditional teaching mode of physical education and health courses is facing constraints of time, space and resources, which makes it difficult to meet students' individualised and diversified learning needs, and provide enough practice opportunities, making it difficult for students to transform what they have learned into practical skills and behaviours. Against this background, with the help of modern information technology, especially the virtual teaching room, which is an advanced educational tool, we are expected to take a big step forward in the teaching of physical education and health programmes.

The physical education and health programme is characterised by its multidisciplinary integration, involving knowledge from a number of fields such as physiology, psychology, sports medicine, etc. It involves a combination of theoretical knowledge and

practical skills, and not only requires students to have theoretical knowledge, but also the ability to teach in a practical way. The Virtual Teaching and Research Office has a strong vertical exchange and expandability, through the inter-temporal and inter-school exchanges around the exploration of new ways of "teaching and learning", expanding the cultivation of outstanding talents in a variety of methods and paths, and positively affecting the improvement of the teaching ability of teachers, the joint exploration of the virtual teaching and research office created a new mode of vertical exchanges of the Virtual Teaching and Research Office and the discussion of the new mode of linkage, mutual construction, mutual appreciation and complementary relationship. This joint exploration has created a new mode of vertical exchange of seminars in the virtual teaching and research room, forming a new form of linkage, mutual construction, mutual appreciation, and mutually complementary excellent relationship. What are the existing problems of physical education and health programmes at this stage? How can the establishment of the virtual teaching and research centre platform improve the current situation?

Through in-depth analysis of students' learning behaviours and the structure of subject knowledge, combined with the design and application of the virtual teaching and research laboratory, the advantages of the virtual teaching and research laboratory will be maximized, which will lead to a better mastery of physical education and health knowledge, the cultivation of practical skills, and the improvement of the comprehensive quality of the subject. At the same time, this study will also give in-depth consideration to the universality and sustainability of the virtual teaching and research room in the teaching reform of physical education and health courses, so as to provide theoretical and practical support for future education and teaching.

## **2 Virtual Faculty Related Research**

### **2.1 Theoretical connotation of the virtual teaching and research centre**

Virtual Teaching and Research Office is a community of teachers in the information society environment, based on modern information technology platform<sup>[1]</sup>, with the goal of improving the educational and teaching level of teachers and thus the educational level of students, it is a community of teachers who are dynamically organised by teachers from different regions, schools, disciplines or specialties, and jointly carry out collaborative teaching research and reform practice<sup>[2]</sup>. Virtual teaching and research office has the characteristics of traditional teaching and research office, but also different from traditional teaching and research office - virtual teaching and research office is a new type of teaching organisation based on "Internet +", is a new form of collaborative teaching and research. Specifically, virtual teaching and research office is a kind of grass-roots teaching organisation, which is a community of teachers carrying out collaborative teaching and research; virtual teaching and research office's operation carrier is an information platform, based on which collaborative teaching and research can be carried out; virtual teaching and research office has the characteristics of openness, cumulative and shared construction. Openness means that teachers (who can be teachers of the university, teachers of other universities, or engineers of enterprises) can

dynamically join and leave the virtual teaching and research room; Cumulative means that the virtual teaching and research room has the function of continuous construction and accumulation of results; Sharing means that the teachers' group can build and share the results of the teaching and research together. In terms of the long-term development of , the virtual teaching and research office should emphasise the construction of grass-roots teaching and research organisations across disciplines, schools and regions.

## 2.2 Overview of the background of the Virtual Faculty

The educational landscape is constantly evolving and educators are constantly adapting to the needs, wants and expectations of students. Digital technologies and virtual learning systems have become an important part of educational operations, with many institutions adopting online frameworks and innovations<sup>[3]</sup>. With the application of information technology in the field of education, online teaching platforms have been introduced, and the collaborative teaching platform for the student group has gradually matured, while the collaborative teaching and research platform for the teacher group has yet to be explored. Based on this, combined with the following three considerations, the Ministry of Education has proposed the construction of virtual teaching and research offices: (1) Teaching reform based on catechism and the construction of first-class courses at the national level. The state has actively supported the construction of high-quality course resources through online first-class course recognition and online-offline hybrid first-class course recognition, which has promoted the promotion and application of high-quality courses across regions and schools. It can be said that cross-regional and cross-school collaborative teaching and research activities for teacher groups are the key to guarantee the quality of first-class course construction and give play to the role of catechism. (2) Professional reform of "four new disciplines" and the construction of national first-class majors. The "four new disciplines" refers to the new engineering, new liberal arts, new agriculture, and new medicine proposed by the Ministry of Education, which emphasises the intersection and fusion of disciplines to form new disciplines and new majors, and is an important part of the construction of many national first-class majors. It can be said that interdisciplinary and inter-organisational collaborative teaching and research activities for teachers' groups are the key to guarantee the quality of the construction of the "four new disciplines" and national first-class majors. (3) Exploring new topics of education and teaching reform. Rapidly developing "Internet+" and artificial intelligence technologies are reshaping the educational environment. How school education can cope with the challenges brought by the changing environment, school education administrators at all levels have put forward many new topics of education reform, such as new colleges, new majors, new training systems, new teaching models, new platforms, new organisations, new management, and so on. It can be said that cross-school and cross-college collaborative teaching and research activities for the teacher community are the key to guaranteeing the feasibility and effectiveness of research on new topics of education reform. With a thorough understanding of the above three backgrounds, we can deeply understand the value of the virtual teaching and research office, and then better build the virtual teaching and research office.

### 2.3 Virtual Faculty Enabling Role

The virtual faculty is an inevitable trend of high quality development of higher education, an inevitable requirement for the development of teachers' academic ability and an inevitable embodiment of the innovation of grassroots teaching organisations, and it has a creative application value in higher education reform<sup>[4]</sup>. Unlike physical teaching and research departments, virtual teaching and research departments are composed of a community of teachers with common interests and a common sense of mission, and the intrinsic motivation for different teachers to participate in virtual teaching and research departments is to obtain personal development and have space to show their talents from virtual teaching and research departments. The construction of the virtual teaching and research room is innovative in teaching resources, teachers' strength, teaching forms and students' participation; the virtual teaching and research room is led by famous teachers with cohesion and appeal, and gives play to the benchmarking and coordinating roles of the famous teachers, so as to interpret the teaching concepts for the teachers, solve the problems of teachers' lack of understanding of the teaching concepts and insufficient experience of the application of the teaching methods, and then enhance the overall level of the construction of the platform to achieve the goal of improving the teaching level and teaching methods. This will improve the overall level of the platform construction and achieve the purpose of improving the teaching level and quality of teaching; The construction of the virtual teaching and research room achieves common sharing through the creation of an intelligent platform, breaks the geographical restrictions and the information barriers of teaching professions, concentrates the educational resources of various universities in the cloud, and creates a situation of multidisciplinary crossover and multidisciplinary integration. The multi-dimensional teaching form combining online courses, offline teaching and on-line and off-line not only improves the efficiency and intelligence of education and teaching, but also further promotes the balanced development of education resources through the point-to-point and point-to-counterpoint resource sharing platforms with stronger radiation and influence. The establishment of the Virtual Teaching and Research Centre also implies the establishment of a huge teaching and learning resource base, which requires the construction of platforms and carriers first, and then the construction of course contents. By means of information technology, a virtual teaching and research office that can store more high-quality educational resources is established as a way to stimulate teachers' motivation and promote exchanges between teachers from different schools and different regions, thus promoting the high-quality development of intelligent education in colleges and universities. The virtual teaching and research room has an important impact on the implementation behaviour of physical education and health curriculum change.

### **3 The impact of virtual faculties on the implementation behaviour of change in the physical education and health curriculum**

#### **3.1 Virtual teaching and research centres to facilitate the exchange of peer experts**

The roles and approaches in traditional and virtual teaching and learning rooms show clear differences. Traditional faculty experts need to be physically present for face-to-face instruction and assessment. This close proximity interaction allows students to gain expertise and experience directly from peer experts, to discuss and exchange ideas in real time, and thus to receive timely feedback and guidance. The virtual faculty room, on the other hand, offers peer experts the possibility to remotely mentor and assess student learning, diminishing the limitations of geographic location. Students can communicate and learn online with peer experts from different regions through the virtual classroom, thus gaining a wider range of expertise and perspectives. In addition, the Virtual Teaching and Research Room records the learning process and performance of students, which facilitates tracking and assessment by peer experts and provides more accurate guidance and support to students. At the level of expert communication, the construction and application of virtual teaching and research rooms crosses time and space constraints, provides more diversified professional perspectives, offers more personalised teaching and research services, facilitates organisation and co-ordination, and reduces the cost of teaching and research compared to traditional teaching and research rooms. For teachers, the construction of the virtual teaching and research room platform, through online live teachers' classroom teaching and other forms, is more convenient for peer experts to comment on teachers' teaching methods and approaches, in order to strengthen the construction of disciplines and improve the quality of teaching; it is conducive to obtaining peer experts' interpretation of the new teaching concepts, to answer questions and solve problems in a timely manner, and to complete the teaching mode and optimise the teaching system.

#### **3.2 Virtual Faculty to promote interdisciplinary development of physical education and health programmes**

The physical education and health programme takes physical exercises as the main means<sup>[5]</sup>. The physical education and health programme takes physical exercise as the main means, learning physical education and health knowledge, skills and methods as the main content, promoting students' health, cultivating students' lifelong awareness and ability of physical education, and improving students' health literacy as the main goal<sup>[6]</sup>, covering knowledge of anatomy, physiology, dynamics and so on. The main content of PE and health knowledge and skills and methods is to promote students' health, cultivate students' lifelong physical education awareness and ability, and enhance their health literacy as the main goal, covering anatomy, physiology, dynamics and other knowledge, the physical education and health curriculum to promote "interdisciplinary" learning is an inevitable choice to respond to the change of education, is

the path of the education reform, and is the realization of students' core qualities of the natural needs. From the disciplinary point of view, the emphasis is on the integration of "horizontal knowledge"; from the students' point of view, attention is paid to the contextualisation of the "whole body"; from the teachers' point of view, the building of a "teaching community" of collaborative participation. From the teacher's point of view, it is to build a "teaching community" of collaborative participation. Interdisciplinary learning focuses on the introduction of multidisciplinary dialogue and cooperation to cultivate students' ability to solve problems and innovate in learning knowledge from an interdisciplinary perspective. Based on disciplinary orientation, traditional faculty constructs curriculum subjects and teaching contents, focusing on the systematicity, internal logic and boundary clarity of disciplinary knowledge in order to highlight the independent characteristics of a single discipline. The construction of the virtual teaching and research platform can promote "interdisciplinary" learning, breaking the limitations of a single discipline and the framework of "vertical knowledge", and focusing on the intersection of multiple disciplines and multiple fields. In a multidisciplinary environment, it is important to integrate and interrelate knowledge from different fields. By integrating and linking knowledge from different disciplines, the construction and implementation of an integrated curriculum can be facilitated. Through the construction and implementation of integrated curricula, the ability of learners to develop an "interdisciplinary" stance and solve complex problems is truly enhanced. By making use of the connectivity of multidisciplinary contents, a teaching community can be constructed for teachers, thus changing the single subject identity of teachers and emphasising the collaborative participation of multidisciplinary teachers in the community, so as to achieve multidisciplinary collaborative education. Through the construction of the virtual teaching and research platform, the sharing of educational resources has been achieved by overcoming time and space constraints, and the complementarity of strengths among cooperating units has also been promoted, creating conditions for common development.

### **3.3 Virtual Teaching and Research Centre builds a platform for school-enterprise co-operation**

School-enterprise interface is a different manifestation of school-enterprise co-operation between traditional and virtual teaching and research departments. Traditional teaching and research rooms can more easily cooperate with enterprises on and off campus for practical projects and field trips. The virtual teaching and research room can communicate, discuss and cooperate online with representatives of enterprises, understand enterprise needs and industry dynamics in an all-round way, obtain more job requirements in real time, and supplement professional skills in a timely manner. Starting from 2019, the "1+X" certificate system has been steadily advancing and the areas involved are expanding, and the students graduating from the school not only have academic qualifications, but can also The "1+X" certificate system is steadily advancing and expanding in the field, and students can not only have academic qualifications, but also obtain vocational skills level certificates, which realises students' dream of "multi-

talent", and strengthens the cooperation between industry, academia and research and promotes the development of the integration of production and education in schools.

"1" is the academic qualification certificate and "X" is a number of vocational skill level certificates. The academic qualification certificate comprehensively reflects the quality of talent cultivation in school education, while the vocational skill level certificates are the credentials of the vocational skill level of graduates and members of the society<sup>[7]</sup>, which can reflect the comprehensive abilities required for vocational activities and individual career development<sup>[8]</sup>, students will implement the theory into practice, enrich the professional application experience, for graduates have more choices when employment. Both complement each other and have an irreplaceable role in school education. The platform construction of virtual teaching and research centre can expand the scope, not limited to school and local resources, and obtain more real-time information through sharing. Taking the sports major as an example, school students can obtain multi-region competition information of specialised sports through the virtual teaching and research room to get the corresponding coaching and refereeing certificates, and they can also understand and master the information of different national qualification examination points, such as social sports instructor administrators, fitness instructors, sports nutritionists, health managers, and so on.

## **4 Rationalisation of the virtual faculty for physical education and health courses**

### **4.1 Firm grasp of the macro-direction of physical education curriculum reform**

As an important part of China's curriculum reform, physical education curriculum reform has achieved remarkable results in recent years in terms of curriculum standards, textbook construction and curriculum implementation. However, while deepening physical education curriculum reform, the relationship between localisation and internationalisation in China should not be neglected, nor can it be divorced from the care of history and reality. As stressed by the Ministry of Education in the Opinions on Comprehensively Deepening Curriculum Reform and Implementing the Fundamental Task of Literacy, "In the face of profound changes in the environment in which students grow up, the pursuit of a greater variety of values, and the increasingly fierce international competition and new challenges, the overall requirement for curriculum reform is to be based on the national conditions of China, but also have a global perspective"<sup>[9]</sup>. This requires that the physical education curriculum reform should have a "reasonable and moderate" practical character and implementation strategy in the reference process<sup>[10]</sup>. This requires that the PE curriculum reform should have a "reasonable and moderate" practical character and implementation strategy in the reference process<sup>[10]</sup>. Although some research suggests that "the reference of physical education curriculum reform should get out of the dilemma of 'misplaced borrowing' and 'cold inheritance', and move towards the dilemma of 'changing the shoe to fit the foot' and 'long lasting', it is not easy to find a solution to this problem. ' and 'long-term success'

intermediary road"<sup>[11]</sup>. Unfortunately, there is no comprehensive and systematic analysis of the practice route. If we lack understanding or know too much about the implementation path of physical education curriculum reform, the development of physical education curriculum reform in China in the new era will be greatly hindered.

To this end, the study applies the building of a virtual teaching and research platform to the physical education and health programme. By connecting schools and units in different regions and at different levels, emphasis is placed on the characteristics and development of the physical education and health curriculum. In the process of physical education curriculum reform, it is necessary to solve the problems of model (i.e. what model to choose), mechanism (i.e. what to do) and path (i.e. how to do). The practical experience of our physical education curriculum reform is then consistently incorporated throughout, with a view to providing a pluralistic perspective and useful reference for our national physical education curriculum reform.

#### **4.2 Implementing the new curriculum standard for the implementation of the meso system**

The promulgation of the new curriculum standard, by promoting the reform of physical education teaching, changing the concept of teaching, comprehensively understanding and realising the meaning and requirements of "teaching, practicing diligently, and competing frequently", has made it a regular, standardised and systematic mode of teaching organization<sup>[12]</sup>, and make it a regular, standardised and systematic mode of teaching organisation. To create a high-quality physical education classroom, so that students can be comprehensively improved in "knowledge, ability, behaviour and health"<sup>[13]</sup> The new curriculum was promulgated in the form of a new standard for teaching content. The promulgation of the new curriculum standard has improved the teaching content, co-ordination of teachers, innovation of teaching methods and evaluation methods to different degrees<sup>[14]</sup>have been upgraded to different degrees. However, there are still some challenges to be faced during the reform and implementation of physical education and health programmes in the context of the "new curriculum"<sup>[15]</sup>. The increase in the requirements of education and human development will make teachers face more problems, especially physical education teachers. Physical education teachers are the key persons in charge of the development of students' physical fitness and health, and they are the ultimate implementers of the new curriculum standards, which have injected a new impetus into the development of teachers. However, the increased demands of educational parenting have also highlighted problems with teachers in promoting physical fitness and health, potentially affecting their effectiveness. If the systems do not match, it will have an impact on the implementation process of the New Curriculum. The overall goal of the New Curriculum is to develop students' core qualities and promote their physical and mental health, and improving the supporting system is the key to achieving these goals. At the present stage, the supporting system for school sports in China is not sufficiently in line with the New Curriculum. The lack of educational resources will have an impact on students' participation in sports, because the purpose of school sports construction is to enable students to effectively participate in sports activities, and sports participation is the fundamental way to achieve



students' core literacy. Schools are currently unable to meet students' sports participation needs because, according to the new educational standards, sports activities should be of a certain length, form and effectiveness.

### **4.3 Micro-path options for driving innovation in new teaching resources**

The physical education classroom is not only the main place where physical education teaching takes place, but also a process of two-way communication and knowledge construction between physical education teachers and students based on the training objectives and curriculum standards. Influenced by a variety of complex factors such as the environment, resources and teaching mode, the effect of classroom teaching will be different. With the deepening of physical education curriculum reform, teaching methods and forms have been constantly innovated, bringing new teaching resources updated. Information-based teaching equipment can communicate and share with the outside world and achieve interconnectivity, breaking down the barriers inside and outside the classroom, creating a vivid and imaginative teaching environment, helping students understand abstract professional theoretical concepts and knowledge faster, and at the same time, it can also create an active physical education teaching atmosphere, allowing students to devote themselves to it, thus effectively improving the overall teaching effect. Scenario-integrated teaching emphasises the integration of thinking and action, and is able to flexibly use physical education teaching materials to comprehensively develop students' personalities, psychological and physiological characteristics in order to improve students' motivation and autonomy. Wearable devices such as Polo heart rate monitor and sports bracelets can facilitate PE teachers to count students' performance data in PE lessons after class, accurately reflecting the quality of teaching in the classroom. Physical education teachers are able to monitor students' movement status in the classroom through the background data in order to accurately instruct students and group them according to scientific and reasonable principles, thus making physical education teaching more scientific and objective.

### **4.4 In-depth analysis of the application of the objective concept of the course's political thinking**

Civics and politics in the physical education programme is an important task in implementing the guiding principle of "health first" and fulfilling the task of "cultivating morality and nurturing people". Through scientific and innovative thinking and the combination of obvious and hidden ways to implement the concept of "three-whole" synergistic parenting, improve the "trinity" diversified three-dimensional structure, give full play to the function of physical education and health programmes in moral education and the value of the leading role. The concept of cultivating and practicing socialist core values should be infiltrated in all aspects of the construction, implementation and resource development of the physical education programme to ensure the effective implementation of the whole process. The characteristic of physical education curriculum is to "integrate" or "tap" the elements or resources of ideology and politics, which is the "ideology and politics of physical education curriculum". From the current

practice of thinking politics in physical education curriculum, there are two forms <sup>[16]</sup>. The first is the "integration" of historical events and tasks related to the sports curriculum in sports teaching, which is mostly applied to theoretical courses; the second is the "excavation" of the historical, spiritual, quality and other elements of ideology and politics embedded in the knowledge of specialised courses or professional skills in sports, which is mostly applied to technical courses. ", which is mostly applied in the arts courses. However, the focus of the physical education and health programme is on imparting knowledge of physical health care, cultivating sports skills and conducting training, rather than simply introducing the contents of the Civics and Politics course directly into the physical education classroom. Physical education teachers have often wondered how to effectively implement Civics in the physical education programme when promoting the construction of Civics in the curriculum. Is it necessary to turn the physical education class into a Civics and Politics class? Physical education teachers encounter many challenges in actual teaching, such as inconsistencies in teaching and learning, and mismatches between the content of physical education and the content of Civics teaching. They also need to solve the challenges of combining physical education expertise with Civic and political education, playing their leading role, and establishing a sound mechanism for collaborative parenting.

#### **4.5 The problem of subjective choice of outcome-oriented goal setting**

Ideas are the precursors of theories and theories are the guides of practice. Theories in social sciences are highly integrated with the actual situation, and theories related to career should be valued and scientifically scrutinised in the new social development and career environment. Theories such as career matching, career development and career decision-making provide important thinking guidance and theoretical support by analysing the origin, formation and development process of employment goal-oriented education. Teacher trainees can better understand and explore the direction of employment through goal orientation, which is the basis for promoting personal socialisation and comprehensive and free development, and plays an important role in improving employment cognition, cultivating interest and planning future development. Goal-oriented education is a systematic educational activity of gradual progress and continuous improvement. In the developmental changes of individual cognitive level, physical and mental development maturity, and deepening socialisation process, it is particularly important and necessary to implement goal-oriented education for students of different stages of schooling in a hierarchical, scalable, and strongly targeted manner. Goals are the vision and direction of our development and the driving force for our continuous progress. Goal-oriented education is a kind of active social practice with the main task of training students, which obviously has a clear subjectivity, a clear direction and clear milestones. In other words, once goal orientation is formed, it immediately has a clear value orientation and developmental goals. At present, when researchers elaborate or define the conceptual connotation of goal-oriented education, they all discuss the content of goal orientation.

## **5 Suggested Pathways to Promote the Deepening of Physical Education and Health Programme Practices**

### **5.1 Reasonable integration to build a comprehensive evaluation system for planning unity**

Evaluation plays an important role in classroom teaching and it is an important tool for assessing the results of teaching, identifying problems and shortcomings as well as improving teaching methods and enhancing the quality of teaching. Schools used to focus their physical education assessment of students mainly on assessing their performance in terms of sports skills and physical fitness. At this stage, the focus of student assessment is no longer on memorisation and comprehension, but more on the testing of comprehensive abilities, such as problem solving, communication and collaboration, and creativity. The traditional paper-and-pencil method of evaluation becomes no longer applicable. In order to increase the convenience of evaluation methods and the accuracy of results, many schools have begun to focus on establishing a comprehensive evaluation system for "knowledge, ability, behaviour and health", and have encouraged the use of artificial intelligence and other evaluation methods. The Overall Programme for Deepening Educational Evaluation Reform in the New Era explicitly calls for improving the scientific, professional and objective nature of educational evaluation by making full use of information technology. Advances in big data technology have provided a good technical environment and implementation conditions for the reform. Intelligent teaching evaluation mainly adopts personalised evaluation criteria, accompanying data collection and real-time generated evaluation reports, and these methods effectively assess students' advanced cognitive and non-cognitive abilities. Objective evaluation data can be more convincing to students and their parents, and help students clearly understand their progress, thus stimulating their interest in learning. Evaluation of teaching and learning is a test of the extent to which the objectives of teaching and learning have been achieved, the design of teaching and learning is sound, and the outcomes of teaching and learning are effective. Feedback and reflection on teaching and learning evaluations can facilitate the adjustment and improvement of existing teaching and learning programmes, thereby promoting the growth of teachers and the student community. Through continuous improvement of the existing teaching evaluation mode and full use of information technology, schools can make a gradual transition from staged evaluation to process evaluation, provide feedback and reflection on it, and re-plan their teaching methods and approaches in order to improve the quality of teaching and learning. In this way, a standardised and uniform evaluation system is constructed. Using the participation of virtual teaching and research institutes, the unification of this evaluation system can be achieved, and the common development of teaching and research institutes and connected institutions can be promoted.

### **5.2 Online links to high-quality micro-courses to reduce regional educational disparities**

From the formulation of teaching programmes to actual classroom teaching, the Virtual Teaching and Research Office adopts mixed online and offline teaching, with members of the Virtual Teaching and Research Office team from schools in different regions of the country conducting video conferences in the cloud, focusing on discussing and identifying high-quality online teaching resources and teaching agendas for the physical education curriculum of each school, and forming a complete virtual teaching and learning curriculum system. Strengthening educational cooperation with developed regions with the support of online education and teaching platforms, creating conditions and mechanisms to promote online-based joint teaching and research between schools in backward regions and schools at the same level and of the same kind in regions with leading levels of economic and educational development, or organising and carrying out online teacher training in a targeted manner, so as to enhance the teaching and learning abilities of teachers in backward regions and strengthen their self-confidence and sense of conviction. Through the strong promotion of high-quality quality courses across schools, regions and professions, the formation and landing of the mechanism for the common construction and sharing of educational resources, online and offline hybrid teaching concepts to the extreme; through the promotion of high-quality quality courses, to break down the barriers of the short educational horizons, so that students can enjoy the most cutting-edge teaching and learning resources; through the high-quality quality courses of study, the school teachers to timely find their own deficiencies and effective improvement, so as to integrate and sort out the quality Resources are integrated and sorted out, and a teaching mode system that meets the characteristics of the school and the students' characteristics is formulated to carry out the widest integration of high-quality information resources; through the continuous accumulation of high-quality boutique classes, a teaching resource library is constructed to effectively integrate material resources, promote the sharing of high-quality teaching resources, and improve the quality of professional teaching.

### **5.3 Joint new teaching resources to strengthen the construction of sports programme's ideology and politics**

As an indispensable part of the school education system, physical education is not only an important part of cultivating students' physical fitness and motor skills, but also a key component in shaping students to grow up to be socialist builders and successors with all-round development in morality, intelligence, physicality, aesthetics and labour. Sports is one of the effective ways to transmit values, through the physical education programme, students can be guided to establish a correct view of victory and defeat, honour and disgrace, and cultivate their sense of competition and the concept of fair play. And with the development of the times, the requirements of the society for the training of talents are also changing, in order to cultivate socialist builders with all-round development of morality, intelligence, physicality, aesthetics and labour, it is necessary to integrate ideological and political education into physical education. The

traditional "indoctrination - acceptance" type teaching is no longer adaptable to the new era of talent cultivation needs, the new curriculum reform clearly puts forward, from the past "preaching, teaching, solving puzzles," the teaching mode into the "independent, cooperative, exploratory" teaching method. The new curriculum reform has clearly proposed to change the teaching method from "preaching, teaching and explaining" to "independent, co-operative and exploratory" learning method.

Strengthening the goal-oriented nature of the sports curriculum's ideology and politics, constructing a scientific and reasonable evaluation system of the sports curriculum's ideology and politics, improving the ideology and politics quality of the sports teachers' team, and deeply exploring the ideology and politics elements of the sports curriculum. To build the integration of the teaching system of the sports programme's ideology and politics. (1) With "cultivating morality and educating people" as the highest goal and sportsmanship as the ultimate pursuit, complete the macroscopic design of the time structure of the Civics and Politics of Physical Education Curriculum; (2) Combined with the innovation and application of new teaching resources, implement the organic integration of the Civics and Politics elements of the design of the meso-practice; (3) linked to high-quality micro-courses, implement the micro-example of the teaching of a single section of the course. (3) linking high-quality micro-courses to implement micro-course examples of teaching implementation of individual courses. We can improve the construction of Civics and Politics in physical education courses through the unity of moral education and physical exercise; the integration of realistic problems and ideological values; the combination of typical cases and examples around; the teacher's demonstration and guidance to stimulate students' thinking; the cultivation of all-round development of human resources; the integration of courses to strengthen Civics and Politics education; the innovation of teaching materials and the integration of current events into Civics and Politics; the planning of activities and the promotion of emotional experience; the interaction between teachers and students and the guidance of in-depth thinking.

As an important carrier of ideological and political education, physical education provides a unique educational platform for students to cultivate comprehensively developed socialist builders. By integrating ideological and political education, physical education can be made to better serve the development needs of the country and society, and to cultivate more excellent talents with noble character and healthy physique.

#### **5.4 OBE education concept orientated to set precise employment goals**

OBE education, known as Output-Based Education (OBE), is an educational model "designed to be student-centred and outcome-oriented, with the premise that everyone can learn"<sup>[17]</sup>, where the goal of instructional design and delivery is the learning outcomes that students achieve at the end of the educational process, and the preparation of students for career and professional fulfilment<sup>[18]</sup>. The concept stresses that talent cultivation should be consistent with the needs of society, advocates a student-oriented and teacher-supported education model, and formulates educational plans such as cultivation objectives, cultivation programmes and syllabi according to the needs of society for talents. At the same time, it is also necessary to optimise the evaluation method

and evaluation system in order to improve the core qualities of talents. The OBE education model can flexibly adjust the cultivation programme according to the changes in social development needs, so that the cultivated talents can better meet the development needs of the society. The teaching of physical education and health courses based on the OBE concept can enhance students' ability to apply what they have learned, encourage students to cultivate the ability of active thinking in learning, understand what they have learned more deeply, and be able to fully integrate knowledge to analyse and solve practical problems. Teaching content is more relevant and more closely integrated with practice to better develop competencies that are closely related to employability skills. When teaching objectives are clearly defined, students' initiative increases and changes from passive acceptance to active learning. In turn, the internship education standards are adjusted to meet expectations (creating a social response to a changing environment)<sup>[19]</sup>. With professional goal orientation and employment goal orientation as the basis, teachers can formulate teaching objectives suitable for students' development, guide students to clarify their personal development goals in the learning process, plan their learning career and improve themselves until the end of their university life, achieving a glorious picture and reaching a happy ending.

## **6 Conclusion**

The introduction of the Virtual Teaching and Learning Centre provides a new, forward-looking path for physical education and health curriculum change. It has led to an innovative shift from the traditional education model to one that deeply integrates modern technology, knowledge sharing and cross-border co-operation. In this process, the Virtual Teaching and Research Office expands the scope of access to and interoperability of educational resources by promoting the construction of online teaching and learning environments, thus expanding students' knowledge horizons and thinking boundaries. At the same time, it provides a highly interactive, cooperative and sharing platform for teachers, accelerates the rapid dissemination and updating of teaching concepts, methods and technologies, and further promotes the improvement of teachers' professionalism. In terms of curriculum content, the introduction of the virtual teaching and research office makes the physical education and health curriculum more diverse and deep, enriches the teaching content of practical subjects, cultivates students' practical ability and innovative thinking, improves teachers' professionalism, and promotes the cross-fertilisation of disciplines. It adds a new path for the continuous innovation and development of education.

## **Acknowledgements**

**Funding:** This work was supported by the Education Department General Project of Liaoning Province (LJKMR20221401), 2022 Project of FUSC(202204002).

## Reference

1. Zhang, Y., Zhang, M. Research on the Construction of Virtual Teaching and Research Room under the Background of New Liberal Arts Construction--Taking "Virtual Teaching and Research Room for the Study of Civic and Political Elements in Film and Television Art" as an Example[J]. *Film Literature*,2022(15):18-23.
2. Wang R.Y. Thinking about the development of virtual teaching and research centre in public security colleges[J]. *Liaoning Police Academy Journal*,2023,25(01):88-92.
3. Taridi M, Risnita, Yaakob M F M, et al. An evaluative study for communicative language teaching (CLT) on online teaching and learning in higher education: Indonesian and Malaysian university context[J]. *Education and Information Technologies*, 2023: 1-37.
4. Huang, M., Jiang, W.Z. The value and exploration of virtual teaching and research room construction in universities in the era of intellectualization [J]. *Strait Science and Industry*,2023,36(02):78-80.
5. Li, J., Liu S.L. Background, connotation and practice of "teaching, practicing hard and competing often"[J]. *Journal of Physical Education and Sport*,2022,29(06):134-139.
6. Yu, S., Chen W. Multidimensional characteristics, design logic and practical guidelines of "interdisciplinary thematic learning" in physical education and health programme [J]. *Journal of Physical Education*,2022,29(06):10-16.
7. Liu, F., Yang, M., Zhang Haohan. Research on the enhancement of vocational education industry service capacity of colleges and universities based on 1+X certificate[J]. *Mechanical Vocational Education*,2023(07):24-28.
8. Huang, Y. Discussion on Credit Reform of Higher Vocational Colleges and Universities under Dual-Track Driving Mode[J]. *Guangxi Education*,2020(39):98-100.
9. Hu, Q., Zhang, Y., Liu, L.Q. Research on Artificial Intelligence Enabled Basic Education Curriculum Reform: Connotation, Mechanism and Practice[J]. *Journal of National Institute of Educational Administration*,2021(09):23-30+38.
10. Xia, L., Su, YC., Li, M. Research on the Analysis Method of Geography Teaching Materials under the Concept of Unit Teaching Design--Taking "Water Cycle" of the New Teaching Materials of Humanities Teaching Edition as an Example[J]. *Geography Teaching*,2021(04):16-20.
11. Lv, C.L., Hu, Q.S. Mode-Mechanism-Path: Practical Exploration of Physical Education Curriculum Reform Reference[J]. *Journal of Chengdu Institute of Physical Education*,2022,48(05):97-103.
12. Hu, ZG. Teaching by "Learning", "Board" and "Match" to improve the quality of physical education[J]. *Sports Vision*,2022(09):80-82.
13. Dan, Y., Mao, J.Q., Qi, X.L. Research on the construction of physical education learning community in primary schools[J]. *Sports Style*,2023(01):155-157.
14. Duan, L., Shen, S.Y, Xie, T. An analysis of the promotion of the new compulsory education standard on the reform of physical education teaching in nine-year schools[J]. *Chinese Journal of Education*,2023(S2):188-190.
15. Zhang, X.L., Gao, X.F. Opportunities, Challenges and Strategies for Promoting Students' Physical Fitness and Health in School Sports under the Background of "New Curriculum"[J]. *Journal of Xi'an Institute of Physical Education*,2022,39(06):635-640.
16. Song, Y.L., Xu, C., Feng, Y.Z. et al. A study on the curriculum ideology and politics of military sports programme in the integration of physical education, intellectual education and moral education[J]. *Sports Vision*,2021(19):37-38.
17. Cheng, Z.W, Wu, S.J., Chen, J.M. A new cultivation mode of "3-3-3" integration under the concept of OBE--Construction and practice of talent cultivation system for environmental

- engineering majors in local colleges and universities[J]. *Journal of Zhejiang University of Technology (Social Science Edition)*,2016,15(04):452-458.
18. Shi, J.X. Strategies for Improving the Effectiveness of Undergraduate Classroom Teaching in Private Colleges and Universities under the Background of "Double First-class" Construction[J]. *Modern Rural Science and Technology*,2022(04):71-72.
  19. Singh M I, Cox T, Cislowski R, et al. Experiential Learning Labs in Field Education: Tackling the Grand Challenges Through Interdisciplinary Collaboration[J]. *Journal of Social Work Education*, 2023: 1-16.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

