

# Research on the Construction of Online Open Quality Courses in Higher Vocational Colleges Based on the Era of Big Data

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**Abstract:** The overall progress of online open course construction is closely linked to the actual needs of Internet development technology and education. Vocational colleges should be actively involved in the exploration and innovation for China's national conditions of various types of open courses online application practice. Under the background of big data technology, vocational colleges should follow the education reform tide, change the education teaching idea, innovative ideas, and give full play to the advantages of the platform and the radiation effect. The achievements of the educational learning mode change brought by the new technology will be fully applied to the teaching practice. Higher vocational colleges should actively promote the sharing of high-quality teaching resources, realize the steady improvement of overall teaching quality, and promote the leap forward development of Higher Vocational Education in China.

In recent years, The State encourages colleges and universities with the advantages of disciplines and modern educational technology to build a batch of high-quality online open courses represented by large-scale online open courses, integrating application and service<sup>[1]</sup>. As an important part of colleges and universities, higher vocational colleges should make great efforts to seize this opportunity, actively promote the sharing of high-quality teaching resources, help educators change their concept, promote the rapid formation of characteristic specialties, improve the ability of developing digital education resources and providing services, actively adapt to learners' personalized development and diversified lifelong learning needs, and promote the leap forward development of Higher Vocational Education in China. This paper will study the construction of online quality courses in vocational colleges from the perspectives of school-enterprise cooperation mode, online course construction platform, faculty construction, quality content construction, teaching method and means innovation, and students' learning mode reform.

## I. The Basic Connotation of National Online Open Quality Courses

National open online quality courses are also known as MOOCs, represented by massive open online courses. It is a high-quality open online course with organic integration of course application and course service, and the advantage integration of traditional open quality courses and MOOCs. In the accreditation of online open quality courses by the Department of Education, resource sharing and open video courses, online education courses for part-time students, small proprietary online courses (SPOC) open only to students of the university or a small number of universities, and online courses without complete teaching activities and teaching process, etc. are not included in the scope of accreditation because then don't have the typical characteristics of massive open online courses.

## ii. Challenges In The Development Of Quality Online Courses In Higher Vocational Colleges

### 1. Further Highlight the Shortage of Excellent Educational Resources in Higher Vocational Colleges

Due to the late start of higher vocational education in China, it can't be compared with undergraduate colleges and universities in terms of scale, input of educational resources, level of teaching research, reserve of excellent teachers, organization of social resources and social service ability, etc. Whether they want to open courses on a well-operated MOOC platform or

independently develop online course platform, they are not competitive as higher vocational colleges with relatively weak scale and school running ability. In the application, the audience of online open courses will preferentially choose the relevant courses of key universities to study, which makes the click rate of higher vocational and technical courses unsatisfactory, and then attacks the enthusiasm of Vocational Colleges in the construction of online open courses, and also makes the operators unwilling to invest more resources and energy to promote higher vocational and technical courses, thus further highlighting their own disadvantages in running schools .

## **2. The Teaching Concept and Teaching Ability of Higher Vocational Teachers Need To Be Further Improve**

In the era of big data, the popularity of social circle and self-Media based on the developed network makes students' knowledge no longer completely dependent on books, teachers or classrooms. Students' access to knowledge is more convenient, and learning methods have changed dramatically. Dominated by teachers in the traditional teaching value and only paying attention to the course of a study of itself to teaching ideas have been unable to adapt to the teaching reform by new technology. Teachers gradually become collaborators, helpers, developers and organizers of course resources from the dominant role in the classroom. Under the background of big data, teachers should be equipped with Internet thinking and carry out Internet thinking in the whole process of education and teaching activities. Teachers insist on student-centered, service-oriented, need-based, sharing as happiness. This actually puts forward higher requirements for teachers' information literacy, learning ability, organizational ability, teaching design, development, innovation ability and practical ability, and also puts forward higher standards for the cultivation of excellent teachers in higher vocational colleges.

## **3. The Standards for Course Evaluation Need To Be Further Improved**

The improvement of the quality of online quality courses in higher vocational colleges is inseparable from the establishment of a perfect course evaluation mechanism. The main problem to be solved in the course evaluation mechanism of higher vocational colleges is the scientific formulation of evaluation subjects, evaluation indicators and evaluation methods. Curriculum evaluation indicators should not only cover static curriculum objectives and teaching strategies, but also analyze dynamic teaching guidance and forum discussions<sup>[2]</sup>. The evaluation should not only highlight the importance of the academic quality of the course, but also give consideration to the production level and operation effect of the course. To ensure the completion rate of online premium courses, schools should also use sophisticated formative assessments of students' learning. All this adds to the difficulty of the overall course assessment.

## **4. Weaken the Sovereignty of Running Schools**

The goal of talent training in higher vocational colleges should focus on application, professionalism and practicality, which are very different from ordinary research-oriented colleges. If higher vocational colleges are separated from the needs of economic and the industrial structure and blindly introduce the academic online quality course of research-oriented undergraduate colleges, instead of establishing MOOCs platform that conforms to their own school-running characteristics based on their own needs, the talent training programs of higher vocational colleges will become useless, and their influence will be limited in a narrow geographical range, and their training methods will be divorced from the training goals, and eventually then will become training institutions of well-known universities at home and abroad.

### **iii. Basic Strategies For The Construction Of Quality Online Courses In Vocational Colleges**

#### **1. Reasonably Formulate The Construction Plan Of Online Open Quality Courses, Clarify The Responsibility Of The Construction Subject, Absorb The Advanced Curriculum Construction Concept, And Standardize The Construction Procedure.**

The construction plan of online quality courses in vocational colleges should be made scientifically from macro and micro levels. On the one hand, When formulating the curriculum construction plan at the macro level, the educational administrative departments should formulate the basic principles, overall objectives, specific progress and stage results of the curriculum construction in accordance with the regional economic and social characteristics and school positioning, and promote the comprehensive construction of various professional courses in a planned and step-by-step way, so as to effectively promote and ensure the highly coordinated and balanced development of high-quality online courses in the regional, college, major and discipline dimensions. On the other hand, when formulating the micro-level curriculum construction plan, higher vocational colleges should grasp their own advantages, closely focus on the goal of talent training, highlight the characteristics of running schools, focus on the overall optimization of courses, and carry out systematic and sustainable reform in the construction of curriculum system, teaching content organization, teaching method and means innovation, practice teaching reform and other aspects.

As the main body of curriculum construction, higher vocational colleges should manage the whole process from curriculum organization development, curriculum release, and curriculum operation, curriculum maintenance to curriculum audit and evaluation, track and coordinate all parties involved in the whole process, maintain the independent intellectual property rights of the team and individuals, and provide certain financial support. The teaching team undertakes the task of curriculum development and is directly responsible for classroom resources. The team should not only rely on the individual ability of teachers. The school should be equipped with a professional teaching design and technical support team which can participate in the formulation of the preliminary design scheme, the preparation and improvement of various materials, and be responsible for the whole course production, the mid-stage online editing and packaging of the post-stage. The website platform is mainly responsible for the release and operation management of courses by Internet technology, tracking the whole learning process of students by using big data technology, analyzing students' learning behaviors, obtaining relevant data, and providing feedback and suggestions for the improvement of students' independent learning, teachers' targeted teaching and managers' teaching services.

In construction concept, vocational colleges should speed up the process of Information construction of higher education , adapt to the developing trend of higher education information, give full play to the platform function and condition guarantee of digital campus, especially smart campus<sup>[3]</sup>. Schools should make full use of information technology in reforming traditional teaching methods and innovating organization forms of teaching resource, integrate advanced education and teaching concepts into the whole process of constructing quality open online courses, gve full play to the advantages and characteristics of the new teaching mode and course form, and gradually promote the application of flipped classroom teaching mode and mixed learning model. The construction of modern higher vocational courses should carry out the principle of "taking ability as the standard", formulate the standards of professional competence, methodological competence and social competence under the induction of the common vocational qualifications required by social occupational groups and post groups, and fully embodies the characteristics of practicality and high level of higher vocational education.

## **2. Based On The Construction Of Online Open Quality Courses, Innovate The Teaching Mode Of Higher Vocational Colleges, Reconstruct Quality Resources, And Explore The Online Realization Mode Of Complete Student-Centered Teaching Process**

Today, with the great changes in information technology, higher vocational colleges can make full use of the platform of school-enterprise cooperation and industry-university-research cooperation under the school-running mode of "government support, university leadership and enterprise participation", and construct the curriculum mode with the characteristics of "combination of work and study" in higher vocational colleges. It is the purpose of curriculum construction of higher vocational colleges to train high quality applied talents with innovative

consciousness and ability, who are good at discovering and solving problems. It emphasizes "learning through practice, practice through learning", projects and courses of tasks in real scenes, and makes corresponding adjustments in teaching form according to students' mastery of practical ability, so that students can easily master the theoretical knowledge of cutting-edge development of their major<sup>[4]</sup> and adapt to the constantly adjusted economic and industrial structure. Higher vocational colleges should take students as the fundamental starting point and final destination when they introduce online open quality courses or participate in building an online open quality course platform with higher vocational characteristics, deeply integrate the teaching resources of schools and high-quality enterprise resources, comprehensively apply teaching to engineering education practice, focus on the cultivation of learners' innovation ability, promote the harmonious and comprehensive development of students, and realize the optimization of learning effect. In the future, in addition to launching more online high-quality courses and establishing a complete online course platform, we should also organically integrate these high-quality teaching contents into our daily teaching work, explore a new student-centered teaching organization model, build a new relationship of teaching and learning, and realize organic integration of traditional classroom teaching mode and modern network learning mode. In the whole teaching system, we should form a top-down guiding effect, effectively integrate the teaching resources, cultivate students' autonomous learning ability, stimulate students' potential learning initiative, and highlight the cultivation of students' practical ability and level. When designing and organizing course contents, the course construction team should take talent training objectives and course positioning as the basis, based on fragmented resources, supported by various interactive communication materials platforms, guided by four types of users, including teachers, students, enterprise employees and social personnel, rely on high-level course materials, take course learning themes as the center, and take course knowledge as the basic unit, strengthen the development of high-quality teaching micro-video, engineering examples, material database, phase test, test item bank, discuss topics and other auxiliary course resources, so as to form a systematic design from fragmented resources -- micro-course -- module -- course -- specialty, and form professional course resources based on online quality courses<sup>[5]</sup>.

### **3. Update The Teaching Concept, Strengthen The Construction Of The Faculty, Provide Full Support For Teachers In The Process Of Developing And Applying Online Quality Courses, And Attach Importance To The Protection Of Intellectual Property Rights.**

The development and construction of a discipline cannot be separated from high-level and high-quality teachers. It is the key to improve the level of curriculum teaching and professional construction reform to build a high-level "double-qualified and double-capable" teaching team, and also the key to make a breakthrough in the construction of online high-quality open courses. Teachers have to move away from the center of education and make students and the learning process the center of education. Teachers become developers and innovative users of online courses, helping students rebuild their knowledge systems, and working with students to build open systems of knowledge to realize the exploration and innovation in the classroom, and to realize the innovation of the flipped classroom through its own play and creation, so as to adapt to the open and diversified characteristics of time and space transformation in the new network era.

The competent departments of teaching and higher vocational colleges should not leave their own responsibilities and obligations aside while placing the burden of teaching reform on teachers. On the premise of full respect and people-oriented, managers should make scientific and reasonable top-level design, play the role of platform construction, promotion and service, and provide teachers with necessary financial support and technical support. It is also necessary to establish corresponding encouragement and reward mechanism, establish the system of protecting teachers' rights and interests, and establish an operational system of examining and evaluating new teaching forms. Schools can set up special funds to seek financial support from education authorities or to obtain funds through cooperation with platform enterprises. In technical support, schools should set up technical teams to help teachers deal with webpage production, maintenance, courseware

production, video recording and other related work, or cooperate with the professional technical team and outsource the work at the technical processing level. Teachers are only responsible for providing scripts and cooperating in the production<sup>[6]</sup>. In aspect of incentives, The participation and application of teachers in online quality courses can be used as the basis of professional title evaluation and employment, and reasonable labor remuneration can be given, or flexible policies can be formulated to allow teachers to obtain reasonable benefits after the operation of the enterprise platform. In addition, as the protection of teachers' rights and interests, it is necessary to clarify the ownership of intellectual property of online open courses. The course management personnel should determine the ownership of the course according to the intellectual property law of China and some foreign methods of intellectual property management, determine the degree of resource sharing according to the actual situation, study the norms and rules that resource users need to follow, and protect the rights and interests of the course developers and builders.

#### **4. Construct Diversified Evaluation Methods Of Online Open Quality Courses To Promote Learning And Improve The Utilization Rate And Influence Of Online Open Quality Courses.**

The main body of evaluation can be a teacher, also can be mutual between students and students, also includes self-evaluation for teachers and students as a user, platform service evaluation, etc. Evaluation methods will focus more on individual differences of students. For example, the platform system tracks, statistics and analyzes the learning behavior and course learning of registered learners through software technology, and takes the results as the basis for assessment. Again, students views on resources and browsing history, records, job submission, online learning interaction with other learner's problem solving performance in answering questions, course schedule, etc. Homework evaluation is reflected in class, class-off, process test and comprehensive test. Course certification is an important evaluation content for learners. The realization of course certification can greatly improve the influence and utilization rate of online quality courses, and is also an effective measure for the sustainable operation of the platform. Learners should obtain certifications of knowledge and skills if they meet certain learning requirements. Course certification is a progressive process. We can first build courses for students in higher vocational colleges through inter-school cooperation, share learning resources, and recognize credits internally, and then gradually promote the certification of professional level as the basis for job hunting, and explore a new form for social personnel linked to academic education.

#### **Conclusion**

The overall progress of online open course construction is closely linked to the actual needs of Internet development technology and education. Vocational colleges should be actively involved in the exploration and innovation for China's national conditions of various types of open courses online application practice. Under the background of big data technology, vocational colleges should follow the education reform tide, change the education teaching idea, innovative ideas, give full play to the advantages of the platform and the radiation effect. The achievements of the educational learning mode change brought by the new technology will be fully applied to the teaching practice. And the beneficiaries of the construction of quality courses will be transformed from macro groups to micro individuals. We should make

full use the situation analysis of big data and the promotion of digital platform, so that the open course of higher vocational colleges can truly become a beneficial channel for students, teachers and social professionals to acquire knowledge, and vocational education promote China's development with an international perspective, ultimately realize the pursuit of fair, open and inclusive education.

#### **Projects**

2019 Key Project of Dalian Institute of Vocational and Technical Education Science (DZKY2019A06); Key Project of 2017 Special Project of Agricultural Vocational Education of

Liaoning Vocational and Technical Education Association (LZYZXZD1709); Research Project on Undergraduate Education and Teaching Reform of Dalian Ocean University "Research and practice of applying humanistic quality education to undergraduate students from the perspective of industry-education integration"

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