

Practice and Research on the Construction of Online Open High-Quality Medical Laboratory Courses in Higher Vocational Colleges

Wenping Xu*, Xiaojin Cui, Peipei Hu, Tongtong Cheng

Jiangsu Nantong Health Higher Vocational and Technical School, Nantong 226007, Jiangsu Province, China

*Corresponding author: Wenping Xu, pingming2021@163.com

Abstract: Online open high-quality courses, also known as MU courses, are not only an important exploration and practice of information-based teaching in higher vocational colleges, but also an important measure to innovate the mode of teaching resources and improve the teaching quality. Taking the medical laboratory specialty in higher vocational colleges as a research case, this article expounds the necessity of creating online open high-quality courses and analyzes the principles of constructing online open high-quality medical laboratory courses in higher vocational colleges. In addition, this article has suggested several strategies for the construction of online open high-quality courses, such as reconstructing the curriculum system, increasing interactive links, integrating curriculum resources, improving the evaluation system, and promoting curriculum pluralistic sharing.

Keywords: Higher vocational colleges; Medical laboratory; Construction of online open high-quality courses; Practice

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1. Introduction

In 2015, the Ministry of Education issued the *Opinions on Strengthening the Application and Management of Online Open High-Quality Courses in Colleges and Universities*. The issuance officially began the prelude to the construction of online open courses in colleges and universities. In 2017, the *Notice of the General Office of the Ministry of Education on the Identification of National High-Quality Online Open Courses* was issued to further accelerate the construction process of online open courses. Higher vocational education is an important part of the higher education system in China. Promoting the construction of online open high-quality courses has not only become the necessity of teaching reform, but also the key measure to improve the level of teaching and quality of talents. Therefore, in consideration of the construction practice of online open high-quality medical laboratory courses in higher vocational colleges, this article actively explores specific strategies for the development and construction of online open high-quality courses in higher vocational colleges.

2. The necessity of constructing online open high-quality courses in higher vocational colleges

2.1. Conforming to the development trend of educational informatization

In recent years, China has promulgated a series of policies to promote educational informatization, including the *Guiding Opinions of the State Council on Actively Promoting the "Internet Plus" Action Plan* and the *Education Informatization 2.0 Action Plan*, aiming to further expand the scope and depth of the integration of information technology and education^[1]. In this context, higher vocational colleges need to seize the opportunity and take advantage of the situation to comprehensively improve the scale and quality

of online open curriculum construction in order to lay a foundation for the improvement of running schools and the quality of talents.

2.2. Promoting the in-depth reform of vocational education

The *Vocational Education Action Plan for 2020-2023* proposed that information technology should be actively used in vocational education to deepen the reform of education and its teaching mode, develop and build more abundant teaching resources to better meet the diversified needs of students, strive to create a new mode of vocational education – “Intelligent +” and “Internet plus,” as well as speed up the process of vocational education reform. Therefore, in view of the “double high” construction, higher vocational colleges should take the construction of online development of curriculum resources as the way to deepen information reform, promote their own endogenous development, and comprehensively improve the quality of talent training.

2.3. Implementing the concept of student-oriented education

How higher vocational colleges should better bring their functions into effect, serve the society, and meet the diversified learning needs of students at different levels has become one of the important issues that is perplexing higher vocational colleges. With the construction and development of online open high-quality courses, systematic and structural learning resources would not only meet the individual needs of learners, but also ensure the expansion of students to effectively build on their knowledge reserves and truly implement the student-oriented education concept in higher vocational colleges.

3. Principles of constructing online open high-quality medical laboratory courses in higher vocational colleges

3.1. Promote students’ autonomous learning

The improvement of students’ autonomous learning ability is the fundamental guarantee to realize lifelong learning. The development, construction, and sharing of online open high-quality courses have broken the barriers in vocational colleges. Teachers are able to obtain richer and higher quality curriculum resources through the massive open online courses (MOOCs) platform, thus providing a strong support and guarantee for students to develop autonomous learning and lifelong learning. The teaching mode of flipped classroom based on online open curriculum resources advocates “learning before teaching.” This provides a landing opportunity for online open curriculum resources ^[2]. With the development of online education, higher vocational colleges have reduced classroom teaching hours to set aside more time for students to participate in professional training and practice. This requires students to have a certain degree of autonomous learning along with the ability to make full use of classroom time and spare time for efficient learning. The construction of online curriculum development provides favorable conditions for students to be involved in autonomous learning.

It should be noted that flipped classrooms based on online open curriculum resources only rely on videos rather than the explanation from teachers. Its core is mainly reflected in three parts: learning, testing, and research. In classroom teaching, teachers and students can conduct joint research in facing difficult problems and solve those problems through interaction and mutual assistance. All these would effectively promote the improvement of students’ autonomous learning ability.

3.2. Pay attention to the different needs of students

A survey found that learners of different levels have different needs for teaching videos in terms of the

duration and content. In terms of the duration of online open courses, short videos are more suitable for preview, thus enabling students to grasp the key knowledge points as quickly as possible. On the other hand, long videos are more suitable for review in helping students build a complete subject knowledge system. Therefore, in the construction of online open courses, it is not only important to pay attention to the recording of short videos, but also the production of complete long videos in order to meet the diversified needs of different learners. In addition, the construction of online courses should also clarify the course subject, characteristic positioning, and teaching objectives. On the basis of learning from the advantages and disadvantages of existing course resources as well as the characteristics of medical laboratory courses, it is essential to deeply explore the course characteristics. In recent years, many higher vocational colleges have set up medical laboratory courses, but the relevant online open course resources are relatively limited. Therefore, in the construction of the curriculum of these courses in higher vocational colleges, the focus should be on highlighting their own characteristics, paying attention to the differential development of students, as well as avoiding the curriculum development and the construction mode of “one thousand courses.”

3.3. Overall planning of curriculum ideological and political resource construction

Curriculum ideological and political education refers to excavating the elements of ideological and political education in each curriculum and imperceptibly affecting students' ideology and behavior. In higher vocational colleges, the medical laboratory course is a basic course. In the resource construction process of online open high-quality courses, the excavation of ideological and political elements contained in the knowledge system of the medical laboratory course should be emphasized, the ideological value and spiritual connotation of its course content should be reflected, and the state of the medical laboratory course should be expanded. In addition to that, in the process of developing online open course resources, relevant contents in ethics should be added to further enrich the contents in the medical laboratory course as the course involves human experiments and animal experiments.

4. Strategy in constructing online open high-quality medical laboratory courses in higher vocational colleges

4.1. Reconstructing the curriculum system to adapt to the network platform

The medical laboratory course belongs to the main course of medical higher vocational colleges. The knowledge points of the course are scattered, its contents are profound and complex, and it has high requirements for practical skills. Therefore, in the reform of the medical laboratory course, the focus should be on how to ensure that students would master the academic contents more efficiently.

In the construction process, according to the internal logic of the knowledge points of the medical laboratory course and the cognitive law of students, the content of the medical laboratory course is first integrated to form different teaching modules. Secondly, according to the principle of “necessary and sufficient,” the main contents of different modules are refined and granulated in order to clearly distinguish the theoretical knowledge points and operation skill points of the medical laboratory course^[3]. In addition, when developing online open high-quality course resources, it is important to pay attention to the intuitive display of theoretical knowledge, highlight the operation details of professional skills, build an online and offline combined and interactive course teaching, enhance the teaching guidance of the medical laboratory course, as well as enhance students' initiative and enthusiasm in learning the professional knowledge pertaining to the course.

4.2. Increasing interactive links and promoting active learning

Interaction is an indispensable part of teaching. The construction of online open high-quality courses and the implementation of flipped classrooms provide more interactive opportunities for both teachers and students. This includes online daily check-ins, homework evaluations, theme discussions, mutual evaluations, etc. Therefore, when constructing online open high-quality courses, the focus should also be on adding and developing interactive links. Teachers should encourage outstanding students to establish auxiliary teaching teams, manage online platforms, and serve to assist other students so as to attract more students to participate in the process of online learning, communication, and discussion ^[4].

4.3. Integrating curriculum resources and enriching learning resources

After years of reform, exploration, and practice, the medical laboratory curriculum has formed a relatively perfect set of curriculum resources. At the same time, in order to further highlight the openness of online open high-quality medical laboratory courses, it is necessary to comprehensively expand and integrate course resources in the process of course construction, such as introducing the latest diagnostic standards of medical testing, micro-courses for special diseases, case analysis for common cases, medical testing practice resources, etc., so as to enrich the types of online open courses, realize the redundancy of excellent online course resources, and give full play to the role of high-quality courses. In addition, by relying on network technology and information means, enriching medical laboratory curriculum resources, and improving the quality of curriculum resources, curriculum resources can better meet the needs of students and ensure the efficient application of these resources.

4.4. Sharing of courses to improve the quality of courses

The construction of online open high-quality medical laboratory courses does not only serve teachers and students in medical higher vocational colleges and those majoring in laboratory-related specialty, but also provide convenience and support for medical laboratory related posts and practitioners in related industries to carry out independent learning and lifelong education. Therefore, in order to better meet the needs of learners at different levels, relevant projects or tasks such as actual case analysis, post skill demonstration, and expanded disease introduction should be appropriately added in the construction of online open medical laboratory courses. In addition, various modules of online open courses should be related to different post tasks or projects to better meet the needs of different learners. Meeting the learning needs of practitioners in medical laboratory industries would provide support for the improvement and expansion of their professional skills ^[5].

5. Conclusion

At this stage, although there are still some pain points and deficiencies in the construction of online open high-quality medical laboratory courses in higher vocational colleges, new teaching modes such as flipped classrooms and hybrid teachings would become the new normal of education in the future. In view of "Internet plus education," the teaching focus of medical laboratory courses in vocational colleges is also changing toward the direction of soft knowledge. Educators in the new era should actively change their teaching ideas, master various advanced teaching means, make better efforts in the construction and application of online open high-quality courses, as well as realize the teaching innovation of medical laboratory courses under the background of educational informatization.

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