

A New Way for Online and Offline Mixed Top-ranking Course Construction for the Clinical Medicine Major

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ABSTRACT

The construction of "top-ranking courses" has become the basic foothold of the first-class undergraduate course construction in colleges and universities, which is the core element of cultivating first-class talents, and exploring the path of scientific construction is an urgent problem to be solved in building "top-ranking courses". Combining with the training goal of clinical medical professionals and taking post competence as the guide, colleges and universities can effectively integrate network information technology into higher education teaching. Additionally, through scientific overall planning, changing teaching means, reforming teaching methods, innovating curriculum contents, updating evaluation system, and enhancing curriculum connotation, colleges and universities can create online and offline mixed top-ranking courses with higher level, innovation and challenge, which has contemporary significance.

Keywords: Online and offline mixed form; top-ranking courses; path

1. INTRODUCTION

Curriculum is the core element of talent training. Chen Baosheng proposed that it is necessary to change "nonsensical courses" into insightful, difficult and challenging "top-ranking courses". "Eliminating nonsensical courses and constructing top-ranking courses" has become the current development trend of higher education teaching reform. At present, the quality of undergraduate courses is not high, and the lack of depth and challenge is a common problem in colleges and universities, becoming the key factor affecting the quality of talent training. All subjects, majors and courses need to explore the "top-ranking courses" mode suitable for themselves. Medicine is an applied subject with strong practicality, in which doctors should not only master solid basic knowledge of medical theory, but also have clinical thinking and clinical operation skills. At present, the combination of theoretical courses and practical courses cannot better train medical talents. Therefore, based on network information technology, it is more important to present the complicated and changeable typical clinical cases vividly and truly to students through creating "top-ranking courses" in line with the clinical medicine major.

2. THE NECESSITY OF CONSTRUCTING TOP-RANKING COURSES

In 2018, the Ministry of Education proposed to speed up the construction of high-level undergraduate education, take undergraduate education as the foundation, and promote "four returns" [1]. Strengthening the construction

of undergraduate education and improving the quality of personnel training is an important theme of undergraduate education reform and development under the new situation. The level of curriculum construction is the core of teaching quality and the lifeline of talent training quality. In 2018, the Ministry of Education issued the Notice on *Implementing the Spirit of National Conference on Promoting the Modernization of Undergraduate Education in Institutions of Higher Learning*, and put forward the requirements of creating top-ranking courses and eliminating nonsensical courses. At the same time, the Ministry of Education issued *Opinions on Strengthening the Construction of High-level Undergraduate Education and Comprehensively Improving Talent Cultivation Ability* and 14 ministries jointly issued the "six excellent and one outstanding" plan 2.0. The construction of "top-ranking courses" has become the basis for the construction of first-class undergraduate courses in colleges and universities, which is the core element of cultivating first-class talents, and exploring the path of scientific construction is an urgent problem to be solved in creating "top-ranking courses". The vigorous development of new knowledge and technology in the information age has brought new opportunities for the reform and innovation of higher education. It is of great significance to integrate the network information technology into the higher education teaching effectively and construct online and offline mixed top-ranking courses.

3. CONNOTATION OF TOP-RANKING COURSES

In November 2018, Director Wu Yan of the Department of Higher Education of the Ministry of Education explained the profound meaning of the top-ranking courses with "two natures and one degree", i.e., higher level, innovation and challenge. Higher-level education means that students learn knowledge, possess ability and cultivate quality through undergraduate education, so as to achieve organic fit in knowledge, ability and quality, and become practical talents with comprehensive ability to solve complex problems and advanced thinking, which can reflect the effectiveness of the course [2]. Innovation has three meanings: first, the content of the curriculum is forward and contemporary. The course content can keep pace with the times and the trend of the times, so that students can understand the hot issues and the latest research trends in the field of this major, and cultivate their inquiry consciousness and innovative spirit of seeking truth and pragmatism; second, the teaching form embodies advancement and interactivity. It breaks through the traditional "cramming" teaching, and creates a student-centered diversified interactive teaching environment, which pays attention to teacher-student interaction and student-student interaction, lets students move and the classroom live, and form a good atmosphere of bilateral teaching activities; third, learning results are inquiry and personalized. Students can find the answer to the question in the pre-class, in-class and after-class by asking questions, and analyzing, so that students can learn new knowledge in a way of discovery, exploration and synthesis. Challenge degree means that the course is of certain difficulty, which requires hard-working, and it has high requirements for teachers' lesson preparation and students' after-class review. Teachers conduct scientific and reasonable combing and arrangement for the course content, increase the depth of the course, and make students' learning more difficult by regulating the learning process and the course assessment mechanism. Many higher education researchers in China have launched a lot of study of the top-ranking courses. Lu Guodong [3] proposed that top-ranking courses is a general term for high-quality courses, which is proposed relative to nonsensical courses. Li Zhiyi [4] believed that when the high-quality content is large to a certain extent and the nonsensical content is small to a certain extent, then the course is top-ranking course. Wang Yunwu et al [5] believed that top-ranking courses in the new era are highly academic or practical courses with high value load like gold. The above researches enrich the connotation of top-ranking courses. Only through the exploration and practice of top-ranking courses can the fundamental task of "cultivating people with morality" be fulfilled and the fundamental problem of talent training be solved.

4. THE PATH OF CONSTRUCTING ONLINE AND OFFLINE MIXED TOP-RANKING COURSES

Under the impact of the globalization of information technology, information technology is used as a tool and means to penetrate into the teaching of various disciplines, and the construction of online open courses provides a strong support for the creation of online and offline mixed top-ranking courses. How to accelerate the integration of modern information technology and subject teaching in colleges and universities, and how to explore a scientific and reasonable online and offline mixed top-ranking course path is an important topic in front of the majority of higher education teaching workers.

4.1. Strengthening top-level design and making overall planning in a scientific way

4.1.1. Efficient organizational guarantee

Leaders in colleges and universities should attach great importance to the establishment of the "three gold" construction work leading group, explicit construction tasks and refine reform measures. At the same time, each college should set up the "three gold" construction work leading group, define and implement each task of constructing "top-ranking courses" and translate the reform measures into teaching practice in and out of the classroom, so as to provide a strong organizational guarantee for "top-ranking courses" [6].

4.1.2. Perfect facility guarantee

At the beginning of the spring semester of 2019, the school has strengthened the renovation of all kinds of modern teaching facilities and teaching places, and upgraded the hardware and software facilities of the classroom in an all-round way, so as to ensure that every classroom can carry out networked teaching. At the same time, the school will closely match the development trend of higher education and focus on promoting the construction of intelligent classrooms. Immersive classrooms, full-course recording and broadcasting classrooms, flipped classrooms and PBL classrooms have been set up to provide a strong guarantee for teaching informatization and teaching reform [7]. The office of academic affairs has formulated relevant documents to encourage teachers to make full use of modern teaching facilities to carry out various teaching activities, improve the efficiency of the use of modern teaching facilities and promote teaching reform.

4.1.3. Scientific institutional guarantee

The school organizes experts to combine the national standard of top-ranking courses and the specialty and the curriculum characteristic, carries on the full demonstration, formulates the construction and implementation plan of top-ranking courses, takes excellent teachers as the guide to set up teams, builds top-ranking courses with the team strength, and gives the advance payment and the policy support to the team. Every year, the school selects the high-quality "top-ranking courses" with good construction, use, study and management effect from the "top-ranking courses" at the school level, and recommends the application of provincial and national "top-ranking courses" to give related construction funds for the continuous construction of curriculum resources. By using the scientific, objective and effective teaching quality evaluation system, the course orientation, course content, course teaching method, course examination evaluation mechanism, student learning effect and other aspects are dynamically monitored, so as to improve the course connotation and create a scientific, stepped and innovative top-ranking courses. Schools should improve the teaching incentive mechanism and promote teachers to carry out teaching reform and research, such as publishing high-quality articles, declaring high-level topics and results, adopting PBL teaching method and flipped teaching, so as to stimulate teachers' enthusiasm for self-improvement [8].

4.2. Changing teaching concepts and creating top-ranking teachers

Combined with the characteristics of self-development of schools, a group of backbone teachers capable of constructing top-ranking courses can be cultivated first guided by the national education policy in the new period and based on the existing educational and teaching conditions and achievements. The school should improve teachers' ideological education ability, education and teaching ability, teaching research ability and curriculum construction ability. Every year, a number of teachers are selected to participate in teaching training, teaching seminars, academic exchanges, teaching workshops and other activities, so that teachers can renew their teaching ideas, teach and educate people in the same direction, and have the ability to integrate information technology with subject teaching. Through online courses, wisdom tree, icourses, PMPHMOOC courses and other platforms, online and offline mixed teaching can be carried out, and the traditional teaching method can be transformed into a new teaching mode with students as the main body. Therefore, students are not only willing to learn, but also know how to learn, in this way, their potential can be stimulated and innovative consciousness can be cultivated, and they can achieve all-round development in knowledge, ability, quality and other aspects [9]. The overall design of the course, the teaching mode of the course and the evaluation mechanism of the course can promote the

achievement of the training goal of the course, enabling teachers to have the ability of constructing top-ranking courses.

4.3. Changing teaching tools and giving information technology support

Based on modern information technology, it is imperative to actively create teaching activities and learning activities that integrate information technology and subject teaching, create a new teaching environment of "wisdom + education", and create mixed online and offline "top-ranking courses" [10]. Building a scientific and reasonable online learning platform is an important carrier to build mixed online and offline "top-ranking courses". With the help of a variety of curriculum resources, such as teaching video, syllabus, case base, electronic teaching plan, courseware, exercises, online testing and other rich teaching resources, online open courses highlight learner-centered, carry out various forms of teaching activities, and promote communication and interaction between teachers and students, autonomy and personalized learning. It is necessary to make teaching methods diversified, teaching forms individualized, teaching time and space expanded, and teaching feedback timely, so changing learning methods and knowledge transfer methods becomes an effective supplement to higher education. Teachers should be encouraged to create online open courses with the help of online platforms such as icourses, xuetang and wisdom tree. The course videos are fragmented and granulated according to the requirements of teaching, and the teaching contents are produced into teaching videos with a duration of about 10 minutes. At the same time, the course forum is set up to become an interactive platform between teachers and students, so as to improve the information of the course and the activity of the website. Promoting the deep integration of education and teaching and information technology is the breakthrough to realize the "track change and overtaking" of teaching quality and realize the dynamic monitoring of course quality [11].

4.4. Reforming teaching methods and integrating multiple approaches

Renewing teaching ideas, innovating teaching methods, and taking the clinician post competence as the talent training goal can create student-centered multiple interactive teaching environment. Through developing a new mode of online and offline mixed teaching, students can use online open curriculum resources to do online preview and self-study without the limitation of teaching time and space. Offline flipped teaching is carried out by combining PBL teaching method, role-playing method, case analysis method, discussion teaching method and other methods. The teaching methods of different chapters should be different. They should not be stereotyped or

confined to one form. Taking the case as the breakthrough point, students can learn new knowledge independently through thinking, judging, questioning, analysing and synthesizing. Finally, through the online teaching video, knowledge expansion and exercises, students can deepen the understanding and consolidation of the knowledge learned in class, broaden the extension of knowledge and test their learning effect. Therefore, the teaching process is from online learning to offline teaching and to online learning, reflecting the characteristics of informatization [12]. From three levels of knowledge goal, skill goal and quality goal, students' ability of analysis and judgment, clinical thinking and clinical practice operation skills, innovation ability and ability to solve practical problems, interpersonal communication ability and humanistic care consciousness can be cultivated.

4.5. Innovating curriculum content and reconstructing knowledge system

Under the guidance of the concept of achievement-oriented education, the curriculum goal should be consistent with the graduation requirement, the graduation requirement should be in line with the training goal, and the training goal should be adapted to the external needs of the country, society, industry and employer. Therefore, the curriculum system is reconstructed based on vocational needs. The orientation of the school is "based on Sanjiang, serving Longjiang and facing the whole country". Aiming at cultivating high-quality applied talents, the clinical medicine major of the school has been listed in the first table since 2018, and the students recruited are of high quality. In combination with the above situation, referring to the training objectives and following the vocational needs, the teaching content is reorganized and arranged, so as to achieve the integration of basic and clinical, the combination of theory and practice, and the integration of teaching and scientific research. Through increasing the course depth, improving the course difficulty, and extending the course breadth, the course content with the connotation of "top-ranking courses" can be constructed [13]. Therefore, it is necessary to combine basic knowledge with clinical cases closely, analyze the main line of cases, learn basic theoretical knowledge, integrate into the educational concept of moral education, and closely link theoretical knowledge learning with solving practical problems in teaching, so as to cultivate students' comprehensive ability and advanced thinking to solve complex problems, which can reflect the high order and challenge degree of the curriculum. The contents of practical teaching should be added in the course, and the skill-based, comprehensive and design-based experimental teaching system should be constructed with "system-centered and case-oriented", so as to enhance the clinical practical operation skills of medical students. The development of medicine is changing with each passing day, and the hot research problems and the latest research progress of this subject or related subject are integrated

into the curriculum content to promote the transformation of scientific research results into teaching content. It can embody the cutting-edge, scientific and epochal nature of the curriculum [14].

4.6. Updating evaluation system and enhancing curriculum content

Objective and reasonable curriculum evaluation system can stimulate students to exert their potential in many aspects, which is conducive to students' individualized development and the formation of higher level thinking. According to the course objectives and contents, the school should establish a multiple level, multiple dimensional and dynamic course evaluation system that pays attention to the process assessment and truly reflects the learning effect of students [15]. The school should take the evaluation of students' post competence as the core, and establish a course evaluation mechanism suitable for online and offline mixed top-ranking courses. The summative evaluation and formative evaluation should be combined to evaluate and examine. This kind of course evaluation method can feedback the advantages and disadvantages of teaching resources, whether it meets the characteristics of individual differences of learners, which is helpful for teachers to find out the shortcomings in time in teaching, adjust teaching strategies and methods, and improve teaching ability and teaching quality, and students can improve their learning methods and promote the effective improvement of learners' comprehensive ability. The summative evaluation adopts the traditional examination method, which can select examination questions from the examination question database of the subject course website. Formative evaluation includes online and offline achievements: online results include homework, stage testing and forum presentations; offline results are reflected in the evaluation of classroom learning effect, the evaluation of learning group activity process with online open course as the carrier (PBL group discussion, report and role play).

5. CONCLUSION

The school started the construction of school-level top-ranking courses in 2019, and selected the first ten top-ranking courses of clinical medicine major, which were strongly supported by the school. Four of them were rated as the online and offline mixed top-ranking courses in Heilongjiang Province in 2019 and recommended to the national top-ranking courses selection. In the future, under the guidance of the results-oriented education concept, the school should keep up with the pulse of the times, vigorously develop modern information technology, and reshape the new teaching ecological environment centered on learners. Exploring the scientific and reasonable online and offline mixed "top-ranking course" path is the starting point to promote the development of "double-class"

colleges and universities, and the only way to fully revitalize undergraduate education. Only by staying true to the original aspiration and making concerted efforts can Chinese realize the "four returns" and realize the great dream of rejuvenating China through education as soon as possible.

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REFERENCES

- [1] Zhang Ruijuan, Wu Zhiqiang, Zhao Dan. Practical Study on Teaching Quality Control System in Colleges and Universities[J]. *Science and Technology Education*, 2019 (25): 115-116.
- [2] Bo Rongrong, Leng Mingxiang. Basic Cognition, Current Selling Dilemma and Selling Practice Path of "Whole Class" Construction in Colleges and Universities[J]. *Heilongjiang Higher Education Research*, 2019, (8): 141-144.
- [3] Lu Guodong. Eliminating Nonsensical Courses and Constructing Top-ranking Courses[J]. *Chinese University Teaching*, 2018, (9): 23-25.
- [4] Li Zhiyi. View of "Nonsensical Courses" and "Top-ranking Courses"[J]. *Chinese University Teaching*, 2018, (12): 24-29.
- [5] Wang Yunwu, Huang Rong, Peng Zihan, et al. Constructing "Top-ranking Courses" for China in the New Era and Cultivating "Outstanding Talents". *China Medical Education Technology*, 2019, 33 (4): 379-388.
- [6] Wu Yan. Constructing "Top-ranking Courses" in China[J]. *Chinese University Teaching*, 2018, (12): 4-9.
- [7] Xu Xiaojiao. Discussion on Eliminating "Nonsensical Courses" and Constructing "Top-ranking Courses" in the Undergraduate Education[J]. *Cultural and Educational Materials*, 2019 (7): 198-199.
- [8] Jiao Yang, Li Feng, Lu Ying et al. Education and Teaching Forum[J]. Discussing the Feasible Scheme of "Eliminating Nonsensical Courses and Constructing Top-ranking Courses" through Studying Food Science and Engineering Major as an Example, 2019, (42): 206-207.
- [9] Yu Huilan. Study on the Construction Path of Online and Offline Mixed "Top-ranking Courses"[J]. *Educational Review*[J]. 2019 (10): 21-25.
- [10] Shi Yan, Zhang Chunjing, Wu Lina. Practice and Exploration of Wisdom Education in Medical Education in the Age of "Internet +"[J]. *Chinese Journal of Medical Education*, 2018, 38 (4): 566-569.
- [11] Ma Junfeng, Luo Zhimin. What is "Top-ranking Courses" in Universities: What Students Say[J]. *Jiangsu Higher Education*, 2019 (5) 60-66.
- [12] Li Chunjiang, Zhang Jinbo. Research and Practice on Integration of Information Technology and Genetics Teaching. *Life Chemistry*, 2019, 39 (1): 199-202.
- [13] Xue Gong, Tao Linfen, Lin Yanfeng, et al. Exploring the Establishment of Clinical Hematology Testing Technology of "Top-ranking Courses" in the Era of "Wisdom + Education"[J]. *China Higher Medical Education*, 2019, (15): 117-118.
- [14] Liang Zhongxiu, Zheng Changmin, Liu Peng et al. Avoiding "Nonsensical Courses" and Achieving "Top-ranking Courses"[J]. *Journal of Guangxi University of Traditional Chinese Medicine*, 2019, 22 (1): 105-106.
- [15] Wang Rui, Lv Fang, Li Qin et al. Reflections on the Application of MOOC to Immunology. *Chinese Journal of Immunology*, 2019, 35 (21): 2656-2659.