Teaching Reform and Exploration of Agriculture-related Professional Basic Courses Against the Background of Internet

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ABSTRACT

The development of the Internet has had a great impact on traditional teaching, which has brought challenges and opportunities to teachers' teaching ideas and methods. Professional basic courses are an important foreshadowing for college students to successfully move towards professional courses. Taking the professional basic courses of plant protection as an example, this paper analyzes the role of the Internet in the teaching of professional basic courses, the requirements of the Internet for teachers and students in the teaching of professional basic courses, and gives suggestions and measures for the construction of professional basic courses based on the background of the Internet, with a view to giving full play to the advantages and characteristics of the Internet, to mobilize students' learning initiative and enthusiasm, so that the teaching of professional basic courses can keep pace with the times, and meet the needs of the new era and new agricultural talents training.

Keywords: Internet background, New agricultural science, professional basic courses, Teaching reform and exploration.

1. INTRODUCTION

The specialized basic course is an important guide and foreshadowing for college students to successfully move towards the specialized course learning. It has both the particularity of the discipline and a strong foundation closely connected with the specialized course. The degree of mastering and applying the specialized basic course knowledge directly affects the students' learning efficiency, interest in the specialized course and ability to engage in professional work [1] [2]. The professional basic courses are generally arranged in the first two years of students' enrollment. The students are at a stage of confusion about their future career planning. In addition, the agricultural majors are relatively cold compared with other majors. The students have insufficient recognition of their own majors, lack a sense of social responsibility and sense of responsibility.

There are many knowledge points in the professional basic courses, so students often feel bored in the study of professional basic courses; Also, students' thoughts are vulnerable to impact at this stage. If teachers can help students establish a correct world outlook, outlook on life and values, and fully tap the potential of students, it will help to cultivate and cultivate the sense of innovation, professional identity, and social responsibility, and then improve the overall quality of students [2]. With the development of modern information means such as the Internet, the traditional teaching methods have been greatly impacted. It is difficult to achieve the established teaching goals in actual teaching, which affects the training of high-quality talents in new agricultural sciences. This paper takes the specialized basic courses of plant protection as an example, analyzes the role of the Internet in the construction of specialized basic courses, and the requirements of the Internet for

teachers and students in the teaching of specialized basic courses, and gives suggestions and measures for the construction of specialized basic courses based on the Internet background, with a view to giving full play to the advantages and characteristics of the Internet, mobilizing students' learning initiative and enthusiasm, and making the teaching of specialized basic courses keep pace with the times, to meet the training needs of new agricultural talents in the new era.

2. THE ROLE OF INTERNET IN THE TEACHING OF PROFESSIONAL BASIC COURSES

2.1 More Extensive Data Sources

In the context of the Internet, with the rapid development of the 5G data era, the popularization of information tools, and the enrichment of teaching resources, teachers and students can find course materials anywhere through software, small programs or web pages, as a pre class preview, after class supplement or self-study needs, and find materials to expand extracurricular knowledge. For example, MOOC (University of China), Xuetang Online (Tsinghua University), Wisdom Tree, Chaoxing Xuexitong, Mosoteach, Netease Cloud Class, Netease Open Class, Sina Open Class, Hujiang Online School, and some foreign open class websites, as well as WeChat official account, Tiktok, Weibo and other we-media.

2.2 More Vivid and Specific Teaching Materials

In the context of the Internet, the basic characteristics of information-based teaching at the technical level are digitalization, intelligence, networking and multimedia, while at the educational level, it has the nature openness, shareablity, intuition, interactivity and other basic characteristics [3]. Agains this general background, with the help of modern information technology and under the organization and guidance of teachers, people can acquire, screen, classify, process and store the words, videos, sounds, pictures and other information teaching resources in the network information database, and build a more vivid, specific, easy to understand and absorb learning materials and a good teaching and learning environment from professional basic courses with many original knowledge points and abstract content [4]. For example, in botany and plant physiology, plant organs, water physiology,

photosynthetic physiology and other processes can be displayed in the form of pictures or videos, which can enable students to better understand, slowly promote students to become active constructors of knowledge and information, and improve the teaching effect.

2.3 Diversification of Teaching Methods

In the context of the Internet, it is not limited to offline classrooms as a single teaching place. In recent years, many online teaching platforms have emerged, such as Tencent Meeting, DingTalk, Laike Online Classroom, Gongxue Cloud Interactive Classroom, Classin and many other software. Functions include interactive audio, student video screen display, screen sharing, live recording, interactive blackboard writing, question answering, picture sharing, cloud disk, question answering device, small blackboard, collaborative editing, operating system, etc. The interaction between teachers and students can be carried out at any time and anywhere in the network environment through software, and diversified teaching modes can also be carried out with the help of these software, such as micro class, mu class, or online offline mixed mode. The class hours of professional basic courses are compressed, the online and offline mixed mode teaching and the distribution of learning tasks can be completed within effective teaching time in the learning software, and the learning software can record students' learning dynamics and communicate with students, effectively supervise and guide students' learning, and help students develop a good habit of active learning.

3. THE REQUIREMENTS OF INTERNET BACKGROUND ON TEACHERS AND STUDENTS IN THE TEACHING OF PROFESSIONAL BASIC COURSES

3.1 Requirements of Teaching on Teachers' Teaching Concept Transformation and Information Literacy in the Context of the Internet

In the context of the Internet, information technology has been widely and deeply applied in the field of education. The educational environment, teaching mode, and teachers' role are in an important transition period. To meet new challenges, teachers need to change their ideas and

ideas, adopt an attitude of acceptance and support, establish the concept of lifelong learning, and focus on strengthening teachers' information literacy [5]. Teachers' information literacy is a comprehensive literacy centered on the application of information and information technology. The information and content of educational resources that teachers can choose are numerous and miscellaneous, and some are even wrong information, which requires teachers to have sensitivity to information identification and judgment on information value; Teachers are required to enhance their informatization ability, such as information data processing, retrieval and acquisition analysis. In this way, appropriate teaching content and student learning resources can be selected from the vast amount of information resources, and then reprocessed and reorganized to improve the understanding, construction and creation of knowledge, pass it on to students, and at the same time guide and cultivate students' ability to identify information, thus playing a positive role in promoting the teaching effect [4] [6].

3.2 Requirements of Teaching on Teachers' Teaching Mode in the Context of the Internet

In the context of the Internet, there are all kinds of interesting games, anime and other information on the Internet, which is very attractive to students. Therefore, teachers are required not only to have the ability to innovate in information technology means, but also to break the fixed teaching mode of once and for all in education philosophy, and to constantly improve their teaching ability. In combination with the analysis of learning situation, teachers can carry out online courses, micro courses, and mixed and innovative teaching models of courses and offline courses, guide students to participate through PAD classroom, flipped classes and other ways, so as to make the explanation and display of teaching content as diverse and colorful as possible, help students acquire knowledge comprehensively, improve their understanding and cognitive ability, and meet their diversified and personalized needs.

3.3 Requirements of Teaching on Students' Learning Ability in the Context of the Internet

The professional basic courses are characterized by many knowledge points, wide range, but not in-depth, but students are required to understand and master knowledge, summarize, understand and apply flexibly. In the context of the Internet, students can easily access network information. The learning resources not only come from the learning content transmitted by teachers, but also include the rich and colorful information transmitted by various media. Perhaps there are various interesting games and anime and other information on the Internet that are more attractive to students, which requires students to have better binding force and independent learning ability; When students face a large amount of information, the process of knowledge acquisition only stays at a shallow level. When they get the breadth of information, they also need to strengthen their learning ability. They use information technology and mind mapping to screen, summarize and sort out fragmented knowledge. Under the guidance of teachers, they associate knowledge with each other and gradually form the knowledge system required by the specialty.

4. SUGGESTIONS AND MEASURES FOR THE CONSTRUCTION OF PROFESSIONAL BASIC COURSES BASED ON INTERNET

4.1 Encouraging and Helping teachers to Improve Their Information Literacy

In the context of the Internet, teachers are required not only to have the ability to innovate in information technology means, but also to break the fixed teaching mode once and for all in the educational concept, and to constantly improve their teaching ability. The schools can organize or encourage teachers to go out to participate in information literacy and technology related training, master common information knowledge and skill knowledge in the education process, use information technology to obtain, integrate, process, manage and evaluate information, improve the ability to integrate information technology with education and teaching deeply, and achieve normal, efficient, appropriate and healthy application of information technology to carry out education and teaching activities. College teachers are faced with multiple tasks such as scientific research, social services and teaching, which is difficult to give consideration to all aspects. However, the schools can encourage competent and relevant professional teachers to develop education and teaching tool software, some teaching micro courses and courseware in the form of interdisciplinary teaching

teams, and improve the informatization technology level of some teachers in the form of competition to promote teaching. Later, the schools can organize publicity and promotion through informatization training activities and teaching and research activities to share experience.

4.2 Paying Attention to the Integration and Mutual Connection Between Courses

In the context of the Internet, it is very important to cultivate students' ability to learn independently [4]. Based on the needs of the new agricultural science and around the standards of the industry and enterprises, the professional basic courses and related professional courses will form a chain type curriculum cluster with reasonable structure, clear hierarchy, mutual connection, mutual cooperation and deep echo, which is conducive to students to define their own learning goals and areas as soon as possible, understand the significance of professional basic courses, and enhance their awareness of independent learning [7]. In the plant protection major, the courses related to botany include botany, plant physiology, plant genetics, plant cultivation, weed science, etc., which are professional basic courses and compulsory courses for related majors. These courses and skills are interrelated. In the course group construction, it is necessary to integrate the course content, establish a systematic integration context, and form a complete knowledge system oriented knowledge space for skills application. Students clearly understand their professional background, define their own learning objectives, screen, summarize and sort out fragmented knowledge by means of information technology and mind mapping, and then teachers further guide learners to correlate knowledge in class, gradually complete the construction of their own knowledge system, and lay a solid professional foundation.

4.3 Integration of Innovative Traditional Culture and Professional Basic Knowledge

The basic professional courses are generally arranged in the junior grades. The students have just entered the campus, and the learning and living environment has changed greatly compared with the senior high school. At this transitional stage, the personal future planning is in a confused state, lacking short-term goals. With the rapid development and popularization of mobile Internet information technology, daily online learning

resources are extremely rich, information retrieval is convenient and fast, and various knowledge content is updated frequently, Students' thoughts are very vulnerable to impact and their attention is very easy to shift. Therefore, in the professional basic courses, it is necessary to increase the integration of traditional cultural content, excavate cultural elements from teaching content, teaching methods, teachers' words and deeds, help students understand the professional background, make short-term and long-term learning plans, enhance students' interest and confidence in learning the major, better restrain themselves in the Internet background, take the initiative to learn, and establish a correct world outlook, outlook on life and values.

4.4 Improving the Curriculum Evaluation System of Professional Basic Courses

The curriculum evaluation system includes the evaluation concepts, rules and methods embodied in the evaluation process. In the context of the Internet, teachers should adhere to the student-centered teaching philosophy, strengthen students' initiative in learning, reduce the proportion of final examination papers, and enrich the process of assessment [8]. Professional basic courses should focus on the induction, summary and application of basic knowledge. Based on different teaching modes of teachers, a comprehensive evaluation system should be established for classroom performance, online learning and homework, final examination and other links. Classroom performance refers to class attendance, questions raised in class, answers to questions in class, etc., and the score is generally 10% - 20%. Online learning and homework require students to use extracurricular time to complete. Online learning includes learning materials and tasks published by teachers on the learning platform. In combination with learning, homework should be completed in groups or individuals. The distribution of homework will be based on the characteristics of students' learning, based on students' learning of basic knowledge of the curriculum, and according to the learning situation reflected in the platform data, it is proposed in a hierarchical and step-by-step manner: At the beginning of the chapter, the questions are mainly simple knowledge level questions; The latter part of the chapter should focus on the comprehensive level questions or open and reasoning questions, mainly on the explanation of phenomena in the agricultural production process or the solutions to problems in the

agricultural production process, and a few of them should be answered together with the knowledge of other professional basic courses; After the homework is completed, it is composed of three parts: intra group evaluation, inter group mutual evaluation and teacher evaluation. During the evaluation process, detailed evaluation and scores are required to enable students to understand the mutual learning situation and the atmosphere of discussion in the whole class during the homework and homework evaluation process, form a good competitive and cooperative learning atmosphere, and promote students to learn actively. The proportion of this part is generally 30% - 40%. The final examination is a closed book examination to examine students' ability to master basic theories, understand and apply comprehensive analysis, which generally accounts for 30% - 50%.

5. CONCLUSION

The professional basic courses have a wide audience, and their teaching time is in the front, so as to consolidate the knowledge of specialized basic courses, and in this process, to do a good job in the guidance of curriculum education is of great significance for training new agricultural talents in the new era with correct ideology, morality and values, and excellent professional ability. With the development of modern information means such as the Internet and the improvement of students' thinking ability, based on the characteristics of the Internet background, teachers should change their teaching concepts and improve their information application ability, innovate the teaching methods of professional basic courses, improve the evaluation system of professional basic courses, and effectively use the Internet, modern big data, artificial intelligence and other network information technology conditions, The aim is to make higher agricultural education keep up with the pace of change of the times, mobilize students' learning initiative and enthusiasm, meet the requirements of innovative thinking ability of new agricultural students and the cultivation of high-quality talents, and help the rural revitalization strategy.

AUTHORS' CONTRIBUTIONS

Yunyun Zhou, Yan Wang, and Huixin Zheng analysed data and wrote the manuscript, Chenzhong Jin and Kaifa Guo were responsible for experimental design, Xiu Liu, Yicheng Li, Shangzhi Zhang contributed to revising and editing.

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REFERENCES

[1] Li Ping, Yuan Xiaojing, Yang Nengjun, Wang Xinjun, Liu Xiaofang, Wang Long, Exploration and Practice of Students'Learning Motivation in the Teaching of Specialized Basic Courses [J]. Contemporary Educational Practice and Teaching Research, 2020(13): 197-198. (in Chinese)

[2] Zhou Yunyun, Jin Chenzhong, Guo Kaifa, Liu Xiu, Zhang Xin, Bai Jing, Zhu Xiongmei, The Exploration of Ideological and Political Courses in the Teaching of Basic Courses of Agronomy under the Background of New Agricultural Sciences [J]. Anhui Agricultural Science Bulletin, 2022, 28(01): 145-146. (in Chinese)

[3] Zhang Xiaofang, Zhang Tao, Sun Zhenjie, etc., Research on Informatization Teaching and Classroom Implementation Methods [J]. Computer Knowledge and Technology, 2020, 16(22): 152-153. (in Chinese)

[4] Wang Juhua, Peng Mengling, Zhou Jie, Cao Zubing, Xue Xiuheng, Application of Informatization in Agricultural College Teaching Under the Background of New Ag-ricultural Science [J]. Anhui Agricultural Science Bulletin, 2022, 28(01): 135-137. (in Chinese)

[5] Ma Jing, On the Information Literacy of College Teachers under the Internet Background [J]. Journal of Ningxia Normal University, 2017, 38(01): 128-130. (in Chinese)

[6] Chen Jie, Research on the Core Curriculum Teaching Reform of Art Design Major from the Perspective of Information Literacy Education in the New Era [J]. Art Education Research, 2021(20): 118-119. (in Chinese)

[7] Jia Jing, Landscape Architecture Design Curricula Group Focusing on Learning

Process:The Reflection on Construction and Curriculum Structure [J]. Journal of Lishui University, 2021, 43(06): 108-112. (in Chinese)

[8] Zhang Kun, Zhang Xun, Han Zhiping, Wang Juan, Construction and Implementation of Problem-based Learning Mode of Agrometeorology under the Background of New Agricultural Science Construction [J]. Journal of Anhui Agricultural Sciences, 2022, 50(15): 271-273. (in Chinese)