Research and practice of mixed teaching mode of clothing production management course driven by digital intelligence

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Abstract: To reposition the garment intelligent manufacturing industry, combine the production and education integration enterprise and the campus "digital virtual simulation training base" and other production and education integration innovation base, establish the hybrid teaching mode of think tank "Unicom" school enterprise, data "Unicom" production, study and research, project "Unicom" post class competition certificate, to achieve the goal of training clothing digital management and technical talents.

Key words: clothing production management; Mixed teaching mode; Digital intelligence

The "Made in China 2025" issued by The State Council clearly proposes to "accelerate the integration of the new generation of information technology and manufacturing technology, and take intelligent manufacturing as the main direction of the deep integration of the two." With the continuous breakthrough of modern information technologies such as big data and artificial intelligence, the demand for digital and intelligent manufacturing management talents in the garment industry is increasing, and the corresponding courses are far from the market demand.

1. "Clothing Production Management Course" teaching difficulties

Clothing Production Management course is the core course of clothing related and technology majors, mainly training the production and business management personnel of clothing enterprises. The teaching content covers all production links involved in industrial production, including production preparation engineering, cutting engineering, sewing engineering and finishing engineering (commonly known as the "four major projects"). Through the study, students need to master the methods and skills of garment production site management, and have the ability of on-site organization management, quality and cost control. However, in the teaching, this course is faced with the following three difficulties.

First of all, the compound training of clothing digital management technical and technical talents is contradictory to the current training of a single. On the one hand, the teaching content is based on the traditional clothing industry, and the new technologies and new information such as intelligence and digitalization only appear in knowledge points and float on the surface, without forming a system with points and surfaces. On the other hand, due to the lack of teaching resources, the difficulty of theoretical learning and social practice, the knowledge and skills learned by students lag behind the needs of the industry.

Secondly, the gap between the number of students choosing jobs related to garment digital technology management and the market demand is obvious. Analysis of the employment situation of 742 students who graduated from the dress School of XX School in 2022, excluding the promotion of junior college and 141 who enlisted in the army, a total of 601 people are normally employed. From the analysis of employment positions, only 57 people chose clothing production management positions, accounting for 9.4% of the total. The main positions are concentrated in the post of merchandiser, reserve cadres, procurement and so on

In the same year, the demand for clothing production management positions accounted for 30% of the total demand of enterprises recruiting to the Fashion Institute, among which the positions with large demand were merchandisers, clothing IE personnel and GST process analysts.

Finally, the cooperation between school and enterprise needs to be further deepened. According to the survey of 15 students who chose the position of garment production management, 80% of them said that they did not have enough theoretical knowledge, 75% of them did not know where to start, and there was a gap between school teaching and enterprise, and 30% of them were not interested. In the communication with the enterprise, the enterprise believes that the digital transformation of intelligent clothing manufacturing is imperative, but the students have shortcomings such as slow entry into the role, unfamiliar with the factory environment and large mobility.

Based on the above reasons, the intelligent manufacturing clothing industry is repositioned, and several production and education integration innovation bases such as the integrated enterprise of production and education and the campus "digital virtual simulation training base" are established to build an employment-oriented and "on-demand courses" course model. Establish the "three links" collaborative education path of think tank "connecting" school and enterprise, data "connecting" production, university and research, project "Connecting" post class competition certificate, realize the three-stage mixed teaching mode, and achieve the goal of training digital intelligent management and technical talents of clothing.

2. Background of mixed teaching mode

In the 1990s, the American educational community raised the question of whether universities with walls would be replaced by universities without walls (cyber colleges). In December 2000, the White Paper on Educational Technology issued by the U.S. Department of Education pointed out that "E-Learning can achieve some educational goals well, but it cannot replace traditional classroom teaching" and "E-Learning will not replace schooling, but will greatly change the purpose and function of classroom teaching." Since then, there has been

a upsurge of research on blended teaching in the United States. The research hotspots mainly include: theoretical basis of blended teaching, blended teaching model, blended teaching curriculum design, influencing factors of blended teaching and learning analysis. At the beginning of 21st century, the research of blended teaching began in China, which can be divided into the following three aspects.

1. Define blended teaching

At present, there is no unified definition of blended teaching in China. The main viewpoints of scholars are divided into the following categories: First, the author believes that blended teaching is the organic combination of online teaching and classroom teaching. Professor He Kekang put forward at the 7th Global Chinese Computer Application Conference on Education: The so-called Blending Learning is to blend the advantages of traditional learning styles and the advantages of online learning. Second, he believes that blended teaching is the blending of various teaching elements. Based on the tripartite theory, Wu Huajun discusses the mixed teaching mode from three dimensions and ten indicators. The third is the mixture of teaching centered and learning centered teaching modes. Based on the background of "Internet +", scholars such as Feng Xiaoying proposed that blended teaching should be student-centered and create a truly highly participatory and personalized learning experience for students by combining mobile communication devices, network learning environment and face-to-face classroom teaching.

2. Application research on blended teaching mode

Blended teaching model is also widely used in school teaching practice. In 2012, more than 30 colleges and universities in Shanghai jointly established the "Shanghai University Curriculum Resource Sharing Center", which has become a blueprint for exploring blended teaching in China. In 2015, Tsinghua University established China's first degree program based on blended teaching with Xuetang Online. Subsequently, some higher vocational and technical colleges in Shandong, Guangdong and other regions, in order to keep up with the current trend of information-based teaching reform, improve the efficiency of education and teaching and the quality of student training, have also carried out the reform of mixed teaching mode based on digital platform.

3. Research on the influencing factors of blended teaching

The existing researches usually discuss the influence of blended teaching from the perspectives of teachers and students. Some researchers believe that teachers are the main body, and their teaching attitude, teaching ability, teaching method and teaching style have a great influence on the effect of blended teaching. For example, Ma Jing et al believe that some teachers are accustomed to traditional teaching and have limited ability to accept new technologies, so they fail to choose appropriate contents and methods for teaching according to their advantages, which affects the teaching efficiency. Some other scholars start from the perspective of learners, whose psychological tendency towards blended teaching and online learning ability have an impact on the quality of blended teaching. In addition, some scholars believe that the construction of school infrastructure and training activities for teachers also have a certain degree of influence on the level development of teachers' blended teaching ability.

3. The "three-link" blended teaching mode driven by digital intelligence

1. Think tank "connecting" schools and enterprises, solving enterprises "what they want", and practicing a boundary-breaking platform

Break the space limitation, connect school teaching and enterprise training with enterprise digital management platform, students and enterprise employees learn on the same platform, learn from each other. Build an open practice platform of "integration of college and enterprise, trinity" -- clothing digital virtual simulation training base, GST database, small tailor think tank, to solve the problem of clothing management students' practice difficulties.

2. Data "connect" production, university and research, solve the classroom "what to teach", and practice the reform of the three education

To the industry "lean, standardized, digital, intelligent" requirements, the establishment of digital production, intelligent manufacturing required standard "database" as the goal, to reconstruct the teaching content. School teachers and enterprise experts are mentors to each other, forming a professional combination of "double teacher" teachers; New technology, new technology, new norms, ideological and political education into the construction of teaching materials; Actively explore the reform and innovation of teaching methods, and train talents with complex skills to meet vocational needs

3. Project "Unicom" post course competition certificate, solve students "into what", improve teaching evaluation and deepen the production, university and research mechanism

The enterprise real project "Unicom" post course competition certificate, clear the corresponding positions of the course, take the position as the logical main line for work analysis, introduce the working standards of the post, and compile the practice guidance manual and teaching evaluation standards according to the principle of "practical, applicable and timely use". Docking industry enterprise certificates, the development of vocational skills education and training standards, graduates in obtaining academic certificates at the same time to obtain the corresponding vocational qualifications. We have diversified student assessment subjects, diversified evaluation methods and professionalized evaluation content, trained graduates recognized by enterprises, and deepened industry-university-research research with precise docking.

4. The application effect of the mixed teaching mode of "three links and communication"

Taking the bottleneck in the development of clothing intelligent manufacturing -- the shortage of clothing digital intelligent technology talents as a breakthrough, relying on the practical training base inside and outside the school, the teaching content realizes the dual-subject

collaborative education exploration of "enterprise actual project → classroom simulation training → enterprise actual operation inspection".

1. Data-driven, the three-stage online and offline teaching mode is explored

According to the post requirements of digital intelligent technology management of clothing, with reference to professional qualification standards, the traditional project management tasks such as making process sheets and MRP tables are changed in the past, and the teaching platforms such as intelligent digital virtual training base, GST training base and online small tailor think tank are driven by digitalization. Form the model of "building product standard working time database - enterprise practical training test - results feed teaching", teaching resources are constantly updated to make up for the defects of teaching practice resources lagging behind the market.

2. A curriculum system of "teaching and certificate integration, post and certificate combination" has been built

Choose willing enterprises as the main participants of school-enterprise cooperation, give full play to the initiative of enterprises, and lay a good foundation for in-depth cooperation between schools and enterprises through "win-win". The teaching content is reversed by post to realize the docking of courses and posts, teaching process and production process, academic certificates and vocational certificates. To carry out teaching with real enterprise projects, encourage students with special skills and interests to participate in the examination of vocational qualification certificates, and improve students' employment literacy and employability.

3. A double-qualified teaching team with strong social service ability has been set up

Through cooperation with enterprises, the two sides are mentors to each other, and the teachers are also growing rapidly in "teaching and doing". The first-line projects of enterprises are introduced into the classroom. Teachers and students solve practical problems of enterprises together in teaching, share teaching results through GST data-based practice platform and small tailor think tank, online feedback test, teaching and learning, and solve the problem of "hollowing out" of teachers' quality.

4. The establishment of the curriculum multiple evaluation system

Through the implementation of diversified assessment subjects, diversified evaluation methods and professional evaluation content, students' internal learning motivation is activated, students' innovative and entrepreneurial vitality is stimulated, and students' innovative spirit, entrepreneurial awareness and entrepreneurial ability are improved. Through the learning situation set by the real task of the enterprise, students gain rich knowledge and practical experience in the process of raising and solving problems, so as to develop their professional ability.

5. Epilogue

The creative proposal of the hybrid teaching model of "three links" is driven by digitalization to promote the deep integration of production and teaching. Deep integration of school and enterprise, students in the process of completing the real task, the real learning to apply, induce, strengthen and maintain the achievement motivation of students, cultivate students' innovation consciousness and ability, to help students clear career planning.

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