Construction of Undergraduate Talents Training Mode of Integration of Industry and Education in Higher Vocational Education Based on Web

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Abstract. In order to alleviate the contradiction between supply and demand of talents in the whole society, higher vocational education colleges have made great efforts to explore the feasibility of undergraduate talent training mode with the connotation of "integration of industry and education". However, compared with the "Internet + Education" environment in the new era, the traditional talent training system still has many disadvantages. In this regard, this paper will start with the reform of educational informatization and build a set of talent training mode with the network education and teaching service platform as the core. The whole platform is B/S architecture, in which Angular framework is responsible for the design and development of front-end pages, while Web Server is built by using the powerful SSM (Spring, SpringMVC, MyBatis) framework. The platform will carry out integration and innovation from teaching environment, teaching process, teaching culture and teaching management, so as to realize the reconstruct the training system of undergraduate talents in higher vocational colleges. The measured results show that under the new talent training mode, students' comprehensive quality and ability have been comprehensively improved, which is of positive significance to promoting the high-quality development of higher vocational colleges.

Keywords: integration of industry and education · undergraduate level talents · talent training mode · Internet+ · computer application

1 Introduction

At present, China has built the largest vocational education system in the world. On the premise of the completion of development road planning and operation mode design, China's vocational education will enter a new stage of high-quality development with quality improvement and value-added empowerment [1]. In the face of the complicated and changeable talent demand environment, all higher vocational colleges in the whole society should adhere to the relevant laws, regulations and policies related to the reform, innovation and development of vocational education in the country as a guide, strive to break through the bottleneck of academic qualifications in vocational education, deepen the integration of industry and education, and promote the development of vocational talents and industrial innovation in the same direction. However, in the process of work

implementation, the training of talents is still on the old path, and problems such as unclear training objectives, fixed knowledge education content, skill practice becoming a mere formality, single evaluation of training quality and slow formation of teaching staff need to be solved urgently [2]. In view of this, this paper holds that under the environment of "Internet + Education", higher vocational colleges should adhere to the strategy of educational informatization, take digital information technology as the starting point, build a teaching service platform for online education in higher vocational colleges, formulate a good overall planning mechanism for the talent training system with the integration of industry and education, realize the purpose of optimizing teaching environment, reshaping teaching process, upgrading teaching culture, strengthening teaching management, promoting the common development of universities, enterprises and students, and allowing students to integrate production and education at the undergraduate level [3].

2   Development Process

Firstly, Angular framework is a design framework and development platform for client applications composed of HTML, CSS and TypeScript, which is used to build Web single-page applications [4]. In the practical application process, Angular framework needs the assistance of Ndoe.js, and Angular-cli scaffolding tools are installed globally. After that, you can edit the script code in Visual Studio Code [5]. Secondly, in the process of building the Web Server, the platform will be based on Windows 10.0 x86-64bit operating system, the basic development environment will be Java, JDK version 1.8.0_91, the Java development environment will be IntelliJ IDEA Ultimate 2018, the Web server will be Tomcat 8.5 and the database server will be MySQL 5.7. In the process of building the overall development environment, Maven is used to manage the project structure and complete the integration of Spring-Spring MVC-MyBatis, as shown in Fig. 1, which shows some key codes in the configuration file of springMVC.xml [6]. In addition, the functional modules and business logic of the platform will also be developed and deployed under the SSM framework. Through the introduction of the above key technical theories, the overall environment of platform development, the configuration of related software and tools are determined, and the technical feasibility of the physical project of network education and teaching service platform in higher vocational colleges is also clarified.

```
    <context:component-scan
base-package="com.user.*"></context:component-scan>
class="org.springframework.web.servlet.view.InternalResourceViewResolver"></bean>

        <mvc:mapping path="/**"/>
        <bean class="com.movesys.interceptor.TimeInterceptor"></bean>
```

3 Function Realization

3.1 Network Online Teaching

The content setting of middle school courses on the platform is no longer limited to traditional books and teaching materials. Under the premise of clarifying the orientation of talent training at the undergraduate level of integration of industry and education, the contents of course ideological and political education, cultural accomplishment, innovation and entrepreneurship, mental health and so on are included in the teaching scope to reshape the curriculum system [7]. In the process of teaching resources construction, higher vocational colleges will give full play to their own scientific research advantages and combine the practical advantages of school-enterprise cooperation enterprises to promote the sharing and co-construction of teaching resources [8]. The whole process and all aspects of online education and teaching will rely on the platform function to realize network and digital transformation. After logging in to the platform, student users will have functional rights including online learning, homework completion, simulation test, communication, resource storage and download.

3.2 Simulation Scenario Practice

Compared with the traditional offline practice, the platform gives better play to the application advantages of network information technology, and provides special guidance to technical tutors, project tutors and management tutors in enterprises in the form of distance teaching, which is beneficial for students to grasp relevant knowledge and skills more accurately. In addition, the platform will also use the advantages of computer application to integrate a large number of dynamic graphics, video images and Flash animations to build a large number of simulation scenes to meet the needs of students' training or practice [9].

3.3 Teaching Management

In the undergraduate talent training mode of integration of industry and education, the functional orientation of teachers and users focuses on organization, deployment and management, and the main work includes three parts: student management, curriculum management and assessment. In the process of assessment, as shown in Table 1, which is the evaluation standard of teaching effectiveness preset by the platform, the system will synthesize the statistical results of both learning process and learning effect, and use structural equation () for digital modeling. If the learning process and learning effect are exogenous variables and the final teaching effectiveness is endogenous variables, the mathematical expression of the structural model is shown in Formula 1, where λix is the factor load, Ki is the measurement error, η represents the teaching effectiveness, B represents the relationship between exogenous variables, and Γ represents the influence of exogenous variables on endogenous variables [10].

$$C_i = \lambda_i^x \xi_i + K_i / C_i = \lambda_i^x \delta_i + K_i, \ \eta = B(\xi_i + \delta_i) + \Gamma(\xi_i + \delta_i) \tag{1}$$

Table 1. Teaching evaluation criteria

Type	Evaluating indicator	Observation point
Learning process (ξ)	Learning attitude C1	Frequency of use and number of courses
	Learning ability C2	Course and homework completion degree
	Knowledge and skills to master C3	Standard rate and satisfaction
	Cooperation consciousness C4	Communication rate and performance
Learning effect (δ)	Grade C5	Test results, practice report
	Multiple evaluation C6	Evaluation of students and teachers

Table 2. Structural Equation model corrections

Observational point value	Evaluation index value	λ_i^x	K	B	Γ
20.70	4.14	1.00	0.00	1.00	0.57
18.40	4.60	1.31	0.01	2.01	0.46
13.20	4.40	1.20	0.03	0.34	0.31
…	…	…	…	…	…

The platform evaluates the structural equation under WPBL, and completes the structural equation model modification by combining the specific scores of each observation point, and determines the value of B and Γ, as shown in Table 2. The system test results show that the factor load value is greater than 0.79, and the actual efficiency of the index in the corresponding problem exceeds 50%, which is an effective index. On the whole, WPBL structural equation model has strong explanatory ability for the evaluation of teaching effectiveness and can meet the evaluation needs of platform network teaching and practice.

4   Conclusion

In order to promote the reform of talent training system at the undergraduate level with the integration of industry and education, this paper aims at many problems faced by higher vocational colleges, and builds a Web-based network education and teaching service platform with the help of the practical characteristics of network information technology, database technology and computer application technology. The system integrates and innovates from many dimensions such as teaching environment, teaching process, teaching culture and teaching management, and builds a new ecology of higher vocational education, which makes a beneficial attempt to establish a new paradigm of higher vocational talents training in the new period.

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