

Research on Big Data Talent Training with Shipping Characteristics

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Abstract

Smart shipping is an important part of a powerful transportation country, and the core of its development is data. Jiangsu's new smart shipping industry is in urgent need of high-quality, multi-skilled talents who master shipping knowledge and big data technology. In order to better serve the digital transformation and upgrading of the shipping industry in Jiangsu Province, Jiangsu Maritime University analyzed the basis, principles and necessity of determining the direction of big data major characteristics, and built and practiced a big data technology professional course system that incorporates smart shipping characteristics based on maritime characteristics. and talent training model, with a view to providing reference for the big data technology + industry talent training reform of the majority of higher vocational colleges.

Keywords

Big data technology major, shipping characteristics, talent training, curriculum system, China's strength in shipping.

1. Introduction

A series of river- and sea-related strategies such as becoming China's strength transportation, China's strength in maritime, and the construction of the Yangtze River Economic Belt have been implemented in depth [1-2]. The modern ocean transportation industry has entered a profound transformation period for smart navigation and smart shipping. The creation of Nanjing as an innovative city has provided fertile ground for the cultivation of talents with complex technical skills in smart shipping soil.

As a big data technology major in higher vocational colleges with distinctive industry characteristics, homogeneous development must be avoided. Because it is a new major established recently, most of the current talent training plans and curriculum systems formulated by higher vocational colleges are similar, which hinders the development of the major. As an industry-type higher vocational college, it should give full play to the characteristics of its industry, be committed to cultivating talents in the industry, and at the same time take into account the basic application of big data technology in order to better serve the society. At the same time, when vocational education solves the current development dilemma and improves the quality of education, it also needs to carry out supply-side reforms. Focusing on the supply side means that big data professional education in higher vocational colleges must improve the quality of education, improve education links, and improve the effectiveness of education. The big data major in higher vocational colleges is oriented towards student employment. It should position talent training in a specific direction, improve students' employability, and effectively promote the development of big data technology majors in higher vocational colleges from the supply side.

Jiangsu's new smart shipping industry is in urgent need of high-quality, multi-skilled talents who master shipping knowledge and new generation information technology. Jiangsu Maritime

Vocational and Technical College closely follows the development strategy of a shipping power and cultivates the professional skills needed to adapt to the development of Jiangsu's shipping economy. It gives full play to the advantages of Jiangsu Maritime University in running schools, closely follows the needs of the industry, cultivates talents with specific professional skills, highlights the characteristics of the industry, and continuously develops the major into a dominant major. The big data technology major is based on the development needs of "data power" and is oriented to the emerging job group in short supply in smart shipping of "big data + shipping". It is based on cultivating people with moral integrity, cultivating political firmness, good conduct, family and country feelings, international vision, and sound Personality and healthy body and mind, team awareness and fighting spirit, innovation awareness and entrepreneurial ability, composite big data technical skills talents that meet the needs of smart shipping development.

With the continuous improvement of the construction of the ship Internet, the shipping field has accumulated a massive amount of data [3-4]. How to fully tap the value of these massive data is the core of improving the level of shipping intelligence. Talents who understand shipping knowledge and master big data are the key to ensuring the upgrading of the shipping industry. Important Guarantee. As a maritime college, the big data technology major should take the upgrading needs of the shipping industry as a breakthrough, actively plan to cultivate talents with complex big data skills under a smart country, comprehensively serve the upgrading of the shipping industry, and in the process of moving from a big shipping country to a powerful shipping country contribute.

2. A Review of Domestic and International Research

2.1. Domestic Research

Taking CNKI database as the source and using big data technology major, big data major and big data talent as keywords or relationship, a total of 124 documents were obtained. Figure 1 shows the number of documents on big data professional talent training research. The upward trend shows that more and more scholars are conducting research on the training of big data professionals.

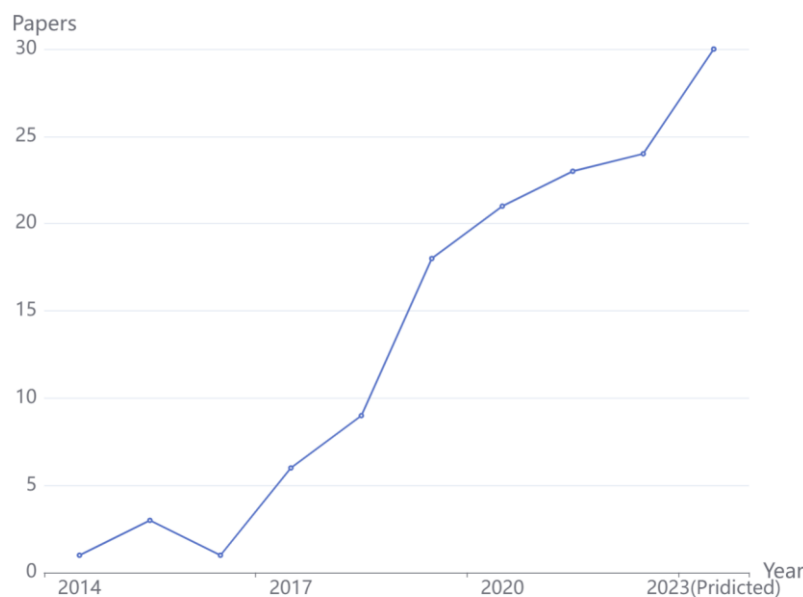


Figure 1: Annual number of literatures issued

Domestic universities have combined big data professional courses with dominant disciplines and opened distinctive big data professional courses such as agricultural big data, health big data, behavioral big data, e-commerce big data, etc. Since big data majors were opened relatively late, Research on big data talent training that incorporates industry characteristics has only just begun. No relevant literature was obtained through shipping and big data talent search. There are a total of 20 documents related to the integration of industry-specific talent cultivation in relevant research. The distribution of the industries involved is shown in Figure 2. Agriculture is the most common, followed by medical care, and there are 2 articles in finance, public security, transportation, and chemical industry. Following the role of big data in the industry There is a certain correlation between the applications.

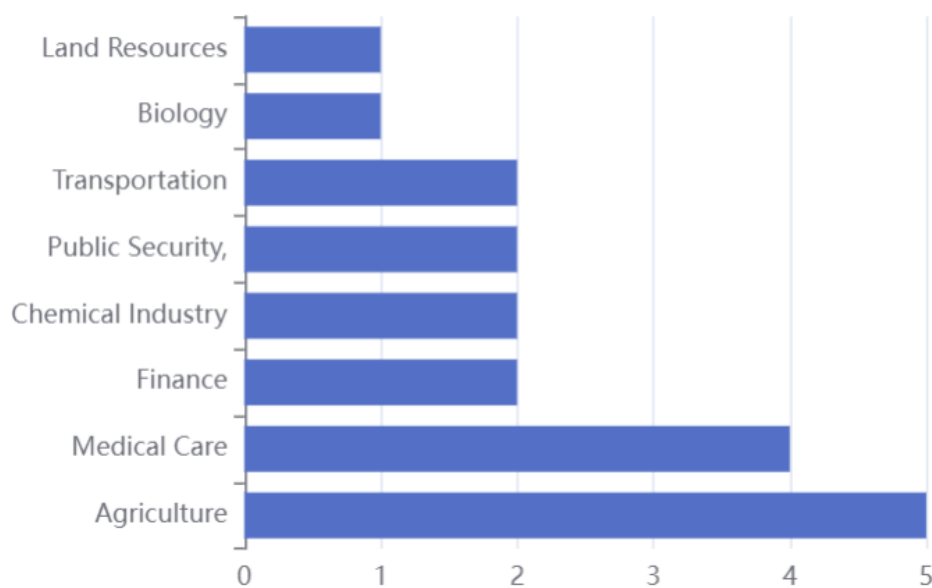


Figure 2: Literature distribution by different topic

2.2. International Research

Due to the different educational and school-running systems under the political systems of different countries, there is no special concept of "industry-specific universities" abroad. Therefore, no foreign research on information technology majors relying on the industry-based school-running characteristics of universities was found through Google Scholar. However, there is a huge amount of research on the cultivation of interdisciplinary and compound skilled talents abroad. Take the big data-related majors offered by American universities such as DePaul University, Boston University, and North Carolina State University (NCSU) as examples. They divide big data professional disciplines into the following three categories: Big data analysis direction (set in the School of Business or Management), big data platform direction (set in the School of Computer Science or Software School), and in-depth computing analysis direction (set in the School of Mathematics and Physics). This cross-field, discipline, and professional setting method solves to a certain extent the problem of "complete computerization" of single professional knowledge in the training of big data talents, and is conducive to the implementation of the comprehensive construction and development of big data professional courses [5-6].

In general, big data technology majors have a wide range of industrial application fields, but because of the professionalism of the subject, they are generally established in information technology-related colleges. In order to better serve the local economy and industry fields, cultivating talents with industry characteristics has become an urgent research topic for

information technology majors in modern higher vocational colleges. And through industry-specific applications, students majoring in big data can have a perceptual understanding of technology applications, thereby improving students' understanding of the subject and complying with human cognitive laws [7].

3. Big Data Talent Training Practices Integrating with Shipping Characteristics

In response to the problem of homogenization of big data technology majors in higher vocational colleges, facing the future development of smart shipping, we should give full play to the school-running advantages of 70-year industry-specific universities and rely on the provincial shipping big data engineering research center to cultivate composite students with shipping characteristics. Technical skills talents are the goal, with the innovative school-enterprise collaborative education mechanism as the key, to build a high-quality compound big data + shipping technology skills talent training system, and to cultivate more high-quality majors who understand big data and the shipping industry for the society. It provides a clear direction for the cultivation of talents in information technology-related majors in our institute.

3.1. Constructing a project-based course system for smart shipping

The big data professional course system is taught around real smart shipping projects, and all courses involve all the knowledge and technologies required for project development. The ship shore power system big data application module is a project that runs through the main courses of the professional group. It serves as a common teaching carrier to organically connect the courses of the professional group.

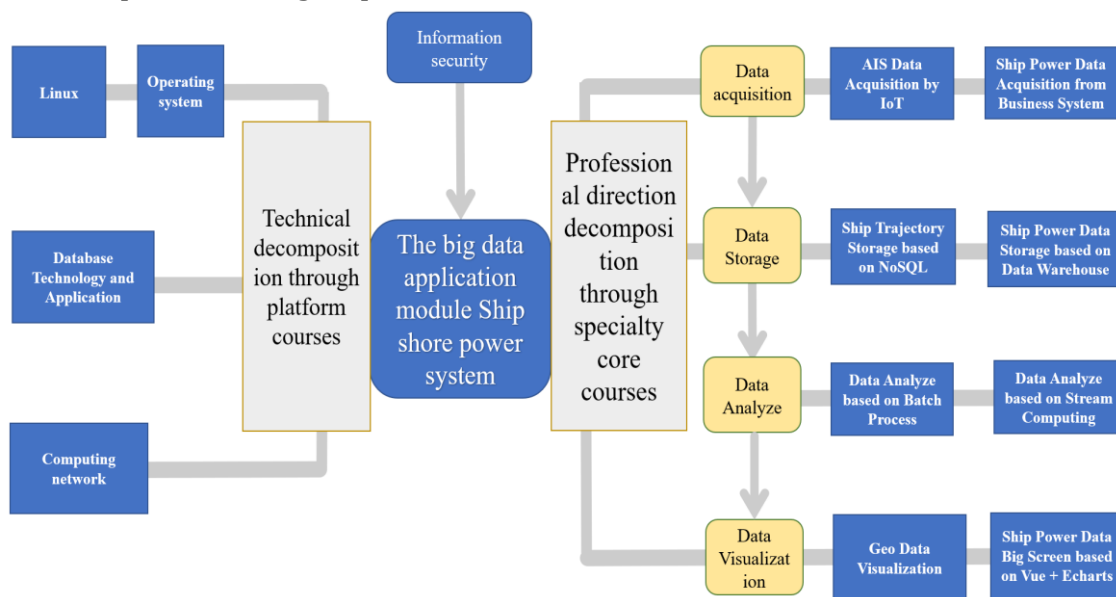


Figure 3: Talent training plan with shipping characteristics

The basic skills of big data application in ship shore power system include system platform, program foundation and data visualization foundation, etc. The technical content used in the project is broken down into corresponding courses. The process of big data processing around ship shore power systems, from collection, storage, analysis to visualization, is integrated into the course system. During the completion of the project, students not only have to comprehensively apply professional knowledge and practice operational skills, but also have the ability to learn independently, think innovatively, work together, bear pressure, and take responsibility.

3.2. Integrate Shipping Knowledge into Major Courses Based on Project Teaching

In accordance with the college's standard of "entering the mainstream and strengthening characteristics", without breaking the existing curriculum system of big data technology, knowledge such as shipping, ocean and logistics will be integrated into professional course teaching in the form of project background knowledge to form distinctive teaching. For example, when displaying ship position information in the ship water pollution system, basic shipping knowledge such as the AIS ship reporting system and Beidou positioning and navigation can be integrated.

Based on the OBE concept, interdisciplinary majors, science and education are integrated to build project-based courses. Design courses for "big data + shipping" production projects and scientific research projects according to project-based work tasks, throughout the entire professional group curriculum system, reconstruct project-based teaching content, and continuously iteratively develop teaching content.

The project is broken down into several sub-modules (courses), integrated into unified technical standards, and teachers work together to implement project-based and modular teaching. Implement the school-enterprise "dual tutor system" and adopt the teacher-student co-creation model of "tutor team + project" to change the "indoctrination" and "declarative" teaching with teachers as the main body to a student learning group as the main body and the project as the carrier. Integrating learning and doing, inquiry-based cooperative learning stimulates students' endogenous motivation for learning, and cultivates students' innovative thinking, scientific and technological capabilities, and the ability to integrate theory with practice, discover and solve problems.

3.3. Create Ideological and Political Course Of Maritime Package

Deeply explore the ideological and political theoretical education resources of a shipping power, guide and educate students to fully understand the industry and social development conditions, continuously enhance the sense of professional honor and industry pride, consciously serve the construction of a shipping power and national strategy, and integrate the personal "ego" into Among the "big self" of the motherland and the "big self" of the people, we should take the initiative to contribute to the development of the country and the nation. Make full use of special educational resources such as Maritime Safety Administration projects to ensure that the ideological and political courses are easy to carry out, grounded and effective. For example, by introducing ship position display based on Beidou signals, teachers encourage students to work hard through comparative analysis of the domestic and foreign technical status of navigation technology, cultivate students' craftsmanship of a great nation that strives for excellence, and inspire students to serve the country with science and technology and build a strong transportation and maritime power.

In higher vocational education, it is necessary to solve both the education problems of professional knowledge and the problems of ideological and political education, and the integration of the two needs to be solved through project-based teaching. Moral education is both in classroom theoretical education and in social practice. Whether moral education is successful or not needs to be tested in practice and behavior. Moral education should be integrated into project-based teaching so that students can see, listen, and do with their own hands to promote moral education. The cognition is internalized into one's own beliefs through the project practice process, and the combination of cognition and practice is realized, so that students can promote action with knowledge, practice knowledge with action, and integrate knowledge with action. Through project practice teaching, intangible education and tangible education are combined. Throughout the project implementation, students' practical processes and behavioral manifestations can reflect whether students have achieved moral education

goals, such as whether they have craftsmanship, humanistic literacy, sustainability, etc. Development ability, family and country sentiments and other requirements for high-quality socialist talents, so that teachers can promptly discover students' problems during the training process, provide timely and appropriate guidance, and achieve the integration of professional education and moral education.

4. Summary

Big data technology is a new generation of information technology. The establishment of the big data technology major began in 2019, and the research on integrating the big data major into industry characteristics has only just begun. Shipping is undergoing the fourth technological revolution, the core of which is the application of new generation information technology including big data technology. Based on the shipping industry, research on the training of big data technology talents will play a leading role in the construction of big data technology majors in shipping vocational colleges.

The big data technology major is based on the school's maritime characteristics, facing emerging job groups that are in short supply in smart shipping, integrating disciplines across borders, and reorganizing the "shipping + big data" professional curriculum system, relying on provincial engineering centers, provincial teaching teams, provincial industry-education alliances and Provincial research project, the shipping big data talent training system and practice with the smart shipping project as the core, comprehensively promotes the reform of the project-based talent training model, realizes the transformation from a single talent training model to a diversified training model, and the results are domestic and non-Information colleges and universities provide a paradigm for cultivating specialty talents with information majors.

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