Innovative application of electrical and intelligent personnel training mode in the construction industry under the Background of Artificial Intelligent Technology

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Abstract. The training mode of building electrical and intelligent specialty has experienced a gradual improvement process. Cultivating innovative talents has become the common value pursuit of colleges and universities, which is not only a theoretical issue, but also an important practical issue. In order to meet the needs of society, building electrical and intelligent specialty must aim at meeting the needs of industry and regional economic development, optimize the curriculum system, build innovative applied undergraduate talent training mode, innovate professional problems and practical teaching methods, and strengthen the training of engineering practice ability. Due to the continuous improvement of the social requirements for the professional talents, and the characteristics of the building electrical and intelligent professional foundation in Colleges and universities, the talent training mode also needs to be constantly reformed and improved. In this paper, the problems and deficiencies in the current personnel training, combined with the exploration and practice of building electrical and intelligent specialty in recent years, the construction mode of talent training mode of this major is explored and summarized.

Keywords: Innovative Talents, Electrical and Intelligent, Construction Industry, Artificial Intelligent Technology

1. Introduction

In recent years, the progress of science and technology has greatly promoted the development of intelligent building industry, especially the development of information network and communication technology, which has greatly met the requirements of society for intelligent construction content, promoted the development of intelligent building industry, and also pulled the demand for building
electrical and intelligent engineering and technical personnel [1]. In today's world, science and technology are changing with each passing day, and international competition is becoming increasingly fierce. Whoever has innovative talents will have greater innovation ability, stronger competitiveness, and will occupy a favorable position in the competition [2]. The demand for building electrical and intelligent technical talents is increasing year by year. In order to meet the needs of the society, the building electrical and intelligent specialty must aim at meeting the needs of industry and regional economic development, optimize the curriculum system, build an innovative applied undergraduate talent training model, innovate professional problems and practical teaching methods, and strengthen the training of engineering practice ability [3]. Professional contracting enterprises in the construction industry need to establish the training consciousness of the whole staff, and innovative talents are the core force for enterprises to enhance their overall competitive strength. Enterprise management needs to form a strategic investment consciousness, and regard the training expenditure of personnel as a strategic investment [4].

Traditional power supply and distribution systems have low requirements for talents, and they can enter the industry with electrician qualification. With the modernization of the construction industry, along with the popularization and application of BIM technology and intelligent building, the construction industry will have higher requirements for electronic and electrical professionals. In order to win the market, enterprises must cultivate innovative talents [5]. "Intelligent building" not only needs automatic control, communication, office system and computer network, but also can't leave the carrier of building and all kinds of building equipment related to energy and environment [6]. In order to meet the needs of the society, building electrical and intelligent specialty must aim at meeting the needs of industry and regional economic development, refine, integrate and optimize the curriculum system, build innovative applied undergraduate talent training mode, innovate professional problems and practical teaching methods, and strengthen the training of engineering practice ability [7]. Due to the increasing requirements of the society for the professional talents, and the specialty foundations of building electrical and intelligence in colleges and universities have their own characteristics, the talent training mode also needs to be continuously reformed and improved [8]. In order to cultivate innovative talents with the above interdisciplinary knowledge, it is necessary to build an effective talent training model. In this paper, based on the problems and shortcomings in personnel training, combined with the exploration and practice of building electrical and intelligent specialty in recent years, the construction mode of personnel training mode of this specialty is explored and summarized.

2. Present situation of talent training of building electrical and intelligent specialty

2.1. Professional teachers' team is weak

Due to the short time of specialty construction, the long-term teaching accumulation of the specialty is limited, the proportion of double qualified teachers in the teaching staff is not high, and the talent training plan is not guided by outside experts and industry experts, which can not realize the docking of talent training and enterprise with market demand. The foundation of building electrical and intelligent specialty in Colleges and universities is different. Most of the colleges and universities offering this specialty are based on automation, electrical engineering and automation, building environment and equipment engineering, HVAC, etc. Countries and enterprises to vigorously develop the emerging big data industry will need more innovative talents in related fields. Innovative talents
refer to talents with innovative spirit and innovative ability, and usually show flexible, open and curious personality [9]. According to the characteristics of digital media related industries, we should focus on collaborative innovation. The training mode of innovative talents is based on acquiring knowledge, taking the development of intelligence as the means, developing innovation ability as the core, and improving the comprehensive quality as the goal. Most of the practice courses are arranged in campus or demonstration teaching. Students can't complete the engineering design independently according to the needs of specific engineering projects and lack the ability of engineering application. Because of their own foundation, different schools have different emphasis in talent training mode, and the goal of talent training is not the same, which also causes the training mode has its own characteristics. Therefore, the basic credit requirements of building electrical and intelligent specialty in each university are different.

2.2. Talent training is out of touch with social needs

Building Electrical and Intelligent is a new specialty, which has not been built for a long time. The talent training plan is formulated by team teachers. The curriculum system and training plan cannot reflect the latest market trends, and the trained professionals cannot be recognized by the industry and enterprises. Educational ecosystem is a complex and pluralistic whole system composed of the ecological subject of education and the ecological environment. The extension of cultivation ecology means that the connection between universities and society is deepened, and the knowledge system contained in disciplines, specialties and curriculum is also updated. As far as colleges and universities are concerned, collaborative innovation is an innovative behavior in which multi-agents and multi-factors work together, complement each other and cooperate with each other under the framework of national innovation system [10]. Due to the limitation of the professional category of ordinary undergraduate disciplines, it is impossible to meet the industry's demand for key technology development and engineering technical talents of building electrical and intelligent only by cultivating interdisciplinary "building electrical and intelligent" professionals in professional direction or replacing them with similar professionals. The talent training of application-oriented undergraduate universities should focus on the cultivation of application ability and innovation ability. The proportion of theory and practice teaching is inappropriate. Due to the influence of practice site, experimental training courses account for a relatively low proportion in the talent training scheme.

3. Construction of training system for building electrical and intelligent talents

3.1. The quality of innovative talents

Innovation consciousness refers to people's willingness and desire to change the status quo of objective things under the stimulation of objective things. Innovation consciousness is the prerequisite for carrying out innovative activities, and it is also the original starting point for cultivating innovative ability and innovative thinking. Talent training objectives should be diversified, and only diversified training objectives can better respect students' individuality and meet the needs of college students' disciplinary, professional choice and development space as much as possible. The era of knowledge economy and economic globalization have put forward new requirements for the reform of accounting teaching in colleges and universities. In order to implement the diversified talent training mode, it is necessary to establish the corresponding talent training mechanism [11]. In the process of new specialty construction, the change of educational thoughts and concepts is particularly important.
Innovative education aiming at improving innovative quality, shaping innovative character and cultivating innovative talents calls for innovative educational ideas. According to the development direction of science, technology and economy in the whole society and the development trend of specialties, the curriculum system is reformed [12]. In the process of reform, we should adhere to the principle of the foundation of undergraduate teaching content and the coordinated development and comprehensive improvement of knowledge, ability and quality.

Innovative talents should have unique innovative thinking, which is helpful to master scientific methods and carry out innovative activities smoothly. Innovative thinking has the characteristics of originality, suddenness, seeking the opposite sex and fuzziness, which is the soul and core of people's innovative practice and activities, including divergent thinking, convergent thinking, intuitive thinking and image thinking. Schools of different types and levels should formulate feasible and distinctive training objectives according to their own conditions, students' quality structure and regional characteristics. The specialty of building electrical and intelligent attaches great importance to the construction of teaching staff, and always regards the construction of a high-level teaching staff as the basis and premise of doing a good job in practical teaching. Innovative character, that is, the character of being brave in innovation, being good at innovation, perseverance and strong bearing capacity, is the organic combination of many non-intellectual factors such as scientific world outlook, correct methodology and perseverance, and is the overall mental outlook of innovative talents. It is directly related to whether the reform of education and teaching can be carried out in depth.

3.2. Ways to train innovative talents in electronic and electrical specialty

3.2.1. Cultivate innovative consciousness The Training Department of an enterprise should often organize competitions and encourage employees to participate in the skills competition of superior departments. In the process of training, the training department should take several competitions to evaluate and select, so that the employees can experience the experience of winning or losing the competition. In the implementation process, do not give too much guidance, let the staff in the experience of many setbacks shake confidence will give up the appropriate counseling and help, exercise their perseverance. The building electrical and intelligent specialty embodies the modern scientific and technological achievements in the building, realizes the reasonable utilization of building equipment through communication, network, computer and control, and realizes the intellectualization of building environment, energy use and building space utilization. In the talent training idea, the school as the main body provides the students with all kinds of professional knowledge and skills training, so that the students' comprehensive quality and professional level meet the requirements of undergraduate course. It is necessary to strengthen the construction of professional laboratories, strengthen the training of students' innovative application ability combined with practical courses, carry out practical teaching based on engineering application ability, and innovate the application-oriented talent training system combining with the talent training scheme of outstanding engineers [13]. Through cooperation with enterprises, school teachers can realize the transformation of scientific and technological achievements, timely understand the latest professional technology and concept, constantly improve their own level, and achieve targeted teaching. The social demand for this major requires not only solid basic knowledge and broad professional vision, but also the ability to complete coordinated management and design and construction at the project site. Strong practical ability and innovation ability is the employer's special concern.
3.2.2. Cultivate the ability of innovation The practical teaching of building electrical and intelligent specialty is to further understand and deepen the professional knowledge and deepen the understanding of the theory through practice. Students can design and debug each subsystem through different control methods. In the aspect of popularity promotion, colleges and universities publicize the achievements of characteristic talent training through collaborative innovation platform, which makes higher education circles realize the talent training and school-running influence of colleges and universities. For application-oriented undergraduates, the teaching staff is an important guarantee for the quality of personnel training. Building a teaching team with strong teaching ability and rich practical experience is the key to the success of the new talent training mode of electrical and intelligent specialty. On-campus tutors work closely with off-campus tutors and hold regular exchange meetings between schools and cooperative enterprises. Reform and innovate the talent training mode of different enrollment categories, and provide the basis for the differentiated training of teaching students in accordance with their aptitude. Finally, the training mode of electrical and intelligent professionals with both commonness and characteristics will be formed. By cooperating with universities in personnel training, enterprises not only save advertising costs, but also virtually open up a publicity channel. The practical teaching system is mainly to cultivate students' basic skills, make students understand and master the development of hardware and the application of software, and cultivate application methods and ideas. Schools should actively construct a training system combining classroom teaching with extracurricular scientific and technological innovation activities. Schools and secondary colleges set up science and technology innovation funds, set up various activity bases, and encourage students to actively participate in various science and technology competitions.

If we only rely on unified classroom teaching and practical teaching, we can't satisfy students' desire for knowledge and cultivate all-round professional quality. Therefore, it is particularly important for schools to provide students with more ways to meet their personal development and enhance their comprehensive ability. Employers and industry experts form a professional steering committee to participate in professional personnel training, scientific research and employment guidance system. Figure 1 shows the architecture of talent informatization construction under collaborative innovation mode.
We should strengthen industry-university cooperation with industry authorities and related enterprises, focus on the cultivation of students' ability, and build a training mode of competency-based system. Electronic and electrical enterprises should formulate policies and establish mechanisms to support the reform of training innovative talents. The internal training departments of enterprises should keep up with the development of high technology and reconstruct the enterprise staff training system according to the connotation of "four innovations" of innovative talents. At the same time, we should give full play to the advantages of school-enterprise cooperation. Professional teachers and technical personnel of enterprises should jointly tackle key problems for specific engineering projects, let students participate in project design and construction, guide the cultivation of innovative and applied talents with application ability as the core, and improve students' engineering application ability. The specification of talent training in colleges and universities is the refinement of the training objectives of colleges and universities, and the specification of the quality requirements of graduates training. Applied talents are not the simple superposition of professional talents and other abilities, but the deepening and improvement on the basis of professional talents. In the concrete practice, we must work out a detailed practical teaching plan, especially for centralized enterprise practice. In the process of students' professional theoretical knowledge learning, practical operation skills and practical work experience are formed, which can improve students' comprehensive quality and the matching degree with the development needs of enterprises. Choosing practical teaching materials combining theory with practice can provide important curriculum guarantee for the cultivation of applied talents and provide necessary basis for further perfecting and improving the curriculum system.

4. Conclusion

Building electrical and intelligent specialty is a new specialty. Since its establishment, colleges and universities have delivered a large number of professional and technical talents to the society every year, making contributions to the process of building intelligent. The discipline of building electricity and intelligence is a comprehensive interdisciplinary subject with wide market and great development prospect. It is an important subject and long-term task for colleges and universities to cultivate the innovative ability of college students majoring in this major. Because of their different foundations, different schools have different emphasis in the talent training mode, and their training objectives are different, which also causes the training mode to have its own characteristics. Therefore, the basic credit requirements for the specialty of building electrical and intelligence in each university are different. It is necessary to strengthen the construction of professional laboratories, strengthen the training of students' innovative application ability in combination with practical courses, carry out practical teaching based on engineering application ability, and innovate the training system of applied talents in combination with the training scheme of outstanding engineers. It is directly related to whether the reform of education and teaching can be carried out in depth. As college students, they must lay a solid theoretical foundation and actively participate in innovative practice. Only by fully mobilizing the enthusiasm of all parties and creating a good atmosphere for the growth of innovative talents can we train outstanding talents with innovative spirit and ability more effectively.

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