

Application Research of Robot Course for Talent Innovation Ability Training in Vocational Colleges

1st Yang Zhao

Mechanical and electrical technology
Xijing University
Xi'an, China
316404236@qq.com

2nd Miao Shang

Mechanical and electrical technology
Xijing University
Xi'an, China
445700839@qq.com

Abstract—with the rapid development of society, there are more requirements for modern people's innovation consciousness and ability. The content and form of innovation are different, and the meaning of innovation is not exactly the same. As one of the most popular courses in the past decade, robot courses should keep pace with The Times in the course content setting, teaching method reform and teaching mode transformation. It is necessary to perfect and optimize all aspects of robot curriculum in vocational colleges, so as to cultivate students' innovative consciousness and ability. In this paper, higher vocational robot curriculum innovation ability training requirements are put forward; The characteristics of robot course innovation ability training are described. The basis of cultivating students' innovative ability is summarized. Innovation education in the robot course was analyzed. Finally, it points out that the cultivation of innovative ability of robot courses not only requires innovative works to be designed by students, innovative methods to be sketched out by students and innovative models to be built by students, but also requires teachers to constantly innovate teaching methods and reform classroom teaching in combination with students' thinking mode.

Keywords—*Cleaning machine, Diapers; Baby, Scrub table, Support frame*

I. CHARACTERISTICS OF CULTIVATION OF INNOVATION ABILITY

Higher vocational robot course has its remarkable characteristics in cultivating students' innovation ability. These characteristics include the universality of innovation ability training, the comprehensiveness of innovation ability training, and the plasticity of innovation ability training.

The robot course has the universal characteristic to train the student's innovation ability through the practice teaching. The expression of innovation ability is that each individual is different [1]. The content and manifestation of innovation are different for each individual. Innovation ability has big have little, the content of innovation and form can differ each other. The ability to innovate is also known as a high level of quality. Each individual contains the ability to innovate. The ability to innovate is unique to human beings. The ability to innovate is the potential resource for human brain thinking to be examined. This potential is developed in the right way and translated into the ability to innovate [2]. Robot courses need to mobilize students' creative potential through practical teaching. The robot course needs to cultivate students' practical ability and innovative ability. The setting of education robot course in higher vocational colleges is closely related to the market demand. Higher vocational robot course is a comprehensive course. Higher vocational robot course practice teaching coverage is relatively wide. Higher vocational robot course students' participation is relatively high. The robot course cultivates students' innovation ability through practical teaching, which is universal. The innovation capability model diagram is shown in figure 1.

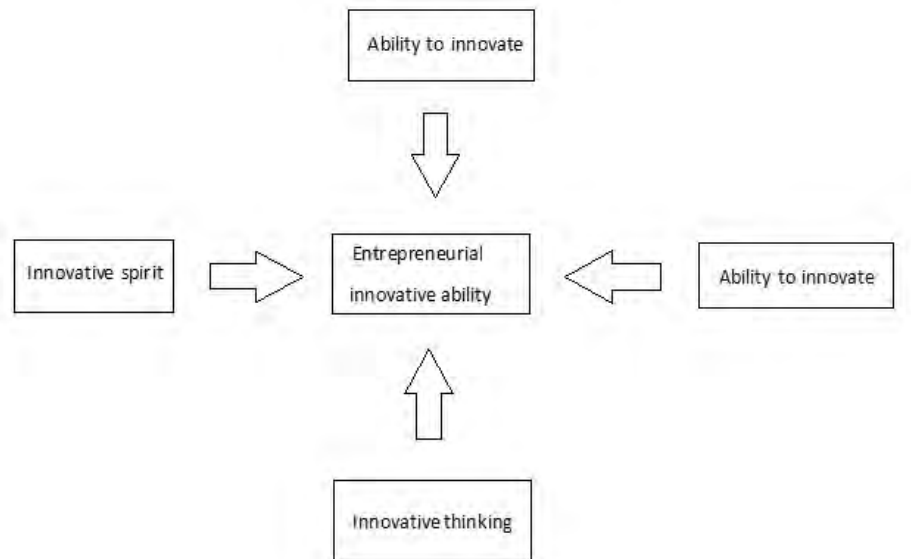


Fig.1. Innovation capability model diagram

Higher vocational robot courses in the cultivation of students' innovative ability, because each student has different qualities of ability. As a kind of ability and quality, innovation is not innate, and students' innovative thinking also needs to be transformed through acquired cultivation. Innovation ability can be cultivated through education. Innovation ability can also be constantly improved. Therefore, the innovation ability has the characteristics of developability [3].

Higher vocational robot course is to cultivate students' innovation ability, which is shown in the process of innovation activities. Innovation activity is a very comprehensive behavior process. The process of innovation involves many factors, including innovative spirit, innovative consciousness, innovative thinking, innovative techniques and so on. Each factor affects the whole process of innovation activities. With the rapid development of modern science and technology, the form of robot curriculum innovation activities tends to be more scientific, information and professional. The cultivation of innovation ability needs practice, so that individuals constantly transfer to groups through innovative activities. Higher vocational robot courses cultivate students' innovation ability, which requires the cultivation of a team and the intersection of multiple majors. Innovation activities are comprehensive, systematic and complex. The improvement of innovation ability will also be affected by the external space. A good innovation environment is bound to have a significant impact on innovation activities. Innovation ability is an advanced comprehensive ability, which includes the integration and cooperation of multiple abilities such as memory, observation, information acquisition, absorption and judgment. The innovative thinking of robot course is a kind of comprehensive thinking, which is the comprehensive application of a variety of thinking patterns [4]. Creative thinking in robot courses needs to complement logic, image and inspiration. Higher vocational robot courses enable students to transform theoretical knowledge into practical ability through practical teaching, and meanwhile cultivate a variety of abilities related to innovation. Therefore, the innovation ability of higher vocational robot course is of comprehensive characteristics.

II. BASIS OF INNOVATION ABILITY TRAINING

Higher vocational robot courses need students to have certain theoretical and practical basis when cultivating students' innovation ability. The theoretical basis of innovation ability training is limited, and the common ones include the theoretical basis of multiple intelligences, constructivism and so on. The theory of multiple intelligence was put forward by American educator Gardner, also known as Gardner's theory of multiple intelligence. In the United States, education reform has produced a wide range of positive effects. Robots are developing rapidly, and figure 2 is a common industrial robot.



Fig. 2. Industrial robots figure shape.

The theory of multiple intelligences is not the language ability and logical thinking ability in the traditional sense. Intelligence is the ability of an individual to solve practical problems or produce effective products for society. Intelligence includes seven kinds, namely language intelligence, spatial intelligence, kinesthetic intelligence, rhythm intelligence, mathematical intelligence, introspection intelligence and communication intelligence. Multiple intelligences believe that each student's intelligence is unique [5]. Every student has these seven intelligences. How intelligent each student is is different. Finally, different multi-intelligences enable students to develop different vocational abilities. There are many factors influencing the development of intelligence, such as social and cultural environment. The level of students' intelligence development is affected by education [6]. The cultivation of students' innovation ability varies with different social, cultural and education environments. The theory of multiple intelligences accords with education's goal of cultivating high-quality and applied talents. In order to cultivate students' innovation ability, the importance of innovation ability should be fully recognized in vocational robot courses. In the setting of higher vocational education robot course, the traditional exam-oriented education is difficult to reflect the personal value of students. According to the theory of multiple intelligences, every student has the ability to innovate. Only by breaking the constraints of traditional education mode can innovative elements be continuously injected into the way of talent cultivation and the content of innovation ability cultivation be increased to the greatest extent. In the assessment method of robot course, the assessment method of robot course is diversified assessment in order to enable students and teachers to integrate into the teaching process of cultivating innovative ability, guide students to develop innovative consciousness and stimulate their innovative potential [7]. The robot course is based on various practical training and internship activities to build a platform for students to give play to their innovative abilities. At the same time, schools and enterprises can work together to cultivate students' innovation ability and promote the cooperation between schools and enterprises. Figure 3 shows a special robot.



Fig. 3. Special robot appearance figure

The shape diagram of the crawler robot with variable shape is shown in figure 4.

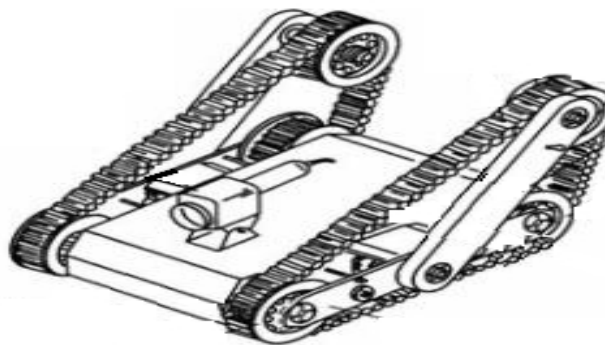


Fig. 4. Shape diagram of the crawler robot with variable shape

Constructivism also plays an important role in the cultivation of students' innovative ability. The essence of learning is a process of continuous construction. Constructivism holds that discovery and invention can cultivate students' innovative ability. Student's creativity is the construction process caused by the interaction between subject and object [8]. Through learning, students can give full play to their potential abilities and ultimately develop themselves and their personalities together. The process of construction is active, so is individual learning. Constructivism holds that learning is a meaningful psychological process, including the learning of understanding memory and subject learning. Meaningful learning requires students to put their heart and soul into it. Students take the initiative to participate in learning, which is a kind of self-realization tendency of learning, students can give full play to their potential, to achieve their learning goals. The setting of robot course in higher vocational colleges needs to combine specialty, society and individual organically [9]. The setting of robot courses needs to fully mobilize the initiative of students in both intellectual factors and non-intellectual factors. The mobilization of enthusiasm is conducive to the development of students' innovative ability. The assessment method of robot course is diversified assessment in order to enable students and teachers to integrate into the teaching process of cultivating innovative ability, guide students to develop innovative consciousness and stimulate their innovative potential. The robot course is based on various practical training and internship activities to build a platform for students to give play to their innovative abilities. The practice teaching in higher vocational colleges can respect the students' main body status, make the teaching produce a kind of benign interaction between teachers and students, and then train the students' innovation ability [10].

III. INNOVATION IN ROBOTICS COURSES EDUCATION

Innovation education in the robot course, first of all, teachers should change the traditional teaching thought and teaching mode, stimulate students' interest in learning through practical teaching, cultivate students' ability of independent students, and train students' innovative thinking. In the course of higher vocational robot teaching, the problems existing in the cultivation of students' innovative ability mainly include backward experimental equipment, and the use of experimental equipment is tense. The teaching plan of robot course pays insufficient attention to innovation education. Teachers who undertake the teaching tasks of robot courses have insufficient understanding of innovation education. The school lacks teachers to train students' innovative ability. Students' learning enthusiasm for robot courses is not high [11]. In the teaching process of robot courses, students have a weak sense of innovation and a low sense of social responsibility. Aiming at the common problems in the teaching process of robot courses in vocational colleges, combining with the cultivation of students' innovative ability, the innovative education countermeasures in robot courses are proposed. Firstly, innovation education should be well done in the practical teaching of higher vocational robot courses. In the process of teaching, teachers' traditional teaching thought and teaching mode should be changed [12]. In practice, the consciousness and ability of students to explore, think and analyze independently should be emphasized. In the teaching process, the teaching method can introduce heuristic, simulation, discussion, situational mode and so on. More teaching content can be set as practical, hands-on, open, project-driven teaching mode.

In the practice of robot courses, students' practical knowledge and learning interest will be found to be insufficient through practical cases. In the process of practical practice, by solving various problems, students' innovative consciousness and ability will be strengthened, and innovative achievements and sense of achievement will be obtained [13]. In order to stimulate the fun of students' innovative activities, students can participate in the operation process and problem solving process, so that students can experience the spirit of win-win cooperation and teamwork. Learning interest can be stimulated, students' innovative consciousness will continue to burst out, and then make the innovation ability of continuous improvement.

IV. CONCLUSIONS

The content and form of innovation are different, and the meaning of innovation is not exactly the same. As one of the most popular courses in the past decade, robot courses should keep pace with The Times in the course content setting, teaching method reform and teaching mode transformation. It is necessary to perfect and optimize all aspects of robot curriculum in vocational colleges, so as to cultivate students' innovative consciousness and ability. In this paper, higher vocational robot curriculum innovation ability training requirements are put forward; The characteristics of robot course innovation ability training are described. The basis of cultivating students' innovative ability is summarized. Innovation education in the robot

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