Intelligent-manufacturing-based Problems and Countermeasures of College Students’ Ideological and Behavioral Guidance in Engineering Vocational Colleges

Yuejiao Shi

Office of Student Affairs of Guangxi Technological College of Machinery and Electricity, Nanning 530007, China

Abstract

With the rapid development of intelligent society, the cultivation of talents in engineering vocational colleges becomes a great concern of society. In the context of intelligent manufacturing, undergraduates’ ideological behavior determines their social adaptability and professional accomplishment. Therefore, the college students’ ideological and behavioral guidance in engineering college is valued by educators. However, the questionnaire survey and literature search expose many problems in current university students’ ideological and behavioral guidance, such as the outdated guiding concept, single method, and the disconnection between the guiding contents and the actual situation. Therefore, it is necessary to give play to the ideological and political education, to combine the characteristics of the engineering college students, innovating guiding educational means and establishing the correct concept of values and information networks, so as to achieve the ideological and behavioral guidance.

Keywords: Intelligent Manufacturing, Engineering Vocational Colleges, Ideological and Behavioral Guidance, Problems, Countermeasures.

1. RESEARCH BACKGROUND

1.1 Literature review

Compared with the traditional manufacturing, intelligent manufacturing is characterized by informatization, which makes the manufacture of products more specialized. However, due to the fact that the traditional concept of education in schools is not combined with intelligence, the education of professionalism of students cannot meet the needs of the society, which is eventually eliminated by society (Yang, 2017). Meanwhile, intelligent manufacturing requires students to master higher technical skills. Therefore, students are required to have strong information technology skills, taking the initiative to learn and cooperate with intelligent robots. It is necessary to strengthen students’ ideological guidance, in order to help the students to have a correct outlook on life and values in the Internet age (He et al., 2017). In addition, the virtual reality in the intelligent manufacturing industry has a great impact on the students; therefore, it is necessary to guide the students’ ideology and behavior in combination with the virtual reality. In the application of virtual reality technology, undergraduates are active in group events. Therefore, it is important to promote network ethics education to regulate students’ behavior; it is important to build a virtual service platform to promote more interactions between teachers and students, laying the foundations for mentoring (Long and Zhou, 2014).

1.2 Research purposes

Intelligent manufacturing focuses on development of today, which has a great impact on college students studying in engineering college. Intelligent manufacturing is a virtual and open form based on network information technology. However, the network information is mixed with more students’ learning contents and thus the students’ ideology is easily influenced (Wu, 2010). Therefore, this study uses the literature method and questionnaire survey method to investigate the existing problems of students’ ideology and behaviors and to verify the hypotheses, so as to provide reference for improving the countermeasures and the countermeasures proposed in this study, which would be effectively applied to vocational colleges’ teaching contributing to standardize students’ ideology and behaviors.
2. BACKGROUND OVERVIEW OF INTELLIGENT MANUFACTURING

2.1 Principle of intelligent manufacturing

Intelligent manufacturing system is based on network information technology; the network environment is mainly distributed manufacturing, known as the idea of distributed integration. The application of such distributed intelligent manufacturing systems and artificial intelligence theory can effectively realize the inheritance of flexibility of manufacturing system, ensuring that manufacturing units gain intelligence based on the network. Meanwhile, in view of the isomorphism of distributed manufacturing, the intelligent manufacturing is demonstrated as the local realization form with the global intelligent manufacturing based on the network environment.

2.2 Characteristics of intelligent manufacturing

Compared with traditional manufacturing, intelligent manufacturing can innovate the original artificial intelligence system with self-discipline, so as to form a human-machine integrated intelligent system with the ability to collect information, understand information and plan behaviors. Meanwhile, intelligent manufacturing products are of independence and autonomy with strong self-discipline. In addition, the intelligent manufacturing technology has self-organization and super-flexibility (Mao, 2016). Each unit’s production tasks are self-organizing with the structure and operation modes showing super-flexibility. Meanwhile, technologies such as signal processing and simulation models are integrated providing people with exciting experience.

3. INTELLIGENT-MANUFACTURING-BASED PROBLEMS IN IDEOLOGICAL AND BEHAVIORAL GUIDANCE OF COLLEGE STUDENTS IN ENGINEERING VOCATIONAL COLLEGES

3.1 Research hypothesis

In the context of intelligent manufacturing, Students’ learning life is mainly based on network information technology. The complicated information on the network might have an adverse effect on students. Meanwhile, the teaching contents for engineering students are relatively boring. Theoretical teaching method makes students learn in a passive way, which restricts the guidance of ideological behavior (Nie et al., 2016). Therefore, the following assumptions are made by reviewing literature and observations, in order to provide measurement indicators.

Hypothesis 1: Outdated Concept of Ideological and Behavioral Guidance

Hypothesis 2: Simple Method of Ideological and Behavioral Guidance

Hypothesis 3: Lack of Combination of Ideological and Behavioral Guidance with Engineering Learning Contents

Hypothesis 4: Negligence of Influence of Information Network on Students’ Ideology in Ideological and Behavioral Guidance

3.2 Research process

This study adopts literature method and questionnaire method, and conducts survey for teachers in some engineering vocational college. In the design of the questionnaire, the successful experience of previous studies combined with the research hypothesis and targeted design with a total of 15 questions centered around the teachers’ ideological and behavioral guidance concepts, strategies, content and the student ideological and behavioral changes. A total of 130 teachers were involved in the survey and the research and 130 valid questionnaires were collected.

3.3 Research results

The questionnaire and statistics showed that a total of 73 teachers used ideological and political education as the main way to guide ideological and behavioral activities. However, there are only 14 teachers who conducted investigations with targeted guidance for the students. The remaining teachers could offer active guidance to
students with ideological and political education. Meanwhile, only 26 teachers were aware of the impact of Internet-based information technology on students; 37 teachers combined ideological guidance with student learning contents. Most teachers used science education in the ideological guidance in the classroom mostly. The statistical analysis of the changes in students’ ideology shows that most of the students’ ideology has not been effectively transformed. However, students with targeted guidance and the combination of morality and learning contents, and students’ ideology with the building of the correct values are gradually changing to higher standards (the specific percentage of the survey is shown in Table 1). Therefore, in the context of intelligent manufacturing, the students were easily influenced by the information input, when ignoring the effect of outdated concept of ideological and behavioral guidance, simple method of ideological and behavioral guidance, lack of combination of ideological and behavioral guidance with engineering learning contents and negligence of influence of information network on students’ ideology in ideological and behavioral guidance (Guo and Guan, 2008), which will cultivate negative learning attitude and is unfavorable to the students’ ideological and behavioral improvement.

### Table 1 Result Statistics and Analysis

<table>
<thead>
<tr>
<th>type</th>
<th>all-or-none</th>
<th>not bad</th>
<th>effect is good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher’s act</td>
<td>Number and percentage</td>
<td>Teacher’s act</td>
<td>Number and percentage</td>
</tr>
<tr>
<td>Guidance concept</td>
<td>Guide when mistake 76 58%</td>
<td>Provide correct thinking 26 20%</td>
<td>Guide with students’ thoughts 28 22%</td>
</tr>
<tr>
<td>guiding strategy</td>
<td>ideological and political education 73 56%</td>
<td>Education and conversation after class 15 12%</td>
<td>Teachers and students, parents talk 9 7%</td>
</tr>
<tr>
<td></td>
<td>guidance with other courses 8 6%</td>
<td>Practice guidance 2 2%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One to one tutoring 3 2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guide content</td>
<td>sense of worth 31 24%</td>
<td>Intelligent manufacturing course and ideological 17 13%</td>
<td>Attention to Internet applications 4 3%</td>
</tr>
<tr>
<td>Ideological and political accomplishment 40 31%</td>
<td>Values, outlook on life 20 15%</td>
<td>Network information ability training 8 6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The combination curriculum /ideological and political literacy 10 8%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. INTELLIGENT-MANUFACTURING-BASED COUNTERMEASURES IN IDEOLOGICAL AND BEHAVIORAL GUIDANCE OF COLLEGE STUDENTS IN ENGINEERING VOCATIONAL COLLEGES

4.1 Give play to classroom education and enhance the effectiveness of ideological and political education among engineering college students

The study of the values of engineering college students should be strengthened by improving the profound connotation of the socialist core values to guide students’ ideological behaviors. Meanwhile, students should have profound understandings of the political and practical nature of the socialist core values (Zhang, 2014). It is necessary to strengthen the Marxist-Leninist ideology and patriotism of engineering students. Through the education of the Scientific Outlook on Development, the students should clarify their responsibilities and guide
their own behaviors. In addition, it is necessary to strengthen the study of law and morality among engineering students, in order to enhance the education of relevant modules such as laws and regulations, so as to gradually change students’ ideology (Feng and Hu, 2014). It is necessary for students to establish a correct world outlook, values and outlook on life; it is necessary to closely link education with the current social situation, strengthening students’ awareness of the construction of democratic legal system learning knowledge from social practice. Students’ knowledge will be broadened and complete knowledge structure will be built, so as to effectively enhance their ideological level. Only when the engineering college students can perfect themselves through the activities can they correctly realize the correct transformation of the ideology and behavior.

4.2 Mobilize students’ self-awareness based on students’ ideological and cognitive characteristics

First, teachers need to provide students with educational strategies consistent with their ideology cognitive characteristics, as engineering majors have different backgrounds (Bo, 2009). In the context of intelligent manufacturing, the guidance of ideological and behavioral should study the common level of understandings and the personalities of students, in order to design targeted guidance strategy. For example, the students’ understandings of the intelligent-manufacturing-oriented cognitive value focus on the guidance of the students’ inspirational ideology, enhancing students’ ability to select complex information (Liu and Zhu, 2013). In this way, students’ ideological experiences and scenario simulation can be used to enhance their comprehensive capabilities with their efforts. Second, students need to be taught in accordance with their aptitudes. Targeted guidance should be given to different individual’s ideology differences formed by their understandings of intelligent manufacturing. It is an important principle guiding engineering Students’ ideology, which requires that ideology guide should have certain artistic qualities, considering different characteristics, so as to ensure that their ideology is correct.

4.3 Innovate education methods and enhance accomplishments of vocational college students

Many engineering vocational colleges place more emphasis on theoretical study in their education, neglecting practical activities. Some vocational colleges place too much emphasis on book education with deficiencies in the level of innovation can easily lead to school education’s failure in meeting the needs of the society (Ying, 2013). Therefore, in the context of intelligent manufacturing, the guidance of students in engineering vocational colleges should first change the traditional guidance mode. In daily guidance, the knowledge to be disseminated needs to be up-to-date and teachers need to constantly develop and innovate the current ideological and theoretical knowledge (Zhou, 2015). Meanwhile, teachers need to combine the current intelligent manufacturing background to explain the relevant knowledge of intelligence to students, so the students can fully understand the principles and characteristics of intelligent manufacturing. Therefore, an accurate understanding of changes in social development can be formed. In addition, current vocational college students are more active in ideology cultivation, which might encounter some problems. Teachers need to integrate the innovative and information abilities and other ideological education with teaching, for timely correction of students’ misunderstanding of the information network. Ideological and behavioral guidance is conducive to enhancing students’ professionalism.

4.4 Combine with information network technology for students to establish correct concept of network applications

Intelligent manufacturing is based on the network technology. Therefore, the guidance process for the students’ ideology and behaviors can be combined with the information network technology. Students’ interest can effectively establish the concept of correct network application. Therefore, students in the network environment can cultivate the correct ideology and behavior. First, teachers can actively carry out network ideological and political education to provide students with a platform for online virtual display, so students can keep abreast of the concepts and knowledge of virtual reality. Meanwhile, Students’ practical ability of ideology and behaviors can be effectively enhanced (Zhu, 2013). The adverse effects of network environment on students can be eliminated through online education which can help students to establish the correct concept of network application (Li et al., 2015). Meanwhile, cyber-security education can be conducted to guide students to identify the bad websites, creating a healthy cyber environment for themselves. In addition, microblogging, WeChat and other mobile platforms can be used to publish civilized online safety education information; colorful campus activities can be carried out, so as to truly guide students’ ideological behavior in the context of intelligent manufacturing.
5. CONCLUSION

The background of intelligent manufacturing is based on Internet information technology. Therefore, the engineering vocational colleges should pay attention to students' ideological and moral qualities, and to the adverse effects of the network environment and virtual reality on the students. However, there are many problems that need to be solved in order to guide ideological and behavioral activities for the students in the network environment. It is necessary to combine ideological guidance with information network technology to develop classroom education by establishing correct outlook on life, values and world outlook with the correct concept of network applications, and guiding the students to better use the network to identify bad information. Meanwhile, engineering students need to create a relaxed and enjoyable learning environment while they are learning intelligent manufacturing, so as to help students learn in the positive manner and succeed.

ACKNOWLEDGMENTS

The Theory and Practice of Guangxi College Students' Ideological and Political Education Research Project in 2016: Science-dominated Higher Vocational College Students' Ideological and Behavior Guiding Research In the Context of Intelligent Manufacturing (Project Number: 2016LSZ045; Project Leader: Yuejiao Shi)

REFERENCE

Zhang C. (2014). Problems and countermeasures of college students' thinking and behavior in the internet age - taking Tongren University as an example, Prospect on the Science and Technology of, (22), 224-226.