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# Research on the Predicament and Countermeasures of College Students' Humanistic Education from the Perspective of "New Engineering"

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**Abstract:** New Engineering is relative to traditional engineering. One of the important objectives of New Engineering construction is to cultivate high-quality engineering talents with both morality and ability, so as to provide intellectual support for China's industrial development and international competition. We should strengthen the humanistic education of undergraduate engineering talents under the background of New Engineering. At present, there are some problems in humanistic education of Engineering students, such as ideology, curriculum design, teachers' humanistic accomplishment, classroom teaching methods and traditional cultural accomplishment. Therefore, under the background of New Engineering, we should rebuild educational concept, optimize curriculum, improve teachers' quality, improve evaluation methods, and strengthen excellent traditional culture education for engineering students.

## 1. Introduction

The concept of "New Engineering" originated in 2016. Compared with traditional engineering, New Engineering is based on new economy and new industry, and aims to cultivate innovative, diversified and high-quality engineering talents with both ability and political integrity to adapt to future development. [1] The "new" of New Engineering is firstly reflected in the emphasis on both "teaching" and "education", which is devoted to cultivating new engineers with both instrumental rationality and value rationality. [2] At present, the understandings between general education and engineering education in engineering teaching in China are not clear enough. Engineering education is out of touch with the current situation of the industry, which leads to insufficient comprehensive quality and knowledge structure of Engineering students.[3]The new requirement for talents in the new era provides a new opportunity for the development of New Engineering. In this context, it is of great significance to strengthen the humanistic education of science and engineering students and improve their humanistic qualities.

## 2. The marginalization of humanistic education in science and engineering colleges

### *2.1 The phenomena of attaching importance to engineering, despising liberal arts and humanistic education are serious*

Humanistic education is of great value and significance for the cultivation of New Engineering talents. However, in the current practice of higher education in China, humanistic education is generally marginalized, especially in science and engineering colleges and universities, which attach great importance to science and technology and neglect humanities. Therefore, in these universities, professional education has been strengthened, while the humanistic education has been overlooked.



"The target orientation of training engineering talents in China is not clear", "Engineering students have defects in comprehensive quality and knowledge structure". [4]

This kind of education mode seriously restricts the all-round development of students in science and engineering colleges, which leads to the insufficiency of their comprehensive ability, the low ability of innovation and entrepreneurship, and the lack of core competitiveness. At the same time, this situation has also led to the insufficient transformation and upgrading capacity of manufacturing industry, the shortage of compound high-tech talents, and the shortage of world-class engineering leaders and top-notch talents. [5]

### *2.2 The impact of modern scientific and technological revolution lead to the decrease of humanistic value*

Since modern times, with the rise of scientific revolution, industry has made great achievements, and natural science has gradually gained authority. Under this influence, humanistic education has been impacted. British scholar Snow pointed out that "science, technology and humanity are being separated into two cultures, which will inevitably hinder the progress and development of society and individuals".[6]"Some Engineering Universities focus only on the cultivation of students' professional skills, but ignore the cultivation and expansion of students' humanistic spirit." [7]Overemphasis on engineering and neglect of Humanities in university education has inevitably led to a huge gap between science and humanities.

### *2.3 Humanistic education has been diluted in history and reality*

Since modern times, under the guidance of the social ideal of saving the country by industry and science, China have been actively cultivating practical talents. Although these practices have achieved remarkable results in a certain period of time, at the same time, they have accelerated the division of disciplines and neglected the traditional humanistic education. In the restructuring of higher education in 1952, China attached great importance to engineering colleges and universities in order to cultivate much-needed industrial talents for economic construction, resulting in the reduction of a large number of humanities colleges and departments. Since the reform and opening up, with the development of economy and society, the value of humanistic education has been neglected, and the university humanistic education has been further weakened.

### *2.4 Humanistic education has its own defects*

The effectiveness of humanistic education should have the characteristics of concealment, complexity and long-term, which are mainly reflected in the following two situations. The first is that the value orientation of humanistic education is not clear. In order to safeguard its position and influence, humanistic education must obtain its own passport of scientific discourse. [8] Humanistic education, which takes "humanistic spirit" as its value orientation, constantly pursues utilitarianism. This practice "not only cannot carry out humanistic education for students, but will reduce the level of thinking of College students, and make the classroom entertaining and superficial".[9]

The second is that humanistic education lacks self-reflection and self-renewal, and constantly loses its due spirit of realistic concern and criticism. Humanistic education should have fostered the humanistic spirit of College students, but today's humanistic education has become empty talk, which eventually leads to its own disconnection from social needs.

### *2.5 The government's support for university humanistic education is inadequate*

At present, the government's support for Humanistic Education in Colleges and universities is insufficient. This not only enlarges the gap between humanistic education and professional education, but also further pushes humanistic education into a dilemma. Stanley fish, a famous American scholar, once admitted that the natural sciences are given generously while the humanities are given little attention. Needless to say, the prevalence of scientism makes humanistic education fall into the awkward position of marginalization in some science and engineering colleges.

## **3. Analysis of the reasons for the predicament of humanistic education in engineering colleges**

### *3.1 There are deviations in educational concepts*

The purpose of humanistic education is to enrich students' humanistic knowledge, improve their humanistic accomplishment, cultivate their humanistic spirit, make students understand the law of social development and predict the future development trend. Although some engineering universities begin to attach importance to humanistic education and add humanistic courses, the deep-rooted influence of science and technology education on schools leads to the situation that students find it difficult to identify with humanistic education, fail to understand humanistic spirit and lose interest in humanistic education.

### *3.2 Humanities courses are inadequate*

In terms of curriculum design, there are some problems in the course of Humanities Education in engineering colleges, such as fewer types of courses, incomplete system and great randomness. The insufficient number of compulsory and optional courses in humanities courses offered by engineering universities directly reduces the scope and freedom of students' choice, and affects the integrity of students' knowledge and the improvement of their humanistic literacy.

### *3.3 The humanistic quality of teachers in engineering colleges is insufficient*

At present, teachers in engineering colleges and universities do not attach importance to improving their humanistic quality. This situation directly damages the personal image of teachers and even misleads students. Some excellent Humanities Teachers are unwilling to go to engineering colleges. The Humanities Teachers of engineering colleges themselves do not attach importance to improving their own humanities accomplishment. As a result, there are fewer and fewer teachers with high humanistic accomplishment in engineering colleges and universities.

### *3.4 The teaching method is single and obsolete*

The different research objects of humanities education and science education determine the differences of their teaching methods and means. In practical teaching, engineering teachers use conceptual introduction and verbal preaching to teach humanities courses. This method cannot cultivate students' initiative and creativity. Humanistic education in many engineering colleges only stays on the opening of Humanities courses, and the professional humanities education lacks the necessary depth.

### *3.5 The absence of excellent traditional culture education*

The excellent humanistic tradition contained in the excellent traditional Chinese culture still has the value of the times at present. Xi Jinping pointed out that "Chinese excellent traditional culture is the outstanding advantage of the Chinese nation and our deepest cultural soft power." [10] "Chinese traditional culture is an inexhaustible source. But the harsh reality is that most universities ignore the main role of Chinese traditional culture. [11] In science and engineering colleges, this phenomenon is even more serious.

From the perspective of "New Engineering", in order to realize the Chinese dream of the great rejuvenation of the Chinese nation, we must strengthen the education of excellent cultural traditions and utilize the rich resources of traditional culture by means of modern science and technology. In recent years, many universities have invested a lot of money and energy in the education of traditional culture, but they still haven't solved it fundamentally.

## **4. Countermeasures to strengthen the humanistic education of college students under the background of New Engineering**

### *4.1 Establishing Correct Concept of Humanistic Education*

Accurately grasping the new trend of the development of Higher Engineering Education under the new situation and reconstructing the new concept of humanistic education are the key to solving the current predicament of humanistic education. First of all, we must insist on quality education as an important part of humanistic education in order to cultivate all-round development of people. Secondly, we should establish the concept of scientific humanism, adhere to the overall cultural awareness, realize the connection and integration of professional knowledge and humanistic spirit, and fundamentally

reverse the current situation of "attaching importance to professional technology while ignoring humanistic education" in engineering education. We should "establish the new concept of mutual penetration and coordinated development of science and humanities, correct the previous narrow thinking of establishing education concepts based on the market, and strive to cultivate engineering talents with solid professional foundation and high humanistic level". [12]

#### *4.2 Increasing the Teaching of Humanities Course in the Course Setting*

In the course setting of Engineering education, humanistic education should be taken into account, and the curriculum system of humanistic education with engineering characteristics should be gradually established. The humanistic education of engineering undergraduate course should cover many humanities courses, such as literature and art, history research, social analysis, ethics and morality. Engineering undergraduate education should guarantee the number of hours of humanities courses. Humanities curriculum content must be arranged from a scientific perspective and logical method, and students' comprehensive quality can be cultivated through knowledge transmission and value guidance.

#### *4.3 Improving the Teachers' team structure in engineering colleges and universities and improving the humanistic quality of teachers*

Engineering colleges and universities should adjust the proportion of engineering teachers and Humanities teachers, introduce humanities leaders, optimize and upgrade the existing teacher resources, and integrate them as a whole. Teachers in engineering colleges should study the laws of humanistic education in depth. Engineering undergraduate colleges should strive to build a team of teachers with deep academic specialty, high professional level and strong humanistic quality.

#### *4.4 Reforming teaching methods and breaking the old evaluation mechanism of Humanistic Education*

The level of humanistic accomplishment cannot be concluded through examinations, but be emphasized that student can "internalize in mind and externalize in action". The realization method of humanistic education is through human intuition, experience and self-reflection. Classroom teaching should not indoctrination education, but be carried out in the form of discussion class. In the evaluation of humanistic education, we must take into account the situation of students' mastery of humanistic knowledge and cultivation of humanistic literacy. [13]The flexibility of humanistic education determines that the evaluation of humanistic education is not based on examination results, but on students from multiple dimensions.

#### *4.5 Humanistic Education must increase the elements of excellent traditional Chinese culture*

Xi pointed out that "reading excellent books on traditional culture is a kind of cultural reading with a value of one book for ten, and these classics should be embedded in students' minds and become the gene of Chinese national culture". [14] As applied talents trained by the state, New Engineering talents must have international competitiveness. They need not only to master the world's cutting-edge scientific and technological knowledge, but also to demonstrate Chinese concepts and values.

Chinese excellent traditional culture provides abundant teaching resources for humanistic education in engineering colleges. Engineering colleges and universities should integrate traditional culture into their teaching plans in accordance with the characteristics of "New Engineering" and promote the integration and interaction between traditional culture and professional courses. The education of engineering colleges should form a good atmosphere that pays attention to some traditional culture education.

### **5. Conclusion**

Humanistic education is in a fundamental position in the higher education system. In the context of "New Engineering", getting rid of the marginalized predicament of humanistic education, realizing the modernization transformation and reconstructing humanistic education in the new era led by humanistic spirit and realistic needs are not only related to the innovation of humanistic education itself, but also to the urgent need of cultivating compound high-end talents. Humanistic education is a

complex systematic project. It is necessary to set up correct concept of Humanities education, to increase teaching of Humanities courses, to improve the structure of teachers in engineering colleges, to reform the evaluation mechanism of Humanities education, and to increase the elements of excellent traditional Chinese culture in teaching. Engineering colleges and universities must promote the integration of humanistic education and scientific education, and promote the development of "New Engineering" education, so as to cultivate high-quality compound talents with solid professional skills and broad humanistic feelings in the new era.

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