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OBJECTIVES, PROBLEMS, AND COUNTERMEASURES OF IMPLEMENTING GENERAL EDUCATION IN LOCAL ENGINEERING COLLEGES

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ABSTRACT

In recent years, there have been more and more explorations and research on general education in local engineering colleges in China, which are highly valued and favored, but limited by the shackles of traditional professional educational mechanisms and ideological concepts, the reform of general education in local engineering colleges is in a dilemma, which is mainly manifested in the following aspects: lack of understanding of general education concept, lack of teachers and lack of management of general education. Therefore, local engineering colleges must get rid of the current situation. Firstly, they should establish clear general education objectives; secondly, they should strengthen the construction of general education teachers; and thirdly, they should improve the quality of general education management, to enhance the effectiveness of general education.

KEYWORDS: Local engineering colleges; General education; Personnel training; All-round development

1. INTRODUCTION

In the new era, “The basic contradiction of our society has changed.” [1] under the new contradiction, our country's higher education has changed from the undergraduate education mode which only pays attention to professional education but lacks general education to the undergraduate education mode which is “The professional development based on the general education”, this change puts forward new requirements for higher education. To better grasp the goal of talent training, colleges and universities from the original model of talent training to general education-based, cultivate innovative, compound-type talents, which not only enhances the knowledge and skills of students but also promotes students' moral character and inner value. In this development, how to realize the all-round development of the students according to the school background, the discipline superiority and the student characteristic, this needs the local engineering college to implement the general education vigorously, to realize the goal of moral education, we must change the mode of personnel training and adapt to the development of today's society.

2. The Goal of Implementing General Education in Local Engineering Colleges

Local engineering colleges should not only “Emphasize the professional knowledge and skills and practical ability of social production and employment posts, but also bear the responsibility of carrying out ethical and moral education, adapting to and meeting the value orientation of students' subject development, perfecting the knowledge structure of college students, arousing their subject consciousness, to make them become an all-round developing person, having the ability to adapt to social and the humanistic spirit.

2.1 Cultivating Students' All-round Development

The all-round development of human beings is the eternal theme pursued by universities. No matter whether in comprehensive universities or engineering colleges, the all-round development of students is similar, mainly in the following two aspects. On the one hand, the replacement of labor, occupation, and talent flow in modern society are more common, frequent, and complex than in the past. At the same time, the development of science and technology has also caused great changes in the industrial structure, and the adjustment and upgrading of the industrial structure has also caused changes in the talent market, that is, compound and innovative talents are needed to meet the needs of the society. In conclusion, the demand for compound talents in today's society is more urgent than ever before. To cope with this trend, the local engineering colleges begin to implement general education, to cultivate the students of engineering colleges who have a solid foundation, broad caliber, emphasis on application, strong skills, and all-round development of morality, intelligence, body, the United States, and labor. On the other hand, for local engineering colleges, professional education has been dominant for a long time, and it pays attention to the training of professional and skilled talents, limits people's knowledge, ability, and emotion to specialization, and makes people one-sided and narrow when analyzing and solving problems. In reality, the original intention of implementing general education in local engineering colleges is to correct the excessive specialization of higher education. It focuses on the overall development of students, pays attention to the cultivation of students' sound personalities, and enables the educatees to have a healthy mind, reasonable knowledge structure, and the ability of sustainable development. “To become qualified citizens with good quality, independent thinking, social responsibility and social care.” [2] Generally speaking, the implementation of general education in local engineering colleges not only makes up for the shortcomings of specialized education, but also adapts to the development of the local economy and industrial adjustment, and enables the all-round development of students.

2.2 Cultivating students' humanistic spirit

In the new stage of development, cultivating students' humanistic spirit is an important goal of implementing general education in local engineering colleges, and it is also a natural choice for engineering college students, mainly in the following two aspects. On the one hand, with the development of a market economy, people's pursuit of interests is extremely inflated. To conform to this trend, local engineering colleges pay special attention to professional education and cultivate specialized talents in a narrow professional field, to improve the employment rate and popularity of

the school. Undoubtedly, such talents have played a great positive role in social development. However, it is undeniable that the engineering talents trained in this way are highly utilitarian and practical, which makes students' humanistic spirit, sense of cooperation, and sense of social service seriously lacking, which will inevitably hinder the healthy and stable development of schools and market economy in the future. Therefore, for engineering students, the implementation of general education in schools can not only cultivate students' humanistic quality, humanistic care, humanistic spirit, and professional temperament under humanistic pursuit, but also enable students to trace back and reflect on history and culture, think about classics, compare and criticize alienated markets, inherit and carry forward traditional culture, and appreciate and invest in art beyond utilitarianism, to enable engineering students to accumulate profound humanistic value, thus creating a group of all-round development, good thinking and development. On the other hand, for engineering students, general education can not only cultivate their scientific spirit and accommodating knowledge but also broaden their disciplinary horizons, and enhance humanistic care, civic awareness, and interdisciplinary thinking ability, as shown in Figure 1. These qualities and abilities are the humanistic values contained in general education, and they are also lacking in engineering students. In short, in the process of implementing general education in local engineering colleges in the new era, we should pay attention to cultivating students' humanistic spirit and scientific spirit, so that students can obtain comprehensive and coordinated development in professional skills and emotional attitudes, thus achieving the goal of general education.

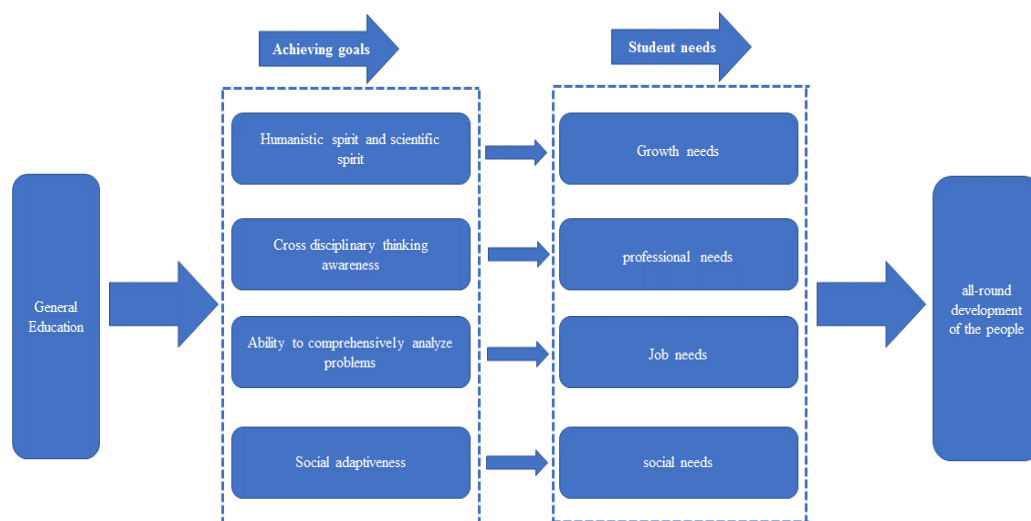


Figure 1 The Forms of Implementing General Education in Local Engineering Colleges

2.3 cultivating students' social adaptability

British educational thinker John Stuart Muller believes: "If universities want to train talents to adapt to social development, general education is indispensable." [3] in the era of the knowledge economy, the renewal of scientific knowledge and the replacement of social occupations are extremely rapid. As

a local engineering college, professional education for specific social positions is facing the crisis brought about by social occupation and post-change, which also limits students' freedom of career choice. Therefore, the rapid change of social occupation will inevitably cause some people to choose the major in the school and apply for a job that cannot be docked and may even be a new field of work. This requires that school education must adapt to social development, cultivate students' ability to adapt to the job market and adapt to the new needs of careers and jobs. Based on this, local engineering colleges and universities carry out general education, which not only trains students to adapt to the changes in market demand but also enhances their social adaptability to cope with the trends of talent flow, career change, and job exchange in contemporary society. At the same time, it also prepares students who are about to enter social work for knowledge and ability creates conditions for future cross-disciplinary, cross-disciplinary, cross-disciplinary and new areas of exploration, and at the same time adapts to the rapid development of society and the objective requirements of training innovative talents in local engineering colleges. Therefore, in the face of career replacement and changes in the job market, the implementation of general education in local engineering colleges can not only make students adapt to the needs of local jobs but also keep students from being eliminated in future social competition.

3. The implementation of general education in local engineering colleges

At present, local engineering colleges do not implement general education on a large scale, the main problems are that the local engineering colleges do not have a deep understanding of the concept of general education, the teachers of general education are weak, and the management of general education is deficient.

3.1 The concept of general education is not deeply understood

Under the background of the new era, a deep understanding and accurate understanding of the concept of general education in local engineering colleges is the premise and foundation for the implementation of general education. First, there is a lack of understanding of the connotation of general education at a high level. Most teachers and students in local engineering colleges are vague and vague about the connotation of general education, and often understand general education from personal feelings and literal guesses, lacking in-depth and comprehensive understanding. In addition, teachers' and students' understanding of the connotation of general education is fragmented and diversified, and it has not risen to the height of educational philosophy, not to mention that "general education is a talent training model." [4] Second, in breadth, it is difficult to balance general education and professional education. In local engineering colleges, most teachers think that university education should be the world of professional education. However, in the era of the knowledge economy, professional higher education is based on extensive basic knowledge and is a combination of professionalism and general knowledge. Today's university education should be the product of the combination of professional education content and general education content under the guidance of the general education concept. Furthermore, general education and professional education should be combined, rather than being governed by different periods or being in opposition to each other, and we must make it clear that it is

an inevitable trend for universities to integrate general education with professional education. However, the root of the problem is how to balance and grasp the breadth of general education and professional education. This is the difficulty of implementing general education in local engineering colleges. Third, in-depth, stick to training specialized talents. In the process of implementing general education, local engineering colleges still insist on cultivating high-level professionals and have not set clear general education training objectives. Instead, general education is embodied in the form of elective courses, which makes the understanding of general education objectives too simplistic and one-sided. Although local engineering colleges pay attention to the all-round development of people in the implementation of general education, the status of professional education has not changed, and general education is still regarded as the ornament and decoration of professional education.

3.2 the shortage of teachers in general education

Teachers are the guarantee of general education in local engineering colleges, which results in the shortage of teachers in three aspects. First, the single structure of knowledge, results in the shortage of general education teachers. The teachers of general education in local engineering colleges have high academic qualifications and abundant basic professional knowledge, but they are relatively deficient in general education knowledge. At the same time, these general education teachers' cross-subject and cross-field knowledge, scientific literacy, humanistic spirit, and other aspects are lacking. More importantly, the knowledge structure stored by these teachers is far from the general education concept, this is mainly because "Most of them are trained under the original specialized education system, the knowledge structure is single, the general education is not clear, more talk about general education.". There is a considerable distance between such teachers and those who can successfully carry out general education." [5] therefore, in the process of implementing general education, local engineering colleges will inevitably encounter a shortage of teachers because of their knowledge structure, which will affect the development of general education. Second, the high age of general education teachers is not conducive to the reserve of young teachers of general education. In general education, local engineering colleges generally choose older professors with higher qualifications because they are considered experienced enough to teach general education courses. However, for the outstanding young teachers in local engineering colleges, the schools have not carefully trained them to become backup general education teachers, and these more qualified general education professors have not played a role from the old to the new, this has had an impact on the reserve of excellent young general education teachers in local engineering colleges, thus making general education teachers even more scarce. Third, the impact of professional teaching, so that the lack of general education teachers. Local engineering colleges pay attention to the training of application-oriented talents, and most teachers pay attention to professional teaching because through professional teaching can achieve their life value, to obtain spiritual satisfaction and material rewards. In addition, many teachers think that being a general education teacher can not reflect its value, so they are opposed to general education. If local engineering colleges want to change professional teachers into general education teachers to make up for the shortage of teachers, this is a difficult problem to solve urgently.

3.3 The lack of general education management

If there is no scientific and effective management, the effect of general education in local engineering colleges will be greatly reduced. First, there is a lack of specialized management departments. There is no special general education department in local engineering colleges in China, and general education and general education curriculum management are generally in a loose state. Compared with MIT and the New York Institute of Technology, these engineering universities have independent liberal education institutions with clear responsibilities. Local engineering colleges in China have not set up special departments for general education, which will affect the quality of general education management. Second, the lack of a general education atmosphere is not conducive to the effective management of schools. Although general education has been practiced in China for so many years, most engineering students or teachers will have doubts: what is the purpose and concept of general education? And so on. There are two reasons for this question: on the one hand, the lack of effective publicity; on the other hand, the impetuous style of study and academic atmosphere. In the background of deep-rooted professional education for a long time, general education is short of good atmosphere and soil. Therefore, schools may not be able to implement general education measures or policies in practice, which brings difficulties to the management of general education in schools. Third, the lack of communication with school leaders, so that a low level of management support. When general education is carried out in local engineering colleges, there is no deep communication and communication with the leaders of the colleges. This may lead school leaders to believe that general education deviates from the original purpose of training local engineering colleges, that is, to train the application-oriented talents needed by the locals. Based on such considerations, if the large-scale general education conflicts with professional education, and will affect professional education personnel training plans and programs, it may not be worth the loss, therefore, the support of school leaders to general education management is reduced.

4. The countermeasures of general education in local engineering colleges

The strategies of general education in local engineering colleges are expounded from three aspects: Defining the general education objectives, strengthening the construction of general education teachers, and improving the quality of general education management, with a view to the implementation of general education or will be implemented in the local engineering colleges for reference.

4.1 Clarifying the objectives of general education

According to the requirement of training applied talents in local engineering colleges and the current situation of general education, its general education goal has the following three aspects. First, set realistic general education goals. To carry out general education in local engineering colleges, it is necessary to set up general education objectives according to the situation of engineering colleges, especially the contents and requirements of knowledge, ability, and quality involved in the objectives, and then determine the general objectives of general education and general education curriculum content. Compared with comprehensive universities, local engineering colleges often neglect that

general education aims to develop students' ability of independent thinking and holistic thinking, rather than just giving students “Specific knowledge and skills.”[6] In other words, general education aims to achieve the combination of a humanistic spirit and scientific spirit, professional education and general education, personal development, and social responsibility, to adapt to social development, and learn from the experience of typical engineering universities abroad, as shown in Figure 2. Local engineering colleges should draw lessons from the setting of general education objectives of typical foreign engineering universities and rely on the typical foreign engineering schools, according to the characteristics of the school, the advantages of the discipline, and the characteristics of the specialty, the goal of general education is formulated. For example, when American universities implement general education, they first determine the general goal of general education, and divide the general goal into several small goals or various abilities and qualities, and finally combine the purpose of the university, the general objective of general education will be transformed into specific curriculum objectives, thus determining the content of general education curriculum. In the process of implementing general education, local engineering colleges should make great efforts to publicize their advantages and characteristics. For example, the campus general education discussion, the General Education Culture Week, the creation of online general education classes, and other ways to carry out general education publicity, so that teachers and students have a profound understanding of the concept of general education and understanding.

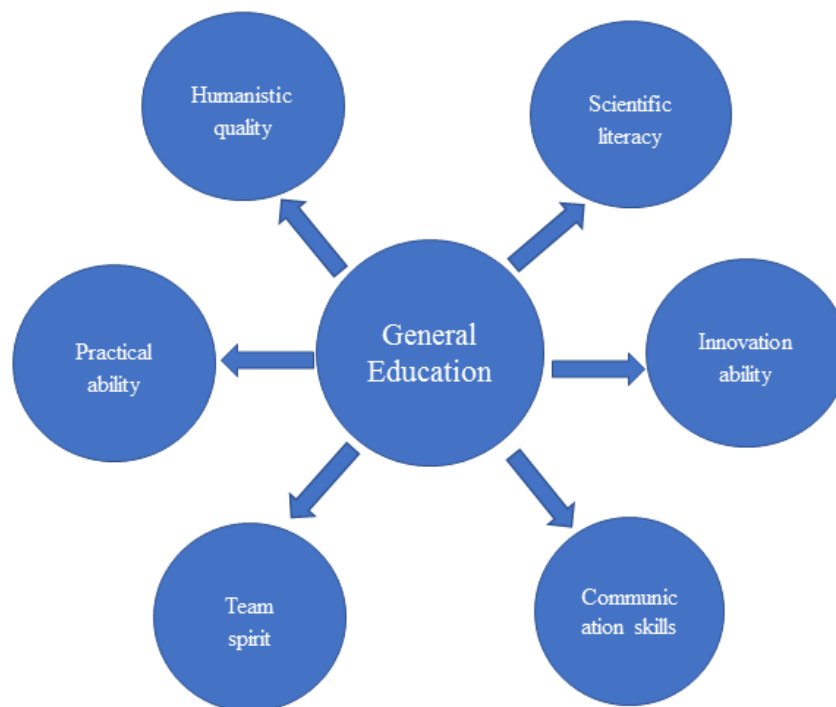


Figure 2 The dimension of general education on students' abilities

4.2 Strengthening the construction of teachers for general education

The construction of teachers for general education in local engineering colleges has the following three points. First, the establishment of general education experimental classes. In the implementation of general education, local engineering colleges may give priority to setting up experimental classes, which are equipped with special teachers for general education courses, thus providing a typical example for the implementation of general education in the whole school, and on this basis for the gradual promotion, so that each college to establish its own proprietary general education curriculum teachers. For example, the Beijing University of Aeronautics and Astronautics, based on its advantages and characteristics, has carried out general education through the model of experimental classes and has already trained a group of professional teachers of general education and promoted them one by one based on this, it has achieved remarkable results, and it also provides a successful case for our local engineering colleges, which is worth studying and promoting. Second, the recruitment of Outstanding Humanities and Social Sciences Ph.D. graduates. When implementing general education, local engineering colleges should gradually strengthen the construction of basic disciplines of humanities and social sciences to make up for their disadvantages. This requires that schools, when recruiting teachers, “To select outstanding Ph.D. graduates in Basic Humanities and social sciences across the country and to build an excellent curriculum team of young teachers in general education,” [7] thus providing a good start for general education in schools. Third, invite general education experts into the classroom. To broaden the horizons and enrich the basic knowledge of engineering teachers, schools should invite well-known scholars, experts, and professors in the field to give lectures, and let these experts teach the students in person, to have the opportunity for teachers in schools to teach assistants to these experts or scholars, to increase teachers' exchanges and contacts with well-known experts, and to observe the teaching methods of these experts on the spot, to raise the standard of liberal studies teachers in our school. In a word, by setting up general education experimental classes, and hiring excellent humanities and social sciences doctoral graduates and well-known experts, the general education construction in local engineering colleges will be more targeted and effective.

4.3 Improving the quality of General Education management

Effective management is the guarantee of improving the quality of general education in local engineering colleges, which has the following three aspects. First, a committee on General Education should be established. From Harvard University to the University of Chicago and then to the Massachusetts Institute of Technology, there is a common feature in their general education, which is to set up a special general education committee or special general education organization for special management. Similarly, local engineering colleges should set up special general education committees or relevant departments to implement general education, which will be conducive to general education curriculum setting, teaching content selection, class arrangement, course progress, teachers and students management, and so on. Only through specialized management can general education be implemented in local engineering colleges. Second, strengthen the investment of special funds for general education. To mobilize teachers' enthusiasm to participate in general education, schools should give certain special funds to general education committees or institutions. The use of special funds not

only applies to general education teachers, but also to administrators, which can not only stimulate the enthusiasm of teachers to participate, but also help mobilize the enthusiasm of general education administrators, and lay a solid foundation for the follow-up work, to achieve efficient general education management. Third, develop an evaluation and supervision system. In the process of implementing general education, local engineering colleges should attach importance to the implementation of an evaluation system and supervision system. On the one hand, the evaluation can give feedback on teachers' general education, to improve the quality of general education classroom teaching. On the other hand, the supervision system for teachers and administrators should also be formulated and implemented one by one, and implemented in coordination with the evaluation system, so that the management of general education in local engineering colleges can get twice the result with half the effort.

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