Higher Education Development Path Based on Practical Education Pattern

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ABSTRACT

Since the ancient times, there have been the cultural tradition of valuing knowledge more than its practical usage. With the development of social economy and the requirement of modernization construction, the talent quality required by enterprises is becoming higher and higher, which makes the structural contradiction of higher education become more and more prominent. The training mechanism which is adopted by colleges and universities for training applied, compound and innovative talents cannot meet the needs of industrial updating, and the employment problems of graduates are salient. This paper uses questionnaire survey method and literature review method, conducting research to 500 college students and 200 college teachers on four dimensions include whether the teachers are suitable for the requirements of the majors, the proportion between the theoretical learning and the practical training, the evaluation indicators of school assignments and the education mode of the cooperation between school and enterprise. The study found that the practical education colleges and universities has begun to diversify and marketize, but there are still gaps between teacher resources of practical education in colleges and universities and newly professional docking; practical education has overcorrection problem with valuing practical usage more than knowledge learning; the evaluation system of higher practical education needs to be perfected. Based on this situation, we can explore the development path of higher education, first is to open to market and create diversified resource platform; second is to strengthen the construction of teacher group and forge teaching practice team; Third is to establish a reasonable curriculum system and pay attention to effectiveness; Fourth is to reform the evaluation form; Fifth is to build up diversified and open class mode.

Keywords: higher education, development path, practical education pattern

INTRODUCTION

The practical education theory has long existed in China's ancient education history, such as in the Western Zhou Dynasty, the Six Arts which include ritual, music, archery, chariot-riding, calligraphy, and mathematics; Mohist school proposed the idea of using science and technology as the education content; the educational ideology of learning to meet practical needs, etc. however, due to the long-term influence by the Confucian thought, the idea of valuing knowledge more that the practical usage has long occupied the important position of school education, and has continued to this day (Tian et al., 2017).

With the arrival of the information era and the changing requirements of the society, the students received education in colleges and universities began to disengage from the needs of the society. In October 2015, the Ministry of Education issued Guidance on Transition of Undergraduate Colleges and Universities to Practical Education Form believed that our country's higher education system has already established, and the structural contradictions of higher education has become more salient, which has resulted in employment difficulties of graduates and "labor shortage" problem of enterprises, the shortage of applied, compound and innovative talents in the market was the result of under-developed training mechanism of those talents. This also has formed two

Contribution of this paper to the literature

- Through the literature review method, questionnaire survey method, this paper has an in-depth understanding on teaching resources and evaluation of practical education in colleges and universities, which makes the investigation and research on this issue more scientific and strict.
- Proposing the close combination with the market and the new idea of creating diversified resources, providing the solutions on the aspect of teaching group training and evaluation.
- This paper asked for vigilance on two inclinations of "valuing practice more than knowledge learning" and "valuing knowledge learning more than practice" for the development of practical education in colleges and universities, the relationship between these two ideas should be understood correctly.

Table 1. Summary of Literature Number

Resource and keyword	Journal	MA.	PHD.	Main stream newspaper
Applied talents	1316	120	69	55
Practical education	1670	96	47	49
Development of colleges and universities	1540	87	78	62

major unsuitable situations for our country's higher education: first is the collective elite education which is not conform to the needs of economic and social development. Second is collective academic education which has resulted in lack of practical talents and the problem of "labor shortage", even the situation of no available people for recruitment (Lu, 2017; Cobbinah and Bayaga, 2017).

Meanwhile, the development of practical education in foreign countries is relatively mature, Germany, the United States and Britain have made a great achievement on training practical talents, our country has begun to pay attention to practical education in colleges and universities (Yao, 2017; John et al., 2017).

The practical education model is not an educational model actually, but a collective term for all practical education form. In the United States, practical education is characterized by cooperation. It combines education with work, which is also called cooperation education. Germany's "dual system" talent training model is a famous practice for exploring practical talent training model, which is also the typical model of practical education. The purpose of Germany's "engineering alternation" and "dual-certificate" teaching model is to perfectly combine theory with practice, appropriately integrating the academic qualifications and vocational skills (Hou et al., 2016). Under the basis of general education, Britain combines its experience on vocational education, integrating the higher education with the professional certificate system, putting emphasis on cultivating modern practical talents who can combine theory with practice (Wang, 2017; Putman, 2017; Gabel and Dreyfus, 2017).

Chinese scholars have raised many practical education models and have contributed a lot on studying practical education, such as "work with study" combination model, "project plus site" model, "order" model, "sandwich" model, "Practice - theory - practice" model and so on. Generally speaking, they are all working for the objective of cultivating practical talents, combining with the actual situation of colleges and universities and the training targets, using flexible, diversified and acceptable methods to impart to students, thus to have accordance with the needs of social development. Certainly, the development path of higher education in China has yet to be improved (Hou et al., 2016; Stylianides and Stylianides, 2017).

LITERATURE REVIEW

In order to have a more comprehensive and in-depth research, this paper uses literature review method to get a preliminary understanding on the current domestic and international colleges and universities' practical education reform, and give a summary on related literature review (Ren et al., 2015; Liu and Zhao, 2011).

The analysis of literature shows that practical education concept has already penetrated into different level of our country's higher education, through the internet and manual checking recent 10 years' documents and information in library, including famous journals form CNKI (China National Knowledge Internet),Wan Fang Data, excellent master and doctoral dissertation and domestic and foreign important newspapers and conferences, international mainstream forum, by searching "practical education" and other keywords, the number of literature is shown in **Table 1** (Appelbaum and Appelbaum, 2017).

According to the number of literature, there mainly include the following two aspects on practical education and development of colleges and universities:

Theoretical Research on Practical Education

Most of research on practical education theory focused on the confusion of the development of applied education theory, the exploration of practical education theory curriculum system and curriculum design, the construction of practical education mode, the teaching idea of practical education, etc., which only paid attention to one aspect. There are few studies on the theoretical sources, systems and other issues on comprehensive research on practical education theory. In the paper "Problem and Solution of Practical Education Theory" from Liu Haimin and Zhao Xingming pointed out that although the starting point and objective of practical education theory is focusing on practice and guiding practice through practice, the current applied education theory is lack of theoretical learning and also the practice, which has been the main problem of theoretical research (Wang, 2008; Lawson et al., 2017).

Although the theoretical research on practical education has gained some results, researchers started to realize that only the in-depth practice, strengthening the awareness of theoretical research and increasing effective communication are good ways to improve the effectiveness of the practical theory research (Pu, 2009; Kwon and Block, 2017).

Application and Inspiration of Practical Education

In China, many educators and researchers have one a thorough study on practical education, and having researches on our country's current education model, a lot of problems have been identified, such as the lack of teachers for practical education, single teaching method, combination degree between the market and higher education is not high enough, and "crammed" class education, etc. By combining with the application and inspiration of practical education, this paper proposed: (1) constructing a complete applied curriculum system; (2) solving the cooperation problems between enterprises and colleges; (3) expanding resources and platform for students' practice and training; (4) In accordance with the economic development, innovating the teaching methods; (5) encouraging students' idea and action of innovation and self-employment (Liu, 2008; Collins, Staples, 2017).

METHODS

The main purpose of this paper is to analyze the current situation of practical education in China, and find method and strategy for solution. Based on this purpose, this paper mainly adopts questionnaire survey method, literature review method and comparative analysis method (Stoehr et al., 2017; Yi et al., 2017).

Questionnaire Survey method

Questionnaire survey method is to achieve our understandings on current situation of higher education reform through written language, this method, through purposeful, systematic preparation of the relevant materials, and with the results of the survey to find the problems, the finding process of those problems usually through some academic or social laws, this is how this method is used for undertaking research. The main research objects of this paper are teachers and students from practical education major, practice- oriented colleges and universities and cooperative enterprises. Among them, there are 500 students and 200 teachers from practical education related majors. The research is done by focusing on the following questions: (1) whether the teachers are suitable for the requirements of the majors; (2) the proportion between the theoretical learning and the practical training; (3) the evaluation indicators of school assignments and (4) the education mode of the cooperation between school and enterprise. Through these four aspects to understand the problems of higher education' development path (Goren and Yemini, 2017; Gregorius, 2017).

Literature Review Method

Literature review method is to search the current situation, recognition level and widely-adopted reform methods on this study domestically and internationally through paper, electronic documents. Electronic databases mainly include CNKI (China National Knowledge Internet) (contain most of mainstream journals), Wan Fang Data, international mainstream newspapers, conferences and forums; paper form mainly is manual check of different kinds of recent 10 years' documents and information on higher education development path based on practical education model in library, collecting those documents and having analysis and summary (Blonder and Sakhnini, 2017; LaChausse, 2017).

Table 2. The composition of types of universities in the questionnaire survey

Type	Academic Application Type	Engineering Application Type	Technical Application Type	Skill Application Type
Percentage	23%	24%	20%	33 %

Table 3. The composition of grade in the questionnaire survey

Grade Composition	New comer	Sophomore	Junior	Senior
Percentage	5%	11%	34%	50%

Table 4. Statistical Result of Student questionnaire survey

Statistical Item	Matching degree between teacher and major			Proportion between theory and practice		
	High	Middle	Low	Theory	Practice	Combination
Percentage	18%	56%	26%	32%	56%	12%

RESULT

The result of this research is mainly displayed through three dimensions, first is the survey of matching degree of teacher with the major, expected proportion between theory and practice from students. Second is the survey of evaluation indicators of school form students and teachers. Third is the survey of corporation model between enterprises and universities (Nwagu et al., 2017; Hardy and Totman, 2017).

This paper firstly adopted questionnaire survey method to have research on 500 current university students, the composition of universities is academic application (23%), engineering application type (24%), technical application type (20%), skill application type (33%), as shown in **Table 2** (Hao et al., 2017).

In order to fully understand the situation of the matching degree of teacher with the major, the proportion between theory and practice, combining the understanding of college students on applied education, the selected objects are mainly form higher grade. The composition of grade is new comer (5%), sophomore (11%), junior (34%) and senior (50%), as shown in **Table 3** (Rieber, 2017).

Through **Table 4**, we can sum up the current situation of our country's higher education under the practical education model, mainly are the following three:

First, there are gaps between teacher resources on practical education and docking of new majors. At present, many colleges and universities put forward the goal of cultivating practical talents for the society, providing talent for enterprises. the social needs of talents are continually changing and updating, the teacher group selected by colleges and universities unusually received full-time general education, and are lack of understanding on idea of new majors, in order to fast complete teaching tasks, the class usually is full of the basic theory knowledge of the major, which has brought a quite big problem for new-type talents training. For example, the newly-added rail transit and signal control major in our country, in terms of the major, it is what the future social development needed, and the applied talents this major trained are needed in the future social development, but the shortage gap of teachers on rail transit and signal control major in our country is huge, the current teachers tend to teach general and basic majors (Gunter and Reeves, 2017; Judd and Elliott, 2017).

Second, the overcorrection idea of valuing practical usage more than knowledge leaning on applied education. Practical education puts emphasis on practice, requiring students to pay attention to practice, being practice-oriented and serve the society. Unlike traditional education, it is committed to solving problems and serving the practice. His ultimate goal is to cultivate the practical talents that are needed by the society, a new form of popularized higher education, with the distinctive character of utilitarian at the same time (Costa and Miranda, 2017).

The basic theory of knowledge is abstract from the phenomenon and the problem of universal law, which is relatively abstract for practitioners, and the practical usage and implementable performance is bad. However, theoretical knowledge is the basis of practice, practical education not only needs to cultivate academic innovation and design ability, but also needs the theories of relevant field. Practical education does not mean low-level theory and education, on the contrary, practical education puts a higher requirement on talent training education. If higher education has attitude against theoretical learning, lacking the awareness of theoretical research, while extremely advocating practice and experience, then the higher education based on practice will become the water without resource, tree without root (Harris, 2017).

Under the guidance of the practical model, higher education should correctly grasp the relationship between theoretical knowledge and practice. "Emphasize theory, neglect practice" is still the traditional education model, which is not conformed to the requirements of the times and society. While "value practice more than theory" exists

Table 5. List of Evaluation Indicators in Colleges and Universities

Evaluation Dimension	Basic Curriculum Evaluation	Practical Skill Evaluation	Self-learning Ability Evaluation	Social Evaluation System
Percentage	42%	35%	2%	23%

Table 6. Proportion of Education Model of Combination between Universities and Enterprises

Model	Project+Site	Order Type	Work with Study	Sandwich Type	Internet + Education	Others
Percentage	12%	34%	33%	11%	6%	4 %

the overcorrection idea, and finally it will hinder the sustainable development of training practical talents in colleges and universities.

In the survey of evaluation indicators of colleges and universities form both teachers and students, 42% participants believe that the evaluation is focused on basic curriculum, 35% participants believe that the evaluation is focused on practical skills, and the social evaluation system accounted for 23% of the total evaluation, while the self-learning ability evaluation only accounted for 2%. As shown in **Table 5**.

Thus, it can be seen, the evaluation on practical education talents in colleges and universities is unbalanced, focusing on evaluation of basic curriculum, neglecting the self-learning ability evaluation and social evaluation. It should notice that the evaluation system is a complete system formed by the evaluation regulation, evaluation methods, evaluation criteria, evaluation institutions and so on. The training goal of practical education in colleges and universities is mainly centered with capability training, while still existing the phenomenon of single and one-sided evaluation on the ability of practical talents. The evaluation of practical education needs to be diversified, the evaluation of basic courses is mainly based on traditional forms such as examination, defense and thesis (Yao, 2017). This evaluation method can prove the effect of teaching to some extent, but cannot reflect students' ability in a comprehensive way. Practical skill evaluation mainly focuses on practice report, practice works, it needs to put more efforts on innovation. On the issue of social evaluation, the subject is limited to the school teachers, students, which means a relatively narrow subject selection and limited evaluation standards. The self-learning evaluation reflected the neglection of self-learning ability of students in colleges and universities.

In the survey of cooperation model between enterprises and universities, in can be seen that the current cooperation form between universities and enterprises are becoming more and more diversified. The "order type" training model and the form of combination of work and study have favored by cooperated enterprises, meanwhile, the emerging cooperative model such as the internet+ education is on the rise. As shown in **Table 6**.

Generally speaking, the practical education model in colleges and universities began to diversify and marketize, and started to explore new forms in talents training. For example, universities and enterprises establish research which is connected by projects, sharing resources such as equipment, personnel and technology, etc., enterprise has become a platform and base for training students' practical ability, this is the form of "project + site"; combining with the enterprise's employment standards, universities adjust the professional settings of majors and develop different teaching plans and practice links according to different employment positions, this is "order type" training method. Practical education in colleges and universities began to adopt the British form of combination of work and study, through learning - practice - learning, achieving the effect of actual application. In order to explore high-feasible practical education and training methods, colleges and universities began to try the form of school-industry cooperation, taking advantages of their school-run enterprises, in-school production base and factory, arranging students to have actual training. The industrial center in Hong Kong Polytechnic University and the training center in Shenzhen Vocational and Technical College are all good cases of implementation through in-school cooperation between production and research (Ren et al., 2015). Colleges and universities began to be market-oriented and cooperate with enterprises, having communication on many aspects of teaching and technology, which is a good trend of the development of higher education.

DISCUSSION

The exploration on practical education model between colleges and universities is diversifying continually, the training of practical talents cannot leave without the influence form the market, connecting the training of practical talents in colleges and universities with the market and creating a diversified and resource-abundant platform is conductive for development of higher education.

The construction of practical teacher group in colleges and universities is a necessary condition for the cultivation of practical talents. On the current situation of the development on practical education in colleges and universities, the professional frontier and practicality is contradicted with the teacher resource lag and academism, external hiring and training of practice-oriented teachers are helpful for solving this contradiction problem.

Colleges and Universities should emancipate minds on forms and evaluation of practical education, having encourage to bring forth new ideas, it can learn from Martin Troy's "modular curriculum" concept to classify the courses, establishing a curriculum system which is employment-oriented, and putting emphasis on position ability training, combination of theory with practice, and work with study.

Colleges and universities play a key role in training of practical talents through transformation and innovation of classroom model. Classroom teaching should develop toward diversified and open direction, in the process of cooperation between schools and enterprises, to truly realize the combination between academic backgrounds with professional skills.

CONCLUSION

Under the influence of the cultural tradition of valuing knowledge more than practice, the practical education in colleges and universities still cannot get rid of this ideological inclination, however, this idea increasingly contradicts with the development of social economy and the requirement of modernization, also conflicts with the needs of high-quality and applied talents from enterprises. Therefore, the development of practical education in colleges and universities is becoming more and more important. Although the cooperation model between universities and enterprises is increasingly diversified, there still exist some shortages such as the allocation of teachers and professional majors, the ability of dealing with the relationship between theory and practice, as well as the evaluation system for assessing practical talents. Those shortages can be solved through opening to market, establishing diversified resource platform; strengthening the construction of teaching group, forging the teaching practice team; building up reasonable curriculum system, paying attention to effectiveness; reforming the evaluation form and constructing diversified and open classroom model. Only truly grasp the essence of the practical education, can promotion of higher education development be realized.

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