

# Analysis on the Innovation Path of China's Higher Education Personnel Training Mode

From the perspective of the third industrial revolution

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**Abstract:** With the main characteristics of new energy, new materials and new technology and the innovation, fusion and application of internet, the time of third industrial revolution has arrived, which needs innovative people and high-quality laborers has brought serious challenges to the world of personnel training mode. Faced with challenges, China's higher education should actively respond to and construct the new personnel training mode to cultivate all kinds of talents needed by the third industrial revolution.

**Keywords:** The third industrial revolution; Higher education; Personnel training

## 1. Introduction

With the development of the economy and technology, "the third industrial revolution is coming, which must lead to the important change in the social mode of production, manufacturing mode, production organization way, way of life and way of thinking. Meanwhile, the third industrial revolution will have a significant impact to our education." [1] Universities are the very important place to train talents. The third industrial revolution brings education the new ideas, such as: differentiation, remote, personalized, digital, distributed cooperation, new ideas and the flat organization structure, which will create new challenges for China's current training mode. It is the top priority for China how to change education to cultivate people to adapt the third industrial revolution and enhance comprehensive strength.

## 2. The Trend of the Times: the Time of the Third Industrial Revolution has Come

In September 2011, Jeremy Rifkin says in the book of *The Third Industrial Revolution: How Does the New Economic Model Change the World* that the third industrial revolution works on the basis of integration of the Internet, new energy, new materials and digital manufacturing technology. In April 2012, the British Economist put forwards that the third industrial revolution based on the Internet, new materials and new energy is coming. Then, what is "the third industrial revolution"? "Third industrial revolution makes the new energy, new materials and new technology and the innovation, fusion and application of internet as the characteristics, that is to say, the digital manufacturing technology, Internet technology

and renewable energy technologies will be interactive integration to reform the social production mode, manufacturing mode, production organization mode, so that prompt the coming and development of a batch of emerging industries and bring the human into the new society with the ecological harmony, green low carbon and sustainable development ." [2]

The emergence of 3D printers is the remark that humans began to enter the third industrial revolution era, at the same time we face the bigger challenges. "Actually, the third industrial revolution is a 'people's revolution', which not only pay attention to the cooperation, sharing and harmony between people, more importantly, cultivate the high-end innovative talents to control digital and intelligent equipment and research and develop more intelligent, more life and more individual new materials and new equipment. It is the key for the third industrial industry to cultivate all kinds of people adopted the needs of it. " [3] To cultivate the excellent people must start from the education, especially higher education. However, the current China's personnel training mode for higher education has many problems, main including are poor of the part of teachers' quality, imperfect course system, single teaching mode and unscientific teaching evaluation system. It is of great significance for actively meeting the challenges to profound knowledge and solve these problems.

## 3. Reformation and Innovation: the Countermeasures of China's Higher Education Personnel Training Mode

Faced with the third industrial revolution, it is a very important problem for China that what measures should

be taken to strengthen personnel training, so as to promote the development of the country. " The high-quality workforce and innovative talents needed in the third industrial revolution have brought serious challenges for global talent training mode. Confronted with challenges, China's education reform should be actively meet, for those routes to construct the new mode of talents training and produce all kinds of talents to satisfy the needs of the third industrial revolution." [4]

### **3.1. Improve the Quality of Teachers**

Improving teachers' quality is benefit to the cultivation and development of diversification and information talent put forward by the third industrial revolution. Teachers shoulder the difficult and onerous task of cultivating and educating the next generation, so they sacred and special. As teachers, they need not only to teach well, but also to nurtures the person, all aspects need to be to a worthy example.

On the one hand, we should improve teachers' knowledge structure. The third industrial revolution put forwards to cultivate diverse talents, so first of all, teachers should also have diversified knowledge structure system. The teacher's knowledge structure can be summarized as three aspects: one is the noumenon knowledge, that is, subject knowledge; Second is conditional knowledge, that is, the knowledge of psychology and pedagogy that teacher has; Third is practical knowledge, that is, the teacher's teaching experience. Only teachers has the solid foundation in themselves' subject and rigorous teaching, can they teach well. Teachers should not only facility the subject knowledge, but also adopt the related subject knowledge, and constantly enrich and accumulate their knowledge in practice, advance with the times and continuous innovation to truly do well both in teaching and educating.

On the other hand, we should improve the teacher's teaching ability using modern technology. The third industrial revolution put forwards to cultivate information talent, so first of all, teachers should also have the teaching ability using application information technology. The 21st century is the age of science and technology and is also the age of information. Using the modern high-tech, the teacher improves not only the speed of the teaching, but also the quality of teaching. But it is not enough to use PPT, Word, the teacher should master more skills to make the students have the better feeling for the teaching content. In this way, we can not only greatly expand the student's vision and enrich students' knowledge, but also enhance the students' thinking ability and innovation ability, which is adapt to the needs of cultivating talents put forwarded by the third industrial revolution.

### **3.2. Perfect the Course System**

Perfecting the course system is benefit to the cultivation and development of learning and personalized talent put forward by the third industrial revolution. Curriculum system is the remark of the difference between universities, and is also the direct bridge of talent cultivation. Faced with the unreasonable of higher education's curriculum system, it is the considering problem in the reform of higher education that how to improve and make it consistent with the needs of the third industrial revolution.

On the one hand, we should make the course content to keep pace with the times. The third industrial revolution put forwards to cultivate learning-oriented talents, so first of all, universities must speed up the updates of the course content. In higher education, the old and repeat of the curriculum content and slow update speed make the value of the reference books are not truly reflected. When choosing the teaching material, universities should choose the latest version, at the same time, teachers should communicate with each other to avoid the same choices. When teaching, teachers should not completely do according to the book, but combine with the fact, and make the theory in the book keep pace with the times and truly lifestyle and actualization. It is also the needs of the third industrial revolution to make students happy to learn.

On the other hand, we should combine theory with practice. The third industrial revolution put forwards to develop personalized talents, so first of all, students have to combine the theory with practice and achieve their unity. In normal times, the school should organize various community activities to let the students improve their ability; at weekends or in summer and winter vacation, the school should organize students to participate in social practice activities to let students know and participate in the society early so that the students come to the society successfully, which is completely consistent with the practice put forwarded by the third industrial revolution.

### **3.3. Innovate the Teaching Methods**

Innovating the teaching methods is benefit to the development of teaching concepts of decentralized cooperation and flat organization structure put forwarded by the third industrial revolution. Innovating the teaching methods should not only change the teaching methods, but also pay more attention to the different development on the basis of fully respecting the principal position of students. On the one hand, we should promote the diversity of teaching. In the background of the third industrial revolution and the age of information, the teaching methods must develop from the tradition to the diversify. The teaching methods, such as: discussion-based, inductive, decentralized cooperation type and flat organization structured, should be full applied and developed. Now the Harvard University and Massachusetts institute of

technology put a lot of lessons on the Internet in the way of MOOC teaching, so that students can get the credits finally by enrolling and studying online, which can greatly save the time of the student, improve the students' learning efficiency and promote the diverse development of talents.

On the other hand, we should fully respect the principal position of students. The third industrial revolution can promote the faster and more comprehensive development of people. It is the premise of changing the way of teaching to fully play the initiation and enthusiasm of students and make the students as the first in teaching. The learning methods, such as: discussion-based and exploratory methods, must replace the traditional way. At this point, foreign is better than China. In foreign, teachers often arrange homework ahead of time, and in a limited period, students must complete, then students discuss and debate, it is rare for teachers to check. This teaching method fully makes students as the first, the teacher is just guide. The teaching of China's higher education should also be so, only in this way, can we adapt to the arrival of the third industrial revolution.

### 3.4. Establish the Scientific Teaching Evaluation System

Establishing scientific teaching evaluation system is benefit to verify the talents cultivated whether satisfy the needs of the third industrial revolution or not. China's medium and long-term education reform and development plan outline (2010-2020) regulation: "improving the quality of education is the core of the reform and development. And reforming the teaching evaluation is the important guarantee to improve the quality of education." So how to reform?

First of all, establishing a diversified teaching evaluation system. The third industrial revolution needs to cultivate diverse talents, which requires to establish diversified teaching evaluation index. Under keeping the existing three evaluation forms of universities, they must insist in the priority of teachers' self assessment and set up a diversified teaching evaluation content through the form of questionnaire and interview with the teacher, so that they put the student assessment, expert evaluation, process evaluation and summative evaluation together and the evaluation before class, the class of evaluation and evaluation after class together to form a truly scientific teach-

ing evaluation system and to promote the all-round development of teachers.

Second, we should strengthen the objective evaluation program. The third industrial revolution requires fairness and impartiality, which requires to strengthen the objectivity and fairness of the evaluation program. When students are in evaluating teachers, schools should strengthen the supervision and give students the evaluation form in advance to make students have enough time to fill out it seriously and truly ensure the students' evaluation real. In the evaluation of each other between teachers, they should truly evaluate and truly seek truth from facts, strictly according to standards and specific situation during class. Only in this way, can we really inspire the enthusiasm of the teachers and get the real evaluation for the teachers.

Finally, we should ensure fair evaluation results. Promoting the impartiality of the evaluation result is benefit to embody the fair and justice of the third industrial revolution. In the diversified teaching evaluation system and the objective evaluation procedure, evaluation results naturally has impartiality. This is benefit to promote the scientific teaching evaluation system, at the same time, to improve teachers' teaching and scientific research ability and to promote China's universities actively move towards internationalization, which can promote the third industrial revolution to cultivate the talents.

## 4. Conclusion

All in all, the third industrial revolution has come. In the cruel war, only China cultivate the talents needed by it, can we get a head start in the world and win. Universities are as main position of cultivating the talents determine the development and strength of China's future, therefore, they should think carefully about the problem that how to cultivate the talents needed by the third industrial revolution.

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