

## REFLECTION ON THE DEVELOPMENT OF CHINESE HIGHER EDUCATION IN THE POST-INDUSTRIAL AREA

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In 1973-American scholar Daniel Bell published a book named, *The Advent of the Post-Industrial Society-an Exploration on Social Trend*, in which he proposed the concept of a "post-industrial society". Bell thinks that modern industrial society is turning to a new phase of development which is based on information and services. His definition for the "post-industrial society" has the following three features:

First, social economic structure has shifted from commercial into service-oriented, highly-developed industrial automation and increasingly enhanced productivity created a bigger superfluous manufacturing labor force. The populace has higher demand for material, spiritual life and social service, which caused more labor force stream from industry and manufacturing into service.

Second, social vocational distribution has changed characterized by the rise of the technological class. Along with the development of the service economy, the focus on workshop began to transfer to office, research institute, educational institutions and government departments. The feature of index of the professional distribution in the post-industrial era is the increasing number of scientists and engineers, which constitutes the key factor in post-industrial society. The post-industrial society revolves around knowledge innovation and revolution, which formed an organized society with controlling and guiding function, gradually brought into existence of new social relations and classes which are quite different from their counterparts in the industrial age. In the post-industrial society, the feature of knowledge has changed, in that, theoretical knowledge takes the lead, which becomes critical power to make decisions and guides transformation. Intelligence departments such as schools and institutes are increasingly becoming the core of the new society.

Three, in the post-industrial era, the direction of future development is piloted by technical control and evaluation. The post-industrial era is likely to plan and control the development of technology, so as to master the new ways of social transformation.

Prophecy made by Bell on the emerging post-industrial era is based on the social reality of the development of the earlier industrialized western countries such as the United States. After the publication of *The Advent of the Post-Industrial Society-an Exploration on Social Trend*, western society entered into the information era characterized by computer technology and network technology. Twenty years later. Asian countries and the surrounding areas remain committed to their industrialization development process, the dawn of the post-industrial era appear in the late 1920s. As far as China is concerned, on the one hand, we need to speed up the development of industrialization. On the other hand, we also need to face the new type of industrial wave just as information technology has had to do. We can say, China has entered the period of parallel development of the industrial age and the post-industrial era since the 1990s. We need to reach the development goal of industrial modernization, just as we should agree with the opportunities of information and biological technology developments, finishing the industrial modernization at the same time, and completing the transition of industrialization. Therefore, the Chinese government put forward new

industrialization construction goals in 'the country's 12th five-year development plan'that Chinese government should build up a modern industrial system which is carried out through information so as to realize the leaping development, to enhance the ability of sustainable development industrialization and also give full play to the advantages of human resources.

Burdened with the dual tasks of modernizing traditional industry and informationizing industry, higher education takes the responsibility of developing intellectual resources. China's former leader, Deng Xiaoping, once pointed out:"Our national strength and economic development momentum in the future increasingly depends on the quality of the labor force, depends on the quantity and quality of intellectuals. A country with a population of one billion with good education cannot be surpassed by any country in its advantageous talent resources". He highlighted the development of science and technology, and the cultivation of talents in a strategic position related to the destiny of socialism. Although China has taken part in the worldwide high-tech field at the same time, the emphasis on how to effectively enhance the whole nation's scientific and cultural quality is crucial for socialist modernization. Consequently, one of the important goals is to enhance the whole nation's scientific and cultural quality, and to train scientific and technological talents adapting to the development of modernization.

After long-term reformation and development, the higher education of China has laid a good foundation with a driving momentum as a whole, which displays the following features:

First, Chinese higher education is basically capable for the socialist market economy system, and its further direction of reforming and development has been initially set up. On the one hand, the central government has enhanced the support for colleges and universities in economically and culturally backward regions, including "Project 211", "Cooperative construction between province and department"; on the other hand, in many small-medium cities, the Chinese government has established sorts of comprehensive higher schools in the names of their cities. Under the circumstance of market economy, these schools adapt to the differences of regional development and integrate their growth with the developing pace of local society and economy. The funding system for higher education is featured by government-centered financial provisions with the assistance of raising money from different channels. What's more, the higher education system of China deserved a wild microcosmic base to get with the socialist market economy institution, which means that reformation and development turned a host of colleges and universities into community-oriented legal entities with independent rights of running the schools in terms of thinking, management, curriculum setup, enrollment and employment and raising education funds. Therefore, the higher education of China has been formed into an interactive institution between government and society preliminarily, and the developing model has also changed from "The Limitation of Resources" into "The Restriction by Requirement", the novel system whose establishing body, managing body and running body are different, but related.

Second, we have learned more about the fundamental rules of higher education's development thus can schedule and promote the reforming and growth of it more actively. With the help of recent years'experience in reforming and growth, especially our experience in booming enrollment, understanding the law of the reforming and development of higher education has been escalated to a higher level since 1990's: the law"Scale, Quality, Structure and Benefit must be coordinately developed." Such law has become the essential rule for the development of higher education of China, which takes the guiding role in deepening and furthering the future development of Chinese higher education.

Third, China's higher education has entered a more steady and ordered development stage through the expansion of colleges and universities, which greatly benefits the coordinate and healthy development of higher education. After 1999, China's higher education moved into a golden age of expansion in number and scale and has realized a transformation from "elite" to "pop". The number of students in schools has increased from less than 7 million to 29.79 million, the number of colleges and universities reached 2263, higher education gross enrollment rate reached 24.2%, and the number of college students ranked top in the world. Since 2004, the development scale of Chinese higher education has been slowing down, basically keeping up with the speed of GDP growth. Therefore, China's higher education entered into a relatively stable and orderly stage, which was very beneficial for the reforming and development of the whole higher education, especially beneficial for improving the overall quality of higher education, adjusting and optimizing the structure, discipline and professional structure of the college itself. Thanks to less pressure from size and number, school conditions and some hardware construction could continue as planned, and there would be more time and energy put into the reforming of the talent training model and improving the quality and level of the administration of the schools.

Fourth, the quality of higher education is receiving more and more attention. China's central government has stressed more than once that higher education development should be put on improving quality. The national long-term education reform and development put forward clearly: to improve the quality of higher education is the core task of the higher education development and the basic requirements of constructing the powerful country in higher education. With the development of our social economy, it is necessary to cultivate more professional personnel and innovative talents; and at the same time, to accept the increasingly vigorous national demand of higher education has challenged higher education. Higher education should adhere to combine the steady development and quality improvement, but emphasize on improving the quality. At Tsinghua University's 100th anniversary, Chinese General secretary, Hu Jintao, stressed that China's schools should take improving education quality as the core and the most urgent task of educational reform and development, perfecting the modern university system with Chinese characteristics. Improving quality continuously is the lifeline of higher education, which must be run throughout school personnel training, scientific research, social services, and cultural inheritance innovation.

Confronting the future social economic development and the challenge of the post-industrial era, several respective views on how to deal with the problem of university education development and reform are described in the following:

First, update and modernize the educational ideology and educational concepts.

The concept of cultivating the "generalist" should be converted into the concept of cultivating the "specialist". Due to the long-term division of arts and sciences in Chinese traditional education, the scope of a student's major is too narrow and it greatly limits the potential ability of students within their professional fields. As a result, the structure of students' knowledge is unreasonable, and it can cause a deficiency in quality and talent. However, the development of modern technology and its application in production require people to have the ability to study and create in various disciplines and majors. It also requires leaders at all levels and modernized managers to know about many subjects including politics, economy and history. They are also required to use their knowledge to cultivate "generalists" who know something about everything.

On the other hand, the post-industrial developing trend turns elite scientists into a major force to promote social productivity and the innovation of knowledge and technology. Therefore, Chinese higher education should cultivate "generalists"; meanwhile, it should also undertake the task of cultivating "specialists" in various fields. National higher education development planning should become a necessity for ideal conversion, which is based on the layout of higher education development, taking differential installations in specific talent-training objectives in different colleges and universities. Some institutions with better teachers and conditions for scientific research should be determined as the base for cultivating the "specialist" into the elite, realizing "generalist" education and "specialist" education go hand in hand.

Second, seize the opportunity of informationization development, transforming the single "school education" system into a mature and social "life-long education" system.

The phrase "information explosion" fully reflects the character of the information era. It means the acceleration of knowledge update. Students cannot get used to society only by Learning in school. We need to build an adequate educational system and to offer efficient study methods to meet the requirements of the labor force in improving their quality. At present, due to the initial framework of coexistence of diverse educational forms and the overall situation of running schools from various channels, a boom in correspondence university, broadcasting television, adult education and private school is happening. With the development of Chinese information construction, the spreading of personal computers and networks, family education, school education and social education are more closely related. A network education system is taking shape and a social "life-long education" system has been a tendency.

With the deep development of the new industrialization, the structural adjustment of China's industry has been confronted with the structural shortage of human resources, that is to say, on the one hand, the development of high-tech industry, information technology and service requires a great deal of labor force highly qualified in their skill, scientific knowledge and culture; on the other hand, a large quantity of the surplus rural labor force and the increase of population of laid-off workers of state-owned enterprises lead to high employment pressure. Therefore, the development of vocational education and the improvement of workers' quality and employment ability has become an important issue in reforming the educational system. To meet the market economy, education serving economic development in China must be focused on developing vocational education and it's also one of the essential parts of establishing a "life-long education system". At present, the campus of Yili Normal University located in KuiTun city is being transformed into a vocational school. It is believed that in the near future, a high-level technical school geared to northern Xinjiang in its new industrialization, modernized agriculture, animal husbandry and urbanization will be set up as the cradle for talent to meet the needs of the service and tourist industry.

Third, realize the modernization of teaching contents and teaching methodology through information and internet network technology.

The reforming of teaching materials have been under the spotlight of teaching reform-for old materials have a direct and negative affect on teaching quality. The network of Chinese education and scientific research has been founded and linked with international academic computer networks, which is a convenient access and shortcut for Chinese universities and colleges to the world's scientific and technological information. Such sharing of information

on international Leading technology assures the beaming position of Chinese universities and colleges in scientific research. Besides, the popularity of the information technology will reform the teaching methods profoundly. Let's take Yili Normal University as an example, where the traditional teaching style with "one chalk and one blackboard" has been replaced by multimedia classrooms. As a result, teaching efficiency and quality have both been improved. The comprehensive use of audio-visual instruction, such as through remote computer networks, TV, projectors and cameras, which can fully arouse the students' sight, hearing, touch and other senses, greatly enhances the vividness, visualization, and reality of teaching content, and fully mobilizes the students' learning interests and initiatives, helping to cultivate the students' intelligence such as observation, concentration, and memory. Besides the application of multimedia teaching mode, the development and application of network technology also set free the sharing of teaching resource of high quality from space and time. The satellite communication and rapid broadband network help students in remote colleges share the teaching resources from advanced colleges and universities in developed areas. The technological progress facilitates the narrowing of the educational development gap among different regions. Let's take Yili Normal University as an example where the university is the base for bilingual teacher training including the plan for special classrooms for remote education. Such a project will realize the sharing of remote teaching resources with our partner colleges such as Northeast Normal University and Nanjing University. The remote education contents will be transmitted live, which provides our school with a new driving force to improve the educational level.

Generally speaking, the era of post-industrial society is both a challenge for higher education and a rare developmental opportunity. Only by deeply understanding the connotations and characteristics of the post-industrial era, closely integrating with the higher education developmental purpose, deeply studying higher education teaching methodology, continuously developing modern educational technology and conforming to social trends, can we easily tackle such challenges and seize the rare opportunities bestowed by the times for the development of higher education and aiming to transform higher education into a powerful booster for national and social development.