Re-examination and Thinking on the Transition and Development of Local Colleges and Universities

Chao SUN\textsuperscript{1,a}, Ying-Jie ZANG\textsuperscript{2,b} and Hui-Yuan XIN\textsuperscript{3,c,*}

\textsuperscript{1}Teaching Development Centre of Shenyang Institute of Engineering No. 18 Puchang Road Shenbei New Area, Shenyang, PRC 110136
\textsuperscript{2}Library of Shenyang Institute of Engineering
\textsuperscript{3}College of International Education, Shenyang Institute of Engineering

\textsuperscript{a}sie5722@163.com, \textsuperscript{b}zyj5937@163.com, \textsuperscript{c}davexhy@hotmail.com

*Hui-yuan XIN

Keywords: Institutions of Higher Education, Industry-oriented Education, Management System, Transition.

Abstract. With the further development of higher education management system reform, most of the universities and colleges have been incorporated into local government management system or government and industry co-management system from their originally belonging to the industry. These systems made the local universities and colleges lost their industry features and there emerged many problems. The paper re-examines the problems, introduces the necessity and advantages of transition development of the local universities and colleges by relying on industry, and proposes thinking on the transition from government level, industry level and school level.

Examination and Measurement: Problems Emerged after Being Incorporated into the Local Government Management System

Carrying out higher education management system reform by incorporating universities and colleges to local government management system is surely a good way to avoid the previous disadvantages such as "regional segmentation, lonesome, and resource waste" in the process of industry and ministry running the education, meanwhile it effectively improves the teaching efficiency and arouses the enthusiasm of independence. But there also appeared some problems appeared in colleges and universities, which hindered their connotation and characteristic development.

Same School-running Orientation in A Non-industrialization Trend

Adopting a local government administration or "co-build" system, on the one hand, makes the original industry-based colleges and universities expand spaces in professional disciplines and serving local economic and social development, and strengthen the contact with local area; On the other hand, their original discipline structures are disorganized and present a serious non-industrialization trend. It is embodied in: firstly, the universities have to abandon the original industry-running advantages and characteristics and blindly pursue the "integrated", which resulted in quick extension development, but stagnant connotation development; the names that reflect industry features have vanished, instead colleges were upgrade to institutes, institutes were renamed as universities, with the rapid expansion in programs, etc. Secondly, the share of most programs in colleges and universities depending on the industry has fallen sharply. Some programs lost their original industry characteristics; meanwhile, the association between program curriculum and industry has also decreased more or less. Thirdly, many local colleges and universities only think more on their running orientations as teaching model, teaching and research model, or research model, but they can only follow the traditional education ideas because of the limitations in running foundation and development requirement, which are hard to solve by them. Fourthly, due to their
pursuit in "large and comprehensive", the teaching quality is affected and students' employment is impacted.

Most programs have no features and big flaws in serving the local economic development

After the transition, some colleges and universities blindly pursuing the school's ranking, rarely consider structure of region of talent demand for the economic and social development. They pursue the high level, large number and scale of their programs. On one hand, they increase their programs and recruitment of students; on the other hand, the proportion of students in the industry-based programs has fallen, which makes the industry program characteristic gradually disappear and the teaching quality markedly reduced. The original structure of disciplines and programs do not match with the local industry structure, combining with the blind pursuit of the number of program growth and that makes the transition of colleges and universities to adapt to the local economic and social development.

The Talent Cultivation System General Lack of Characteristics in All Colleges and Universities

Influenced and limited by the traditional teaching modes and funds, some colleges and universities emphasize on the completion of knowledge system in talent training schemes, meanwhile, the practice and practice hours in practicum and engineering practice are distinct insufficient. That makes the current curriculum difficult to meet the requirements of local economic development. We admit that the original industry-based colleges and universities could serve the industry development well because of their industry background and features, but had disadvantages in serving the local economy and limitation in their own development. After the transition, this situation is far from being improved, but more and more serious. Many courses have been isolated from the industry and more is considered on the content of generality. The different types, levels, new and old colleges and universities always have the similar curriculum arrangement, which lead to the students’ theoretical knowledge is not deep, practical ability is insufficient and students are not popular.

Colleges and Universities’ Poor Ability in Serving the Local Economic Development

By the influence of "heavy science, light technology" thought and teachers' title promotion policy, most colleges and universities exist the phenomenon of mutual separation of technology and research more or less. Teachers have a large number of scientific researches but very few applications of the research results, lots of academic papers but poor quality. Teachers research mostly because of their title promotion and seldom consider the research application. As a result, it is not surprising that colleges and universities have poor ability in serving the local economic and social development.

Connections between Colleges and Universities with the Former Industry Decreased Rapidly

After transition to local management, though colleges and universities still keep some contact with the former trade and industry enterprises, more contact are due to emotional factors and substantive cooperation and contact are less. Especially the support from industry to colleges and universities has been significantly reduced, and even many industries take the transition as getting rid of the burdens. At the same time, because industry universities’ discipline scales were relatively narrow, the original teachers could basically meet their needs. After the transition, due to the increase in programs and cross programs, it is difficult to find good multidisciplinary faculty, which led to the serious teacher imbalance between programs. Furthermore, because of the reduction in contact between industry and colleges and universities, teachers are unable to get the opportunities to exercise or practice in industry enterprises, which had an important influence on the promotion of teachers' engineering practical ability.

Production-study-research Cooperation Stagnated

The transition makes the local undergraduate colleges and universities lost their industry background. They lack the enthusiasm in all parts of "industry-university-institute" cooperation due to their limited
research abilities, less research results for the local government, industry and enterprises, no investment from industry and enterprises and little encouragement system, policy and incentive mechanism from government.

Faculty’s Engineering Practical Abilities Seriously Degraded

There exists the phenomenon that many local undergraduate colleges and universities attach importance to teachers’ education, but neglect their engineering practical abilities. In the process of teacher recruitment, they always require a Ph.D., especially those graduates from “985 colleges and universities” and “211 colleges and universities”, and the requirement of engineering practice ability is not much. After the recruitment, they failed to train the new teachers in the necessary teaching ability and engineering practice ability. Some of the new teachers even start to teaching in the classroom hastily. In addition, the restriction of the college recruiting system and policy makes it difficult for those engineering and technical personnel with the certain practical experience in the industry and enterprises to enter colleges and universities.

The Government’s Financial Support to Colleges and Universities Is Insufficient

There are over 40 colleges and universities in Liaoning Province for the government to support financially, and the transferred colleges and universities can hardly get more financial support due to the numbers of colleges and universities, poor foundation, few resources of funds and limited financial resources. School’s poor ability to absorb the social funds is another factor. The situation in those newly founded and transferred colleges and universities is even worse. This forces them to expand the scale of enrollment, broaden the coverage of programs and service passively and transfer to even more comprehensive type in order to get more financial support from the government.

Trend and Reality: Developing Modern Vocational Education by Transferring Colleges and Universities and Relying on Industry Is An Irresistible Trend

On October 21, the ministry of education, the national development and reform commission, ministry of finance issued "guidance on the some of the ordinary undergraduate colleges and universities transfer to applied colleges and universities”. In the guidance, it put forward the guiding ideology as “to actively adapt to our the new normal economy development; to actively take part in development driven by industrial transformation, upgrading and innovation; to adhere to the leading of experimental pilot and demonstration; to change development concepts; to strengthen the power of the reform; to strengthen the evaluation guidance; to promote transformation of colleges and universities; to turn the colleges and universities to serve the local economic and social development, to the training of applied technical talents, and to enhance students’ employment and entrepreneurial abilities; to improve schools’ ability in serving regional economic and social development and the innovation driving development”. The basic thoughts are “to adhere to the top design and comprehensive reform; to insist on demand oriented and serving the region; to insist on experimental pilot and leading demonstration; to insist on promoting together under the leading of provincial plan”.

The guidance also stated out 14 main tasks in the colleges and universities transition. At the end of February 2014, the Premier Li Keqiang presided over the state council executive meeting, and at the meeting the specific measures for the development of modern vocational education were determined. On March 2014, at "China Development Forum", Lu Xin, vice minister of education, pointed out: "China will develop the modern vocational education by setting up modern vocational education system as the breakthrough, to build a modern vocational education system and to establish a systematic system to cultivate technical talents. In late June, applied technology university alliance was set up in Tianjin, launched by 35 local undergraduate colleges and universities, to explore classification of running a school and characteristics of colleges and universities. All the above has provided a solid foundation for the transformation of local undergraduate colleges and universities. The development of modern vocational education and the transformation of colleges and universities are inevitable.
Transition of colleges and universities is the education adjustment behavior of the nation to carry out with a purpose in a planned way to suit the current practical education of colleges and universities. Transition in common colleges and universities means that the original setting of programs, talent training mode, teaching means and methods, and teaching, scientific research and social service functions of have changed. Transition in common colleges and universities is strategic adjustment of China’s education structure and its reform of higher education development, and the practical needs for colleges and universities to give full play to their function and the connotation development.

The purpose of the transition is to develop modern vocational education, cultivate technology applied talents, and make the students master certain skills with certain theoretical knowledge. For the cultivation of college students, it is to build cultivating system of vocational college, bachelor and master education. For colleges and universities, it is to promote their reasonable positioning, play advantage, serve the regional economic and social development. For higher education, it is to break the homogeneity of education and avoid focusing more on quantity, less on light quality, more on scale less, on characteristics.

In fact, most colleges and universities came from the industry-based colleges and universities in the department adjustment period in 1950s, which belonged to industry. From 1993 to 2004, with the pace of reform of higher education management system, many colleges and universities separated from the industry and transferred to the local management system. The inherent characteristics of colleges and universities in industry are "being managed by industry departments, setting professional programs around the industry, training and scientific research serving the industry". Colleges and universities played an important role in technical talents cultivation and promoting the development of industry, and formed the distinctive industry features. But after being managed by the local government, there appeared the problems like: the rapid expansion of enrollment scale and programs, decrease of teaching quality, disjunction of teaching and scientific research, low graduate employment and difficulty for industry to recruit the right people. So the nation puts forward reform measures on vigorously developing vocational and technical education from the strategic height of promoting the graduate employment and their entrepreneurial ability. We believe that in this important historical period, local colleges and universities should be based on industry, strengthen their own characteristics, and realize the transition of development, which is a very important realistic problem that we have to face.

Re-examination and Comparison: Advantages of Colleges and Universities to Rely on Industry

For a long time, colleges and universities shoulder the historical responsibility of training talents for production and construction of every profession and trade. Whether from the subordinate relations, sources of funds or service characteristics, colleges and universities are connected with the industry. They have played an irreplaceable role in giving the play of the overall advantages of the industry, deepening production, study and research cooperation, improving the rationality of the macroeconomic regulation and control of the industry, and speeding up the industry technology progress. Under the new situation, it has more special significances for colleges and universities to rely on industry and realize the transition development.

Industry-running School Can Connect the Colleges and Universities with the Industry Companies Closely, and Make Colleges and Universities Face the Industry Economic Key Battleground

Enterprises are the service object of colleges and universities, and colleges and universities are relying object and partner of enterprises. From the form, education relying on industry determines the position of colleges and universities in industry. As a molecule in the industry, colleges and universities directly shoulder the task to cultivate advanced applied talents for the industry. Since colleges and universities serve the enterprises, their training target must be determined by the needs of the enterprises, which greatly closes the relationship between enterprises and schools. On the one
hand, enterprises have the employment source; On the other hand, schools directly face the economic construction, and they will adapt to the needs of the development of industry more consciously and cultivate all kinds of talents industry construction needs.

**Industry Running Schools Has Great Significance for Colleges and Universities to Follow Teaching, Scientific Research, Production Cooperation and Accelerate Their Own Development**

Throughout the history of the development of higher education both at home and abroad, education and science and technology, economic and social development are always combined. Integrating teaching, scientific research and production practice is always the target of the development of higher education. There are many advantages for colleges and universities to rely on industry. Firstly, colleges and universities set up fixed relationship with industry, establish the practice base for the students to practice by combining their training with the actual production. That will also change the present practice arrangement. Secondly, colleges and universities can establish a stable exercise and practice base for teachers, especially young teachers, thus which will effectively enhance their engineering practical abilities. At the same time, colleges and universities can hire experienced part-time teachers form the industry. Thirdly, colleges and universities can set up the school board by involving technicians from industry and enterprises. Both school and the industry discuss, guide, supervise, consult and review the work in school direction, development planning, program setting and educational development scale, the hierarchical structure and so on to ensure the healthy development of the school, the better service to the industry. Fourthly, it is conducive to make good use of the school’s intellectuals. Teachers and engineers work together for joint research to solve the practical problems in the process of production and improve the ability of serving the industry and enterprises. Fifthly, it is conducive for school to turn the scientific and technological achievements into the realistic productivity of the industry and to be used by industry and enterprises to improve economic benefit of the enterprises. Sixthly, it is advantageous to realize the organic integration of university education and industry resources. The practical significance of industry-running school is to utilize and share the various of resources in industry, complementary equipments, and experiment practice conditions. It can improve school conditions, reduce the running cost, and improve the teaching efficiency. Seventhly, it is conductive for the specialty construction in colleges and universities. Colleges and universities in the industry can focus on organizing their own characteristic programs and specialties and avoid repetitive construction in the same programs and specialties, so as to achieve the purpose of the education resource configuration optimization. Eighthly, it is conducive to deepen the teaching reform of colleges and universities. Enterprises in the industry can offer their support in teaching reform, product development, student employment guidance and so on. It is also conductive for colleges and universities to realize training target, to achieve the close contact between cultivation and enterprises’ needs in recruitment, training and employment.

**Thinking and Suggestion: Transition Development of Colleges and Universities Must Rely on the Industry-running Education**

The author thinks that, to realize the transition development of colleges and universities, the first thing is to strongly advocate education depending on the industry. That is also the basic way for colleges and universities to keep industry characteristics and train the talents industry and society needed. Colleges and universities must not blindly pursuing “large and comprehensive”, but need to insist on their own characteristics to do what they need to do and refuse what they should not do. They should insist on the developing thought of "dislocation competition".
Government Departments Need to Properly Examine the Wins and Losses in Industry-running Schools, Advocate and Promote Industry-running Schools, and Build the New Mechanism of Co-construction between Industry and Colleges and Universities

College and universities are rooted in the society and more in the industry. Their social influence is in the industry, the use of the talents is in the industry, and the platform of developing intelligence is in the industry. So, serving the industry is the basis of survival for colleges and universities. Government departments should fully consider various colleges and universities' service oriented and their industry background, make feasible policy, re-examine industry-running schools, and intensify policy support in order to include the support from industry as the cost of production and to better play the roles of industry-running colleges and universities. Through policy guidance, we can achieve the real sense of "co-construction" and better promote the development of industry-based colleges and universities.

Government departments need to properly review the historical status and role of colleges and universities in the industry development and put the industry-running school into the strategic plan for higher education development. On one hand, we consider to accept the colleges and universities with industry background into the diversified higher education system and truly achieve win-win cooperation between colleges and universities with industry by guiding the colleges and universities to develop characteristic education, dislocation competition, and transition development. On the other hand, government departments need to summarize the successful experience of higher education reform and development, take the feasible policies and measures by the experience in running “211 Project” and “985 Project”. They should set up key construction projects focusing on characteristic development of industry-based colleges and universities, increase funds input, and give an appropriate policy tilt.

Industry Sectors Need to Fully Understand the Importance and Urgency of Industry-running Education, Complete the Relevant Planning, and Strengthen the Initiative to Participate in the Teaching Reform in Colleges and Universities

Firstly, industry departments need to change ideas, improve the understanding of the urgency of industry-running school, and strengthen the functions of industry-running education. University management system reform has transferred the management from industry to local government, or turned the colleges and universities into industry training center, which led to the industry’s loss of participating in the education. The loss not only weakens the colleges and universities education strength and education features, but also weakens the functions of industry-running education. Those thought of “abandon the burdens” must be completely corrected and changed. From the strategic height of industry development, the industry needs to realize the role of industry-running school and return to the industry-running education. Secondly, the industry departments and enterprises need to actively participate in guiding the industry-running education. They should undertake the planning of vocational education development, professional post standard, industry vocational education goals and standards and the implementation of professional qualification system. They should earnestly undertake the function of guiding industry education teaching reform. Thirdly, the industry departments and enterprises need to work with colleges and universities in training specification and requirement, program construction and development, curriculum construction and setting, teaching material construction. The both sides make joint training mode to adapt to the market and social needs. The industry needs to put efforts to change the disadvantages of “more knowledge and less skills” in colleges and universities, lack of communication and contact with industry. Fourthly, industry departments are supposed to help colleges and universities with attracting enterprises to participate in school development. They need to actively build bridge, guide and support enterprises in the industry to participate in the teaching reform of colleges and universities to create mutual benefit and win-win results from university-enterprise cooperation.
Transition of Colleges and Universities Must Rely on Industry, Characteristic Development, Dislocation Competition, Open Education and Industry-academy Cooperation

Relying on industry is to run a school according to needs of industry and the social and economic development, which is the main support of the development of colleges and universities. We believe that relying on industry is to construct programs around the industry, construct “dual-teacher” faculty with the help from industry, promote talent training by facing the industry, serve the society by connecting with the industry, build practical base by relying on the industry. Its essence is to keep industry characteristics in the process of training by connecting the reality of colleges and universities.

Characteristic development is to realize the connotation development by accurate positioning, building brand characteristic programs and curriculum system in accordance with the features of industry, social development, and college and universities. This requires to redesign developing plans of school and to insist on industry features. Colleges and universities should selectively make priority to the development of their main programs in an order, thus drive the development of related disciplines according to the development strategy of the industry. Colleges and universities should adhere to the industry development strategy and design the school-running ideas, school-running orientation, program construction, professional teaching staff, and work of science and technology. Colleges and universities should organize the teaching according to industry production process by taking employment as guidance, skill training as the main line. Through industry-academy cooperation, colleges and universities can form industry featured management system and mechanism.

Dislocation competition is to avoid program advantages from other brother colleges, especially the old universities, to develop its own industry-based programs and to establish competitive position. This requires colleges and universities should focus on the development of the industry and make contributions in talent training, science and technology promotion and service. After the incorporation to local government, “homogenization” competition has become an indisputable fact. Therefore, colleges and universities must position scientifically, centralize the superior resources and implement the dislocation competition. They also need to combine industry’s new needs, adjust their education thoughts, and increase service to form new advantages in serving the industry and society.

Opening education is the education concept and behavior to put the education in the society developing environment, which requires colleges and universities to actively comply with the development of industry and society, break the traditional closed pattern of running a school. This is an important characteristic of modern university and the key requirement of industry-running education. Industry-based colleges and universities need open mode, open school-running idea, open spirit of university culture and industry, open educational goals, open teaching course, open educational process and open space and time. Colleges and universities need to attach great importance to the practice, strengthen practical teaching parts, attach great importance to the theory with practice, emphasize on the application of teaching, focus on knowledge updating, and broaden the professional knowledge.

Industry-academy cooperation is the cooperation between colleges and universities and industry enterprises. It is a school-running mode of integration of production, study and research. Industry-running school has the unique advantage in terms of industry-academy cooperation. After the incorporation into the local management, integrating degree between talent cultivation and enterprises’ need became less and less, and the curriculum system could not adapt to the development of industry. In order to solve the problems, colleges and universities need to strengthen industry-academy cooperation, promote education with production and research, which requires colleges and universities should rely on industry and teach the students knowledge needed by the industry. For the students, they should study creatively in school by combining the actual work in industry.

Transition requires colleges and universities position their scientific orientation according to their own traditions, characteristic, advantage, and industry, the demand of the economic and social development. Colleges and universities should actively adapt to the development of higher education
of the new situation to meet the new requirements of higher education from the industry and social
development. They should strongly advocate industry-based education, which is the inevitable choice
of survival and development to improve their students' employment competitiveness and the teaching
quality.

References


