ABSTRACT

Challenged by the severe graduation employment dilemma, the employability and entrepreneurship for student has become a core concern in Chinese higher education. This paper firstly shows the impact on the job market from the social economic development and higher educational structure transformation of the country. Then the problems in the talents cultivation system in Chinese institutions of higher education: gap between graduates supplies and social demands, lack of training in core competitiveness, and lack of systematic operation are discussed. As a practical example, Ningbo Institute of Technology (NIT) Zhejiang University, China is shown as enhancing students’ employability and entrepreneurship effectively. With fully awareness of the bottlenecks impeding the enhancement of students’ employability and entrepreneurship, NIT has reformed the pattern of talents cultivation to meet local industrial requirements, and built a comprehensive and long-run guidance system for enhancing employability and entrepreneurship, so as to coordinate the graduates supply with social needs. Some suggestions for Chinese higher education institutions to enhance students’ employability and entrepreneurship are put forward in this paper.

Keywords: employability and entrepreneurship, higher education, regional demand, practical example

1. INTRODUCTION

Since 1999, the total enrollment of higher education institutions have been expanding year by year in China, as a result Chinese higher education has transformed from elite stage into popularization stage. Table 1 shows the numbers of graduates in China from the year 2003 to 2009. The global financial crisis in addition to the enrollment expansion has made the graduates employment situation even worse. Besides, compared with foreign counterparts, Chinese graduates have a relatively low rate of entrepreneurship and little probability of success. How to enhance the employability and entrepreneurship of students and how to overcome the difficulties students face in employment and entrepreneurship have already become the urgent issues that Chinese higher education institutions need to deal with.

Table 1: 2003-2009 Number of Graduates in China (million)

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>212</td>
<td>280</td>
<td>338</td>
<td>400</td>
<td>495</td>
<td>559</td>
<td>610</td>
</tr>
</tbody>
</table>

2. BACKGROUNDS

The industrial transformation and upgrading determines the kinds of personnel needed in various social economic departments in China, while the optimization of educational structure decides the kinds of talents that higher education institutions bring out. How to coordinate the supply and demand between higher education and various social economic departments, and exert the role of educational structure (internal cause) and Chinese economy (external cause) in enhancing employability and entrepreneurship are relied on the scientific research and conclusion on Chinese current economic development and future transformation trends, as well as the orientation of Chinese education structure and development trends.

2.1 Impacts of Chinese economic development on job market demands

The key to industrial structure adjustment is to continue optimizing the thrice industrial structure and its internal structures, shifting the economic growth from being mainly driven by secondary industry to the collaboration from all three industries. Generally speaking, according to the principal of improvement and optimization, new-type industrialization should be carried out unswervingly, the progress of modern service industry should be accelerated, and the agriculture industry should be further consolidated and developed. Specifically, great importance should be attached to the development of strategic new-type industry, especially the modern manufacturing industry; great efforts should be made to develop modern service industry, especially the manufacturing-oriented and livelihood-oriented service industry. Industrial structure adjustment requires the conformity of personnel structure, which demands personnel knowledge structure changing from ‘specialized’ to ‘comprehensive’. It also asks for high-quality innovative talents, particularly those who are adaptive to modern manufacturing industry and service industry.
The transformation of economic development not only means the shift of economic growth pattern, i.e. from the extensive growth pattern mainly relying on increased resources investment and consuming to the intensive pattern mainly relying on enhanced utilization rate of resources, but also involves the changes in structure, quality, benefits, ecological balance and environmental protection. Particularly the rapid development and wide application of high technology in addition to the national condition of overpopulation and resource deficiency require the above transformation to be realized through technology progress and self innovation. And technology innovation is driven by high-quality innovative talents, increasing productivity, reinforcing enterprises’ dominant position in self innovation, improving the market environment for technological innovation, strengthening management and the construction of personnel team.

The regional economic development presents a new mode in China. The eastern region, especially the Yangtze River Delta maintains the rapid economic growth with its well-developed export-oriented economy, drawing upon its superior location, privileged policies and established first-development advantage. At present, the eastern region needs to accelerate its industrial upgrading under the impact from stricter policy in terms of land, environment and industry as well as the reduced demand for exports. Regional economic development requires the individualized backbones. On the one hand, the quantity of talents supply should meet the needs of regional economic development; on the other hand, talents category should comply with the regional industrial division, talents specification should conform to the regional industrial structure and technology structure, particularly the international-oriented talents are needed for the export-oriented economy in the eastern Yangtze.

2.2 Impact of Chinese higher educational structure on the job market

Stemming from proportion of various levels of high education, the hierarchical structure of higher education is a vertical structure, depicted by the analysis on the differentiae among talents’ academic levels and scopes of knowledge that higher education institutions bring out. The hierarchical structure of higher education has developed dynamically, whose core shifts from time to time with different stages of the social economic development. At present, domestic institutions of higher education are blindly upgrading, i.e. vocational schools upgrade to colleges, colleges upgrade to universities, undergraduate schools upgrade to graduate schools, which has resulted in the dissolving of hierarchy of high, medium and low, as well as the differentiae among skill-oriented, application-oriented and research-oriented schools. Therefore, the overall education quality remains low and benefits small. Optimization of the higher educational structure demands universities and colleges follow the principle of classification, create a new framework for higher education and appropriately orient the levels of talents they cultivate.

The discipline structure of higher education refers to the proportion of different disciplines and specialties, is a kind of horizontal structure in talents cultivation, depicted by the analysis on different natures of the talents’ knowledge and competency that higher education institutions bring out. The primary level of the discipline structure of Chinese higher education includes 12 categories: philosophy, economics, law, education, literature, history, science, engineering, agriculture, medicine, military science, and management. Currently, domestic colleges and universities blindly pursue their expansion, i.e. specialized schools become comprehensive and colleges becomes universities, which makes the overall education quality and characteristics indistinctive. Optimization of the discipline structure of higher education demands universities and colleges adjust their discipline and specialty configurations in accordance with the industrial structure and its personnel requirements, establish a new discipline and specialty system adaptive to the industrial development, appropriately set the categories of talents they cultivate and form their own characteristics.
The education of practical talents.

Orient the nature of talents cultivation and attach importance to overcome individual difficulties in a flexible way, appropriately make full use of these policies and local advantages to initiative development. Higher education institutions should encourages eastern higher education institutions to take education institutions in the mid and western regions, and provides substantial support for the development of higher education resources, and substantially improve education in regional distribution, effectively allocate and utilize higher economic d evelopment, make greater efforts to adjust the and colleges follow the principal of serving regional social and the regional structure of higher education demands universities and population density and educational level etc. Optimization of the regional structure of higher education demands universities and colleges follow the principal of serving regional social and economic development, make greater efforts to adjust the regional distribution, effectively allocate and utilize higher education resources, and substantially improve education in terms of benefits, quality and level. Chinese government provides substantial support for the development of higher education institutions in the mid and western regions, and encourages eastern higher education institutions to take initiative development. Higher education institutions should make full use of these policies and local advantages to overcome individual difficulties in a flexible way, appropriately orient the nature of talents cultivation and attach importance to the education of practical talents.

3. BOTTLENECK ANALYSIS

With the advance of Chinese educational reform, some institutions of higher education blindly pursue the expansion neglecting the social development needs. As a result, these institutions' internal operation, especially the mechanism for enhancing students' employability and entrepreneurship, has lagged behind the institutions' development. The “hardware” and “software” condition including faculty resource has restricted the essential development of higher education, which has manifested in the supply-demand gap between the higher education institutions and society, as well as the deficiency of systematic training for students' employability and entrepreneurship.

3.1 Gap between graduates supplies from higher education institutions and social demands

With the popularization of higher education, society, families and individuals have increased human capital investment and expectation on college students. Whether students’ competency and quality can adapt to the profession requirement has become the most important factor to evaluate students equipped with a high level of academic theory and innovative practical ability. From the perspective of social needs, globalization and the era of knowledge economy demand personnel featured with high quality, diversity and flexibility, but in reality students’ employability and entrepreneurship can hardly adapt to the social changes and thus has been frequently questioned by the society. Because of the gap between graduates supplies and social demands, most difficulties that students confront in employment and entrepreneurship are structural problems. On the one hand, the unemployed graduates are unqualified for the job because their competency and knowledge fail to meet job requirements; on the other hand, even some graduates have been temporarily employed, but they lack in flexibility and adaptability and cannot meet social needs in terms of certain professional skills and knowledge, as a result the employment mobility has increased and probability of success of employment and entrepreneurship has dwindled.

3.2 Lack of training in core competitiveness

The key to enhancing the employability and the entrepreneurship lies in the cultivation of the core competitiveness. On the one hand, the discipline settings and adjustments of Chinese higher education institutions fall behind the social needs. The majority of higher education institutions adopt uniform teaching plan, curriculum design and teaching materials for different disciplines and neglect the real needs of society as well as the students’ individual characteristics. Thus, it is hardly to bring out a number of specialized innovative talents the society urgently needs. On the other hand, when the higher education institutions design the teaching content and mode, they have not scheduled the training for practical ability and creativity throughout the whole process of teaching activity, for example class instruction become inconsistent with practical teaching, or, experiment course, field trip and other practical trainings are not utilized after class to improve the students understanding of academic knowledge, thus students lose the opportunities of applying the knowledge to real problem analysis and solution.

3.3 Lack of systematic operation

The majority of Chinese higher education institutions are still lacking in systematic operation when they implement the enhancement of the employability and entrepreneurship. Firstly, some colleges or universities haven’t established a guidance system for employability and entrepreneurship which work throughout the four years study, i.e. they only focus on senior students and ignore the training and instruction for freshmen and sophomores. As a result, many students have failed to do early career plan, and get prepared in terms of knowledge, skills and mentality for the future employment and entrepreneurship. Secondly, most higher education institutions ignore the importance of the course construction for employability and entrepreneurship. They have neither stipulated the employability and entrepreneurship courses in curriculum nor integrated the employability and entrepreneurship enhancement into academic teaching. Therefore, students fail to establish an appropriate knowledge structure and develop various abilities in accordance with the professional requirements and individual characteristics. Finally, the instructors employed for employability and entrepreneurship guidance lack in satisfactory professionalism. They only engage in policy advocacy, statistics work, employment skills guidance and
counseling, for they lack in relevant professional experiences and academic background. In addition, there is no incentive for specialized faculty to learn more about employment and entrepreneurship and provide instructions on employability and entrepreneurship enhancement with the use of inter-disciplinary knowledge.

4. CASE STUDY

Ningbo Institute of Technology (NIT), Zhejiang University is an institution of higher education founded in 2001, as an outcome of the cooperation between Zhejiang University and Ningbo Municipal government. NIT has eight schools including School of Civil & Architectural Engineering, School of Information Science & Engineering, School of Biological & Chemical Engineering, School of Mechanical, Electrical & Energy Engineering, School of Foreign Languages, School of Law Science & Media, School of Economics & Trade, and School of Management, which offer 33 undergraduate programs for over 11,200 students. Besides, NIT has co-established a Graduate Educational Base with the Graduate School of Zhejiang University, offering graduate courses for master degree candidates.

NIT declares its overall guidance is to enhance students’ employability and entrepreneurship to meet the regional demands, and stipulates producing high-quality “applicable, comprehensive and internationally-oriented” talents as its education goal. NIT enhances students’ employability and entrepreneurship through various measures including coordinating the graduates supply with social demands, reforming talents’ cultivation pattern, constructing a guidance system of employability and entrepreneurship. For years NIT has come top among the undergraduate institutions of Zhejiang province with the high graduation employment rates above 95%. The following figure shows that about 95% of the NIT graduates have started their career in Zhejiang province, most of who stay in areas including Ningbo, Hangzhou and Wenzhou. 80% and above NIT graduates work for private enterprises. Besides, there is a steady increase in the number of graduates establishing their own business.

4.1 Coordinating graduates supply with social needs

NIT improves the students’ employability and entrepreneurship via a series of measures in terms of disciplines configuration, specialty orientation project, curriculum design, follow-up tracing etc., in order to make the institute’s supply meet regional demands.

Firstly, with the establishment of various discipline construction committees and opening of consultant experts conferences on disciplines construction, NIT collected advice and suggestions from senior experts, governmental departments and industry elite in terms of disciplines configuration, discipline construction and talents cultivation. In order to meet regional demands, NIT set up disciplines and project specialty orientations after the deep and detailed investigations. On the basis of local necessity NIT has added disciplines such as Energy and Environmental System Engineering, Packaging Engineering, Chemical Engineering and Technics, Engineering Management and Software Engineering, and projected two orientations namely Digital Media and Environmental Arts under the specialty of Arts Design, Professional Transportation Packaging & Logistics and Packaging Mechanics & Automation under the specialty of Packaging Engineering, three orientations namely Financial Audit & Audit Theory, Securities Investment Management, and Corporate Financing under the specialty of Financial Management.

Secondly, with the advantage of Ningbo Manager’s College (NIT) and its various training programs such as Directors of Leading Corporations Workshop, Directors of Top Textile and Garments Corporations Workshop, Directors Workshops in Auto and Parts Industry, Directors Workshop in Electrical Appliance Industry and Directors Workshops in Architecture Industry, NIT has appointed enterprisers as Enterprise Mentor or Partner Professor, who are regularly invited to deliver theme lectures, advise students in person, instruct graduation design and hold cooperative oriented education program on campus. As a result NIT can understand employers’ needs and requirements in a timely manner, and give students good preparation in career design, practice & internship, employability & entrepreneurship.

Finally, NIT has carried out Follow-up Tracing & Investigation after Graduation program among the graduates of last five years, to build up a mechanism in graduation employment quality and market response. With the assistance from professional organizations such as MyCOS HR Digital Information Corporation in data collecting and analysis, the investigation covers the dimensions of graduates employment rate, students satisfaction in employment, students career adaptation, employers satisfaction etc., NIT gains the information of the most updated employers’ requirements to make its employment

<table>
<thead>
<tr>
<th>Graduates number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>graduate schools in China</td>
<td>2582</td>
</tr>
<tr>
<td>overseas graduate schools</td>
<td>70</td>
</tr>
<tr>
<td>governmental departments</td>
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</tr>
<tr>
<td>institutions of higher education</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Graduates number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>other educational organization</td>
<td>11</td>
</tr>
<tr>
<td>other public institutions</td>
<td>22</td>
</tr>
<tr>
<td>institutions for scientific research &amp; design</td>
<td>3</td>
</tr>
<tr>
<td>state-owned enterprises</td>
<td>81</td>
</tr>
<tr>
<td>overseas funded enterprises</td>
<td>90</td>
</tr>
<tr>
<td>private enterprises</td>
<td>2093</td>
</tr>
<tr>
<td>self-employment</td>
<td>10</td>
</tr>
<tr>
<td>military service</td>
<td>1</td>
</tr>
<tr>
<td>national service projects</td>
<td>7</td>
</tr>
</tbody>
</table>
service more pertinent, and acquires authoritative and scientific grounds for the its decision making regarding students cultivation.

4.2 Reforming talent-cultivation pattern to meet regional demand

NIT takes a series of measures in terms of specialty theories, practical ability and training platform to reform our talent-cultivation pattern and strengthen students’ employability and entrepreneurship.

First of all, guided by the “foundation-plus-module” talent-cultivation pattern, NIT has managed to broaden its discipline scope and strengthen its specialties by means of integrated admission and education, and special experimental classes. NIT has set up integrated major programs such as Mass Communication incorporating the admission and curriculum of the two specialties namely Journalism and Advertising, Economics program incorporating International Economics & Trade and Finance, Bioengineering program incorporating Bioengineering and Pharmaceutical Engineering, in which students enter individual specialties after taking preliminary and basic major courses. Hence they have a better understanding of the specialty requirements so as to choose their majors wisely after one or two years study after admission. Besides, relying on key disciplines and laboratories, NIT has set up experimental classes in the majors of Industrial Design, Biopharmaceutical, Economics & Trade etc. In hopes of fostering high-level comprehensive talents with broad and solid academic grounds and creativity, those classes are assigned fixed advisors, serving different needs and stressing course study and academic activities.

Secondly, NIT follows the requirements of talent-cultivation orientation, educational criteria and specialty skill specifications, observes the basic principle of practical pedagogy and cognitive mode of students, and has built up a “3P featured practical teaching” system implemented on three levels namely Practical Project of Course, Practical Project of Specialty and Practical Project of Industry, which combines with theoretical teaching subjects in proper sequence. Specifically, to integrate certain course practice elements into Practical Project of Course, to integrate certain elements in Practical Project of Course into Practical Project of Specialty, and to integrate certain elements in Practical Project of Specialty into Practical Project of Industry. To emphasize the system of practical teaching from three aspects namely in-course, cross-curriculum and specialty leads to the coherence and progression of practical teaching and theoretical teaching, in hopes of enhancing students’ creativity, practical skills and profession adaptability to become applicable comprehensive talents for social and economic development.

Finally, via organizing academic, research and social practice activities, NIT builds innovative experimental platform to foster students’ creativity and practical skills. NIT provides an annual fund of 80,000 RMB for technological innovation and another of 250,000 RMB for discipline contests facilitates students’ research programs, “Challenging Cup” of extracurricular academic works competition, “Challenging Cup” of business planning competition and the like. An annual general fund of 160,000 RMB supports 100-odd groups of nearly 3,000 students to participate in various social practice programs such as on-job trainings, social services, academic surveys, and voluntary services. NIT has also established students’ training bases such as ACM, electronic design and embedded system, along with innovative experimental platforms such as wireless sensor network, industrial field bus, embedded technology application & SOPC, modern business simulation center and sand table simulation laboratory, providing favorable external supports for students’ innovative and practical activities.

4.3 Constructing guidance system

NIT takes a series of measures such as offering employment guidance courses, customized guidance and entrepreneurship training, to construct the guidance system of employment and entrepreneurship so as to enhance students’ related abilities.

Firstly, NIT has listed the employment guidance course as a compulsory subject in the teaching curriculum and set it as an essential part of undergraduate education. The course consists of three parts, i.e., career planning guidance, employment guidance and on-job practice, scheduled throughout the first three academic years, with a total of 38 hours and 2 credits. NIT also offers elective courses such as Career Planning, Students’ Social Adaptability and Entrepreneurship Management to reinforce the education of students’ employment and entrepreneurship. In addition, NIT hosts the Month of Career Guidance Promotion each year by organizing a wide range of activities with the collaboration of the NIT Center of Employment Services and Guidance, individual schools and other related associations. Municipal personnel officials, enterprisers and distinguished alumni are invited in various activities including lectures on current employment situation and policies, campus presentations of prominent companies, alumni exchange symposium, theme salons, lectures on business planning and legal rights and job interview simulation, to help the students better understand the current employment situation and policies, increase job hunting experience and skills, get well-prepared and enhance their employability.

Secondly, NIT Center of Employment Services and Guidance appoints three instructors to offer an all-around face-to-face customized consultation for students confronting employment disadvantages, finance insufficiency or difficulties in mental adjustment, and help those adjust their mentality and take a positive attitude to difficulties in job hunting. Besides, by ways of internet, job hotline, on-site counseling and the like, they answer questions with regard to employment difficulties, business planning, contract signing etc., and keep records of various cases. Each school appoints one employment guiding instructor who’s responsible for expanding job market, job fair organization and survey of graduates’ progress, in addition to offering employment guidance course. Besides, the instructor carries out various distinctive and targeted employment guidance to meet the needs of different students and specialties in his/her own school.

Finally, in order to lay a solid foundation for students’ future employment and enterprise, NIT optimizes the internal and external resources through establishing innovative experimental classes and job training camps which involve experts lectures, career evaluation, simulated job fair, experts comment etc. NIT hosts an annual business planning competition to encourage students to write business plans for projects with technologic value, creative ideas or profitable business model, and to put the plans into industrial production on the basis of the competition. NIT also set up students’ business incubator center at the local Science and Technology Park, to promote the incubation and
elevation of students’ business projects through a series of favorable measures in terms of capital, rent, tax etc.

5. CONCLUSIONS

In the near future the higher education in China will focus on the enhancement of comprehensive quality, attach greater importance to quality talent cultivation, and firmly establish the central position of talent cultivation in higher education, in hopes of fostering high-quality special talents and top-notch creative ones with strong determination, good morality, rich knowledge and surpassing skills. In particular, it is advisable to bring policy guidance and resource allocation into full play, to help institutions of higher education find their proper positions, avoid assimilated progress, and form individual education philosophy and style across different levels and areas. NIT has proposed orientation and mission for the new stage of development, namely, to build a high-level application-oriented university based on the current sizable expansion. It calls for the institute to further establish the central position of talent cultivation, focus on employability and entrepreneurship enhancement and produce high-quality applicable, comprehensive and internationally-oriented talents.

(1) NIT will implement the systematic booster project to increase students’ employability and entrepreneurship. NIT will build relevant stimulating mechanism to encourage all faculty and staff and specialty instructors in particular to participate in the students’ employability and entrepreneurship enhancement, ensure the related courses embedded throughout the four-year’s education and bring the ideology of employability & entrepreneurship into academic learning. Thus all the available resources will be fully utilized in the entire process of promoting students’ employability and entrepreneurship.

(2) NIT will carry out the project of campus-society interaction to increase students employability and entrepreneurship. NIT will integrate into Ningbo’s service education system, and develop strategic partnership with local districts and towns and cooperating with key industries and enterprises. NIT will encourage teachers and students to practice in local community and among grassroots to collect the information about social demands for students’ quality and skills. As a result, NIT will establish reasonable disciplines configuration to meet social demands, perfect the talent-cultivation programs, and ultimately increase students’ social adaptability and employability.

(3) NIT will implement the project of fostering students’ core employability and entrepreneurship. NIT will forcefully advance the discipline construction planning and curriculum reform, develop key specialties and core courses, adjust the policies and measures of personnel introduction and training especially “dual-identity” faculty, further construct the practical teaching system, and strengthen students’ academic theoretical grounds and practical creativity.

(4) NIT will carry out the project of enhancing employability and entrepreneurship via intercollegiate exchange and oversea cooperation. Programs such as joint education, student exchange, visiting scholar and international academic exchange are conducive to import advanced education ideology from abroad, in particular their successful approaches and experience of improve students’ employability and entrepreneurship, which help our faculty and students develop an international perspective, promote educational and cultural exchange activities, and stimulate the internationalization of students’ employability and entrepreneurship.

(5) NIT will implement innovative entrepreneurship training project. NIT will put forward proposals to strengthen innovative entrepreneurship education, encouraging faculty’s participation and senior students’ engagement in practice. NIT will also offer relevant training programs, special funds and other activities to promote students’ innovation awareness and entrepreneurship, in particular, to increase the probability of success in their entrepreneurship practice.

ACKNOWLEDGEMENTS

This work is an accomplishment derived from the collaboration between Ningbo Institute of Technology and Queen’s University Belfast, which has successfully applied for funding under PMI2 Strategic Alliances and Partnerships project, UK-China Collaborative Partnerships in Employability and Entrepreneurship strand.

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