



Education Quarterly Reviews

Xinjian, Zhao, Fang, Tan, Liyan, Liu, and Yirun, Chen. (2018), How to Cultivate Application-Oriented Undergraduates – The Growth Path of an Outstanding Graduate on E-Commerce Major. In: *Education Quarterly Reviews*, Vol.1, No.2, 153-167.

ISSN 2621-5799

DOI: 10.31014/aior.1993.01.01.16

The online version of this article can be found at:
<https://www.asianinstituteofresearch.org/>

Published by:
The Asian Institute of Research

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How to Cultivate Application-Oriented Undergraduates – The Growth Path of an Outstanding Graduate on E-Commerce Major

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Abstract

Under the background of the “Internet Plus”, the e-commerce industry is in rapid development, and its demand for talents is increasing. However, the e-commerce major is a new interdisciplinary field, and the colleges and universities are still in the stage of exploration in training and cultivating the talents. For now, the talent training and the social demand are still not well adapted, and the problem of low-quality of employment exists in e-commerce graduates. In recent years, Shenzhen Campus of Jinan University has been building foundation on the improvement of quality of personnel training and committing to the construction of a bridge between the university and the market since more than 10 years ago. It attempts to promote teaching reform by combining teaching with practice and theory with technology to cultivate application-oriented high-skilled talents. The research object selected in this case is one of the first e-commerce graduates of Shenzhen Campus, who is currently the general manager assistant of Invengo Technology Pte. Ltd., Ms. Xu Xiaonan. By analyzing her personal growth trajectory and employment history, the study attempts to analyze the mechanism and system of how individual growth cooperates with the accomplishment of the objective of talents training and takes the case as the referential experience and example for the cultivation of application-oriented talents in e-commerce undergraduates of the universities.

Key Words: E-Commerce, Talent Cultivation, Teaching Program, Application-Oriented High-Skilled Talent

1. Introduction

1.1 Research Background

1.1.1 Industry Background and Status of Talent Demand

The origin of e-commerce can be traced back to the 1970s, when the banking sector introduced electronic funds transfer (EFT). With the commercialization of the Internet and the continuous increase in the number of Internet users in the 1990s, international e-commerce started to be used by a large number of companies (Robert D. Hisrich & Veland Ramadani, 2017). E-commerce reached China relatively late, but since the introduction of the concept to China in 1995, it has developed rapidly with the guidance of the government and improvement of Internet infrastructure. In 2005, after the severe test created by the bursting of the dotcom bubble, e-commerce in

China rose from a trough, seizing the development opportunity offered by the improvement of the Internet environment and the popularization of e-commerce theory. China's e-commerce industry entered a period of high-speed development and business model innovation.

According to the 2017 Annual Development Report on China's E-commerce, the recent emergence of innovative business models such as the sharing economy and online-to-offline commerce has become an important driving force for the rapid development of online retail services, successfully reversing the decline in e-commerce retail growth in 2013 and realizing a new round of acceleration of online retail. At the same time, new retail innovation projects are carried out with the cooperation of traditional retailers and relevant technical service providers, and the unmanned retail industry, which is dominated by unmanned retail stores, has landed in China.

Not only has e-commerce retail developed rapidly, but in 2017, China's rural e-commerce also achieved significant results. In the last five years, with the gradual popularization of the Internet, China's rural netizen population has gradually expanded. By 2016, rural online shop size had reached 8.32 million, representing 20 million of the employed population. The rapid development of rural e-commerce has also significantly alleviated poverty, as widespread rural e-commerce prospects have promoted rural youth employment and entrepreneurship. Logistics enterprises have gradually penetrated China's township areas, achieving more than 80% of the country's network coverage and largely meeting the service needs of 590 million rural people.

In addition, cross-border e-commerce is booming and has become an important driving force for China's foreign trade growth. From 2013 to 2016, China's cross-border e-commerce retail exports reached an average annual growth rate of nearly 60%. The United States, the EU and the Association of Southeast Asian Nations are the main export destinations for cross-border e-commerce in China. Amazon, the main export channel for Chinese enterprises, exported goods worth more than 300 billion yuan in 2016 alone.

China's e-commerce holds an unsurpassed position worldwide, with 40% of the global market share. According to data in 2016, the value of online shopping in China has reached 750 billion US dollars. The e-commerce industry continues to grow rapidly, bringing about sustained economic benefits. However, according to the latest report, "Survey Report on China's E-commerce Talent Situation in 2016", the employment situation in the e-commerce industry is less positive, with 85% of e-commerce enterprises facing a talent gap (10% higher than the previous year). In terms of personnel, 40% of e-commerce enterprises lack operational personnel. The demand for sales promotion talents is 26%. The demand for comprehensive senior talents is 12%. The demand for product planning and R&D personnel, technical personnel and chain management personnel is 9%, 5% and 4%, respectively. China's e-commerce industry thus faces the obstacles of a large talent gap, high recruitment pressure, high labor costs and management difficulties.

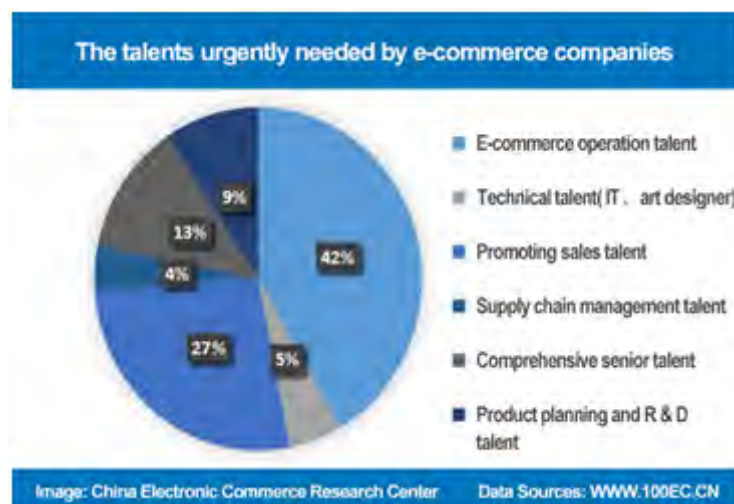


Figure 1. 2016 China E-commerce Talent Survey Report

1.1.2 Current Situation of Professional E-commerce Training in China

In 2001, e-commerce majors first appeared in 13 colleges and universities nationwide, and with the rapid development of the industry, the demand for and popularity of professional e-commerce training have increased day by day. In 2016, 528 undergraduate colleges and universities across the country offered e-commerce majors, admitting 115,000 students. Meanwhile, this major is offered by 33 of the 53 universities in Guangdong, most of which are not specialized schools, such as medical and engineering universities and sub-campuses of non-local universities like the Zhuhai Branch of Beijing Normal University. Evidently, due to supportive policies and the rapid development of the industry, e-commerce has become a core major in many key universities, even though it is a new and interdisciplinary subject. E-commerce curriculums involve many disciplines, such as management, economics and computer science, and can be affiliated with a wide range of colleges. Over the years since their establishment, e-commerce majors have formed an educational pattern of “multi-mode coexistence”. Innovation in and the development of the e-commerce industry have resulted in multi-level market demand for e-commerce talents, such as managerial talents, technical talents, business (application) talents, and teaching and scientific research talents. With the industry’s rapid development, knowledge transfer in universities is unable to keep up with market demand, and has gradually become disjointed from the industry.

In 2004, the e-commerce profession received considerable attention for its initial employment rate: only 20%. According to data on the employment rates of some undergraduate majors released by the Ministry of Education in 2013, although e-commerce major is a “hot” major, it is a “cold” major in terms of employment rate (pretty low), due to the policy of “starting first and then building” chosen by many universities in the early days of e-commerce major construction. In recent years, in response to the Ministry of Education’s request to deepen the reform of vocational education to bring all-round improvements to the quality of personnel training, many colleges and universities have carried out teaching reforms in these areas, improving teaching quality management and practical education. In 2016, China’s undergraduate e-commerce professional employment rate reached 93.32% (Anonymous, 2016), ranking 42nd among all subjects at colleges and universities. In 2017, the employment rate of undergraduate e-commerce rose slightly to 94.6%, ranking 14th, according to MyCOS’s annual report on the employment of Chinese college students. Relevant information on the employment rate of undergraduate e-commerce majors in Guangdong province suggests that the employment rate of e-commerce graduates is generally higher than 90%, and often higher than 95%.

However, in terms of employment quality, the situation does not seem to be optimistic. According to the employment reports recently released by various universities in Guangdong province, the employment correlation of graduates majoring in e-commerce is generally only about 60%, which is lower than that for other majors, and may even fall as low as 41.33%. Some universities, such as South China University of Technology, classify e-commerce majors as lower-quality majors in employment reports, and plan to reduce enrolment and fine-tune professional training programs. For many years, despite the remarkable effectiveness of employment promotion, the problems of low employment quality and a low corresponding employment rate have not been solved.

1.1.3 Problems with Undergraduate Teaching

According to the current situation of e-commerce professional personnel training, we can find that with the rapid development of e-commerce industry, the enterprise’s operational needs put forward higher requirements for e-commerce personnel standards, while the gap between market demand and education supply leads to the deepening of the contradiction between e-commerce personnel demand and the traditional e-commerce personnel training mode, and the problems existing in e-commerce undergraduate teaching in colleges and universities are becoming increasingly prominent.

1) Unclear professional orientation

According to a report entitled “*Survey Report on China’s E-commerce Talent Situation 2015*” released by China’s E-commerce Research Center in conjunction with the professional e-commerce human resource service provider Winning Education, 75% of e-commerce enterprises have a talent vacancy. The demand for e-commerce jobs is shown in Figure 2 below, which indicates that positions needed by enterprises have completely different requirements for knowledge mastery. Nowadays, although many colleges and universities have e-

commerce majors, the e-commerce industry is still at an exploratory stage, and the direction of training of e-commerce talents varies greatly between colleges and universities. As a result, enterprises lack a unified understanding of e-commerce graduates, making it difficult for employers to select new employees. At the same time, e-commerce is a young subject, and the teaching content of e-commerce majors in many schools is often simply a combination of economic management courses and computer courses. The teaching content of proprietary courses is scattered and complex, with a widespread tendency to emphasize concepts and neglect cases (Zou Huasheng, Feng Ling & Li Rong, 2016).

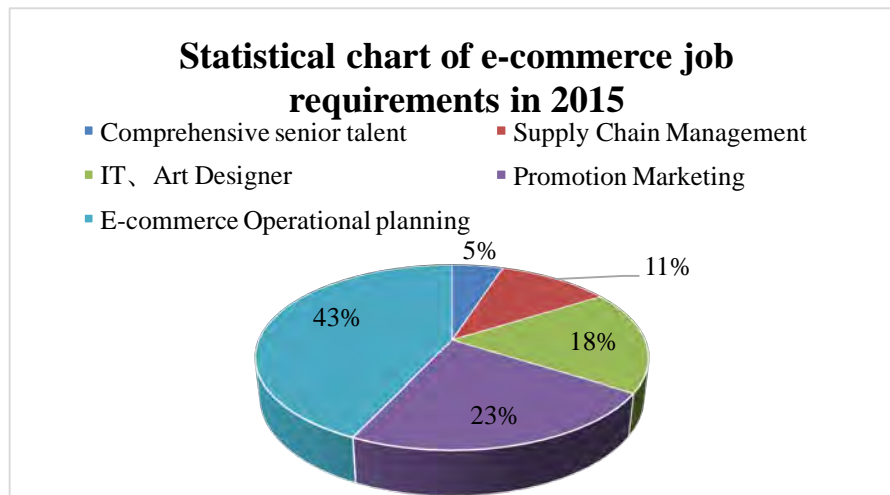


Figure 2. Statistical chart of e-commerce job requirements in 2015

2) Lack of practice

According to survey data obtained by 100EC.CN in 2015, college e-commerce graduates, as among the main sources of talents for e-commerce enterprises, only account for 16% of e-commerce employees, details are shown in Figure 3 below. This means that most e-commerce employees come from training institutions or enterprises, reflecting a mismatch between education and job demand. At present, the e-commerce talents taken on by enterprises often have both basic knowledge of e-commerce and practical experience of the trade. The main reason why e-commerce graduates experience difficulties in finding jobs is that they lack a good practical ability. The general e-commerce education provided in universities is seriously out of touch with the talent demand of e-commerce enterprises, and the theory taught is far from the reality of modern practice. In addition, most students do not have an awareness of the need to actively participate in social practice in their spare time, further weakening their practical ability.

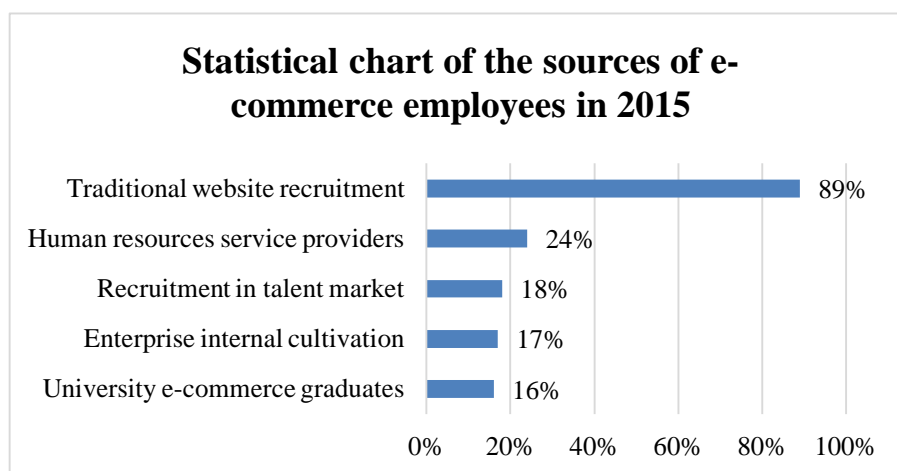


Figure 3. Statistical chart of the sources of e-commerce employees in 2015

3) Insufficient innovation and entrepreneurship education

The increasingly homogeneous e-commerce industry has made the innovation and entrepreneurship model based on “Internet Plus” a new direction for socio-economic and technological development. Entrepreneurship education has been called the “third passport” of education by UNESCO. However, according to the “*China University Student Entrepreneurship Development Report from 2014 to 2015*” released by Xinhua on November 18, 2015, the national entrepreneurship rate of college graduates in 2015 was only 2.86%. The entrepreneurship rate of graduates of higher vocational education was slightly higher than that of graduates of other educational levels, but only 6.77% of college student entrepreneurs received professional and systematic entrepreneurship education, significantly lower than the 20% entrepreneurship rate in Europe and the United States. The reason is that, in China, innovation and entrepreneurship education has not been raised to its proper strategic level in the current application-oriented talent training programs of undergraduate universities (Zhan Mingzhen, 2015). The neglect of innovation and entrepreneurship education in colleges and universities has made it extremely difficult for students to start their own businesses after graduation, and the road for e-commerce inauguration is also extremely bumpy.

1.2 Concept Definition and Theoretical Basis

1.2.1 High-skilled Talents

Since the mid-1990s, with China’s industrial transformation, the phrase “high-skilled talents” has been frequently used in Chinese academia. At a national conference on talent held at the end of 2003, the CPC Central Committee clearly stated that high-skilled talents are an important part of China’s talent team, and included high-skilled talents in the country’s strategic master plan for “reinvigorating China through human resource development”. Subsequently, in the “*2003-2007 Action Plan for Education Revitalization*” issued in 2004, “*Opinions on Further Strengthening the Work of High-skilled Talents*” in 2006 and the “*2010-2020 Outline of National Medium and Long-term Talent Development Plan*” in 2010, the training of highly skilled personnel was listed as a key means of promoting social development and optimizing and upgrading industrial structure.

Yet understanding of the nature of high-skilled talents in China is still narrow. “Skill” refers to simple labor and skill proficiency, which is defined in this paper as narrow skill. Western countries have a broad understanding of skills, emphasizing that they include not only physical but also hidden skills, i.e. mental skills, such as communication skills, interpersonal and social skills and organizational and planning skills (Tang Ni & Shi Weiping, 2011). Such skills can be widely used in different professional environments, are universal and transferable, and are regarded as the basis for becoming a “flexible” and “multi-skilled” worker (Press P, 2004). They are defined in this paper as generalized skills. Given the particularity of the case addressed, skills in this article are understood as generalized skills. Despite years of academic discussion, no unified definition of “talent” has been produced. Based on analysis and comparison of the literature, this paper adopts Zhang Guochu’s definition of talents: those who have high specific abilities, can do creative work and make relatively great contributions to social progress and economic development (Zhang Guochu, 2008).

In China, academic scholars have different views on the definition of “high-skilled talents”. Li Zongyao, the first to define this concept, argues that high-skilled talents are “high-quality workers with the necessary theoretical knowledge, who can master modern equipment, and who can complete difficult or key actions difficult for intermediate-skilled personnel to master in the fields of production and service, and who have the ability to innovate” (Li Zongyao, 2001). Nor has a consensus been reached on the definition internationally. Zhang Guochu believes that the international meaning of “skilled talents” and “high-skilled talents” is broader than that in China and closer to the concept of scientific and technological human resources, and points out that the academic qualifications of highly skilled talents include not only junior college and undergraduate education, but also postgraduate education (Zhang Guochu, 2008). Tang Ni and Shi Weiping identify four main definitions of high-skilled talents, namely 1) all kinds of high-skilled talents in the foreign context, including legal persons, experts and artists; 2) highly qualified workers, that is, those with formal qualifications at a specific level of education (OECD, 2002); 3) professional, managerial and technical experts, and 4) human resources in science and technology, namely human resources that engage in or have the potential to engage in the systematic production, promotion, dissemination and application of scientific and technological knowledge. It is concluded that “high-skilled talents” exist in different occupational groups, covering almost all occupational fields, and

have high educational and vocational qualification requirements (Tang ni & Shi Weiping, 2011). Therefore, synthesizing various definitions of high-skilled talents at home and abroad, this article defines high-skilled talents as highly qualified talents who work with or have the potential to work with systematic scientific and technological knowledge, can integrate theory with practice and are able to innovate.

1.2.2 Application-oriented High-skilled Talents

With the development of society, the traditional academic talents trained by undergraduate colleges can no longer meet social needs, as amply demonstrated in the difficulties experienced by China's college students in finding employment. The requirements society places on highly-skilled talents, and thus on college students, are increasing. To adapt to changes in the diversity of higher education and meet the actual needs of market development, China's "applied undergraduate high-skilled talents education" came into being at this historical moment. In June 2014, the State Council issued its "*Decision on Accelerating the Development of Modern Vocational Education*", pointing out that "a number of ordinary undergraduate colleges and universities should be guided to transform into institutions of higher learning of applied technology by means of pilot promotion, demonstration and guidance". In October 2015, the Ministry of Education, the National Development and Reform Commission and the Ministry of Finance jointly issued "*Guiding Opinions on Guiding the Transformation of Some Local Ordinary Undergraduate Universities to Application-oriented Universities*". Given the problem of "more prominent structural contradictions in higher education, serious homogenization tendency, difficult employment of graduates and low quality of employment", the government proposed the guiding ideology of "promoting the transformation and development of colleges and universities to truly turn their ideas of running schools to serving local economic and social development, to integrating production and education with school-enterprise cooperation, and to training applied technical skilled talents". During the 13th Five-Year Plan, the National Development and Reform Commission and the Ministry of Education launched a project of education modernization to promote the construction of engineering application oriented undergraduate colleges and universities, saying that "100 colleges and universities will be supported nationwide to strengthen the construction of practice experiment and training platforms and bases, deepen the integration of production and education, school-enterprise cooperation and promote the reform of personnel training mode through the project construction". With the support of the Ministry of Education in recent years, the construction of applied colleges and universities has shown good momentum.

Undergraduate education is divided into applied undergraduate education and academic undergraduate education. After so-called "applied undergraduate education" appeared in China, many scholars began to analyze the concept to determine its laws and characteristics. Applied undergraduate education is a professional, generalist form of education that trains specialized technical personnel in a specific technical field and focuses on application. It not only considers students' learning of systematic and solid basic theoretical knowledge, but offers a kind of ability-based education (Yuan Zhaoping, 2008). Compared with the goal of academic undergraduate education, to train academic talents, applied undergraduate education focuses more on the needs of the industry and cultivates students' practical application ability.

Application-oriented undergraduate education should attach great importance to its association with enterprises in terms of school-operation mechanisms and personnel training modes (Chen Xiaohu, 2008). The primary goal of application-oriented undergraduate education is to train application-oriented talents and high-skilled talents needed in all walks of life; that is, industry-specific talents (Zhang Aibang, 2009). In the words of Tian Fuyuan, deputy director of the development planning department of the Ministry of Education, "the key to running an application-oriented university is to strengthen practical teaching and conditions for practical experiments and training". In addition to possessing basic theoretical knowledge, applied undergraduate talents need to keep up with the development of the industry, have the latest knowledge system, apply theoretical knowledge to solve problems and have strong social adaptability. As a subject at the forefront of scientific and technological development, e-commerce undoubtedly requires the fastest application of the latest scientific and technological knowledge (Ji Peng, 2010). Therefore, how to train high-skilled talents enrolled on application-oriented undergraduate courses to meet the requirements of the industry is an important issue to consider when implementing talent training programs for application-oriented undergraduate e-commerce education.

1.2.3 Law of Talent Growth

The growth of talent is not a simple superposition of reading and writing, imitation and practice, but a spiral process that obeys certain rules (Liu Xiang & Zhou Mingxing, 2014). The so-called “law of talent growth” refers to the repeatable one-to-one correspondence or one-to-many correspondence or probabilistic repeated transformation relationship in the process of talent growth under certain conditions (Ma Zhenhua, 2010). Wang Tongxun, president of the China Academy of Personnel Sciences (2006), proposes the following laws governing the growth of talent: the master-teaching and apprentice-inheriting effect; fostering strengths and avoiding weaknesses effect; optimal age effect; the Matthew; and comprehensive effect. Wang Ruohong (2009) believes that talent training should follow the law of gradual progress, pay attention to the law of practice and talents, respect the law of master-teaching and apprentice-inheriting effect and the law of internal-cause leading talents.

Han Wei and Zhang Jiliang (2007) propose in a study of a famous urban enterprise that the development of high-skilled talents is attributed to eight forces, namely the law of internal-cause driving, the law of master-teaching and apprentice-inheriting, the law of job-growing, the law of the growth cycle, the law of the pyramid, the law of using and retreating, the skill to achieve leap in the game and the Matthew effect. In his doctoral thesis, Gao Yan (2008) conducts a detailed study of the law of growth of high-skilled talents, and identifies three key rules: the cumulative effect law based on knowledge acquisition, the inheritance effect law based on skill acquisition, and the age effect law of creativity enhancement. Wen Miao (2016) categorizes the laws of growth of high-skilled talents as external and internal laws, defining the concept of high-skilled talents and analyzing influencing factors. External laws include the law of the times, the law of master-teaching and apprentice-inheriting effect and the law of system optimization. Internal laws include internal-cause driving laws, advantages-accumulating laws and age-effected laws. This paper focuses on the general law of the growth of high-skilled talents proposed by Gao Yan and Wen Miao, and analyzes the process of the growth of talents in this actual case in combination with other scholars’ accounts of the law(s) of the growth of talents.

1.3 Research Methods and Design

1.3.1 Research Methods

“Field investigation”, also called scene investigation or on-site investigation, mainly refers to the process by which researchers personally enter the research field to obtain first-hand information through long-term participation in observation, in-depth interview and personal experience, and to organize and analyze the information obtained to form a theory. It entails various research methods, such as observation, in-depth interviews and theoretical analysis, and it is one of the most common methods in the field of teaching and research (Chen Xiaoduan & Xian Fulian, 2015). Therefore, this paper uses field investigation to understand the demand for e-commerce talent and the current situation of talent education. It conducts a literature review and in-depth interviews to understand the real feelings of the case objects, uses observation to understand the behavioral performance of the case objects, uses a questionnaire to understand the character profile of the case objects, and finally carries out theoretical analysis on the law of talent growth to offer recommendations for future research and development.

1.3.2 Research Design

This paper takes Xu Xiaonan, an excellent e-commerce graduate of the class of 2007 at Jinan University (Shenzhen campus) as a case study, using mainly a literature review and field investigation. First, through reading a large number of documents, the current situation of and problems with e-commerce personnel employment and personnel training in society and universities are collected and summarized, laying the background for subsequent analysis. Second, in-depth interviews and questionnaires are conducted to gain a direct understanding of the case object, her learning trajectory and professional experience. The text of the interview dialogue is carefully analyzed, and the timeline is used to analyze the character’s history. Through the form of questionnaires, we can understand the case object from other people’s perspectives. These findings play an auxiliary role in the subsequent analysis of the character’s history. Finally, through analysis of the characteristics of the talent training program at Jinan University in Shenzhen, the paper sums up the effectiveness of and problems with the implementation of the e-commerce talent training program offered by Jinan University in Shenzhen, and verifies the rationality and universality of the e-commerce talent training concept and program as well as its value to the future development of e-commerce students in Jinan University.

2. Case Study

2.1 Object of Study

Xu Xiaonan, a female from Meizhou in the Guangdong Province. She is an outstanding graduate of the 2007 of e-commerce major (first session) from Jinan University (Shenzhen Campus). Studying hard at school, she achieved excellent academic results and actively participating in activities inside and outside of school. She has won many scholarships of outstanding students and various honorary titles, performing well in various fields. After graduating, Xu Xiaonan worked for many years at Invengo Information Technology Co., Ltd., where her determination, professionalism and expertise have been widely recognised by her superiors and fellow employees. She has since risen to the position of assistant to the general manager.

As a typical of the outstanding graduates of the pilot talent-training programme for e-commerce department of Jinan University Shenzhen Campus, Xu Xiaonan and other outstanding graduates have verified the rationality of this scheme. Exploring the growth process behind it may provide some suggestions and inspiration for reform of our department's follow-up programmes. Its success might also have implications for the design of similar e-commerce training programmes in other Chinese universities.

2.2 Character Narration

2.2.1 University Experience

1) Being attached with e-commerce.

After sitting the college entrance examination in 2003, Xu Xiaonan's attention was drawn to the work of e-commerce innovators like Ali, and she became interested in this rapidly developing new industry. Shenzhen is at the forefront of e-commerce development in Guangdong and, thanks to the Shenzhen municipal government, Jinan University has become the first school in China to run colleges in different places, establishing the e-commerce major in 2000. Its main goal is to cultivate talent with practical applications, develop IT expertise, management and problem-solving skills, and hone students' ability to innovate. The main approach in these training programmes involves integrating the teaching of two different systems of e-commerce and tourism management, focusing on the development of cross-discipline tourism informatisation.

In 2003, Xu Xiaonan seized the opportunity to go to the Shenzhen Tourism College at Jinan University, submitting an application and becoming the first undergraduate to major in e-commerce at the college. At this point, e-commerce was still in its infancy and the college's curriculum had not yet fully developed. However, with the requisite theoretical underpinnings, implementation of the third semester system and excellent teaching, Xu Xiaonan's skills and expertise grew rapidly, laying a solid theoretical and practical foundation for her future development.

2) Fighting in all direction.

When she first entered the university campus, Xu Xiaonan focused on finding opportunities to hone her professional skills. Establishment of the college's third semester system gave her the opportunity to gain experience in real-world contexts by taking part-time jobs from the outset. Although it was a relatively simple task to help organisations process basic data, it enabled her to ascertain the differences between various jobs, and she began to consciously explore her ideal career direction, gaining valuable professional experience for her future employment.

Xu Xiaonan also led a busy extracurricular life due to the rich array of community activities and competitions provided by the university. She joined the Ministry of Public Relations, the drama club and by actively participated in innovation entrepreneurship competitions and received awards. Many such ventures have improved her personal and professional development. Furthermore, although Xu Xiaonan spent considerable time on her internship, she did not neglect her academic studies. Realising the importance of both study and practice enabled her to secure a scholarship for outstanding students in her freshman year, also winning recognition from teachers and students.

3) Facing the obstacles.

In her junior and senior years, Xu Xiaonan went through a period of confusion, like many college students who are about to graduate. Although the e-commerce industry still being relatively undeveloped at this time, graduates from the Shenzhen Tourism College were given a head start by the comprehensive curriculum (including theoretical knowledge of back-end development, front-end design, management and operations) and accepted the consistent third semester system, which laid the foundation for e-commerce graduates to potentially forge a career in any direction. However, Xu Xiaonan still faced employment pressure and was uncertain about which direction to take, until she discovered Invengo Information Technology Co., Ltd. (specialising in Internet of Things technology) at a campus job fair and realised that this would be an ideal platform from which to launch her career. She applied for a position at Invengo and was finally accepted on the basis of her outstanding performance.

2.2.2 Employment Experience

1) Starting a new life.

Shenzhen Invengo Information Technology Co., Ltd. was established in December 1999 and is the world's leading supplier of RFID technology, products and solutions. It was successfully listed on the Shenzhen Stock Exchange in 2007. As a leading Internet of Things enterprise with more than 20 years' industry experience, Invengo has actively invested in research and development, establishing more than 400 patents and proprietary technologies since its inception, including readers, electronic tags, antennas and derivatives. A company with such impressive prospects is certain to attract the attention of many students, and Xu Xiaonan was lucky enough to be hired. When asked about job skills, she smiled and replied with only nine words: "Work hard and stay stable." Xu Xiaonan believes that it was not only her personal style and principles (similar to those of the company) that worked to her advantage, but also her determination and integrity, leading to her first official job and a 10-year commitment to Invengo.

2) Frustrating and forge ahead.

When Xu Xiaonan first entered Invengo, she worked as the assistant director of the office. She needed to undertake some routine administrative work, such as sorting out the company's business licence, checking its fire safety procedures, managing the office environment and sorting out minutes of management meetings. While being responsible for many piecemeal issues, she was also required to perform an important task – that of quickly developing the company's approach to public relations and learning how to deal with the government. Invengo was the first independent innovation enterprise specialising in the Internet of Things, and its rapid development relies on support from the government's relevant welfare policies. Thus, Xu Xiaonan needed to learn how to enhance the company's development with the help of government policies, seeking the necessary funding and resources. But as a new employee, difficulties and blows are inevitable, and when Xu Xiaonan first entered the company, she encountered her first minor setback. The technical director raised some basic problems relating to communication electronics in engineering field to new graduates in the company, but Xu Xiaonan was unable to answer these questions well because of her major, which belongs to management field. Although this did not affect her actual work, she felt frustrated at the time and began to doubt the knowledge she had spent four years acquiring at university.

However, this initial frustration was soon overcome. After discovering this gap in her knowledge, Xu Xiaonan examined the company's technological systems. Through her determined efforts, she became familiar with the company's products and began integrating theoretical knowledge into her work, such as her understanding of products, finance and markets, which are learned from her course in college. She became more proficient in her work and came to realise that knowledge from her studies had actually helped her a great deal initially. Even though she was just a novice in the fields of marketing, finance and technology, her solid theoretical foundations enabled her to quickly understand what others wanted to achieve in work communications because she had been exposed to this kind of knowledge and understanding at the Shenzhen Tourism College. In particular, Xu Xiaonan felt that her university education had taught her a unique and systematic way of thinking, which is used by her in many aspects, for example, when she set goals for a specific task, she would approach this from a systematic point of view, thinking about the bigger picture and constantly re-evaluating the problem, changing her thinking where necessary.

3) Struggling and Growing.

After a year at Invengo, Xu Xiaonan was promoted from an office assistant to the director of public relations. She has always followed a very simple attitude: do things practically. Her quietly confident demeanour was clear in the interview, and her gentle, decisive character is also apparent. From the outset, Xu Xiaonan has tried to steadily build a solid foundation, for example, for those details that are easily overlooked by others, she took a serious attitude to learn and tried to do everything well. Furthermore, Xu Xiaonan's expertise and professionalism have won the approval of colleagues and superiors alike. The latter have come to value her reliability, trusting that they can delegate work without fear.

The first time to reach cooperation with the government by herself is a manifestation of her progress in working ability, though, it was not easy for her at that time. Being responsible for public relations not only required effective external communication with the government, but also creating internal projects that complied with national policies, communicating with various departments of the company and obtaining resources needed for projects. At the same time, when communicating with the government, Xu Xiaonan not only had to ensure that the company's technical projects were completed, but also that effective communication with the accreditation body was maintained so that experts could vet and approve the company's projects.

After successful approval of the company project, Xu Xiaonan immediately commenced implementation, using her excellent integration ability to identify the company's internal resources and guide the project towards its completion. Xu Xiaonan has already played a key role in the company's operations, from the initial, small project to large-scale ventures with more than 100,000 funds at district level, several million at municipal level and tens of millions nationally. This all goes to show Xu Xiaonan's excellent work ability. However, despite her success, she did not stop studying. After five years of work, and with fond memories of the campus, she decided to study for an MBA from Xi'an Jiaotong University, developing her skills and knowledge still further and increasing her chances of yet another promotion.

4) Being independent and looking forward.

Xu Xiaonan has been an assistant to the general manager of Invengo for many years now. Her job mainly involves handling documentation and official relations of the president's office, with the responsibility for some independent commercial affairs of the company. Her extensive knowledge initially gave her the ability to help fill in the short board area of her superiors and put forward constructive suggestions. In her work, Xu Xiaonan often draws upon her knowledge from various fields, integrating knowledge of technology, products, finance and markets in feasibility studies. Without this kind of knowledge base, it would be extremely difficult to accomplish such tasks. Xu Xiaonan also has responsibility for introducing RFID technology to the textiles washing industry, an innovative transformation that brings with it a sense of great social responsibility.

Furthermore, Xu Xiaonan is also committed to collaborating with the university to provide a practical platform for other students. The Well GO convenience store recently opened, Invengo's landmark unmanned retail project. Invengo now plans to launch many other unmanned retail projects, such as unmanned convenience stores and clothing retail outlets, to upgrade and transform the retail industry. Xu Xiaonan is highly optimistic about the momentum of unmanned retail and hopes to deepen students' understanding of e-commerce through practice.

2.3 Analysis of Growth Process

Both application-oriented talents and high-skilled personnel training emphasize the integration of theory and practice, while high-skilled talents must be more skilled, knowledgeable and accomplished than applied talents, but the essence of the two coincides. Since its establishment, the department in Shenzhen Campus has been oriented toward cultivating application-oriented talents, and Xu Xiaonan, the case object and an outstanding graduate of the department, is a typical example of the application-oriented high-skilled talents. Therefore, on the basis of the law of growth of high-skilled talents proposed by Gao Yan and Wen Miao, in combination with the case in this paper, the paper proposes the following growth law for talents.

1) The law of advantages-accumulation based on social practice

Advantage accumulation includes knowledge accumulation, ability accumulation and quality accumulation. The accumulation of advantages of applied talents is obtained through social practice, and the accumulation of

advantages to some extent promotes the growth of talents (Wen Miao, 2016). The implementation of summer practice in the third semester effectively increased Xu Xiaonan's college social practice experience and stimulated her awareness of the need to actively participate in social practice. For Xu Xiaonan, knowledge was acquired through reading books and learning from teachers, then mastered in the third semester's operating experience, gradually internalized into personal knowledge, thus achieving the goal of accumulating advantages in turn. At the same time, the internship provides numerous "trial" opportunities that helped her to verify the theory learned from school, accumulate operating experience, and gain the application ability required of application-oriented high-skilled talents. In addition, her patient and serious work attitude was trained through complicated work procedures during the internship. Through social practice, Xu Xiaonan's personal growth was promoted by the accumulation of the various advantages of knowledge, ability and quality.

2) Age effect rule based on active growth

Age growth enhances the creativity of applied talents: as their experience increases their life goals become clearer, their independence increases, and their interpersonal relationships and resources are improved. At the same time, their professional identity is enhanced, and they actively seek and take advantage of development opportunities to improve themselves. In college, Xu Xiaonan did not have a long-term career plan. It was only by chance that she entered Invengo. When she first entered the workplace, the passion and competitiveness she had developed during her university studies drove her to continuously improve her knowledge system. After her career struggle, she had a more definite goal, and her experience and theoretical knowledge gradually accumulated and were enriched. She had more choices for directions because of her outstanding work ability. After seizing the opportunity to transfer, Xu Xiaonan chose the direction of general management assistant, and later developed a business based on her own ideas, taking full responsibility for Chinese washing business. In addition, even five years after graduation, she is still not satisfied with the current status of knowledge accumulation, and resolutely chose to embark on the road of further study, enroll in an MBA, expand the depth of her management theory knowledge and expand her interpersonal relationships.

3) The law of master-teaching and apprentice-inheriting based on skill acquisition

Inheritance from master to apprentice is the most basic approach to and manifestation of education. Its laws mainly include from the laws of master-teaching to the laws of apprentice-inheriting, four stages in total (skill inheritance of explicit-explicit, implicit-explicit, implicit-implicit and explicit-implicit), and follow the knowledge conversion process proposed by the knowledge spiral theory (Wen Miao, 2016). Teachers have more experience than students, and they can impart their own experience to students through language or personal demonstration. Meanwhile, students' absorption of knowledge is a process of clarifying it with their own feelings, thus forming their own experience and knowledge. What students learn includes not only "open knowledge" that can be conveyed in words, but also "implicit knowledge" of "intellectual skills"; that is, the "implicit knowledge" of skills that cannot be fully conveyed in words. The existence of this characteristic makes experience a necessary prerequisite for mastering implicit knowledge. In the process of teaching, implicit knowledge often requires direct, nonverbal communication between teachers and students; that is, students gradually master teachers' invisible skills through observation, experience, imitation and constant practice to form their own implicit knowledge (Wang Ruohong, 2009). From this point of view, the acquisition of personal implicit knowledge and the improvement of implicit skills of application-oriented high-skilled talents in the e-commerce department of Shenzhen campus of Jinan University are closely related to the teaching and guidance of teachers in the college.

Taking Xu Xiaonan's learning experience as an example, in the process in which teachers in the department teach e-commerce related knowledge, they complete the teaching process of "explicit-explicit" skills transformation by imparting their own systematic skills to students, enabling students to acquire indirect professional knowledge experience. In the course of teaching, teachers express their behavior and practice results in the form of words, language, symbols or formulas through classroom teaching, PPT and on-site simulation: an "implicit-explicit" process. For example, in experimental classes, teachers usually demonstrate it themselves first, the design ideas of code writing or flow chart are taught in this process, allowing students to think independently based on the examples to complete similar test questions, so as to achieve the effect of learning by analogy. In this process, "implicit-implicit" skills are transformed at the same time. The process of "explicit-implicit" skills transformation is a process of internalizing learned knowledge as personal implicit skills through

practical exercises in class or social practice in summer. These four processes continue to circulate, eventually leading to the skills-mastery and continuous growth of application-oriented high-skilled talents. In the whole learning process, teachers' teaching of words and deeds broadened Xu Xiaonan's grasp of professional knowledge, and she successfully internalized knowledge as personal skills in the process of learning about technology, products, finance, markets and other aspects, and formed her own systematic thinking in the process of practice.

3. Effectively Improve Degree of Achievement and Adaptability of Talents Training

3.1 Analysis of Consistency of Training Effect and Training Goal

The growth and success of Xu Xiaonan and many outstanding e-commerce graduates in Shenzhen campus cannot be separated from their own earnest, steadfast and unremitting efforts, nor can they be separated from the good environment, learning atmosphere and rich resources provided by the university, as well as the careful cultivation of their teachers. The e-commerce major at Shenzhen Tourism College of Jinan University aims to train compound talents with an orientation toward practical application, solid information technology ability, comprehensive management knowledge, and the ability to innovate and solve practical problems. Combined with Xu Xiaonan's case, the rationality of the e-commerce talent training program on Shenzhen campus of Jinan University is verified as follows.

1) Professional curriculum

First, reasonable and comprehensive mandatory professional courses such as management, marketing, logistics management, Java and other courses will promote the improvement of students' theoretical knowledge framework and lay a solid theoretical foundation for future work practice. Second, a variety of elective courses including project management and operational research will enable students to study theory freely and selectively and improve the knowledge system in a certain field. In addition, the courses making up this major, unlike other majors, are mostly information technology courses, with a large number of basic skill-based experiments, and comprehensive experiments are arranged for application-oriented major courses in senior grades. These are the important teaching bases for the formation of Xu Xiaonan's thought system, while the establishment of a systematic thought system and methodology is one of the important factors in Xu Xiaonan's success in her career. It is also the most valuable ability of all excellent e-commerce graduates of the school, which has a great impact on their personal career development.

At the same time, Xu Xiaonan said that science courses could help her understand the technical principles of the company's products. For example, when technicians communicate with non-technical personnel, e-commerce personnel can often lower the communication barriers between them and help the two parties to communicate better. All this verified the rationality of the curriculum of the e-commerce major offered on Shenzhen campus of Jinan University, indicating that the goal of the department's major curriculum has been achieved to a significant degree.

2) General education and other courses

The extensive curriculum of general education on Shenzhen campus at Jinan University includes wine tasting, Korean and so on, enabling students to expand their interests and explore their potential while studying on professional courses, gradually improving their quality. Xu Xiaonan also suggested that university students should not just focus on professional textbooks, but dabble in all aspects, tap into their own interests and hobbies which can lead directions for development. A variety of non-professional courses not only enrich college life, but also cultivate students' all-round development in terms of morality, intelligence, physique, beauty and labor. These courses enable students to improve their overall personal quality and provide many excellent e-commerce graduates on Shenzhen campus of Jinan University with eloquence training, image enhancement, etc. In recent years, with the improvement of the talent training program, the general education curriculum has gradually diversified, which indicates that the goal of setting a general education curriculum for the e-commerce major on Shenzhen campus of Jinan University is relatively high.

It is worth mentioning that Xu Xiaonan also advocates that college students read more news, understand state affairs and professional policies, and better choose the direction of further study with guidance. This also verifies

the long-term value and necessity of the “Situation and Policy” course and party building activities in Shenzhen campus of Jinan University, indicating that other course objectives of the e-commerce major have been achieved to a great degree.

3) Setup of the third semester

To effectively improve students’ practical ability, the major has a “third semester” system: every summer vacation, first, second and third grade students are required to take part in summer social practice for 320 hours over 8 weeks, recording 3 of 9 required credits. After several years of continuous exploration, the college has built a number of practice bases for this purpose, which are distributed in tourism, e-commerce and other fields, plus various professional-related enterprises and institutions to which students apply independently, effectively supporting students’ practice needs.

Social practice not only enables college students to apply theoretical knowledge to practical operations, thus gaining a better understanding and absorption of theoretical knowledge, but also enables them to leave the campus early to experience social life. The summer internship gave Xu Xiaonan a certain work experience and career vision during school, offering a foundation for later study. On the one hand, it increased her opportunity for “trial and error”, enabling her to begin to establish career planning awareness and gradually define the ideal employment direction. The rich practical experience also reduced Xu Xiaonan’s discomfort during the transition period after graduation, and laid a good foundation for her subsequent job choice and career development. At the same time, she reckoned that as the general e-commerce teaching program has a wide but shallow scope, college students can lead their studies and gain employment based on their direction of interest, and social practice also offers a way of orienting students who have not yet found their own area interest.

In general, these internship experiences facilitated the formation of Xu Xiaonan’s excellent ability and personality, which led her to be widely recognized by her superiors and subordinates in follow-up work, and subsequently promoted to become a leading executive of listed companies. The experiences also illustrate the rationality and necessity of the third semester system offered on Shenzhen campus at Jinan University.

3.2 Adaptability Between Training Objectives and Social Needs

Undergraduates have enrolled on the e-commerce major on Shenzhen campus of Jinan University since 2002. Based on the needs and training objectives of society, more than 700 undergraduate e-commerce students have been trained after two teaching reforms and four training program revisions, and a number of outstanding graduates have emerged. Overall, the main results are as follows.

1) Students’ social adaptability is enhanced

In October 2015, the Ministry of Education, in conjunction with various departments, issued “*Guiding Opinions on Guiding Some Local Universities to Change into Application-oriented*” to orient conditional universities toward application. Since its establishment, the e-commerce major on Shenzhen campus of Jinan University has always adhered to an application orientation, school-enterprise cooperation and the implementation of the third semester system. Students are enabled to take the initiative to leave the campus and enter society, apply what they have learned in the classroom to practical work, and better understand theoretical knowledge on the basis of practice. In addition, the many summer internships have not only helped students to define their ideal work direction, gain experience based on “trial and error”, and further improve their career planning, but also empowered them to realize their potential and interests. Xu Xiaonan, the outstanding graduate examined in this paper, is the best example.

2) Students’ entrepreneurship and employment opportunities are enhanced

Based on the combination of teaching and practice, theory and technology, the e-commerce major offered by Shenzhen Tourism College of Jinan University has maintained an annual employment rate of more than 98%, with the overall employment rate of graduates reaching 100% in the last three years. Places of employment include banks, civil servants, and e-commerce enterprises, and the employment situation is good. In addition, the quality of employment is steadily rising, and graduates can often take core roles such as important management positions within 3 to 5 years. In addition, to seize the opportunity for industry development, the number of students forming teams to start businesses has also gradually increased. For example, Yan Changren, one of the

founders of Sunfo Capital Management Company, and Deng Shaowei, the founder of Qianhai Patozon Network Technology Company (listed), are graduated in 2007 and 2010 respectively. Over the years, e-commerce professionals on Shenzhen campus of Jinan University have trained talents ranging from top executives to CEOs. Their optimistic employment situation fully demonstrates the strength and excellence of e-commerce graduates of this college and confirms the rationality of the e-commerce talent training program.

4. Case Enlightenment

The requirements placed on talents have become increasingly strict with the demand for talents in the fast-growing e-commerce industry has increased. Shenzhen campus of Jinan University has continuously updated and refined its e-commerce professional training program to bring our e-commerce professionals into line with the times. At the same time, after two teaching reforms, our department has continuously sought ways to improve the form and quality of teaching, and has accumulated some experience, ranking 20th in the 2016 evaluation report on Chinese universities and disciplines issued by the RCCSE, which shows that our department has achieved good results in e-commerce personnel training, reflecting well on the overall work of Shenzhen campus of Jinan University. However, based on the case examined of this paper, there is room for improvement in our department's talent training program. Therefore, the following suggestions are put forward.

1) Course setting

When setting courses, the college should pay equal attention to economic management and trade, information technology and tourism, and update the corresponding courses in line with changes in the e-commerce industry. For example, product and operation courses can be updated by constructing different specialized courses, and more "specialized" trying can be made in "extensive" courses to mobilize students' subjective initiative in learning, improve their ability to use knowledge and cultivate their ability to solve practical problems in enterprises and institutions. In addition,, due to the rapid development and promotion of information technology, the college should attach great importance to the cultivation of students' innovative ability by setting up experimental and communication projects, inviting successful people outside school to enter the classroom, and designing case projects to involve students so that they can gain a comprehensive and in-depth understanding of the whole discipline in operation.

2) Social practice

As a major feature of our college's offering, the "third semester" system also has room for improvement. First, the college could strengthen the school-enterprise cooperation model, diversify its off-campus resources, and ensure that students can benefit from and achieve success in their e-commerce positions of interest by means of external negotiations or offering recommended places. Second, the school could set up professional tutors to provide students with vocational planning training and employment problem solving opportunities, enabling them to define their employment goals and life directions as soon as possible.

3) Scientific research competition

Encouraging scientific research competitions can stimulate students' potential, cultivate their innovative awareness and entrepreneurial ability, and improve their practical employment opportunities by enabling them to apply classroom theoretical knowledge through scientific research competitions. The college should pay full attention to scientific research competition projects, formulate and implement measures conducive to the cultivation of innovative and entrepreneurial talents in their major, widely carry out innovative and entrepreneurial activities, employ industry experts to jointly guide students in their major to carry out innovative and entrepreneurial projects, cultivate students' innovative and entrepreneurial awareness, and form a positive competition atmosphere.

Acknowledgements

Upon the completion of the thesis, we would like to take this opportunity to express our sincere gratitude to Associate Professor Zhao Xinjian, our supervisor, who has given us constant encouragement and important guidance on the thesis. In addition, we would like to thank Tutor Yao Dan and Professor Zhang Mu for their support.

Also, this work was supported by the Teaching reform research project of Guangdong Province, and the project title is: exploration and practice of experimental teaching platform for tourism discipline-based on the perspective of improving the quality of Higher Education.

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