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# Research of E-Business Innovative Training based on CDIO Educational

## Philosophy

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**Abstract:** CDIO is on behalf of Conceive, Design, Implement and Operate. The carrier of CDIO engineering education philosophy is a project which allows students to take the initiative, practical, organic link between the curriculums for learning. E-Business specialty has a property combination of management and engineering. Therefore, with CDIO educational philosophy, to promote E-Business specialty and industry associated, to improve innovation and practical ability for Management talent for Applied, is the current employment situation and development trend of higher education, and a useful attempt to improve teaching quality construction. This paper analyzes of the current status of E-Business specialty and the implementation feasibility of E-Business specialty reform based on CDIO education , gives a innovative training model based on CDIO in Chengdu University of Information Technology.

Keywords: Training, E-Business specialty, CDIO educational philosophy, Chengdu University of Information Technology

## 1 INTRODUCTION

CDIO is on behalf of Conceive, Design, Implement and Operate. The carrier of CDIO engineering education philosophy is a project which allows students to take the initiative, practical, organic link between the curriculums for learning. Dozens of the world's leading universities have joined CDIO international organizations, many domestic colleges and universities have begun to try this reform, but mainly in the engineering profession.<sup>[1]</sup>

E-Business specialty has a property combination of management and engineering. Therefore, with CDIO educational philosophy, to promote E-Business specialty and industry associated, to improve innovation and practical ability for Management talent for Applied, is the current employment situation and development trend of higher education, and a useful attempt to improve teaching quality construction. Taking CDIO concept developed on the basis of engineering education to guide management major educational philosophy and teaching ideas, first faces with the scientific evaluation of the applicability of CDIO to the management class professional. E-Business specialty should be in the correct evaluation of the applicability of CDIO established based on the classification to promote strategies, and to science and appropriate target to guide teaching practice. To establish the process control system of CDIO project is the entity applied the effective implementation of the CDIO protection on the primary teaching goal.

## 2 ANALYSIS OF THE CURRENT STATUS OF E-BUSINESS SPECIALTY

At present, there are 327 institutions set up E-Business specialty. Some schools have better educational institutions conditions such as Zhejiang University, Xi'an Jiaotong University, Xiamen University, Northeast University of Finance, Southwest University of Finance, Hefei Industrial University. The feature of E-Business specialty in Zhejiang University is system development of E-Business , which is technology-based. The feature of E-Business specialty in Xi'an Jiaotong University, Northeast University of Finance and Southwestern University of Finance is electronic payment and finance, which is based on economic. Xiamen University and

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Hefei Industrial University are management-based, the former is major in modern e-commerce services, and the later is major in Management Science and Engineering.

Chengdu University of Information Technology is the first official enrollment unit of undergraduate e-business specialty, and is also the first institutions to establish e-commerce specialty in province. E-Business specialty in our school is management-based, and awards Bachelor of Management. It trains with modern economics, management theory and information technology and other knowledge, with application-oriented high-level expertise for modern enterprise management capabilities and the implementation of E-Business capability to the medium-sized industrial enterprises, software and services, network companies, commercial enterprises, financial institutions and other units engaged in E-Business applications and enterprise information construction, and composite work in e-commerce teaching and research In the network economy. After years of effort E-Business specialty in Chengdu University of Information Technology has gradually formed e-commerce and modern logistics, e-commerce and agriculture, information technology, e-commerce business three major characteristics, and won the national characteristics of the professional in 2010.

### **3 IMPLEMENTATION FEASIBILITY ANALYSIS OF E-BUSINESS SPECIALTY REFORM BASED ON CDIO EDUCATION**

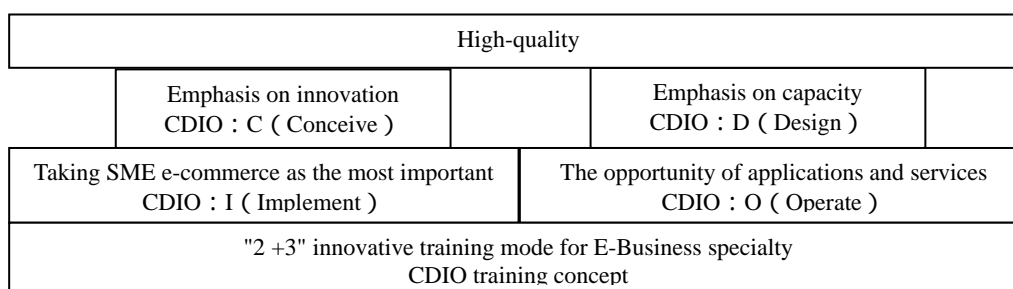
#### **3.1 CDIO description**

CDIO is on behalf of Conceive, Design, Implement and Operate <sup>[2]</sup>. It asks students to self-conceive a project, design and implementation of the project by proposals, making the product, operation products in the context of different applications. It is a product developed to run from the life cycle of the carrier, emphasizing "learning by doing" approach to learning. CDIO engineering education philosophy is to this whole process as the carrier to train students' engineering capabilities. This ability is not only to the individual's academic knowledge, but also the student's life-long learning, team communication skills and control large-scale systems. CDIO is a modern industrial products' whole life of process from conception, operation, to even end and disposal. It is an advanced idea of education and training model.

The basic content of CDIO includes: a vision, an outline, 12 standards, five guidelines. A vision means that school's mission is to develop engineers with professional skills, social awareness and acumen of entrepreneurial. This is essential to maintain high efficiency, innovation and excellence in the increasingly dependent on complex technology systems environment. An outline is four levels of capacity requirements to a student's personal academic knowledge, life-long learning, team communication skills, and ability to control large-scale systems. 5 guidelines are guidelines for a training program, course structure, teaching methods, teaching assessment and learning framework. 12 standards form a criteria whether to implement CDIO teaching philosophy.

#### **3.2 CDIO applicability of E-Business specialty**

E-Business specialty is able to effectively integrate into the CDIO philosophy in the conception, design, implementation, operation, and also needs CDIO as a guide to emphasis on "learning by doing" to be able to train the compound, application-oriented high-level professionals with the practical ability, Shown in Figure 1.



**Figure 1. Diagram of E-Business CDIO application model**

#### **4 INNOVATIVE TRAINING MODEL BASED ON CDIO IN CHENGDU UNIVERSITY OF INFORMATION TECHNOLOGY**

Training model based on CDIO emphasizes the overall of knowledge, ability and quality. This is the same to the personnel training standards of E-Business Education Steering Committee. Therefore, the training program, teaching methods and teaching methods have systematically tried in our school.

##### **4.1 Training program**

###### **4.1.1 Training standards highlight the "entrepreneurial innovation"**

Training standards set four-level indicators, such as technology-based knowledge, personal skills and professional competence, quality, and in the social environment to conceive, design, implementation, operation system capacity, and 15 secondary indicators, to describe the professional training standards. Personal skills and professional competence indicators clearly proposed the innovative ability of students, which is creative thinking, innovative practice and research and development capabilities. The ability indicator on Social environment to conceive, design, implementation, and run the system asked to develop familiarity and mastery of corporate culture, business strategy, goals and plans and successfully work in an organization, with the awareness of E-Business specialty in the corporate culture and business environment.<sup>[3]</sup>

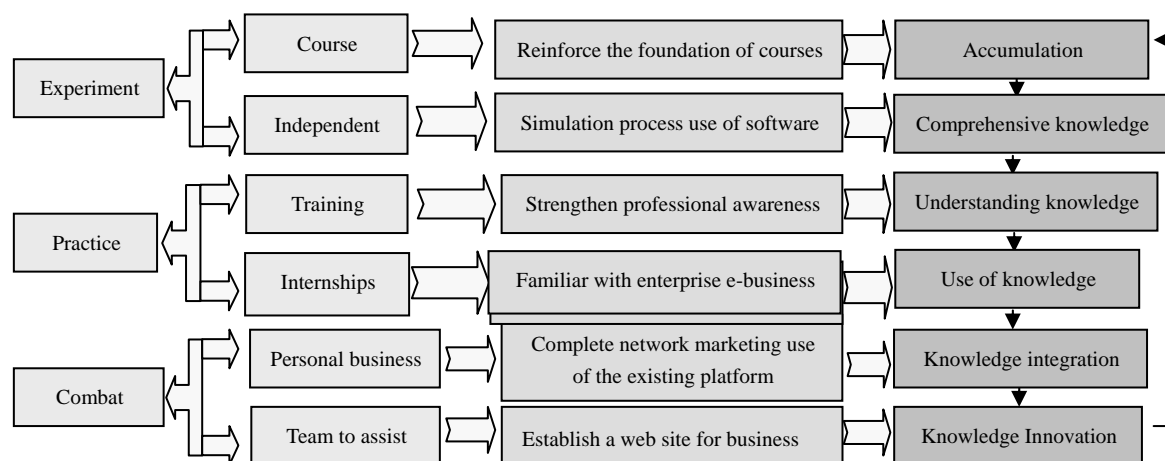
###### **4.1.2 Flexible use of innovative practices in teaching**

The Training program in Chengdu University of Information Technology provides undergraduate students studying innovative practice must complete four credits, innovative practices including social practice, academic competitions, participating in teachers' research, published papers, their own businesses, reporting scientific and technological achievements, academic seminars, professional certification and other sectors.

###### **4.1.3 Build a "experiment - practice - combat" integration of the practical teaching system**

E-Business practice teaching architecture can be divided into three levels: experimental level, practice level, combat level, Shown in Figure 2.

In the experimental level, our school has invested 1.3 million in E- Business and logistics laboratory, and configured a series of pilot project such as Deyitong E-Business simulation project, Boxing e-commerce platform development pilot project, Yongyou ERP application projects, ERP sandbox pilot project, Logistics simulation project, etc. At the same time, our school has also joined E-commerce and e-government Joint Laboratory which is built by E-Business Education Steering Committee of the Ministry of Education, sharing a variety of software resources to meet experimental resources for students' courses.<sup>[4]</sup>



**Figure 2. The level system of E-Business practice teaching**

In the training level, previous students are involved in national and provincial competitions and awards, while organizing students to participate in professional training certification, such as the Ministry of Labor, "e-commerce division," Ali Baba "e-commerce division," gold plan "full e-commerce division," "national security letter" e-commerce-training".

In practical level, our school has been signed with 12 companies practice base, such as Alibaba, Sichuan Unicom, refrigerated logistics company in the food group, Sichuan Rural Economic Information Center, Chongqing Golden Abacus Corporation, Sichuan method of digital companies, Chengdu easy network technology company, Chengdu So-so e-commerce company, etc.

The above three levels are interlocking and layer by layer depth. First, students can get perceptual through experiments to verify the principles and laws of e- business, to achieve knowledge accumulation and comprehensive. Second, students can make combination of knowledge learned and the practical application of business, to solve application problems, focusing on the use of knowledge, and further consolidate the results of previous knowledge. Finally, students design experiments standing with the business point of view to solve practical problems in achieving knowledge innovation. This innovative knowledge which is the next round of accumulation in the future study and work will be a new object recognition and validation. It will complete the continuous distillation of knowledge, and ultimately application-oriented goal of e-commerce training.

#### 4.2 The reform of teaching methods

E-Business courses taught through a combination of blackboard and multi-media teaching methods, teaching methods combined with experimental operation and classroom instruction, the assessment methods combination of final exam and assignments, so students a deep understanding and application of curriculum knowledge points to allow students to deep understanding and application of course knowledge points.<sup>[5]</sup>

Professional teachers pay more attention to interactive classroom discussion, in everyday teaching. Implementation of teaching methods such as case-based teaching, e-commerce practice design project-based, will thoroughly implement the concept of CDIO into teaching practice. In addition, professional teachers are to play network application skills, and build a network teaching platform, an interactive guide for students. Specific form of QQ chat tools, forums, email, blog, etc.

Currently there are classes QQ group of every E- business class, professional teachers, can always go QQ group to communicate with students after-school time. Professional teachers publish their own e-mail address to students to receive questions and answering students' questions. School teaching Platform sets up curriculum forum and teaching blog section, and professional teachers can easily interact with students on teaching platform.

The use of these teaching methods greatly enhances the exchange and sharing of teachers and students, and timely answers students' questions.

Reform of teaching methods has greatly increased the frequency of communication between teachers and students. This plays a good role in enhancing students' sense of innovation and entrepreneurship to cultivate students' enthusiasm. Professional teachers has done a lot of work and made a series of achievements to provide entrepreneurial opportunities for students, guide students to start their own businesses.

## 5 THE QUALITY OF PERSONNEL TRAINING

E-Business specialty development in Chengdu University of Information Technology has made sound and fast development. To develop E-Business entrepreneurial talent has become one of the characteristics in our school.

In helping students' entrepreneurship, Liaojie network ([www.6Joo.com](http://www.6Joo.com)) as the search for innovative business information platform, which was founded by the students in our school, which is successful on-line operations, and operating in good condition now. In guiding students in their own businesses, Liuyong Zhou set up a company engaged in the search engine optimization (SEO); Yuxi Liu set up a company to provide comprehensive Internet marketing solutions, and his key customers are in the financial industries and enterprises; Junchen Guo and Zhengyin Shen are operating e-commerce platform, based on the campus network, and the business model and platform services have extended to Chengdu. In addition, there are many college students to achieve a platform for business, such as Taobao, eBay and other platforms to provide products and services, access to the business of practical experience. In guiding students in academic competitions, the students repeatedly get good grades at the National University 'Challenge'. The students have achieved fruitful results at the National University "creative innovation and entrepreneurship," E-commerce Challenge, and has achieved a good result in a national contest, made a Grand Prize, a prize, two second prize, a prize.

## 6 CONCLUSION

This paper evaluates the feasibility of the implementation of CDIO in E-Business specialty in Chengdu University of Information Technology, sums up the experience of E-Business innovation and professional training, builds capacity-building program, develops a comprehensive implementation plan (including training programs, teaching methods, teacher, student assessment, learning environment), and introduces a pilot project to test the implementation process and results. The program has good operability.

## ACKNOWLEDGEMENT

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