A Follow-up Study to Determine the Effectiveness of a Faculty Development Program Designed to Transition to a Student-Centered Approach at Xi'an Eurasia University in China

Huixiang Yuan

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A FOLLOW-UP STUDY TO DETERMINE THE EFFECTIVENESS OF A FACULTY DEVELOPMENT PROGRAM DESIGNED TO TRANSITION TO A STUDENT-CENTERED APPROACH AT XI’AN EURASIA UNIVERSITY IN CHINA

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Submitted to the School of Education

Duquesne University

In partial fulfillment of the requirements for
the degree of Doctor of Education

By
Huixiang Yuan

May 2014
A FOLLOW-UP STUDY TO DETERMINE THE EFFECTIVENESS OF A FACULTY DEVELOPMENT PROGRAM DESIGNED TO TRANSITION TO A STUDENT-CENTERED APPROACH AT XI’AN EURASIA UNIVERSITY IN CHINA

By
Huixiang Yuan

Approved March 17, 2014

Joseph C. Kush
Professor of Education (Committee Chair)

William A. Barone
Professor of Education (Retired) (Committee Member)

David D. Carbonara
Assistant Professor of Education (Committee Member)

Olga M. Welch
Dean, School of Education
Professor of Education

Jason Margolis
Chair, Department of Instruction and Leadership
ABSTRACT

A FOLLOW-UP STUDY TO DETERMINE THE EFFECTIVENESS OF A FACULTY DEVELOPMENT PROGRAM DESIGNED TO TRANSITION TO A STUDENT-CENTERED APPROACH AT XI’AN EURASIA UNIVERSITY IN CHINA

By
Huixiang Yuan
May 2014

Dissertation supervised by Joseph C. Kush, Ph.D.

This study investigated the effectiveness of a two-year faculty development program designed to assist faculty in making transition from a teacher-centered to a student-centered approach to instruction at a private university in China. One hundred full-time faculty participated in the program and ultimately 52 participants who attended entire two-year workshops were involved in the research. Seven point Likert Scale survey including open-ended questions as well as live classroom observation techniques were used to examine how participants perceived the faculty program, whether they made improvement of their learning of knowledge, skills, and attitudes, and whether participants used what they learned after the completion of the program. The findings from this study indicated that the most of majority participants (93%) had significant
positive reactions to the faculty development program; they made great improvement in their learning of knowledge, skills, and attitudes (t statistic is -6.163; p value is far smaller than 0.05); participants started using student-centered behaviors they learned in their teaching practice after completion of the program. The unintended outcomes regarding program improvement were also found through open-ended questionnaire in this study. The results inferred that trainer’s ability strongly contributed to the high degree of overall evaluation of the program. A follow-up and longitudinal research is needed to track the impact on the organization and the impact on students’ learning achievement over time. More types of university contexts including both private and public universities need to be addressed for future research.
DEDICATION

This dissertation is dedicated to the 20th anniversary birthday of Xi’an Eurasia University (XEU), which I founded in 1995, collaborated with partners in 1997. XEU provided me an opportunity to explore higher education development both in China and in the globalized world. XEU started with a foreign language training program offered to people who would like to go abroad and developed smoothly and quickly by the initial exceptional teaching method. When XEU transferred to offer full-time degree program for students, Internet and information technology changed everyone including all college student’s life. In order to meet the diversity of students’ needs for best learning, I had to enhance my academic competency to serve better for our students, while it produced an opportunity for me to work on my doctoral program majoring in Instructional Technology and Leadership at Duquesne University. This dissertation is first specially dedicated to be a special gift of XEU’s 20th birthday in 2015 and a better service of students who are studying at XEU. I also would like to express my sincere thanks to my partners of XEU, professor Hu Jianbo & Mr. Yang Jianlong, who supported me both in my four years study abroad without much workload and in the process of this study.
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I especially extend heartfelt thanks to my advisor, dissertation chair, Dr. Joseph Kush. You have been a tremendous inspiration and provided considerable instruction to me both personally and professionally. Thank you so much for your patient instruction, professional and rigorous research attitudes, and your elaborate effort in leading the way thus making me to have a meaningful, enriched, joyful, yet rigorous dissertation journey.

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During the four years’ learning journey in the U.S., some of my close friend, Dr. Regina Boerio, Mr. Victor Boerio, Dr. Tianzhong Huang, Mr. Laigang Wen, Dr. Hu
Weiping, Dr. Pan Haitao, Dr. Duan Haijun and colleagues of XEU have been giving me a strong support either in spirit or in substantial study field. Thanks all of your unselfish assistance and support.

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Chapter One

**Rationale**

**History of Faculty Development in the U. S.**

Faculty development clearly plays a critical role in the improvement of teaching and learning in higher education institutions. Faculty development originated from sabbatical leaves first instituted at Harvard University in the early 1800s (Lewis, 1996) and continued to evolve for many decades in the United States. Faculty development has been defined as “the broad range activities institutions (of higher learning) use to renew or assist faculty in their varied roles” (Centra, 1976, p.5). The term “faculty development” was commonly used to describe the activities or programs designed to improve faculty’s teaching effectiveness and make changes in their teaching and students’ learning.

Although a traditional interpretation of the term "faculty development" has been the use of sabbaticals, research grants, funding to attend professional meetings, and so on, many institutions expanded that interpretation to include a wider range of activities. Early on, Francis (1975) defined faculty development as a primarily classroom-based, individualized endeavor: a “process which seeks to modify the attitudes, skills and behavior of faculty members toward greater competence and effectiveness in meeting student needs, their own needs, and the needs of the institution” (p.720). Similarly, Lewis (1996) noted the term faculty development included three key areas: personal development, instructional development and organizational development.

A detailed classification of faculty development activities has been described by Centra (1989) as four types of development: personal (interpersonal skills, career...
development, and life planning issues); instructional (course design and development, instructional technology); organizational (ways to improve the institutional environment to better support teaching); and professional (ways to support faculty members so that they fulfill their multiple roles of teaching, research, and service). Although the specific uses of the term overlapped, the common goal of the faculty development was to teach faculty members the skills and knowledge relevant to the institutional setting and faculty position, and to sustain their vitality in their teaching and students’ learning.

Colleges and universities in the United States had a long history of commitment to the development and success of faculty members related to their disciplinary expertise and research (Ouellett, 2009). Faculty development continued to expand in U.S. higher education in the social and economic turbulence of the late 1950s and 1960s (Bergquist, 1992; Rice, 2007; Sorcinelli, Austin, Eddy, & Beach, 2006). With the advent of the student rights movement across higher education in the United States, students began to demand more control over what they studied and to assert the right to give teachers feedback on what they found to be boring and irrelevant courses (Gaff & Simpson, 1994). Additionally, students began to demand a role in the determination of the content of the curriculum, expecting that courses would be, in their perceptions, more relevant to their experiences, concerns, and aspirations. Sorcinelli et al. (2006) categorized the evolution of faculty development into four past ages and the new current one: the first stage (roughly the mid-1950s into the early 1960s) as the Age of the Scholar, indicating that during this time faculty development efforts intended to improve scholarly competence. Few colleges and universities had formal programs and there were few studies of faculty development efforts; the second stage (the mid-1960s through the 1970s) as the Age of
the Teacher, witnessed an extension to include of faculty, instructional, and organizational components of the improvement of teaching effectiveness. Foundation support spurred campuses to create faculty development programs. Faculty development secured a professional identity through the founding of two associations in the United States; the third age as the Age of Developer, this period saw a number of faculty development units emerge formally on campuses and a greater institutionalization of the role of faculty developers (Eble & McKeachie, 1985; Erickson, 1986; Sorcinelli et al., 2006). Faculty development broadened to address curricular issues, faculty needs at different career stages, and collective as well as individual faculty growth. Programs were increasingly supported by institutional and external funds, creating heightened interest in measuring the outcomes of teaching and faculty development efforts. Canada created its own society for teaching, learning and faculty development; the fourth age as the Age of Learner, a dramatic paradigm shift stage, the focus of teaching and instructional development moved from what had been a singular focus on the development of the pedagogical expertise and platform skills of teachers (the “sage on the stage”) to include a focus on student learning (teachers as the “guide on the side”). This shift caused a surge of interest in student-centered pedagogical methods (Barr & Tagg, 1995; Sorcinelli et al., 2006). During this stage, the number of teaching and learning centers continued to increase, the scope of the activities expanded. Multiple venues for faculty development proposals and recognition were created within educational associations, foundations, professional societies, and international consortia.
New Stage of Faculty Development in the U. S.

The new stage was described as the Age of the Networker (Sorcinelli et al., 2006). In this stage, faculty developers will network with faculty, administrators and academic leaders to respond to institutional problems and propose constructive solutions to meet the challenges of the new century. Data gathered by Sorcinelli et al. (2006) indicated a rapidly growing constellation of individuals responsible for education development activities. More new comers involved into all kinds of faculty development activities and instructional technology gradually dominated the new teaching practice. Multiple factors such as program developers, administrators, and institutional policy support strengthened the communication and collaborative learning among those related to faculty development. These stages of faculty development clearly reflected the situation of higher education development and changes in faculty development across each age in America. The evolution of the faculty development inferred that the factors such as the relationship of variable of demand and supply in the higher education market, the role player’s change among government, higher education institutions and students, the impact of progressive technology on stakeholders of higher education greatly influenced higher education development and caused a series of reforms and changes in higher education including the faculty development in the United States.

Changes in higher education and the expectation of faculty members, including paradigm shifts in teaching and learning and emergent research on the stages of faculty life, contributed significantly to the scope and breadth of faculty development. Furthermore, as the teaching and learning in higher education has become more complex and faculty development has matured as a field of practice, different types of faculty
development have emerged. In terms of the role of faculty development in the whole structure of the university, Wright (2001) defined four types of faculty development organization models: Multi-campus Cooperation Program, A Single Campus-wide Center, the University with Special Purpose Center and Development Components of other Academic Program. When comparing these four types of faculty development organization models, each model was designed to match the individual organization structure. Nevertheless, the role of the faculty development in the structure of the university determines the effectiveness of the faculty development.

Although different researchers have defined organization of faculty development differently, the basic organizational structures were incorporated in following areas such as single, centralized teaching and learning center, individual faculty member, with or without a physical center, a committee that supports faculty development, a clearinghouse for programs and offerings (Lee, 2010). These centers fell into one of the five basic organizational structures above, offering combinations from a common palette of programs and services. Nevertheless, workshops, individual consultations and classroom observations were the first three types of program and services as well as other expanded programs and services offered in the institutions. These programs and services represented the four classic areas of faculty development: personal, instructional, professional and organizational development.

An effective faculty development program should establish the explicit mission for the faculty-training program and establish the specialized organization. The mission can help those who teach to learn to do it ever more effectively. This type of mission can be set up according to each categories of faculty development: personal and professional
development can help faculty members with all aspects of faculty work across their careers, instructional (curriculum) development can facilitate instructional design in the contexts of course units up to the whole programs such as general education or degree programs, and organizational development can help the institution to develop as an intentional learning organization in order to enhance strategic institutional effectiveness (Robertson, 2009). Establishing a specialized organization can ensure the mission develops to its’ full potential. Similar characteristics currently exist at almost all prestigious universities in the United States that established their own faculty development office or the similar name such as the center for teaching excellence (Barone, 2010). In a survey of 300 higher education institutions on faculty development resources, the results showed that seventy-five percent of the research universities established the faculty development center regardless of other types of faculty development organization or activities such as Central Unit, Clearinghouse, Committee and individual (Sorcinelli et al., 2006).

The long decade of evolution of faculty development stages in America clearly reflected the prosperous education achievement in America becoming a milestone for the whole world. Influenced by the rapid development of information technology and education globalization, most higher education institutions in the world had begun to realize the great influence of faculty quality on student learning and on overall institutional effectiveness. The single most important factor in determining the quality of education in universities has been shown to be the quality of faculty members (Rahman, 2011). More challenges such as demands for greater accountability, the loss of public trust, and increasing financial constraints placed great pressure on academic institutions
These pressures along with increasingly stringent requirements for promotion and tenure, decreasing mobility, and erosion of faculty autonomy created significant stress for faculty members. All of these created opportunities for education researchers and higher education institutions to change and innovate their traditional teaching. The more challenges education institutions faced, the more pressure would be given to the faculty regardless of nationality.

**Faculty Development outside of the United States**

Faculty development has grown as a field for effective teaching and learning practice and extension throughout the world. Some Canadian developers founded the formal organization, the Society for Teaching and Learning in Higher Education (STLHE) in 1981 to support improvement of teaching and learning in higher education in Canada. The international faculty development of organizations such as the Staff and Educational Development Association (SEDA) and the International Consortium for Educational Development (ICED) were founded in England in 1993. These organizations marked the globalization of faculty development. In most European countries including Norway, Sweden, the Netherlands and UK there already existed quality development schemes and initiatives connected with staff development to ensure the university qualities in the 1990s (Fan, 2011). Faculty development has been widely spread out and made a remarkable achievement in most European countries. More and more developing countries have realized the importance of the faculty quality in higher education development. Great achievement and accomplishment have been made in most countries such as Sweden, Australia and Finland since the International Consortium for Education Development was born in Oxford, England in 1993 (Lewis & Kristenson, 1997). A
Higher Education Commission was established in 2002 in Pakistan to restructure the higher education system. Faculty development was identified as a critical element that led to emergence of Learning Innovation Division in 2003. The objective was to encourage and support faculty and staff teams in creating a high quality, relevant and efficient learning and teaching culture. This led to intensive faculty development activities and introduction of a certificate course in university teaching. Additionally, this study showed that the intervention had positive improvement for teaching and learning (Siddiqui, 2009). After the formation of HEC (Higher Education Commission) in 2002 in Pakistan, government started to provide training programs that focused on improving the quality of faculty members in leading universities in USA, Europe, Australia, New Zealand and China (Rahman, 2011). Finally, the world’s oldest and most famous scientific society, the Royal Society (London), in a book entitled *A New Golden Age* has termed these programs of Pakistan as “the best practice model to be followed by other developing countries.”

Faculty development has evolved into a field with global reach (Chism, Gosling, & Sorcinelli, 2010; Dezure et al., 2012). Past the Professional and Organizational Development (POD) Conference sessions presented articles and shared perspectives and best practices on collaborations with Asia, the Middle East, and West Africa, among other regions (Babarinde, 2011; Dezure et al. 2011; Lee, 2011; Schram, Cook, Kaplan, & Zhu, 2011). With the globalization of the world, in addition to the development of Internet technology, higher education has not been limited in the space and location. More students expected to receive new teaching method both within their own country and went abroad. Some scholars introduced the new teaching methodology through online courses or academic exchange to the whole world including China, Singapore,
India, South Korea, and Hong Kong. The impact of globalization, demographic changes and the development of modern information technology inevitably influenced Chinese higher education and brought about challenges including quality of teaching and the increased demand of students in Chinese higher education institutions.

**Need for Faculty Development in China**

**Mass higher education in China.** Chinese higher education has developed rapidly over the past ten years (see Figure 1.1). It originated from the remarkable policy change implemented by the Chinese government. The State Council of the Chinese Communist Party issued document on June 13th, 1999, *Decision of Deepening Education Reform and Comprehensive Promotion of Quality Education* (the Chinese State Council, 1999), and noted that China planned to expand the scale of higher education in order to slow pressures upon entrance to college for students and stimulate domestic demand.

The Chinese government conducted a new strategy that China planned to enter the phase of mass higher education by 2010 through enrollment expansion (that was called Chinese Mass Higher Education Strategy) in 1999. The number of enrolled students in higher education rapidly increased more than six-fold from 1998 to 2012 (China Statistic Yearbook, 2012). The number of full-time teacher in regular higher education institutions increased from 407 thousands in 1998 to 1.39 million in 2010 (China Statistic Yearbook, 2012). Private universities developed rapidly with the mass higher education strategy. There were 676 private institutions with 4.76 million students and 236,000 full-time teachers in China (China Statistic Yearbook, 2010). Private universities accounted for about one-third of the total universities in China (Brandenburg & Zhu, 2007).
By the end of 2011, the total scale of all kinds of higher education students in China was 31,670,000; the gross enrollment ratio of higher education in China was 26.9% (the National Educational Business Development Statistics Bulletin 2011, China). China had successfully entered the phase of mass higher education. Compared with most developed countries, China still intended to improve the gross enrollment ratio of higher education in the future. According to China National Medium and Long-term Education Reform and Development Outline 2010-2020, China gross enrollment ratio of higher education plans to reach 40% by the end of 2020. However, the demographics showed that the number of college-age students continued to declining from 10.5 million in 2008 to 9.15 million in 2012; simultaneously, the number of students studying abroad increased from 180,000 in 2008 to 400,000 in 2012. (See Figure 1.2).
The most important trend to be noted is the declining population of young people who traditionally have been the customers of higher education institutions (Mathis, 1983). Obviously, there is a great challenge for higher education institution to survive coming from the contradictions between the declining demographic of college-aged students and increasing enrollment ratio plan. All higher education institutions will compete for the limited students in the same market and the competition for student recruitment will radically leads to the competition of teaching quality.

**Chinese higher education challenges.** Both students and researchers in China criticized teaching quality in the higher education institution. China has a long history of
education, for mainland Chinese students education today still focuses on the acquisition of a vast store of knowledge through rote memorization, at the expense of creativity (Chan, 1999; Chow, 1995). Although higher education systems around the world differed considerably in structure and the methods used in teaching, there was universal concern for the quality of undergraduate teaching and learning (Lewis et al., 1997). With the increasing number of students being admitted to college, Chinese students have paid more attention to the quality of the teaching and the opportunity to have a desired job after graduation.

China joined the World Trade Organization in December of 2001. Integration into the world economy led to a redefinition of the role of higher education in China (Vidovich, Yang, & Currie, 2007). With the development of globalized education, there were more and more opportunities for Chinese students to be admitted by universities in foreign countries. Additionally, the increased number of middle-class families made it financially possible for Chinese students to study abroad. Chinese students had heavy learning burdens because of the Chinese education system although Chinese government demanded all schools to reduce academic burden (“Heavy Burdens on Students,” 2009). Most Chinese students were bored by the faculty-directed – examination teaching method that was typical of most Chinese education. As a result, China had become the world’s biggest source of overseas students, Beijing Times reported. By the end of 2011, more than 1.4 million Chinese students studied abroad, an average increase of 23 percent for three consecutive years, according to statistics by the Ministry of Education (“Students Studying Abroad Increases 23%,” 2012). China Industry Research Net reported that one million Chinese students gave up the National Higher Education Entrance Examination
(Called “Gao Kao” in China) each year in June 2013, most of them who were elites went abroad, and the reason for some going to study in the United States was more recognized education model and quality of the States (China Industry Research Net, 2013).

According to the Institute of International Education and the State Department’s Bureau of Educational and Cultural Affairs, Chinese enrollment in U.S. universities rose 23% to 157,558 students during the 2010-2011 academic year, making China by far the biggest foreign presence, ahead of India (103,895) and South Korea (73,351).

Recently more researchers have closely examined the reasons for the increase of Chinese students’ study abroad. Chinese traditional education system was argued that it had serious weaknesses that it focused too much on rote memorization and didn’t give students enough training in morality and extracurricular activities (Rein, 2012). Prepping students to get high-test scores didn’t translate into teaching them to think critically. This was one of the reasons why Chinese students have flocked to overseas universities to earn Bachelor’s and graduate degrees. This trend provided opportunities for universities to bring American education directly to China. Both Duke and New York University are building campuses in the Shanghai area to offer full-time programs to students there, and executive education courses are already a proven success, Harvard’s Senior Executive Program in Shanghai. Among them there were already many joint venture programs with American universities on the campuses of Chinese institutions, but the trend toward larger-scale initiatives seemed clear. (Rein, 2012). The prestige of obtaining a Western degree attracted more Chinese students and increasing numbers of them were able to afford it (Lin, 2010). The advantages and the ability to study abroad to receive a high quality education were not only recognized by most students who studied abroad but also
recognized by Chinese government. Chinese experts defined the following five main advantages of study abroad as seen by the government (Brandenburg & Zhu, 2007): 1) They wished to train and develop a pool of talent with up-to-date knowledge and expertise; this focus on the modernization in and out of China; 2) It was seen as important to create new elite with international experience, international perspectives and international language skills; 3) Besides exchange, international cooperation was regarded as a way to upgrade China’s standard in education and research (new methods, standard skills); 4) Through study abroad more Chinese students could receive higher education (reflecting the Gao Kao results); 5) By sending students abroad (and returning to China), the government wants to improve the understanding of China and Chinese Culture.

Nonetheless, more Chinese students studying abroad actually reflected a great threat to Chinese universities and presented an acute challenge to the quality of Chinese higher education. The fact that graduating students had difficulty finding jobs increased the tension for many Chinese parents. More Chinese parents were worrying about the quality of Chinese education influencing their children’s job opportunities after graduation. Chinese education practitioners were forced to pay more attention to the improving the quality of teaching and the job opportunities for students after graduation.

Challenges of enrollment expansion and students demands for new technology and knowledge were still severe for Chinese higher education development. The massification of Chinese higher education occurred about 50 years after the opening of higher education in the United States. Massification will continue to be a major factor in the growth of higher education enrollments during the first half of the 21st century in
China. The predicted growth over the next 30 years from 2000-30 is likely to surpass that experienced between 1970 and the year 2000. The predicted number of students enrolled in higher education by 2030 is forecast to increase from 99.4 million in 2000 to 414.2 million in 2030 – an increase of 314%. The number of students added to these projections by 2035 is likely to exceed 520 million (Barone, et al., in submission). Most of this growth will take place in East Asia and the Pacific Rim. Out of the total increase of 520 million, East Asia and the Pacific Rim will account for approximately 470 million students with the enrollment in the United States and Europe growing to about 52 million students (Calderon, 2012). The problems brought about by massification will still be a major factor in determining university development and the allocation of institutional resources. As in the United States, along with the dramatic increases in enrollment, massification in China brought change in student demographics and the need to increase the number of higher education faculty, expand student services and construct new physical facilities. Massification also brought new students with different backgrounds, cultures, learning styles, learning modalities and academic needs. These new students also viewed the purpose of a university education in quite different and more pragmatic terms. For the first time, Chinese students learned that they were no longer guaranteed a job upon graduation. This new population of students is forcing institutions of higher education in the United States and China to confront the traditional teacher-centered approach to teaching and learning and to explore more effective strategies for working with this diverse population (Barone et al., in submission). Institutions of higher education must meet the needs of these new students, who will be living and competing in a globalized work place, they must become student-centered and outcome based.
Students need to be actively engaged in the process of their learning, accept responsibility for their learning and become intrinsically motivated to become life-long learners (Carini, Kuh, & Klein, 2006).

Harris and Cullen (2010) in their work “Leading the Learner–Centered Campus” stated that five challenges confront universities as a result of massification: 1) the demand for new knowledge which is related to emerging technology used in the global marketplace, 2) changes in perception of the universities traditional role, 3) demographic changes and declining numbers in the traditional college-age cohort, 4) industry and market changes and 5) institutional processes, student and budgetary demands on the university that create opportunities for teaching innovation. Institutions of higher education are being challenged on all fronts. Changes are essential for all universities to response to the changing environment.

Declining demographics in the traditional 18 – 22 year-old cohort of college age students will exacerbate the situation and increase the competition for Chinese universities. There appear to be four rigorous problems for higher education in China, firstly, the crisis of student recruitment for both public and private university in China. With the demographics declining, addition with more and more students study abroad and better students competition among universities, student recruitment seems more difficult than before for most local colleges and private universities in China; secondly, the issue of unemployment of college graduates. It was easily surprised to find the fact that, on the one hand, many employers did not find satisfied graduates in the human resource market, on the other hand, many students did not find desired job (Brandenburg & Zhu, 2007). There actually existed a very large gap between employers and graduates;
thirdly, teaching quality is one of the serious issues for Chinese higher education. The enrollment expansion resulted in lack of sufficient and efficient faculty in most higher education institutions, especially the new established universities and private universities; lastly the financial issues were still a critical problem for both public and private universities in China. During enrollment expansion stage, almost all the public universities had to get large sums of money from bank loans to build their new campus regardless of their ability to repay. Although some provincial government met their liabilities instead of affiliated universities, addition with increased allocated funds for public universities, tight financial issues were still a problem for most public universities. Private universities seemed to control their financial risk when they built their campuses; however the tuition revenue, as the only finance source, could not neutralize the increasing inflationary forces and unpredictable demands from both government and themselves.

Private universities in China are facing increasing competition from both the external and internal sector. Almost all the private universities in China heavily rely on the tuition to keep the university running. In addition, in China, it was commonly considered that public universities, especially the national ones, were better than private universities (Brook, Chen, & Luo, 2003). Universities in China generally selected their students based on students' performances in the National Higher Education Entrance Examination, the entrance scores required by public universities were typically much higher than those of private universities. However, it should be noted that private universities in China had been developing only in recent decades, thus many people could easily regard private universities as newer and academically less competitive. Compared
to public universities, private universities lacked any kind of positive reputation, which in Chinese culture has been critical to enroll better students and generate more funds. Moreover, many Chinese people thought private education was not reliable or credible. Given a choice, many parents preferred that their children attend to the public universities. Chinese private universities encountered more severe challenges than public universities (Brook et al., 2003).

**Responses from Chinese government to meet the challenges.** Considering all challenges facing Chinese higher education, on 21st, June, 2010, the former General Secretary of P. R. C., Hu Jintao presided over the meeting of the CPC Political Bureau, which reviewed and approved the Outline of China's National Plan for Medium and Long-Term Education Reform and Development (2010-2020). Hu Jintao, pointed out, “We must adopt a learner-centered approach, promote overall development of the students and help them develop a sense of social responsibility, innovative spirit and good problem-solving skills.” (Hu Jintao, 2010, “the meeting of the CPC Political Bureau” Para. 4). According to the meeting, in order to build a strong nation, China must first develop the educational infrastructure. Human resources and education are crucial to the future development and rejuvenation of the Chinese nation.

A series of higher quality projects such as Project 985 (the title derived from the year and month which was announced, May 1998, when the former president of China, Jiang Zemin declared that China was in need of some fist-rate universities on international level. Accordingly, the Ministry of Education launched the “the Education Action Plan Toward the 21st Century” which explicitly stressed the development of World Class Universities and Renowned High-Level Research Universities), Project
211 (refers to the aim of building up 100 top level higher education institutions and key disciplines in the 21st century) and the Higher Education Quality Project conducted vigorously all over the Chinese universities. According to Action Plan for Invigorating Education 2003-2007, all Chinese higher education institutions were required to be evaluated by the government every 5 years under the Higher Education Law of People’s Republic of China. The object was to promote to change, promote to develop, promote to enhance management through review; the most important goal for reviewing was to develop. It was called “Education Level Evaluation of Undergraduate Program for the colleges and universities”. There was a set of Standard Evaluation Indicators Systems designed by the government to conduct the evaluation. Evaluation experts drawn from the expert database randomly were assigned to review each university according to the Evaluation Indicators. The conclusion would be judged after review as four types such as excellent, good, qualified, and failed. Universities that were reviewed as “failed” would be banned from admitting new students until they qualified for the Evaluation Standard. The common weakest index in the review for most university in China was the quality and quantity of the faculty. In March of 2012, The Chinese National Ministry of Education published a document in which they emphasized the need to improve the quality of teaching in institutions of higher education. Within the document, it emphasized that higher education institutions should improve faculty’s professional skills and teaching ability to ensure excellent teaching. They could do this by establishing a center for faculty development at each institution that would be charged with promoting the improvement of teaching.
Faculty development in China. Faculty development was commonly identified as “faculty education/training” in China. Faculty development in China experienced four stages with the development of Chinese higher education: the first stage (from 1953 through 1966) was called the initial stage. This was the time of establishment of New China (compared with the Old China, New China refers to the establishment of the People’s Republic of China in 1949). The most important task at this period was to solve the problem of faculty deficiency through selecting some faculty from secondary schools to work at the universities. The Chinese Ministry of Education issued a document entitled, Interim Measures for Teachers’ Further Education at Colleges and Universities in 1953 to start the faculty training business. The government selected an array of faculty to go to the former Soviet Union to enhance their both teaching ability and political business ability. Most of the Chinese current teaching methodologies (e.g., rote learning) learned from Soviet Union at that time. Short term seminars, visiting scholars, exchange programs and vacation seminars, discussion meeting were also the additional activities for faculty development; the second stage (1978 through 1986), was called redevelopment stage since the Ten-Year Great Cultural Revolution heavily damaged higher education in China. During the Ten-Year Great Cultural Revolution period, faculty development was interrupted for ten years. Since the Third Plenary Session of the 11th Central Committee of Chinese Communist Party, higher education gradually redeveloped while the faculty met the challenges such as business out of practice, knowledge out of date and temporary shortage between academic leader and backbone teacher. The main goal of faculty development at this stage was to foster development of young faculty through Master-level program; the third stage (1987 through 1993) was
called the shaping network period. This period featured as taking compulsory administrative measures to force faculty to receive training program according to the allocated quota at the National Faculty Training Center.

China had three levels of faculty training system as a centralized management system serving all public universities: two national faculty training centers based on Beijing Normal University and Wuhan University, six regional faculty training centers and provincial faculty training centers. The faculty training programs were funded by the government for all public universities. A limited quota was assigned to the local education department by the training center each year, and then it was distributed to some of the public universities. Hence, the training service couldn’t meet all university’s needs, couldn’t meet the entire faculty who need to participate the training program. There was no opportunity for private university to send their faculty to participate the training program. The last stage (1994 to present) was called legalization stage. Faculty development started to go on the legalization way after the Chinese Teacher’s Law was issued in 1994. The government took a series of measures such as further education for degree improvement programs, key teacher foundation project, foundations of returned overseas student project, cross- century talent training plan, high level creative talent project etc. to improve faculty development.

In order to improve the professional teaching skills of young and middle-aged faculty at higher education institutions, Chinese Ministry of Education approved 30 Faculty Development Demonstration Center within all ministry and commission affiliated higher education institutions (Document of the Ministry of Education of the People’s Republic of China, 2012). This document marked the concept shift that Chinese
government emphasized faculty development rather than faculty training. The government also would provide RMB 5,000,000 for each center during the 12th Five-year Development Plan. This document was the first official document related to the establishment of faculty development centers.

**Problems of faculty development in China.** It could not be denied that Chinese government had made many efforts to improve faculty teaching ability during the past decade and had made great achievement historically. Comparing with faculty development in developed countries, there were still following basic problems concerning faculty development in Chinese higher education institution: firstly there was obvious supply and demand contradiction between the size of the higher education institutions and the faculty training with the rapid growth of the faculty in the public university excluding private university. The number of students at Chinese higher education institutions increased from 4.367 million in 1999 to 18.493 million in 2006, the growth rate was 323%, the corresponding faculty number increased from 426 thousand in 1999 to 1.076 million in 2006, the growth rate was 152%; secondly, there were acute contradiction between education degree & academic research improvement focused training and diversified needs of faculty development. Many participants aimed at improving their education degree without sustained motivation for training program. Additionally, lecture-directed methodology unified content design and top-down quota-allocated mechanism greatly influenced the effectiveness of the training program; thirdly, tight financial budget of training program restricted faculty development. According to the regulation of faculty training for higher education institution, three parties disbursed the budget for faculty training, ministry of education level, provincial level and university
level. The complicated finance management system influenced the enthusiasm of participants to large extent (Xu, 2009). Hence, recent researchers and practitioners called for institutional-based faculty development model to improve the faculty development efficiency and effectiveness in China (Fan, 2011). In response to these needs, the Chinese Ministry of Education started to establish 30 national Faculty Development Demonstration Center on among 2358 Chinese higher education institutions.

Chinese massification of higher education made a tremendous achievement to meet more people’s need for higher education, and both public and private universities in China had a rapid development in recent years. However, the rapid development in such short time created many problems for higher education. According to the results of the survey of Faculty Training in Chinese Higher Education institutions by Liang, Zhang and Wu (2005), 62.35% of the faculty thought the most difficulties for their teaching were lack of training opportunity; more than 10% percent of the faculty had never participated professional training program since they became teacher. The enrollment expansion resulted in two tremendous contradictions in faculty development: firstly, student-faculty rate rose substantially so that faculty spent more time on teaching rather than participating training program; secondly, a rapid increase of new and young teachers resulted in the stringent need for training (Xu, 2009). Moreover, full-time faculty who work at private university were majority of new and young faculty. The quality of education had been stressed both by the government and the universities to meet the future challenge.

Within China, higher education institutions were being challenged on all fronts and were attempting to change their paradigms in teaching and learning. Incremental changes
had to be made in respond to these challenges abound, even a comprehensive change in paradigms had to be made (Harris & Cullen, 2010). Faculty in the United States and abroad had been experimenting and adopting learner-centered practices with great success. There was a survey clearly demonstrated that the student-centered learning project could be moved forward in European level with the active participation of the unions (Attard, Di Iorio, Geven, & Santa, 2010). Wright (2011) in his paper, Student-Centered Learning in Higher Education, listed some examples to justify Weimer’s thesis that moving toward to learner-centered teaching would lead to greater success for students and increased job satisfaction for teachers according to five dimensions of student-centered learning model. With the rapid development of the society, technology seemed make all traditional paradigms changed. Students looked more socialized to learn, faculty had to change their role in the classroom to meet the diversity of the learners. The successful achievements of student-centered practices in developed counties led Chinese researchers and practitioners to rethink and reconstruction the higher education transformation.

**Faculty Development Program Initiated at Xi’an Eurasia University, P.R.C.**

Development of private university in China. There were 698 private institutions with 5.05 million students (3.11 million are undergraduate students) and 371,554 full-time teachers by 2011 in China (China Statistic Yearbook, 2011). Private universities accounted for about one-third of the total universities in China (Brandenburg & Zhu, 2007). Xi’an Eurasia University was one of the 87 private universities offering undergraduate programs in China. XEU was ranked No. 4 of the 2013 Chinese Private

Xi’an Eurasia University was an epitome or typical representative of a Chinese private university. The following features could be described as Chinese private university comparing with private university in other countries. Chinese private universities were young, most of them were less than 20 years history, beginning with the Comrade Deng Xiaoping’s Reform and opening policies. It developed and benefited from the implementation of Mass Higher Education Strategy. It was a snowball development model comparing with one-time investment model in China. “Large scale for promoting development, good quality for survival” could accurately express the development pattern of the Chinese private university (Yuan, 2004). The operating fund was heavily relied on the tuition fees from the students, not too much financial aids from both government and other related organizations, not any funds from governments directly and not any funds from donations. The government would make the decisions concerning the amount of tuition fee and the number of new student recruitment. Compared to public universities in China, the boards of private universities were the highest authority within the university under the Private Education Promotion Law of P.R.C. It had more autonomy and flexibility to make decision than public university. The university could make decision for employment without permit of the government. In China, private university was not the first choice of the students because of the Chinese traditional culture and value towards the education stereotype. The majority of the faculty at the private university were young without any teaching experiences. Almost all the full-time faculty were not majoring in education.
Private universities in China were conscious of the future challenge earlier comparing with public universities under the pressure of the survival. In addition to the factor of declining demographic, private university encountered more threats from both inside and outside of the university. Education globalization increased the opportunity for students to select university in the broad range of the whole world; furthermore, it raised barriers to competitors; Chinese government increased annual education budget to public university in order to meet the global challenge, whereas, private university heavily relied on the tuitions from students; the Ministry of Education of P.R.C. emphasized more on education quality improvement than the Massification of Higher Education Strategy according to the Outline of China's National Plan for Medium and Long-Term Education Reform and Development (2010-2020); Private university had been heavily relied on the quantity-driven finance for many years, quality improvement plan coming from government undoubtedly exerted much pressure to private university; Students who enrolled at private university expected more values to obtain at private university than before as well as the parents; In terms of the reality that more and more graduates were difficult to find a desired job, all education institutions in China had to improve teaching quality in order to increase student employment opportunities and satisfaction.

**History of Eurasia University.** Xi’an Eurasia University (XEU) is a non-profit private university (non-governmental financed, private investment), located in the ancient and historic city of Xi’an, China (see Appendix A1.1). It was founded in 1995, as a short-term foreign language training program for adults conducted in a rented classroom of a public elementary school. In 1997, in order to accommodate the increasing enrollment, it expanded and rented a larger campus in a bankrupt industrial building and offered non-
degree tutorial programs for National Higher Education Self-taught Examination. Participants who passed all the required courses of NHESE and reached the standards for degrees set by the state could obtain degrees given by accredited public university through 1998. The university grew fast and enrolled about 10,000 students in 1999.

Fortunately in the year 2000, XEU’s situation coincided with the time when Chinese government issued a new policy called Mass Higher Education Strategy that was designed to expand the college enrollment rate. At that time, the Chinese government did not have enough money to build sufficient universities in the short time allotted to reach the goal of the mass higher education plan. Eventually the government decided to review all the large-scale private universities that intended to apply for accreditation. XEU grasped this opportunity given by the Ministry of Education to apply for accreditation and successfully passed the review in 2000, and obtained the qualification of issue associate diploma. XEU started acquire land and built its own campus in 2001. After receiving government accreditation, XEU was empowered to recruit student the same way as the public university. It seemed to stand at the similar starting line. It was a time of significant milestone in the development of Xi’an Eurasia University. In 2005, XEU was accredited by the Chinese Ministry of Education to issue Bachelor’s degree and entered into its new era. Currently XEU has about 23,000 full-time students majoring in more than 40 different programs covering Liberal art, Technology and Engineering and Business Administration. One can trace the historical development and progress through the following Figure.

**Development of Xi’an Eurasia University.** Xi’an Eurasia University is located in the southern part of Xi’an, which was called the center of culture and education of the
city. Xi’an Eurasia University covered an area of more than 667,000 m² with surface space of near 400,000 m². The campus green spaces occupied over 65% of its total area. Buildings in both Eastern and Western style were interspersed gracefully with each other. Both the butterfly-shaped library, designed by Professor Zhaoye Guan, an academician of Tsinghua University, and the Golden Bridge Restaurant, created by a prominent Taiwanese designer, showed the unique quality and characteristics of its innovative facilities.

Figure 1.3. the Historical Development Footprint of XEU

Xi’an Eurasia University has invested more than 50 million RMB in modern teaching service systems such as satellite data transmission, a multimedia-teaching network, a BlackBoard teaching system, and a campus network, as well as various professional labs and training centers. The digital library, with a total floor space of over
17,000 square meters, had 1.078 million paper books, 915,000 copies of digital books, as well as more than 1000 kinds of periodicals. The stadium, covering 4,130 m2, was a blend of various functions—training, fitness, and athletic performance facilities, etc.

XEU started to establish its full-time faculty team in 1999. There were not any advantages and attractions for the private university to recruit higher quality faculty at that time. Almost all the applicants for faculty positions were undergraduate students who just graduated holding the B.A. in 1999. Due to increased recruiting efforts by the university and the number of college graduates who were entering the market, more and higher degree graduates applied for the faculty position of XEU afterwards. The President of Xi’an Eurasia University, Hu Jianbo described the characteristics of each development stage as follows: “In the first stage, it was called hard entrepreneurial period, the main goal was to expand the quantity so that it could accumulate earnings through quantity expansion; in the second stage, like history of most of Chinese private colleges transferring from “guerilla College” (rent campus, almost part-time faculty coming from public universities) to a “regular college” (build own campus, employ full-time faculty), we planned to make the university into an everlasting prestige university instead of a larger scale university; in the third stage, after the examination by a professional consultant team, the new strategy for this university was to be the most respected private university offering high quality education and service for students in China.” (XEU Annual Report, 2008).

**Strategic planning at Eurasia University.** The board of Xi’an Eurasia University faced a difficult and challenging situation and made a great effort to rethink a new strategy for the University when the Ministry of Education approved it in 2005 to
offer a Bachelor’s Degree. The board asked a professional consulting agency and American educational experts to diagnose the current business situation to do the research and examine the living environment of private university. During this period, the Chinese professional consulting agency teams spent half a year on examining the whole university. An expert from the U.S.A. was hired in 2006 to conduct an exhaustive needs assessment of both students and faculty. The Chinese consulting agency clarified the new strategy to XEU, “to provide high quality education and service for all students”. The expert hired from the U.S. pointed to the need to improve the academic excellence at XEU and provide more student-centered learning experiences. All these suggestions seemed reasonable but they were just a concept and good idea at that moment. After these consulting activities within XEU, all faculty and staffs started to learn the new strategy of the university and tried to understand it clearly. There were hotly debates among the staffs on such following questions: “what is the education quality? How can the education quality be measured? How can we improve education quality on the current situation of low-level student recruitment compared with public universities, tight finance source and younger faculty? How long does it take for us to improve the education quality?” At that period, no one could clearly identify the education quality and answer all above questions directly. However, the board of the university reached consensus that the only outlet for the university was to implement the new strategy although there was no specific implementation plan to ensure the goal at that time (see Appendix A1.2).

In order to implement the new strategy, many measures were explored to be conducted within the university such as increasing annual teaching affairs budget, attracting higher entrance score students enrollment through promotion activities,
encouraging teaching reform, employing bold reformer, training program offering etc. Most of the measures above did not work well, even some of the reform plans resulted in the negative attitude towards the new strategy. After carefully and deep consideration, president Hu Jianbo stated that he believed he made a right decision for the university, and he insisted in implementing the new strategy until it worked. XEU experienced a most difficult “disintegration period” from 2006 to 2010 (XEU Annual Report, 2010).

The American Expert was invited again by the board of XEU to reexamine the case in October 2010. On the basis of the educational experts review and examination, the following factors for findings were found: XEU was staffed by an overwhelming majority of young faculty. Most of the faculty had limited teaching experience with the B.A. degree. There were no senior faculty to serve as mentors or to lend continuity and stability to the improvement of teaching and learning. Compared with the public higher education institutions among China, the university was encountering most challenges such as insufficient funding, discrimination of traditional ideology to private university, and declining student enrollment. The most critical issue for the university was the teaching excellence and quality of education. As a result, the feasible proposal of the solution for XEU was proposed to the board of the university, that was, to improve the teaching quality to survive in the future education market. Xi’an Eurasia University, as a private institution, the board of the university was the highest authority to make decision within the whole university. It was a top-down decision-making management model especially for the big decision-making. Once the board of the university made the decision, all the administrators had to follow it as soon as possible without doubt. A week later, the board of the university made a final decision and approved the proposal.
As a result, the faculty development organization, Center for Teaching Excellence (CTE) was established at XEU. Simultaneously the university signed a 2-year agreement with the American consultant agency to initiate the faculty development program on campus. In May 2011, the student-centered approach to instruction program started at XEU. The goal of the CTE was to help faculty transition from teacher-directed teaching model to student-centered learning to improve the teaching quality.

It was worth noting that the faculty development program initiated at XEU was different from the programs or faculty development centers established at Chinese public universities. This program and CTE were founded earlier than the public universities’ in China; this program and its organization were a self-orient established model rather than a government-oriented model at Chinese public universities; this program was funded by the private university on the basis of its needs assessment rather than government or other grant.

**Design of the faculty development program at Eurasia University.** A Center for Teaching Excellence was established to provide support to faculty in learning new ways to improve the quality of teaching and learning at Xian Eurasia University. The Center was expected to accomplish its mission by providing training to faculty in order to help them make the transition from a teacher-directed mode of instruction to a student-centered, active learning environment (Blumberg, 2008).

A customized training program was designed based on the analysis of the faculty and students needs assessment (2006 Survey of Faculty Demographics and Perception of Xian Eurasia University, 2006 Survey of Students Perceptions of the Quality of Teaching and Learning, 2010 Follow-up Survey of Faculty Demographics and Perception of Xian
Eurasia University, 2010 Survey of Students Perceptions of the Quality of Teaching and Learning, 2011 Survey of Faculty Development and Training Needs). The CTE training program was designed after extensive consultation with the university leaders and a comprehensive needs assessment of both faculty and students.

Figure 1.4. Training Program Model

A four-level, hierarchical training programs was designed to provide participants with the skills, abilities and professional dispositions necessary to make the transition from a teacher-directed to a student-centered, active learning mode of instruction. Figure 1.4 (Barone et al., in submission) shows the hierarchical arrangement of the four instructional levels and illustrates how each level builds on the previous level and culminates in the Capstone Experience.

The focus of the Level one training program was to introduce faculty participants to the concept of student-centered learning (SCL), and provide them with knowledge about the theoretical and philosophical basis for student-centered learning; building on
the foundation provided in Level I training, the Level II training program focused on
application of student-centered techniques for redesigning existing course materials.
Faculty participants were required to apply what they had learned in the revision of their
course syllabi to include SCL experiences. Activities and experiences were designed to
engage students in the process of their own learning and to motivate students to accept
responsibility for their learning; at the third level, participants were required to adapt their
courses and implement student-centered learning methods and experiences, activities in
their courses. Faculty teams presented simulated lessons as a part of their training
experience. Participants used teaching methods and strategies that were consistent with
the student-centered philosophy; at the conclusion of Level 4 training, faculty participants
were required to demonstrate the knowledge, skills and abilities to act in the capacity of
trainer, facilitator of learning and coach for their faculty colleagues in their department or
in the Center for Teaching Excellence. The four level faculty development program
started in April 2011 and ended in July 2013 at Xi’an Eurasia University. The continuing
peer training and follow-up research were considered in the protocol.

Need for Study

During the past four decades, researchers have studied numerous cases of faculty
development (Centra, 1976; McKee, Johnson, Ritchie, & Tew, 2010; Sorcinelli, Austin,
Eddy, & Beach, 2006). Many researchers have reviewed these faculty development
literatures and analyzed the arguments such as lack of progress in the field, low quality
research, simple measures and superficial reports. Many of the studies relied heavily on
the self-report and satisfaction method without multi-methodologies of evaluations
(Brooks, Marsh, Wilcox, & Cohen, 2011; Chism & Szabo, 1997; Hines, 2009; Hoyt &
Howard, 1978; Kuscera & Svinicki, 2010; Levinson-Rose & Menges, 1981; McKee, et al., 2013). A rigorous evaluation of faculty development programs was called for in the future research (Weimer & Lenz, 1991). Although many positive findings of the faculty development program were found in some institutions in America (Eble & McKeachie, 1985; Sorcenelli et al., 2006), there was still lack of any evidence to witness the similar result occurring in China. Comparing with the researches in the developed countries, there was a dearth of both scholarly work and practical examples of faculty development practices, empirical research on evaluating faculty development programs in China. Most of the literature published in English in the past related to faculty development program evaluation only examined the cases of universities in the United States or western and European countries, not of China (Stes, Min-Leliveld, Gijbels, & Petegem, 2010). The fact that majority of studies were American placed limitations on the generalizability of the synthesis findings of previous literatures. It is essential for further researchers to fill this gap and find additional evidence. Almost all Chinese literatures related to the faculty development research focused on comparative and theoretical research between China and other developed countries rather than the research on practical faculty training program evaluation at the individual institution. Moreover, it emphasized faculty training rather than faculty development; few of the published studies in western journals did the research on effectiveness evaluation of student-centered teaching for Chinese students learning in individual course or individual specialized subject in Chinese public university or foreign university; paucity of literatures could be found to examine the effectiveness of student–centered approach program on Chinese entire university; there were a few literatures related to student-centered program which focused on K-12 level
education instead of higher education institutions published in China. None of the literatures published related to student-centered approach did the research on Chinese private comprehensive university.

There were only 30 faculty-training centers for public universities that were initiated in 2012 among 2358 Chinese higher education institutions. There was no one faculty development center established at private university except XEU by 2010. There was no one similar faculty development program operated in Chinese Private universities. Only a few researchers did the superficial research on faculty training programs of private universities in China. The research on faculty development programs of private universities seriously lagged in meeting the urgent needs of teacher quality toward to the private universities rapid, healthy and sustainable development.

Faculty development programs invest time, money, human resources to advance the quality of teaching and learning in higher education (Chism & Szabo, 1997; Hitchcock & Stritter, 1992; Reid, Stritter, & Arndt, 1997). Additionally, faculty development stakeholders need to know if these investments have merit and worth (Chism & Azabo, 1997). Xi’an Eurasia University established its own faculty development office, the Center for Teaching Excellence (CTE) in 2010. It was the first faculty development organization that focused on transitioning to student-centered approach among Chinese Universities. The faculty development program was designed to help the faculty transition to a student-centered approach at XEU. It was a pilot faculty development program in a private Chinese university. The faculty development program designed by American experts was the first to be conducted in Chinese university. The primary goal for this program was to transfer the teaching method from teacher-directed
to student-centered learning to improve faculty’s teaching effectiveness as well as student engagement and student learning in Chinese university.

The need for the faculty development program was identified through a series of faculty and student surveys that were conducted beginning in 2006. The faculty development program, which was designed and implemented at Eurasia University, was based on a specific Faculty Needs Assessment Survey that was given to 227 full-time faculty in 2010. Two hundred twenty five faculty responded. Frequency analysis was applied to analyze the data. The results of the needs assessment provided the basis for the faculty development program that was ultimately implemented in May 2011 (see Appendix A1.3). The findings showed that the faculty were in need of training in the modern instructional methods and techniques as well as instruction in the application of instructional technology used to facilitate teaching and learning. A four-level training program was designed to facilitate the faculty’s’ transition from a teacher-directed to a student-centered approach to teaching and learning.

In order to determine the effectiveness of the training program, the following questions need to be asked both by the trainers and the university: Did this faculty development program meet the needs of faculty and accomplish the established goals? Did student-centered learning, which had been conducted in the United States for many years, work for a Chinese university? In order to answer these questions, it was essential to conduct a follow-up evaluation of the faculty development program at the completion of the program. The results of this study will have very practical implications for Eurasia University and other higher educational institutions in China which are considering changing to this instructional model.
The follow-up study of reflections on the faculty development program will contribute to both the university itself for improvement and for similar universities to initiate in China. The follow-up study will contribute to the stakeholders of the program and help the university administrators and faculty for self-improvement, ensure the teaching quality improvement continually.

This study is expected to get evidence that the program intervention can make participants’ changes in the pedagogy extending to impact on students’ engagement and learning as it is applied in Chinese higher education institutions. This study is also expected to contribute the exploration experience in Chinese higher education institutions. It also could find out some valuable experience for the trainers coming from the United States to offer a successful international faculty development program for more Chinese universities. The purpose in this paper is to present evidence for the value of an approach to instruction that takes explicit account of faculty teaching improvement in Chinese private university.

**Statement of the Problem**

The systematic review of the previous literatures on faculty development indicated that the common questions such as the definition of the faculty development, the types of faculty development, how to design an effective faculty development in higher education institutions and the evaluation of the faculty development seemed to be involved and discussed in depth. A vast majority of faculty development activities being reported as successful in the published literature were assessed applying superficial measures with limitation of evidence of effectiveness of the program. Valid evaluation of the faculty development program is still a highlight topic in the field of the research. Furthermore,
the research of international faculty development program implementation and evaluation is still scarce to remain. The similar common questions are reasonable to be asked in the initiated countries including China. This study seeks to investigate the effectiveness of a faculty development program in changing the teaching strategies of a select group of faculty at Xi’an Eurasia University, China. In view of this American initiated program, first conducted in a Chinese private university, this study will focus on established goal of the program to examine the intervention impact on participants’ instructional development. The following research questions will be examined in this study:

1) How did participants in the university perceive the faculty development program?

2) Did the faculty who participated in the training program make any improvement in their instructional development including knowledge, skills and ability?

3) Have the faculty who completed the training program made the transition from a teacher-directed to student-centered, active learning, and instructional model?

The first research question focuses on the reactions of participants towards the overall faculty development program including satisfactions of the content, process and the context of the program. The second research question stresses the learning of participants through the experience of the faculty development program. The third research question emphasizes on evaluating whether participants use what they learn in their classroom.
Definition of Terms

**Faculty development program.** Faculty development program here primarily refers to the set of seminars for faculty development designed to transfer the methodology from teacher-directed to student-centered to make an improvement in their instructional dimension.

**Effectiveness of the faculty development program.** Effectiveness of the faculty development program here refers to provide information needed to determine whether or not program activities successfully attained the intended outcome through an appropriate assessment practices.

**CTE: Center for Teaching Excellence.** Center for Teaching Excellence is an organization at the higher education institution to support faculty development and manage the programs of faculty development.

**Teacher-directed Teaching.** Teacher-directed teaching here refers to the traditional teaching method that teacher plays an overwhelming dominant role in class, students sit at the seat passively to listen to the teacher.

**Student-centered Teaching.** Student-centered teaching here refers to the teacher plays a role as a facilitator, supporter, and organizer of the class to help student learn actively, collaboratively. Student should be responsible for their own learning, active involved their learning process, and be more engaged in their learning actively.

**Chinese Higher Education Massification Strategy.** Chinese government plans to enter the phase of the mass higher education through expansion of the enrollment rate of higher education to reach the international standard of mass higher education.
Limitations of the Study

(a) This study was based on the only first pioneer of faculty development program conducted in one non-profit private university in China. Moreover, it was only explored with undergraduate students at the private university. Public university, profit-running private university and three-year colleges were excluded in this study. Different types and levels of university in China may have different result when using the same approach in the teaching and learning practice. More types of university need to be added to the research sample in the future research.

(b) This study was conducted after the program completed only 3 months, with the time going, the follow-up study may produce more widen and deepen results over time.

(c) More different evaluation principles and methodologies may enhance the research forward.

Delimitations of the Study

Teaching quality evaluation is a complicated and hard thing to deal with in each higher education institution. It depends not only on the instructional development of the faculty but also depends on the culture, policy from the government level and institutional level, physical learning environment and the student effort. This study did not directly cover other aspects of the faculty development such as personal development, organizational development and professional development; it focused on the instructional development of student-centered teaching. Certainly the findings of the investigation for the faculty should imply some of the influences of the faculty development in their personal, professional and organizational level. The further research on the impact of the faculty development program on the personal development, organizational development
and professional development of the faculty is expected to research in the future. The evaluation of the faculty development program in this study focused on the impact on the level of participants, and non-participants, student level and institutional level were excluded.
Chapter Two

Literature Review

Introduction

Never before in the history of education has greater importance been attached to faculty development (Guskey, 2000). The first important reason is that challenges such as demographic change, diversity of student, emergent technology demands in global marketplace, student demands on the quality teaching (Harris & Cullen, 2010) and massification of higher education led to high attention to the importance of faculty development practice and research at a global level. The increasing complexity of the external environment played a significant role in the current period of challenge and change in higher education (Sorcinelli et al., 2006). Secondly, governments and parents are expected to assure solid quality of higher education, to fulfill the public trust, to prepare the desirable job of workplace, to promote the qualified talents serving the nation. Third, globalized education encouraged higher education institution and faculty to change the traditional way becoming excellent commitment. Fourth, these external environmental factors undoubtedly influenced the perceptions of faculty and the way of students’ learning. The demographics of faculty were also shifting along with the massification of education. All these challenges both from external and internal are occurring in the face of competition and a tightening of resources at higher education institutions. As a result, faculty development is gaining importance in higher education institutions in every country and every continent. Universities in Pakistan, Saudi Arabia and China are increasingly seeking advice on how best to provide faculty development opportunities for their staff (Stefani, 2011).
Faculty development has evolved for over four decades since its rapid development in the United States in the 1970s. Numerous researchers have conducted research on the various aspects of faculty development and have reviewed the development of faculty development in the past decades. Some focus on theoretical research on faculty development, others focus on faculty development program practice; some address in the research on the effective faculty development programs practices, others commitment to the research on evaluation of the faculty development programs (Centra, 1976; Eble & Mckeachie, 1985; Mckee, et al. 2010; Sorcinelli, Austin et al. 2006). However, the literature on faculty development is filled with descriptions of past failure or dissatisfaction (Corcoran, 1995; Guskey, 1986; Guskey, 1995), and reviews of faculty development programs are often pessimistic (Brooks, Marsh, Wilcox, & Cohen, 20011; Kuscera & Svincki, 2010; Levinson-Rose & Merges, 1981; Stes, Min-Leliveld, Gijbels, & Petegem, 2009). As a result, researchers called for further high quality literature in the field. Notably almost all these literature of faculty development program published drew upon western or European countries’ sources, not of China. Moreover, there aren’t any findings among the literature of international faculty development program that provide the evidence of effectiveness of faculty development program in China (Gibbs & Coffey, 2004). Literature on the evaluation of the student-centered approach was extremely sparse. Among literature searching matched the criteria of Stes, et al.’s review, 30 out of 36 studies on faculty development evaluation were American, 3 were European, and 1 Australia (Stes et al., 2010).

A review of literature on faculty development provided valuable guidance of program design, unfortunately there was little guidance available for effective evaluation
design. Most of the literature was based on simplistic and superficial methodology. In particular, there was a paucity of research demonstrate the effectiveness (Chism & Szabo, 1997; Hines, 2009). More productive approaches of program evaluation are called for to provide stronger evidence by analyzing results from successful efforts in a variety of context. The applicability of faculty development elements across contexts also should be considered (Guskey, 2000).

China issued the Outline of China's National Plan for Medium and Long-Term Education Reform and Development (2010-2020) in 2010. It emphasized that higher education institutions should improve faculty’s professional skills and teaching ability to ensure excellent teaching. A paradigm shift from faculty teaching to student learning was also stressed by former president of P. R. C., Hu Jintao (A Blueprint for Educational Modernization”, Ministry of Education 2010). Thirty national faculty development demonstration centers were established at Chinese public universities in 2012. Faculty development was placed in a highlighting position in higher education institutions and Chinese researchers. The number of Chinese literature on faculty development showed a trend of increase in recent years, however, these literature still stayed on the theoretical and comparative research focus (Fan, 2011; Liu, 2002; Zhu, 2011). It was noted that all literature could categorize as theoretical research, comparative research and professional development domain research. Furthermore, the domain of this literature was fragment and was lack of systematic research. Methodologies applied in the research were simple and weak of evidence. Hardly any literature related to student-centered approach in higher education institutions could be found in China. The most important reason appears that there has been no any example and benchmark of faculty development program.
conducted in Chinese higher education institutions. Research on faculty education in
China mainly focused on the clarification of the concept of faculty professional
development and the opportunity to be obtained for faculty rather than the faculty
development itself. Moreover, this literature lacks a focus on the development efficiency
improvement (Ding, 2009). With the challenges facing Chinese higher education
institutions, the Chinese government has paid more attention to the teaching quality
improvement. Chinese higher education institutions expected to find a way to change the
traditional paradigm to meet the coming challenges. Xian Eurasia University (XEU), a
private university in China, was especially aware of the importance of faculty
development and launched the first faculty development program in 2011. An
examination of the faculty development program designed to transition to a student-
centered approach to teaching at XEU found helpful information for strengthen the
continuous improvement and contribute heuristic experience for other similar institutions
in China.

The present study will focus on determining the effectiveness of a faculty
development program that was aimed at transition from teacher-centered to student-
centered approach in China. This review is organized in two main sections. The first
section examines the theoretical literature including faculty development theories and
learning theories that supported college students learning best. The second section covers
the areas of the literature of faculty development in higher education institutions. It is
conceptualized as four categories: overview the literature of faculty development
including identification and promotion of different kind of faculty development
programs, the design and practice of an effective faculty development program literature,
the evaluation of faculty development program and Chinese literature related to faculty development review. The programs aimed at student-centered or the similar concept such as learner-centered, learning centered, active learning, problem-based learning, and collaborative learning approach to teaching will be reviewed. It is important to note that faculty development literature concerning pre-K-12 education institutions is excluded.

**Literature on Students Learning Theory**

Polya (as cited in Hativa, 2000) stated, “Any efficient teaching device must be correlated somehow with the nature of the learning process” (p. 331). Teaching for effective learning requires understanding of how people learn, where and why learners have difficulty, what are their preferences in teaching, and what practices are most effective for helping them progress toward more complex and sophisticated understanding (Hativa, 2000). Therefore, effective teaching should motivate student’s learning as the first concern. In the past decades, many learning theories had been developed and been employed effectively in most higher education institutions in the world.

**Learning Pyramid Model.** The following Learning Pyramid (Figure 2.1) shows that lecture only has 5% of the student retention while other teaching methods have much higher student retention rates. This learning pyramid provides the theoretical support that students learn best when they are actively engaged in the learning process. It is clearly to conclude that the more students involved in their own learning, the more permanent learning retention students have. This model asserts that student-centered learning has higher student retention than teacher-centered learning.
Diversity of learning differences theory. Additionally, effective teachers use multiple methods and materials that allow for individual differences and accommodate individual learning styles. Research shows that individual differences may affect student’s learning. Firstly, different people have different learning styles. Students have different capacities for learning that are a function of prior experience and heredity. There is also much evidence that students learn in different ways. The term learning styles has been used extensively in the literature to describe the possible means by which an individual student may best learn. Some research supports that individuals prefer to learn through one or more of the different senses (Jung, 1970). Concrete learners rely more on touch, taste, smell and more intuitive and abstract learners prefer hearing and sight. Several measurement instruments to assess individual learning styles have been developed.

David Kolb published his learning style model in 1984. Kolb states that learning involves the acquisition of abstract concepts that can be applied flexibly in a range of situation. Effective learning is seen when a person progresses through a cycle of four stages: of (1) having a concrete experience followed by (2) observation of and reflection
on that experience which leads to (3) the formation of abstract concepts (analysis) and
generalizations (conclusions) which are then (4) used to test hypothesis in future
situations, resulting in new experiences. Kolb explains that different people naturally
prefer a certain single different learning style. Various factors influence a person's
preferred style (For example, social environment, educational experiences, or the basic
Cognitive structure of the individual).

Figure 2.2. Kolb’s Learning Styles

On the base of the four-stage learning cycle, Kolb Inventory of Cognitive Styles
places people on four axes: learning by feeling, learning by watching, learning by
thinking and learning by doing. Both Kolb's (1984) learning stages and cycle could be
used for teachers to critically evaluate the learning provision typically available to
students and to develop more appropriate learning opportunities. Educators should ensure
that activities are designed and carried out in ways that offer each learner the chance to
engage in the manner that suits them best. Also, individuals can be helped to learn more
effectively by the identification of their lesser preferred learning styles and the
strengthening of these through the application of the experiential learning cycle.

Another classic instrument is the Myers-Briggs (1985) that measures four bipolar
descriptors based upon personality type. The Myers-Briggs Type Indicator (MBTI) is
based on the difference between “the way people perceive and the way they make judgments”. Perceiving includes the processes of becoming aware of things, people, occurrences and ideas. Judging includes the processes of coming to conclusions about what has been perceived. For each of perceiving and judging there are two ways of achieving these processes. For perceiving, information can be gained directly through the senses (sensing, S) or it can be by made indirectly through association of ideas and the possibilities they present (intuition, N). For judging, there are also two ways of making decisions. One is through use of logic (thinking, T), the other is based on personal values (feeling, F). Two further dimensions complete the personality typing. The first is related to whether a person prefers to direct their interest to the inner world of thoughts and ideas (introversion, I) or the outer world of people and things (extraversion, E). The second is a preference for whether the person prefers to interact with the world by perceptive methods (perceiving, P) or by judging methods (judging, J). Although the Myers-Briggs is a personality inventory, researchers have found that the personality types also predict learning preferences (Cohen, 2008). Hence, faculty can design their courses on the base of MBTI, which predict each individual student’s learning preferences to meet the diversity of students. Secondly, multiple intelligences influence student learning. According to Gardner (1993), people have learning abilities that may be termed “intelligences” such as capacity to solve problems or to fashion products, which can facilitate learning in one context and inhibit learning in others. Gardner has identified seven intelligences: linguistic, logical mathematical, spatial, musical, bodily/ kinesthetic, interpersonal, and intrapersonal. This research implicates that faculty can enrich all the intelligences by implementing techniques and help students improve their learning skills.
Two ways were suggested by Hativa (2000) for faculty to improve students’ learning skills: a) teaching content that applies to each of the intelligences; and b) using the intelligences as a guide for teaching styles or methods. In addition to the learning preferences, the situation and the context all greatly influence what people learn. Theories of learning highlight the roles of active and social interaction in the students’ own construction of knowledge (Bruner, 1966; Kafai & Resnick, 1996; Piaget, 1963; Vygotsky, 1978). In collaborative and cooperative learning situations also facilitate reflective thinking that can promote better learning (Lamber & McCombs, 2000). The social context of learning is an integral part of the learning process, not merely a background context that the student encounters (Resnick, 1991).

**Dewey's philosophy on education.** Advances in learning theory research provide the theoretical foundation for student-centered learning. The earliest theory that stressed student active learning can be traced to John Dewey and his “pragmatic” philosophy about education – learning by doing (Dewey, 1938). Dewey believed that learning was active, and schooling was unnecessarily long and restrictive. He believed that students should be actively involved in real-life tasks and challenges. But the real synthesis of ideas occurred in the 1950’s between both European and American psychologist and learning theorists. Based on the development of cognitive psychology, this new constructivist theory of learning postulated that each student brings prior knowledge to the learning experience, interacts with the learning environment and constructs his own meaning (Mayer, 2009).

**Vygotsky’s social interaction learning theory.** The emerging view of learning balances an interest in individual differences with the role of learning in a social
context. Similar to Dewey, Vygotsky’s social interaction learning theory pointed out the importance of the role of culture and language and the interaction of the two in the learning paradigm. Vygotsky viewed learning as being socially mediated that occurred in a specific learning context. His theory holds that people live and learn in social settings and in a specific cultural context. Schools should replicate the social learning experience through the careful design of the learning environment and group interaction. Vygotsky contributed the idea of the role of social interaction as a dimension of learning that is an essential component of student-centered learning (McLeod, 2009).

**Constructivism theory.** Similarly, Constructivism states that students learn more by experiences and active involvement than by passively observing the teacher lecture (Brooks & Brooks, 1993). In other words, the primary idea of constructivism is that learners “construct” their own knowledge on the basis of what they already know. This theory posits that learning is active, rather than passive, with learners making judgments about when and how to modify their prior knowledge. Asking powerful questions and leading students to solutions nurtures students’ natural curiosity and is recommended over simply giving answers (Brown, 2008). Bruner (1966) theorized about the teacher’s role in structuring the learning environment and how to scaffold experiences in order to facilitate learners’ constructing meaning. Although the label constructivism takes various forms, such as radical constructivism (Von Glaserfeld), social constructionism (Gergen), social cultural constructivism (Bruner), and social constructivism (Vygotsky), generally constructivism has important implications for teaching and learning. Firstly, the teacher is viewed not as a transmitter of knowledge but as a guide who facilitates learning. Secondly, as learning is based on prior knowledge,
teachers should provide learning experiences that expose inconsistencies between students’ current understandings and their new experiences. Thirdly, teachers should engage students in their learning in an active way, using relevant problems and group interaction. Fourthly, if new knowledge is to be actively acquired, sufficient time must be provided for in-depth examination of new experiences (Kaufman, 2003).

**Student-centered learning theory.** Student-centered learning (SCL) was credited to Hayward as early as 1905 and to Dewey’s work in 1956. Carl Rogers was then associated with expanding this approach into a theory of education in the 1980s. This approach has also been associated with the work of Piaget’s developmental learning and Malcolm Knowles’ self-directed learning (Attard, Di Iorio, Geven, & Santa, 2010). SCL is broadly based on constructivism as a theory of learning mentioned above. Although different researchers defined SCL differently, the following elements were emphasized consistently: active learning rather than passive learning, increased responsibility and accountability on the part of the students, an increased sense of autonomy in the learner, an interdependence between teacher and learner, mutual respect within the learner-teacher relationship, and a reflexive approach to the teaching and learning process on the part of both the teacher and the learner (Lea, Stephenson, & Troy, 2003). Research linking some common attributes of student engagement and academic achievement offer additional theoretical to the benefits of an active learning environment (Carini, Kuh, & Klein, 2006). In student-centered classrooms, students are very much a part of constructing their own learning in a holistic environment that capitalizes on student interests. Students are encouraged to reflect on their own learning, share their insights with their peers, and apply new learning to real-life, authentic experiences. When
learners are the focus, they become fully engaged in the process (McCombs & Miller, 2007). Student-centered instruction occurs when classroom experience has been redesigned to facilitate active learning (Brown, 2008).

Armed with the knowledge of students’ previous understanding of concepts, student-centered teachers create situations that allow students to make connections to new ideas. These connections can then be developed into entirely new concepts that continue to grow throughout a student’s experiences. A deep understanding occurs when new information offered through higher order thinking activities prompts the learner to rethink and reshape prior ideas. A classroom teacher must be prepared to offer a variety of learning opportunities to meet the needs of all students as each constructs his own meaning about issues, problems and topics (Bruner, 1966). In a student-centered class, the teacher is a member of the class and is a participant in the learning process (Jones, 2007).

The student-centered instruction emphasizes that learning outcomes are reached by establishing learning community, sharing power, and using assessment and evaluation measures. A successful learning environment must be learner-centered, knowledge-centered, assessment-centered and community-centered (Bransford, Brown, & Cocking, 2000). Student-centered assessment must be authentic and related to specific learning outcomes. Performance assessments are those involving students in activities, which require them to demonstrate mastery of certain performance skills or their ability to create products that meet certain standards of quality, and in many instances is demonstrated through “visible learning” (Stiggins, 2001). Without training, most learners cannot accurately judge what they do and do not know. Each of these areas takes a more
prominent role in a learner-centered classroom. Teaching for student-centered learning does not imply a single method of teaching. It emphasizes a range of classroom methods that shift the teacher’s role from dispenser of information to facilitator of student learning (Socinelli et al., 2006).

Over one hundred years of research on learning theory has established the knowledge base on which the student-centered approach to teaching and learning has been predicated. Alexander’s and Murphy’s (2000) meta-analysis of over 1000 studies of student-centered learning that were conducted between 1949 and 2000 found that, overall, students in student-centered classrooms achieved more, were more engaged in the learning process and were more motivated to learn. Many of the changes students will see in a student-centered teaching approach can be explained by reconciling teaching with the new discoveries in how the human brain learns (Jensen, 1998). Students will be engaged in more firsthand learning, group learning, practicing, reflecting, teaching of others, and presentations because all of these learning activities require active learner engagement. Research on neuroscience has shown that the dendrites of the brain cells only grow when the brain is actively engaged and that the neuron-networks formed in the brain only stay connected when they are used repeatedly (Ratey & Hagerman, 2008).

The APA learner-centered psychological principles. The American Psychological Association (APA) has made a comprehensive attempt to define the current perceptions on psychological principles that pertain to the successful learner and learning process. “The learner-centered psychological principles: A framework for school reform & redesign” was published by APA in 1997. The APA document lists 14
principles for successful learning (American Psychological Association, 1997) organized into four categories (see Table 2.1)

Table 2.1.

**The APA Learner-Centered Psychological Principles**

<table>
<thead>
<tr>
<th>Cognitive and Meta-cognitive Factors</th>
<th>Motivational and Affective Factors</th>
<th>Developmental and Social Factors</th>
<th>Individual Differences Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nature of the learning process;</td>
<td>7. motivational and emotional</td>
<td>10. developmental influence on</td>
<td>12. individual differences in</td>
</tr>
<tr>
<td>2. goals of the learning process;</td>
<td>influences on learning;</td>
<td>learning;</td>
<td>learning;</td>
</tr>
<tr>
<td>3. construction of knowledge;</td>
<td>8. intrinsic motivation to learn;</td>
<td>11. social influences on</td>
<td>13. learning and diversity;</td>
</tr>
<tr>
<td>4. strategic thinking;</td>
<td>9. effects of motivation on effort</td>
<td>learning</td>
<td>14. standards and assessment</td>
</tr>
<tr>
<td>5. thinking about thinking;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. context of learning</td>
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</tbody>
</table>

The learner-centered psychological principles, which are consistent with more than a century of research on teaching and learning, are widely shared and implicitly recognized in many excellent programs found in today's schools. They also integrate research and practice in various areas of psychology, including developmental, educational, experimental, social, clinical, organizational, community, and school
psychology. In addition, these principles reflect conventional and scientific wisdom. They comprise not only systematically researched and evolving learner-centered principles that can lead to effective schooling but also principles that can lead to positive mental health and productivity of the nation’s children, their teachers, and the systems that serve them. Learner-centered psychological principles provide a framework for developing and incorporating the components of new designs for schooling. These principles emphasize the active and reflective nature of learning and learners. From this perspective, educational practice will be most likely to improve when the educational system is redesigned with the primary focus on the learner. The principles are intended to apply to all learners -- from children, to teachers, to administrators, to parents, and to community members involved in educational system.

APA Principles 1 through 3 present the most widely prevailing theory of constructivist. This theory implies that most students cannot learn effectively by being passive listeners, and they do not simply record and store what they are taught. Rather, they learn well only they are in active learning process, when they construct their own understanding, and when they use what they are taught to modify their prior knowledge. The APA motivational and affective factors encompassing principles 7 through 9 serve as a conceptual framework for the ongoing advancement of theory and research on how college students learn (Hativa, 2000). This model assumes that the student’s emotional states, beliefs about themselves as learners and the nature of learning, interests, and goals affect their learning. Thus, to promote learning teachers should enhance students’ positive emotions and intrinsic motivation to learn. The 12th and 13th APA principles assume that students have different strategies, approaches, and aptitudes for learning, and
that they develop their own preferences for how they like to learn and for their favored pace in learning. The APA principles reflect that college student learn best when they are active learning instead of passive learning. A successful learning heavily relies on faculty’s promotion of students’ intrinsic motivation. Faculty should use multiple methodologies to meet students learning preferences’ diversity.

Theories of learning highlight the roles of active engagement and social interaction in the student’s own construction of knowledge (Bruner, 1966; Kafai & Resnick, 1996; Piaget, 1963; Vygotsky, 1978). It is not difficult to conclude that people learn better when they interact and collaborate with others in an active learning environment. The instructor plays essential roles in creating an active learning environment and context in SCL instructions.

**Chinese college student learning.** Historically, Chinese learning comes from Confucius (Biggs, 1996; Bond, 2010, Chan, 1999; Yang, 2009). Up to now, the most famous sayings of teaching and learning by Confucius have been consistent with active learning. Confucius’ is quoted as saying “When I walk along with two others, they may serve me as my teacher. I will select good qualities and follow them, their bad qualities and avoid them.” emphasizes any individual people have what to be learned by others and people should learn each other; “I hear and I forget, I see and I remember, I do and I understand” indicates experiential learning is much better than passive listening; “Learning without thought is labor lost, thought without learning is perilous” emphasizes self-reflection plays an important role in learning; “He was of an active nature and yet fond of learning, and he was not ashamed to ask and learn of his inferiors” emphasizes asking question without shame and inquiring learning is a good way to learn. All these
above Confucius sayings reflect the consistent learning theory with student-centered learning.

However, these valued education thoughts have not been transmitted to the followed generations adequately in China. The current Chinese educational system has been heavily influenced by former Soviet Union when the People’s Republic of China was established in 1949. For Mainland Chinese students, education today still focuses on the acquisition of a vast store of knowledge through rote memorization, at the expense of creativity (Chan, 1999; Chow, 1995). Chinese learners are largely perceived as passive rote learners among western scholars (Biggs, 1996; Chan, 1999; Chow, 1995; Liu, 2006). Chan (1999) and Chow (1995) states that Chinese students prefer to learn by rote learning. In contrary, other scholars (Ryan & Slethaug, 2010; Chan & Rao, 2009; Shi, 2006; Yang, 2009) reported that Chinese students prefer a student-centered approach to a teacher-centered approach and they are willing to participate in interactive and cooperative learning activities. Nield (2004) reports that there is other research that indicates that it is a mistake to assume the Chinese students are rote-learners. It is noted that learning preference is not commonly equal to the effectiveness of learning. Learning preference stresses on how knowledge acquired easily, but learning effectiveness is associated with all the elements (for example, efficiency, quantity of contents coverage, understanding of contents delivered, and so on) that lead to effective learning. Therefore, ease of knowledge acquisition does not imply that student learn effectively or have long-term retention of what they have learned.

Melton (1990) conducted a research on Chinese students’ learning style preferences. Fifteen colleges in China were contacted, and six colleges that located in the
cities of Beijing, Tianjin, Xi’an and Nanchang participated this research voluntarily. Eventually only five colleges returned the completed questionnaires, with 331 graduate and undergraduate students responding, in four different fields of learning. The results showed that Chinese students prefer kinesthetic, tactile and individual learning as major styles (Visual learning: reading, studying charts; auditory learning: listening to lectures, audiotapes; kinesthetic learning: experimental learning, that is, total physical involvement with a learning situation; tactile learning: “hands-on” learning, such as building models or doing laboratory experiments (Reid, 1987). They consider visual and auditory as minor learning styles while group learning was a negative learning style. The findings from this study are consistent with the theories of experimental learning and active learning except the negative attitudes toward group learning. One of the possible reasons for the negative attitudes toward group learning appears that the traditional system of education and universal fear of change result in negative attitudes toward group learning. Nevertheless, this study does concur with Reid’s conclusion that Chinese students appear to have multiple major learning styles.

Rajaram and Bordia’s (2013) analyzed the new trend of training culturally diverse students in western style business education models in Singapore where a substantial number of mainland Chinese students enroll in business courses. Four hundred and two mainland Chinese students who were enrolled in Singaporean business training programs provided differential ratings of the learning effectiveness, familiarity, comfort and ease of knowledge transfer for each of ten commonly used instructional strategies (case studies, lectures by instructor, group projects, videos, guest speaker, classroom presentations, classroom discussions, individual research projects, computerized learning, and reading
textbooks) previously investigated by Rodrigues (2004) based on a questionnaire. A sample of four hundred and two subjects from seven large private institutions that conducts undergraduate programs was identified. These students included a mixture from each of the four major regions of China: north, south, east and west. Seven large private institutions are Singapore Quality Class and “Edu-Trusted” accredited institutions. These seven large private institutions conduct western-based undergraduate business course programs in Singapore. All seven institutions had set a high standard of entry requirements for their courses, which ensured only qualified students with the prerequisite abilities, were recruited.

The questionnaire was designed in the English language as well as the Chinese translation version. A structured questionnaire method was adopted using closed-ended questions. A total of 400 students were used as the representative sample size. Regression analysis was used to examine the constructs of learning effectiveness, comfort, familiarity and knowledge transfer that influenced the preferred instructional techniques for effective learning. Ten instructional techniques include both active and passive instructional techniques, and these are case studies, group projects, classroom discussions, individual research projects, and lectures by instructor, videos, guest speakers, classroom presentations, computerized learning, and reading textbooks. The results shows as follows: a) learning effectiveness ratings versus instructional techniques: the highest rated techniques are from active technique (case study), as well as from passive cluster (lecture) scoring a mean score of 3.77. The second highest ranked is group project, with a score of 3.67. There is evident from four out of six passive techniques and two of the four active techniques; b) Learning effectiveness from comfort dimension:
Lecture was rated as the most comfortable technique. Case study was ranked the second most comfortable technique. Group project was the next most comfortable technique; c) Learning effectiveness from familiarity dimension: the three techniques of lectures, group projects and case studies were rated as the most familiar techniques as well as being rated highest in terms of learning effectiveness. Reading textbooks was rated as the lowest in learning effectiveness, but it was ranked fourth in terms of familiarity; d) Learning effectiveness from knowledge transfer dimension: lecture was rated as the highest form knowledge transfer, followed case studies and group projects. However, two passive techniques, classroom discussions and computerized learning, were reported as teaching modes that enabled the students to acquire knowledge with reasonable ease, but were not effective in terms of learning and enhancing quality. In general, active instructional techniques are reported as much better in terms of learning effectiveness for Mainland Chinese students. The outcomes were benchmarked against the lecture mode of instructional, to which these students had been well accustomed since their high school days.

However, there are still some limitations for this research. The research study is only conducted in Singapore, and all participants have the high level of language proficiency and western-based education background. The result may be different for students studying in Mainland China; it is a cross sectional study instead of longitudinal study. Measurement over time is needed; only student responses were gathered, excluding the perceptions of teachers, course coordinators and administrators; the students examined in this study are all majored in business administration with qualified English proficiency, the result might be different for mixed majored students without
qualified English proficiency; the students in this study could not represent the mixed sampling of the whole China. The study conducted in a profit private institution in Singapore instead of non-profit comprehension university in China.

**Literatures on Faculty Learning Theory**

Faculty development is commonly considered as a practical activity in higher education institutions. Wondering whether theory is needed for a practical activity, McKeachie (1991) in his article *what theories underlie the practice of faculty development?* Emphasized three roles of faculty development theory in teaching quality improvement: 1) theory can make complicated teaching activities such as teacher, subject matter, student and educational environment simplification and abstraction; 2) theories can help faculty members diagnose and analysis situations in which they are teaching; 3) theories are heuristic for faculty.

**Ginzberg’s theory.** Ginzberg in 1951 created the theories of vocations and concluded that the occupational choice was a process (Ginzberg, Ginsburg, Axelrad, & Herma, 1951). He has divided the process of vocation choice into 3 stages. These stages or levels are fantasy stage, tentative choice stage, and realistic choice. Super (1957) developed the theories and work of his colleague Ginzberg – he thought that Ginzberg’s work had weaknesses, which he wanted to address. Super extended Ginzberg’s life and career development stages from three to five, and included different sub-stages: growth stage, exploration stage, establishment stage, maintenance stage, and decline stage. Super argues that occupational preferences and competencies, along with an individual’s life situations, all change with time and experience. Super developed the concept of vocational maturity, which may or may not correspond to chronological age: people cycle
through each of these stages when they go through career transitions. Although these theories summarized the common growth process of the people, it could not be applied to identify each different person since not all faculty had the same experiences at each stage. Nevertheless, on the base of these theories, faculty developers can design the targeted activities for faculty at the corresponding stage of faculty.

**Knowles’ theory.** Malcolm Knowles (1984) first introduced the term “andragogy” to North America. Malcolm S. Knowles' theory of andragogy is a learning theory that is developed on the specific needs of adults. In contrast to pedagogy, or learning in childhood, Knowles emphasizes that adults are self-directed and expect to take responsibility for decisions. Adult learning programs must accommodate this fundamental aspect. His theory is based on following five assumptions: 1) Adults are independent and self-directed; 2) Adults have accumulated a great deal of experience, which is a rich resource for learning; 3) Adults value learning that integrates with the demands of their everyday life; 4) Adults are more interested in immediate, problem-centered approaches than in subject-centered ones; 5) Adults are more motivated to learn by internal drives than by external drives. Kaufman (2003) summarized seven principles of Knowles’ andragogy theory in his work as follows: 1) Establish an effective learning climate, where learners feel safe and comfortable expressing themselves; 2) Involve learners in mutual planning of relevant methods and curricular content; 3) Involve learners in diagnosing their own needs- this will help to trigger internal motivation; 4) Encourage learners to formulate their own learning objectives- this gives them more control of their learning; 5) Encourage learners to identify resources and devise strategies for using them more control of their objectives; 6) Support learners in carrying out their...
learning plans; 7) Involve learners in evaluating their own learning- this can develop their skills of critical reflection. Knowles' theory of andragogy is an attempt to develop a theory specifically for adult learning. Knowles emphasizes that adults are self-directed and expect to take responsibility for decisions. Adult learning programs must accommodate this fundamental aspect. Andragogy means that instruction for adults needs to focus more on the process and less on the content being taught. Knowles’ andragogy theory establishes a comprehensive faculty development program design model that leads faculty development to an effective direction. This model also provides a strong evidence and knowledge base for student-centered learning instruction when faculty receives training as an adult learner in a faculty development program.

Over a few decades, considerable research has been dedicated to an examination of faculty development and has discovered two primary bodies of design of faculty development program. These two primary bodies are Ramsden’s theory and Mezirow’s theory.

**Ramsden’s theory.** Firstly, Ramsden’s (1992) theory of teacher growth asserts that three progressive sophisticated “theories”: 1) teaching and learning is fragmented, all factors of teaching and learning are all unrelated, the instructor’s focus on himself who transmits knowledge to learners, not on learners, it is a input-output process. 2) Organizing students actively. The instructor recognizes engaging students more actively increase motivation, there are more concerns what the student are doing and what professors interaction with students should be. Instructors are emphasizing more new method improving. 3) All aspects of teaching and learning are well integrated. Teaching, at this level, means cooperatively work with learners to achieve understanding. Further
strengthen, include context which teaching take place and value of feedback. Any activity aims at improve teaching needs to engage instructors in ways that are appropriate to the development of understanding of teaching.

**Mezirow’s theory.** The second theory is Mezirow’s (1991) transformative theory of adult education. This theory aims at changing individual’s thoughts and actions. This theory purports that, for most adult learners, change in practice occurs only when there is a change in basic assumptions held about themselves as learners, the role of the teacher, and the goal of education. Mezirow argues that reflection is the bridge between thinking and practice. In short, transformative learning theory can cast faculty development program as a process by which faculty become aware of their assumptions about teaching and revise their assumptions based on critical self-reflection and peer critique. These two theories emphasized the same critical factor for faculty development that effective learning occurred when it was active engaged in the learning process at a cooperative learning environment. Incorporating theories of Teacher Growth and Adult Education in a faculty development program can provide evidence to its effectiveness in promoting change in thinking about teaching. Saroyan et al. (1997) conducted a faculty development program using the above two theories. The program design was based on the above two theories offered a three-credit course to graduate students and a weeklong workshop to faculty. Assessment included responses to pre-post questions about participants’ views from teaching. The results indicated that both groups changed their focus from viewing teaching as transmitting knowledge to a more integrated and complex conception of teaching.
Senge’s theory. Additionally, learning organization theory was applied in faculty development in past years. Peter Senge’s (1990) vision of a learning organization as a group of people who are continually enhancing their capabilities to create what they want to create has been deeply influential. According to his theory, learning organizations are organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together. This theory emphasizes learning occurs at the organization level, learners learn best and are motivated at the collective environment. This kind of learning forms a learning community or learning society. Learning organization theory has been widely applied in higher education universities in recent years. Forest (2002) asserted that college and university have the same motivation as the learning organization. Faculty, administrators, and students actually form a big learning organization incorporated different individual learning community within one campus. In other words, in learning organization, everybody learns each other and learns cooperatively. Fincher supported him and advocated learning organization theory could be used in college and university. Additionally, Lin (2004) concluded that learning organization theory applied in college and university could improve their operational efficiency and promote students’ active and critical thinking. Senge’s learning organization theory applying in the college and university enhanced the previous learning theories that best learning happened in collective and cooperative environment both for faculty and students. This theory also implicates the similar points with Mezirow’s transformative theory that faculty is also a member of learning organization with other members within college or university when
faculty involves in the learning community. Faculty guides the students’ learning in classroom as a teacher, meanwhile, as a cooperative learner together with students. Review of learning theories both of faculty and students reveals that an effective education occurs when people are active involved in their own learning process. Change faculty and you change the nature of higher education (Mathis, 1983). Change for faculty in practice takes place only when there is a basic change held about assumptions themselves as learners (Mezirow, 1991). Faculty’s learning is based on self-directed learning, problem-centered learning rather than content-centered learning (Knowles, 1984). It seems safe to conclude that paradigm shifting from teacher-centered to student-centered learning can promote students’ intrinsic motivation to learn best. Faculty development concerns not only faculty’s effective learning as an adult learner but also by which to obtain students’ expected learning outcome improvement. Learning theories provide a strong knowledge base of how people learn best for both faculty and student. Student-centered instruction is not only appropriate to faculty’s learning but also to college students’ learning improvement.

**Faculty Development Research Literatures Review**

During the past decade, a number of authors conducted research on faculty development (Francis, 1975; Ouellett, 2005; Rice, 2007; Sorcinelli et al., 2006; Tiberius, 2001). Tracing the historical evolution of faculty development, faculty development experienced its original stage of identification and promotion, then the well-designed program to meet the challenge of the students’ right movement and commitment to the accountability, followed the evaluation of the faculty development for continuous improvement both in faculty and students’ learning. Therefore, the research literature on
Faculty development can be conceptualized into following four categories to be reviewed in this paper: 1) faculty development identification and promotion, 2) effective faculty development program design and practices, 3) evaluation of the faculty development program, and 4) Chinese literature on faculty development in higher education institutions.

Faculty development programs identification and promotion literatures review. Five stages of faculty development defined by Sorcinelli et al. (2006) clearly described the evolution of the faculty development research and practices in the United States, the stage of scholar, the stage of teacher, the stage of developer, the stage of learner and the stage of network. Literature in each stage reflected the achievement of faculty development research and implied some challenges encountering for higher education practitioners simultaneously. The Professional and Organizational Development Network in Higher Education (POD) was founded by a group of faculty members and higher education scholars in 1974 to support faculty development and organizational improvement initiatives. The Professional and Organizational Development Network in Higher Education is an association of higher education professionals dedicated to enhancing teaching and learning by supporting educational developers and leaders in higher education. The Professional and Organizational Development Network in Higher Education encourage the advocacy of the on-going enhancement of teaching and learning through faculty and organizational development. To this end it supports the work of educational developers and champions their importance to the academic enterprise. Its members has increased from twenty individuals in 1976 to nearly 1800 members in 2007 which represent a range of institutions of higher education in the United States, Canada...
and abroad. Since the first Center for Research on Learning and Teaching was founded in 1962 at the University of Michigan, there has been a steady increase in the number of educational development centers in the United States and Canada, as well as beyond (Lee, 2010). The National Council for Staff, Program, and Organizational Development (NCPOD) was founded in 1977, which published many publications such as Network Newsletter, Part-time Faculty Handbook, Classroom Assessment: An Manual of Faculty Development, Tool and Tips: A Collection of Practical Staff Development Opportunities and Ideas, Launching Your Staff, Program, and Organizational Development Program.

The first stage of faculty development research started in 1970s, the studies focused on appraisals of the traditional measures of enhanced or renewed the scholarly productivity. The first large-scale study of faculty development was conducted by Centra in 1976, which were to identify faculty development activities, to evaluate their effectiveness, to determine funding sources, and to identify various organizational structures of faculty development programs. This survey showed the activities such as sabbaticals, leaves, summer grants, instructional assistance, workshops, grants and travel funds, and simple assessment techniques (e.g., ratings of instructions by students) were performed in different types of colleges and universities. Centra found only 14% of faculty development program were evaluated, with an additional 33% reporting some partial evaluation. The suggested reasons for limited effort on evaluation included limitation in staff, funding, and knowledge of assessment practices (Centra, 1976). A 1970 survey by American Association of Junior Colleges indicated that most faculty development programs involved workshops and short courses on education, curriculum, and learning theories (O’Banion, 1972).
The first evaluation of faculty development programs at undergraduate liberal arts institutions was funded by the Association of American colleges and the Andrew Mellon Foundation. Twenty colleges were visited; more than 500 faculty, administrators and students were interviewed by researchers (Nelsen & Siege, 1980). The results of the evaluation found that the most frequent and successful activity, as viewed by liberal and arts department participants, was professional development such as study leaves and support for attendance at professional meetings. Instructional development efforts, especially workshops, were greeted with less enthusiasm unless they were organized to provide specific, usable skills. The institutional environment that creates the context for faculty work was found to be the most neglected area of faculty development. Effective management was identified as the critical factor to ensure the most successful faculty development program in this study.

In 1986, Erickson conducted a survey of faculty development practices on behalf of the POD Network. Erickson received responses from some 630 faculty development coordinators, directors, committee chairs, and administrators and found that “50% or more of our four-year colleges, universities and professional schools offer some formal faculty development, instructional development, or teaching improvement services” (p. 196). The survey also assessed availability of the service such as workshops, seminars, assessment practices, individual consultation, grants, leaves, and exchange activities and other practices. The similar findings were found as Centra (1976) that traditional practices were still the most frequently offered services. Erickson also discovered that 95% of the campuses make available student ratings of instruction, although less than
half provided faculty with individual help from consultants trained to interpret such ratings.

It was noted that a new interdisciplinary interest research emerged in this period. Baldwin and Blackburn (1981) researched the distinguishing characteristics of faculty members at successive ages and in different career stages and advocated mapping faculty development activities with career stages. Clark, Corcoran, and Lewis’s (1986) study of faculty vitality proposed an approach to faculty development that emphasized linking faculty work to institutional missions and needs.

Eble and McKeachie (1985) examined a various types of faculty development programs in 24 different institutions including large and small, public and private, well-endowed and financially trouble. The programs examined were supported by grants from the Bush Foundation. They reported on the most successful faculty development activities and recommended ways these activities could be adapted to other institutions. They revealed that traditional types of faculty development activities such as leaves, sabbaticals, and travel grants were less effective than development workshops, seminars, and other programs. This finding provided a stronger evidence for determining what type of faculty development program was most effective for which institution comparing than Centra and Erickson’s in 1970s. Another valuable aspect of this study was that they set forth helpful advice for evaluating faculty development programs, including an example of an extensive step-by-step evaluation of faculty development program. Finally, they identified key factors influencing faculty development program success, including faculty ownership, administrative support, use of local expertise, sustained or follow-up
activities, and programs involving faculty members working together to achieve common objectives.

In 1978, Hoyt and Howard advocated to continue and expand the efforts on the research of faculty development programs rationally guided rather than by emotion or political considerations. In 1981, Levinson-Rose and Menges conducted another review and concluded that the relevant literature was larger than expected. Bland and Schmitz (1988) conducted a systematic analysis of faculty development literature from 1965 to 1985. They concluded that the literature base had grown considerably in the early 1980s. Alstete (2000) conducted a search of faculty development literature from 1989 to 1997, which showed the similar result that an initial increase in the early 1990s and a slightly upward trend in the amount of faculty development literature as the decade progressed.

During the 1990s, there were a number of studies and reviews that explored various aspects of faculty development practices. Hellyer and Boschmann (1993) reviewed information on faculty development programs gathered from 94 institutions of higher education, drawn in part from a description of programs complied by members of the POD Network. The study showed that 50% of the institutions surveyed started their faculty development programs in the 1980s. 93% of the common faculty development practices were workshops and discussions. Other activities included individual consultations (63%), new faculty orientations and teaching assistant training (60%), research on teaching (51%), and teaching grants (34%). They concluded the faculty strongly supports the existence of faculty development offices.

Wright and O’Neil (1995) surveyed an international community of faculty developers in Canada, the United States, the United Kingdom, and Australasia. Data from
331 respondents suggested “what works” within the wide range of practices for the support of teaching and learning. The finding emphasized the critical role of academic leaders for offering good teaching.

Chism and Szanbo (1996) surveyed a random sample of 100 institutions to determine the range of use of faculty development services. The finding showed that the average program reached 82% of users through publications, 47% through events; use of services was fairly distributed across faculty ranks. They also found that females used faculty development services at somewhat higher rates than males, and only slight differences among the disciplines. Their findings were partially a response to the common perception that “good” teachers use faculty development services, while “bad” teachers eschew them (Angelo & Cross, 1993; Boice, 1984; Centra, 1976).

In light of the majority of the studies of faculty development activities, it seems safe to conclude that workshops, seminars, grants and assistant activities for faculty are the main forms of faculty development. There is an increasing trend for most higher education institutions to pay more attention to the role of faculty development in improvement of teaching and learning.

**Faculty development program design and practices literatures review.**

Effective faculty development program generally includes an exploration of theory, demonstrations or modeling of skills, simulated practice, feedback about performance, and coaching in the workplace (Joyce & Showers, 1995). The most difficult thing for designing an effective program in faculty development is the control of each part of the components of the model to reach the expected outcomes since faculty development is not an event; it is a process (Harwell, 2003). Guskey (1994) suggested some guidelines
for successful professional development in making changes of teaching and learning. The guidelines are as follows: 1) change is both an individual and organizational process, 2) it is an incremental change, 3) working in teams maintains support for change, 4) it is necessary to include procedures for feedback on results, 5) continued follow-up, support, and pressure are necessary in professional development, 6) innovations presented in professional development must be integrated into existing educational frameworks. Guskey’s suggestions enhanced the awareness of the complex process and multiple influence factors of faculty development program design in teachers’ level. The first large–scale empirical comparison of effects of different characteristics of professional development on teachers’ learning by Garet, Porter, Desinmone, Birman, and Yoon (2001) indicated that the positive effects on teachers learning in knowledge and skills and changes were following factors: focus on content knowledge, opportunities for active learning, and coherence with other learning activities. They also asserted the following structural features significantly affect teachers’ learning: the form of the activity (e.g., workshop vs. study group), collective participation of teachers from the same school, grade, or subject, and the duration of the activity. Certainly the last structure feature of teacher selection still has some controversy. Camblin and Steger (2000) conducted a study on determining how to provide for the developmental needs of a diverse faculty at the University of Cincinnati. The survey was distributed to all 1,925 faculty regardless of whether or not they received support. The returns of the survey were sufficient to show that it has changed the way interdisciplinary faculty collaborate and it has significantly facilitated the ability of faculty to address specific developmental needs. The result earlier by Armstrong (1980) was found in his study and he appealed to consider the
advantages of faculty development through interdisciplinary. A Technological Pedagogical Content Knowledge Model (TPCK) created by Koehler, Mishra, and Yahya (2005) emphasized effective technology integration for teaching subject matter required knowledge not just of content, technology and pedagogy, but also of their relationship to each other.

These above exploration of research on faculty development design mostly focused on the faculty’s level lack of the systematic design at the deep and broaden hierarchy. The American Federation of Teachers proposed the principles for professional development in 2008. These principles indicated that professional development should deepen and broaden knowledge content, provide a strong foundation in the pedagogy of particular disciplines, provide knowledge about teaching and learning process, be rooted in and reflect the best available research, be aligned with the standards and curriculum teacher use, contribute to measurable improvement in student achievement, be intellectually engaging and address the complexity of teaching, provide sufficient time, support, and resources to enable teacher to master new contend and pedagogy and to integrate the knowledge and skill into their practice, be designed by teachers in cooperation with experts in the field, take a variety of forms including some what we have not typically considered, and should be job-embedded and site specific. These principles reflect both a review of the literature on effective professional development and the experiences and practical wisdom of teachers and teacher educators (for example, see Garet, Porter, Desimone, Birman, & Yoon, 2001; Ingvarson, Meiers, & Beavis, 2005; Kennedy, 1998; Kriewaldt, 2008; Meiers & Ingvarson, 2005; Supovitz,
Early on, Bergquist and Phillips (1975) proposed a model for effective faculty development that was composed of three levels: faculty’s personal attitudes, the process of instruction including the instructional methods and technology, curriculum development and student evaluation of instruction, and the organization structures. Francis (1975) suggested coordination of programs with the prevailing institutional climate to increase potential impact. Centra (1976) categorized faculty development as four dimensions: instructional, professional, personal and organizational development. These efforts on the design of faculty development model contributed to constitute the basic framework of faculty development. Other researchers focused on the implementation of the model. Guskey (2000) suggested three major designs to implement professional development models. One is a district-wide design, the other is site-based design and the third is the integrated design. He argued that there was a trend in school district that it was move away from district-wide designs and toward strictly site-based approaches since the site-based design was more relevant to the practical problems of the school. He also discussed many advantages of district-wide design and asserted that the integrated design was the most effective of all. However, the integrate design virtually is an optimal approach since it is difficult to implement. School-based faculty development program seems be highly attention in higher education institutions (Rosenbaum, Lenoch, & Ferguson, 2006; Xu, 2009).

On the base of the cognitive view of Gagne (1965, 1974, 1985) in the Condition of Learning and Constructivism Theory and Research, along with a considerable amount
of practical experience in its application, the Dick and Carey Systems Approach Model for Designing Instruction was proposed by Dick and Carey in 2008. This model is a continuous improvement cycle covering plan, develop, implement, evaluation, and revise. The systems approach model includes identifying instructional goals, conducting instructional analysis, analyzing learners and contexts, writing performance objectives, developing assessment instruments, developing instructional strategy, developing and selecting instructional materials, designing and conducting formative evaluation of instruction, revising instruction, and designing and conducting summative evaluation (Dick, Carey, & Carey, 2008). This model describes how the designer uses information from analyzing what is to be taught to formulate a plan for connecting learners with the instruction being developed with the instructional design model. This model has worked for countless students and professional for more than thirty years. It is a common tool not only for the instructional designers but also for the faculty.

Over past decades, researchers have done deeper and broaden researches on different aspects of the faculty development in different level. The research literature contains a mix of large and small-scale studies, including theories-based faculty development design (Saroyan, Amundsen, & Li, 1997), case studies of classroom teaching (Brush & Saye, 2000), evaluations of specific approaches to improving teaching and learning (Dalrymple, Wuenschell, & Shuler, 2006; Lavoie & Rosman, 2007), and surveys of teachers about their professional development experiences. The above categories still seem confused to be clearly identified. In order to clearly clarify the faculty development literature, four dimensions of faculty development (Centra, 1976) literature were reviewed as follows.
Entering to twenty first century, faculty development research expanded to a deeper and broader scope of interest. Taylor and Rege Colet (2009) described the different terms clearly at their reviews as follows: Instructional development focused on improving the faculty’s ability to teach more effectively including course design, teaching styles, instructional technology; professional development focus on supporting faculty to fulfill the roles of teaching, research and service and promoting the expertise of faculty members within their primary discipline, the terms academic development and faculty development had the same focus on the concept of professional development. While the academic development was also used in Australasian and British context, the term faculty development was common in North America (Taylor & Rege Colet, 2009); personal development focus on fostering faculty’s interpersonal skills, career development and life planning; organizational development focus on improving institutional environment to better support teaching.

**Instructional development.** Instructional development research focused on providing faculty with more general pedagogical skills or motivation and tools for self-improvement to produce effective teaching. Smith (1995) reviewed the faculty development research during 1970s through 1990s and presented that the ultimate goal of each different faculty development terms oriented towards quality of teaching on POD Network conference in 1995. Instructional development was identified as a primary aspect of among four dimensions of faculty development research.

One of the most popular instructional methods, student-centered learning approach, has been prevalent in higher education institutions. Student-centered instruction was designed to provide student with opportunities to take a more active role
in their learning by shifting the responsibilities of organizing, analyzing, and synthesizing content from the teacher to the learner (Means, 1994). Student-centered learning emphasizes that student will be responsible for their own learning with the guide of teacher. Students must be active engaged in their own learning and involved in the whole learning process. The role of the teacher transform from the knowledge transferor to a facilitator, organization and guide of learner. There was a wealth of literature that details models for implementing student-centered learning activities examples of student-centered activities (e.g., Brush & Saye, 2000; Glasgow, 1997; Hannafin, Hannafin, Land & Oliver, 1997; Harris, & Cullen, 2010; Lavoie & Rosman, 2007; McCombs & Whisler, 1997; Smart, Witt, & Scott, 2012). Sorcinelli et al. (2006) interviewed program developers to identify the most key issues they addressed through service. The developers identified eight key issues as the most important to be addressed among a list of 21 “current issues”. These eight issues were identified as follows: teaching for student-centered learning (mean: 3.69), new faculty development (mean: 3.6), integrating technology into traditional teaching and learning settings (mean: 3.51), active, inquiry-based or problem-based learning (mean: 3.51), assessment of student learning outcomes (mean: 3.43), multiculturalism and diversity related to teaching (mean: 3.36), scholarship of teaching (mean: 3.28), and writing across the curriculum (3.06). Teaching for student-centered learning as the most important issue to address through service for faculty (mean: 3.69). Student-centered learning has been an important topic since teaching development literature (McKeachie, 2002) began, more higher education researchers called for a shift from teacher-centered to student-centered learning (Barr & Tagg, 1995; Johnson, Johnson, & Smith, 1991, 1998). Harris and Cullen (2010), in their work
Leading the Learner-centered Campus, appealed to rethink the current challenges for changing. Estes (2004) suggested three measures to increase the use of student-centered facilitation: a) establishing forums for dialog about student-centered facilitation, b) incorporating more student-centered facilitation practices, and c) considering student-centered learning during program development and facilitator training. Henderson et al. (2011) supported Estes’ suggestion and stated that effective change strategies should be aligned with or seek to change the beliefs of the individuals involved, involve long-term interventions, lasting at least one semester, require understanding a college or university as complex system and designing a strategy that was compatible with this system.

Although the psychological literature builds a strong case for student-centered teaching, it is abstract and difficult to translate into classroom practice. Weimer (2002) discussed five practices that need to change to achieve student-centered teaching. These five dimensions of learner-centered teaching are as follows: a) the function of content which includes giving students a strong knowledge foundation, the ability to apply the content and the ability to learn more independently; b) the role of the instructor which focus on helping students learn and create an environment in which students can learn; c) the responsibility for learning which shifts responsibility from the instructor to the student; d) the purposes and processes of assessment which focus on shifting from only assigning grades to include providing constructive feedback to assist student improvement; and e) the balance of power which focus on shifting power to students so that the instructor shares some course policies and procedures of decision about the course with the student. This organizational scheme brings all of the previous research and literature into a more applied focus for instructors. It seems establishing an
Blumberg (2008) developed Weimers’ five dimensions change and proposed the specific rubrics of each component to identify how much changes occurs when the instructor using student-centered teaching approach. Blumberg’s work Developing Learner-centered Teaching- A practical guide for faculty addressed the implementation strategies for faculty to make more student-centered. It also offered a practical tool for both faculty and program developers to make assessment of the degree to which changed from instructor-centered to student-centered teaching and learning.

Additionally, Education International and The European Students’ Union published a work, Student-Centered Learning- Toolkit for students, staff and higher education institutions in 2010. The toolkit addresses key issues related to student-centered learning, including basic principles and definitions, the benefits to stakeholders of this approach, and implementation strategies at the level of instructors and institutions. The fundamental questions of “changing mindsets” and “maintaining a culture of SCL” are also considered, along with an effort to address common misconceptions about the phenomenon.

A review of teaching and learning center web sites indicated that a large number of programs offer guidance on strategies and methods to facilitate active, inquire-based or problem-based learning. These programs included individual consultation, workshops, print resources, and videographers to support faculty in teaching students problem-based work. The similar terms such as learner-centered, learning centered refer to the same meaning of student-centered although different researcher defined differently. There were also some other terms called active learning by Prince (2004) such as inquire-based or
problem-based learning, technology-enhanced learning, cooperative learning, and collaborative learning. Prince made efforts to review the related literature attempting to clarify the differences of effectiveness in each type of active learning methods listed above. He did not discuss any relationship between student-centered learning and active learning. Nevertheless, only strong support of improving student engagement resulting from active-engagement methods was found incontrovertibly (Hake, 1998; Laws et al., 1999; Redish, Saul, & Steinberg, 1997), others seemed difficult to be proved adequately. Although these active learning methods were defined differently and applied in the specific disciplinary course, they were the same goal as student-centered learning that focused on increasing student engagement extending to improve students’ learning effectiveness.

**Professional development.** Professional development researchers concerned the faculty professional development in the function of teaching, research and service, and researched on the factors that influenced faculty’s goal attainment in their career development. Guskey (2000) defined professional development as series of processes and activities designed to enhance the professional knowledge, skills and attitudes of educators so that they might, in turn, improve the learning of students. He emphasized the professional development was an intentional process, an ongoing process and a systemic process. Hence, faculty’s professional development is a continuing process covering the whole career stage since education is a dynamic professional field with a continually expanding knowledge base. Baldwin and Blackburn (1981) employed developmental theory to clarify the academic career process. Information from college professors at five vocational stages indicated that some attributes changed very little, some evolved
directly, and others followed indirect paths of development. Schuster and Wheeler (1990) examined the key factors that bear on professional growth, including the role of professional schools in the preparation of prospective faculty, career consulting, wellness programs, employee assistance programs to help deal with substance abuse, and strategies for instituting early retirement programs. Additionally, some researchers concerned the certain stage of faculty development. Jarvis (1991) indicated the approaches and methods of promoting junior faculty development in the aspects of teaching, research and service; the article by Sorcinelli (1994) provided research-based and practical advice on how to foster the career development of new and junior faculty. She described model programs and successful strategies to support the newest members of the professoriate, including exemplary programs for orientation, mentoring, research, and teaching development. These suggestions can benefit to the corresponding types of programs design for new faculty. Alstete (2000) synthesized the debate around post-tenure review and developed a model for faculty development that combines the best principles of post-tenure review with the long-standing practice of faculty assessment and development. He also explained why post-tenured faculty development could make a difference in dealing with mandatory retirement caps, changes in student demographics, technology, and globalization; Baldwin, Lunceford and Vanderlinder (2005) in their study *Faculty in the middle years: illuminating an overlooked phase of academic life* concerned the mid-term faculty’s development. This explanatory study employed developmental theory and NSOPF-99 (National Study of Postsecondary Faculty) data to illuminate the middle years of faculty life, an ill-defined and largely unexamined portion of the academic career. The study's findings suggested that the middle years of faculty
life had distinctive attributes, posed special challenges, and deserved systematic investigation by scholars. The study laid a foundation for research needed to fill a gap in the knowledge and understanding of the faculty life cycle.

**Personal development.** Personal development research focused on faculty’s interpersonal skills and life planning. Blackburn, Horowitz, Edington, and Klos (1986) reported the relationships between job strain and several quality of life indicators (job satisfaction, life satisfaction and health) for a group of university faculty and administrators. Gmelch (1993) outlined the chief forms of faculty stress and its major causes of academic stress. Practical advice showed how to distinguish negative from positive stress and how to deal with negative stressors in life and at work, replete with exercises to help understand how stress affected faculty members. Studies of faculty at different career stages revealed that many faculty members developed a strong interest in teaching in the last half of their career (Blackburn & Havighurst, 1979; Maehr, 1984).

**Organizational development.** Organizational development (OD) was adapted from business settings and has been used in academic institutions for a few decades. *Organization Development in Schools: the State of Arts* was written by Fullan, Miles and Taylor in 1980. This study assessed the state of the art of organization development in four respects: (1) critiquing and clarifying the values, goals, and assumptions of OD in general and as applied to education; (2) identifying and analyzing the various models and operating characteristics of OD in practice (conditions and strategies affecting its initiation, implementation, and continuation); (3) assessing the impact or outcomes of OD on achievement, productivity, and attitudes; and (4) reconsidering OD’s future, and suggesting policy implications for educational agencies at different levels. Dill (1999)
addressed the questions that universities should become “learning organizations” by reviewing the adaptations in organizational structure and governance reported by universities attempting to improve the quality of their teaching and learning processes. Dilorenzo and Heppner (1994) discussed the role of an academic department in promoting faculty development in their article. They defined faculty development from a departmental perspective that faculty development as a process of enhancing and promoting any form of academic scholarship in individual faculty members. They concluded that departmental administrators should make efforts to develop customized programs for faculty at each different stages and season reflected the vision of faculty development. Continuous listening to faculty and evaluating the results of interventions was essential within department. They emphasized that faculty development required a substantial investment of departmental time and resources to obtain success.

The overlapping researches on faculty development at three-dimensional perspective revealed to the ongoing and endless process of faculty development research and design. Simultaneously, the literature seemed to provide the evidence of the overarching role of the design of faculty development program among entire faculty development. The primary factor for an effective faculty development design is heavily relied on the goal identification (Dick, Carey, & Carey, 2008). Sorcinelli et al. (2006) conducted an open-ended questionnaire to identify the future directions for faculty development. Four hundred ninety four respondents at 300 institutions in the United States and 31 institutions in Canada of the program developers who were from members of the Professional and Organizational Development Network in Higher Education completed the survey and wrote their own thoughts about the future directions of faculty
development. The responses showed the five directions in which they thought the field should move. These new directions included: helping faculty integrate technology meaningfully into the classroom; deepening faculty involvement in pedagogies of engagement; addressing the new, often expanding roles and responsibilities of faculty and helping faculty balance those roles; building and attending to issues of diversity at student, faculty, and institutional levels. Respondents from all institutional types pointed to active, student-centered learning and technology integration as key areas needing attention in the future (Sorcinelli et al., 2006). This survey reflected the new trend of faculty development design on the base of needs assessment of program developers and institutions.

**Evaluation of faculty development program literatures review.** Guskey (2000, 2002) argued that good evaluations were the product of thoughtful planning, the ability to ask good questions and a basic understanding about how to find valid answers. Good professional development evaluations provide sound, meaningful, and sufficiently reliable information that can be used to make thoughtful and responsible decisions about professional development processes and effects (Guskey & Sparks, 1991). Faculty development evaluation serves two purposes: a) to better understand faculty development so that it can be strengthened, and b) to determine what effects faculty development has had in terms of its intended outcomes (Sparks, 2000).

The processes and procedures involved in evaluating faculty development present an endless list of challenges that range from very simple to extremely complex. A well-designed evaluation model can make this difficult task easier. During the past decades, many researchers created different types of evaluation models.
Tyler’s (1949) Evaluation Model was the earliest influential evaluation theory. Tyler’s evaluation model included the following steps: 1) establish broad goals or objectives; 2) classify or order the goals or objectives; 3) define the goals or objectives in observable terms; 4) find situations in which achievement of the objectives is demonstrated; 5) develop or select measurement techniques; 6) collect performance data; 7) compare the performance data with the stated objectives. His model was a goal-driven evaluation tool that included a series of steps that he believed should be followed in any systematic evaluation.

Nearly 20 years after Tyler, Metfessel and Michael’s (1967) extended model was proposed, this model emphasized the inclusion of multiple constituencies throughout the evaluation process, and it greatly expanded the methods of data collection that might be used in evaluations.

Hammond further extended Tyler’s model and proposed a three-dimensional structure for evaluation in 1973. Hammond believed that determining whether or not a program’s goals were attained and why those goals were attained or why they were not were very important.

Scriven developed the Goal-Free Evaluation Model in 1972, which increased the likelihood that unintended outcomes would be identified and noted.

Stemming from a very different research tradition but having direct relevance for educators is the evaluation model developed by Kirkpatrick (1959, 1977, 1978). To judge the quality, efficiency, and effectiveness of supervisory training programs in business and industry, Kirkpatrick outlined a four-level evaluation model. These levels are reaction which focuses on how participants feel about the program, learning which focuses on
measuring the knowledge, skills, and attitudes that participants acquire as a result of the training, behavior which considers the extent to which the on-the-job behavior of participants changed because of the training, and results is designed to assess the bottom line in business and industry such as improved productivity, better quality, lower costs, meeting deadlines, reduced accidents, improved morale, lower turnover, and ultimately, more profits or better service. Although this model has been suggested to be modified since it was originally described, its simplicity and practicality have made it the foundation of training program evaluations in business around the world.

Another model of evaluation that was the goal-oriented approach is the CIPP evaluation model proposed by Stufflebeam. Stufflebeam’s (1971, 1983, 2002, 2003) model is based on the four different kinds of evaluation information that policymakers and administrators need to make their decisions. These include context evaluation, input evaluation, process evaluation, and product evaluation. Context evaluation focuses on identification of the problems, needs, and opportunities that exist in a specific educational setting. Input evaluation centers on structuring decisions. It provides information about how best to allocate resources to achieve the specified goals and objectives. Process evaluation provides information for implementation decisions. Its purpose is to identify any defects in the design of the program or activity, and how those might be remedied. Product evaluation focuses on recycling decisions. It attempts to determine and interpret program or activity outcomes. Once outcome information is attained, comparisons can be made between expectations and results. The CIPP evaluation model helped educators recognize the value and importance of sound evidence in decision-making processes. It also broadened educators’ perspectives on evaluation and brought clarity to ongoing
evaluation procedures (Guskey, 2000). The Stufflebeam’s CIPP model was widely applied by researchers frequently to evaluate different kinds of programs as a valid and reliable evaluation instrument (Hakan & Seval, 2011; Ho et al., 2011; Huma, 2013).

Hines (2009) suggested eight dimensions for quality assessment. These are systematic, goal-directed, measurable objectives, criteria for success; assessment methods measure the objectives, multiple measures, summative and formative data, and evidence of a causal relationship. Each evaluation model has its unique feature and advantages for effective evaluation. Which types of evaluation model work best depends on the purpose of the evaluation and the appropriate types of program.

Over the decades, numerous researchers tried different approaches to evaluate the effectiveness of faculty development. Some have surveyed the vast faculty development literature to criticize the inadequacies. Hoyt and Howard (1978) feared that such programs would “suffer the fate of other educational fads which are born, mature, and die without fair trial or serious study” and urgently called for improvements in and expansions of evaluation protocols (p. 36). Levinson-Rose and Menges’ (1981) survey of the field found that the number and quality of studies on the evaluation of faculty development programs much improved, but still lacking in the theoretical and methodological rigor required for the advancement of the field. Nearly thirty years after the explosion of faculty development programs, Chism and Szabo (1997) found that while program evaluation was used ubiquitously to evaluate services and document successes, such instruments overwhelmingly gathered data on user satisfaction instead of substantive measures related to program effectiveness in meeting stated objectives. Hines (2009) found that little had changed, in that program assessment continues to be
pervasive but with a primary focus on readily accessible measures such as user satisfaction. Kuscera and Svinicki (2010) argued that faculty development had not progressed in honing its evaluation practices much beyond the early 1990s. Recent by McKee, Johnson, Ritchie, and Mark-Tew (2013) reviewed three prior studies based on the study of Centra’s in 1976, POD Network in higher education study of 2001, and faculty development practices in the Southern Association of Colleges and schools, conducted in 2009 and 2010. They examined the factors of methodology and attempted to draw conclusions about collective wisdom related to providing effective and high-quality faculty development opportunities. However, all these efforts typically did a better job of documenting inadequacies than prescribing solutions (Guskey, 2000).

The problem of the dissatisfaction in faculty development program evaluation is that researchers begin by gathering research studies and program evaluations from the vast faculty development literature and is narrowed by selecting only those that meet clearly articulated selection criteria. Results are then standardized and averaged across various programs and contexts to obtain an estimate of the overall effect. Even those that are clear are usually so general and theoretical in nature that they offer little help for practically minded educators who want specific answers and workable solutions (Guskey, 1994).

Other researchers argued that minimal efforts and ability were given to evaluating the impact of services on student learning outcomes (Chism & Szabo, 1997; Hines, 2009). Hines surveyed the developers and reported the reasons for the ambitious results of most research was due to weak research design, rushed research projects, lack of assessment knowledge and the complex and difficulty nature of this type of assessment.
Student learning outcomes can provide the strong evidence for the effectiveness of a program, the problem is that it is difficult to measure the learning outcome and also difficult to assign the learning outcome coming to a specific intervention. Although some researchers have made a great effort on the evaluation of learning outcomes in recent years, there is still common weak evidence on learning outcome. Earlier research by Fink (2013) proposed to use three-step reasoning focus on determining the changes of participants in their teaching practices to do assessment of faculty development program. This proposal assumed that the certain faculty behavior - the use of active learning and learner-centered course design- have been established by the Scholarship of Teaching and Learning research literature to have a positive impact on student engagement and student learning. The assumption is that when participants use these teaching behaviors more frequently and properly, they will have the same effect on participants’ students that they had on students in the Scholarship of Teaching and Learning research literature. Fink’s proposal was consistent with Gibbs and Coffey’s statement “when trainers are oriented have a reasonable expectation that, if they are successful, this will improve both student learning processes and outcomes” (Gibbes & Coffey, 2004). If this proposal is the case, it seems reasonable to solve the problems of difficulties and complexities of collecting learning outcome data from student. Although self-report and satisfaction assessment measures were criticized as a simple measure for evaluation, Chism and Szabo’ (1996) still suggested regular measures of satisfaction should continue.

Brooks, Marsh, Wilcox, and Cohen (2011) conducted a study of a faculty development program designed to cultivate faculty leadership in the area of technology-enhanced learning at the University of Minnesota, Twin Cities campus. They developed
three objective data instruments that sought to 1) derive instrument components
deductively from programmatic goals, 2) move beyond measures of satisfaction to ones
that measure individual-level changes in the attitudes, values, and behaviors of
participants, and 3) develop instruments that could be used repeatedly to gather
longitudinal data within particular programs while affording comparability across the
entire spectrum of programs offered by the university. Four basic levels that influence the
effectiveness factors were identified as the institutional, the departmental, the
programmatic and the individual level. They defined the goals of the program in
measureable terms into eight basic dimensions. The pretest, mid-test, and post-test data
collection method was used. The overall results suggest that the faculty development
program was successful in accomplishing its goals with considerable gains in key areas
being made by participants. The scale reliability testes reveal that the researchers were
largely successful in measuring the constructs identified as program goals at the onset of
the program. This study seemed to provide a stronger evidence of the effectiveness of the
program because of using the improved instruments. However, this study most focuses
only on quantity and neglect important quality issues. Types of inquiry surveys should be
used to make sense of the deeper levels of participants and students’ experience.

Gibbs and Coffey (2004) were attempting to ascertain the impact of extensive
training programs for junior faculty at multiple institutions. One of their goals was to
determine whether participants had changed their “Approaches to Teaching”- Whether
participants subsequently had a more “student-focused” rather than “teacher-focused”
approach to teaching. This article reported a three-year international study involving 22
universities in 8 countries. They combined psychometric data from a number of training
programs and included a control group so as to be able to measure impact. The results showed the evidence of a range of positive changes in teachers in the training group, and in their students, and contrasting lack of change, or negative changes, in untrained teachers from the control group. However, there is still no evidence of the same effectiveness in other countries including China.

Another similar study by Ebert-May, Derting, Hodder, Momsen, Long, and Jardeleza (2011) examined two national professional development programs: Faculty Institutes for Reforming Science Teaching and the National Academies Summer Institute on Undergraduate Education in Biology at the University of Wisconsin. The overarching goals for faculty in both workshops were to increase knowledge about the principles of active learning and scientific teaching and the corresponding instructional practice. They used both self-reported data and observation data. They observed teaching practices to analyze videotapes of biology faculty teaching following professional development. The self-reported data showed that 89% of the respondents stated that they made changes in their courses that included active, learner-centered instruction. In contrast, observational data showed that participation in professional development did not result in learner-centered teaching. The majority of faculty (75%) used lecture-based, teacher-centered pedagogy, showing a clear disconnect between faculty’s perceptions of their teaching and their actual practices. They indicated the reason for the disconnection was traditional beliefs, self-efficacy, values, level of dissatisfaction with student learning, and attitudes about teaching and learning probably influence the degree to which faculty create learner-centered classrooms. These results were consistent with the “paradox of change without difference” (Woodbury & Gess-Newsome, 2002). They had implemented active-learning
teaching, but the direct observations indicated that the implementation of learner-centered teaching did not occur. This finding implied that the faculty learned what was taught in workshop, but they were left alone to successfully development and implement active-learning teaching strategies. There was no on-site network of expert support. The authors in this study suggested that regular and timely feedback from experts was fundamental to the faculty development process as faculty work to improve their classrooms (Henderson, Beach, & Famiano, 2009).

The review of faculty development program evaluation indicated that professional development that focused on student learning helped faculty develop the pedagogical skills to improve their abilities and had positive effects on practice in most institutions (Blank & Smith, 2007; Wenglinsky, 2000). Multiple methodologies provided stronger evidence than single method. Effective faculty development program evaluation is essential to make the program improvement continuously. However, most literature stressed more on product evaluation of participants and students, less on the process evaluation (Stufflebeam’s Evaluation Model); more on the validity and reliability of data collections and analysis, less on the validity of the process of program design. If the program is not based on the scientific and systematic design, little improvement can be found to reach the intended goal.

Literature of faculty development research on Chinese university review.
Searching the electronic database ERIC in combination with the keyword, “faculty development program”, “student-centered” or “learner-centered”, and “Chinese higher education institution” or “China”, each time one of the above mentioned terms was indicated as word that had to appear in the title or in the abstract, without limitation of the
search in time or in source of publication, literature of the faculty development program designed for Chinese higher institution faculty to transition to student-centered teaching was scarce. Nevertheless, among the related literatures, most of them focused on comparison study on Chinese education reforms and American student-centered teaching approach (Huang, Leung, & Federick, 2005; Janet, Bonnie, & Liu, 2003; Raymond, 2010; Zhang, 2009; Zhang & Flora, 2012). A study of Chinese and U.S. business students' perceptions of their education conducted by Janet et al. (2003) indicated that differences between two countries in education had significant implications for China's efforts to move from a centrally planned to a socialist market economy. Zhang (2009) studied different types and levels of Chinese students’ perceptions of collaborative learning approach comparing with American students. This study showed that Chinese students preferred collaborative learning teaching styles and methods more. Students who described themselves as extroverted preferred collaborative learning teaching styles and methods more, and students majoring in science preferred collaborative learning teaching styles and methods more. Chinese students were more satisfied with collaborative learning teaching styles methods used by their faculty. Unfortunately Raymond’s comparison study conducted in a single Chinese university (2010) shows different Chinese students’ perceptions of student-centered teaching. Chinese students preferred local Chinese professors to American professors in spite of the students' perception that the American professors' were more highly qualified, and despite the American professors' student-centered teaching styles. The Chinese students consider local Chinese professors to be more effective in teaching and they have higher expectation of the Chinese students than the U.S. professors. This article explores the differences between
Chinese and Western teaching styles and proposes approaches needed to guide Chinese students from their familiar teacher-centered classrooms toward accepting a student-centered classroom approach. Recommendations are offered for improving Western ways of educating Chinese students in China. Huang et al. (2005) in their study demonstrates how the teacher can encourage students to actively generate knowledge under the teacher's control from a perspective of variation and further deconstruct the legitimacy of teacher-centeredness and student-centeredness dichotomy. Zhang and Flora (2012) emphasizes schools must integrate student empowerment in and out of the classroom to ensure a student-centered campus in China. The only similar literature by Crichton and Kopp (2006) as this research among the searchings’ in ERIC database was found. However, it was an online distance faculty development program run by Canadian teacher educators. This study developed a distance education course using multimedia technologies that allowed teachers to support one another and learn from best practices and share site-specific activities. Crichton and Kopp also provide a glimpse into the future of the project, where teachers will be able to contribute to the course site and interact with one another as they begin to implement student-centered education in their classrooms. Sorcinelli (2006) argued that primary goal for faculty development programs were remarkably consistent across institutional types, but there were distinct differences by institutional type in the prioritization of specific goals. Furthermore, programs effective in some institutions settings may be ineffective in others (Eble & McKeachie, 1985). Research on the programs focus on specific regions and institutions was still scarce and necessary for the individual institution.
Chinese literature related to faculty development focused more on the theory and comparison study. Zhu (2011) did the theoretical research on faculty professional development including theories in faculty’s beliefs, emotion, knowledge, skills, teaching expertise, teachers learning, reflection, cooperation, leadership, career development, burnout, empowerment, and gender. Theory’s importance in directing practice cannot be denied, however, more theories less or lack of practice also loses its practical significance. Liu (2002) published the work, professionalization: the challenge to 21st faculty, employed theories and interpretative modes of sociology, pedagogy and sociology of education to call for teacher professionalization. Xu (2009) and Ding (2009) did the comparative research on faculty development. Although they proposed some helpful suggestions on faculty development for Chinese higher education institutions, feasible and practical measures for individual institutions were still scarce which resulted in few regular program practices in Chinese higher institutions.

**Chinese Higher Education Development.** The traditional Chinese education system is based on Legalism and Confucian ideals. The teaching of Confucius has shaped the overall Chinese mindset for the past 2500 years. But, other outside forces have played a large role in the nation's educational development in China. The First Opium War of 1840, for example, opened China to the rest of the world. As a result, Chinese intellectuals discovered the numerous western advances in science and technology. This new information greatly impacted the higher education system and curriculum.

Soviet influence in the early 1950s brought all higher education under government leadership. Research was separated from teaching. The government also introduced a central plan for a nationally unified instruction system, i.e. texts, syllabi, etc.
The impact of this shift can still be seen today. Chinese higher education continues its struggle with excessive departmentalization, segmentation, and overspecialization in particular.

From 1967 to 1976, China’s Cultural Revolution took another toll on higher education, which was devastated more than any other sector of the country. The enrollment of postsecondary students can be used as example to illustrate the impacts. The number dropped from 674,400 to 47,800. This has had a major impact on education in the 21st century. The decline in educational quality was profound.

In 1977, Deng Xiaoping made the decision of resuming the National Higher Education Entrance Examination (Gao Kao) having profound impact on Chinese higher education in history. From the 1980s on, Chinese higher education has undergone a series of reforms that have slowly brought improvement. The government found that schools lacked the flexibility and autonomy to provide education according to the needs of the society. Structural reform of higher education consists of five parts: 1) reforms of education provision; 2) management; 3) investment; 4) recruitment and job-placement; 5) inner-institute management—the most difficult.

The reforms aim to provide higher education institutions more autonomy and the ability to better meet the needs of students. Instead of micromanagement, the state aims to provide general planning.

The Provisional Regulations Concerning the Management of Institutions of Higher Learning, promulgated by the State Council in 1986, led to a number of changes in administration and adjusted educational opportunity, direction and content. Reform allowed universities and colleges to: choose their own teaching plans and curricula; to
accept projects from or cooperate with other socialist establishments for scientific research and technical development in setting up "combines" involving teaching, scientific research, and production; to suggest appointments and removals of vice presidents and other staff members; to take charge of the distribution of capital construction investment and funds allocated by the state; to be responsible for the development of international exchanges by using their own funds.

Reforms picked up the pace in 2000, with the state aiming to complete the reform of 200 universities operating under China's ministries and start 15 university-based scientific technology parks.

In 2002, there were slightly over 2000 higher education institutions in PRC. Close to 1400 were regular higher education institutions. A little more than 600 were higher education institutions for adults. Combined enrollment in 2002 was 11,256,800. Of this close to 40 percent were new recruits. Total graduate student enrolment was 501,000.

By 2011, there were 2762 higher education institutions with 38.4 million full-time students and 2.3 million faculty in China.

Since 1998, ten universities have been targeted by the Chinese government to become “world-class” universities including Peking and Tsinghua Universities. To achieve this goal, the government promised to increase the educational allocation in the national budget by 1 percent a year for each of the five years following 1998. When CPC General secretary Chinese president Jiang Zemin attended the hundredth anniversary ceremony at Peking University (Beijing University) in 1998 and the ninetieth anniversary ceremony at Tsinghua University in 2001, he emphasized this ambitious goal of advancing several of China's higher education institutions into the top tier of universities.
worldwide in the next several decades. In the meantime, China has received educational aid from UNESCO (United Nations Educational, Scientific, and Cultural Organization) and many other international organizations and sources, including the World Bank, which recently loaned China $14.7 billion for educational development. Since 2007, China has become the sixth largest country in hosting international students. The top ten countries with students studying in China include: Korea, Japan, USA, Vietnam, Thailand, Russia, India, Indonesia, France and Pakistan. The total numbers of international students studying in China often range around two hundred thousand.

Only 30 percent of faculty hold postgraduate degrees. This is a consequence of the lack of an academic degree system in China until the 1980s. Recently, international-trained scholars have entered the faculty with the goals of both improving quality and strengthening ties to other institutions around the world. The state recognizes the need for more homegrown professors.

In spring 2007 China planned to conduct a national evaluation of its universities. The results of this evaluation would be used to support the next major planned policy initiative. The last substantial national evaluation of universities was in 1994. That evaluation resulted in the massification of higher education as well as a renewed emphasis on elite institutions. Since 2010, in some of the elite institutions, there has been an attempt at introducing some aspects of an American-style liberal arts curriculum for selected students.

**Public vs. private universities in China.** The tradition of private education dates back to thousands of years ago with Confucius, and for a long period it was a dominant form of education. However, the modern private school system did not appear until 1840,
when China was defeated in the Opium War. After the Opium War, China was forced to open to the world. There were four types of schools during 1840 through 1952 in China. These were Government-owned schools, Mission schools, schools run by Chinese, and SiShu (private school). The latter three types were all private schools. Mission schools influenced China deeply not only on the physical level but also on Chinese culture. Mission schools did contribute a lot to Chinese modern education systems (Xu, 2001). Mission schools were the first to offer women education in China. The first Chinese “girl’s school” was established in 1844 by Aldrsey, a British missionary (Hu, 1994). They also boasted some of the best universities and research areas in China. Several best universities today like Tsinghua University and Tongji University started as mission colleges (Xu, 2001).

After the founding of the People’s Republic of China in 1949, all private sectors of social life were transformed into public sectors. Private education did not reemerge until 1978. After the Chaotic “Ten-year Cultural Revolution” ended in 1976, when Deng Xiaoping had the power of the nation and he pursued the “Reform and Open Strategy”, private education reappeared in China. In 1997, China issued the Regulation for Non-state Education Sector and defined that private education should be non-profit organization, invested by non-government finance, and the investors could not distribute the surplus.

Chinese private higher education started as a non-degree program provider for self-taught examination takers and training program for adult learners until 1999. After Chinese government conducted Massification of Higher Education Strategy in 1999, some of the private universities obtained the qualification to offer degree program for
full-time students since the year of 2000 and made a rapid development in the past years. In 2004, Chinese State Council issued the Promotion Law of Private Education. Under this law, private university has more autonomy in staff employment, internal management, curriculum design, and student recruitment than public university. However, most of the clauses could not be implemented successfully because of lack of systematic institutions supports. In practical government level, the education government still uses the regulations of public university to control private university.

There are three types of private higher education institutions in China. The first type is private training organizations that offer training programs for adult students or part-time students; the second is private higher institutions without any partnership with public university approved by Chinese Ministry of Education to have the right to issue associate diploma, Bachelor’s degree or Master’s degree; the third is called independent institutes that cooperate with public university.

In 2003, Chinese Ministry of Education issued the document of the Opinion of Regular Higher Education Institution Running a Pilot Scheme of Independent Institute in New Mechanism. The independent institute refers the secondary school affiliated to public higher education institution that can offer bachelor's degree program education independently cooperated with social private organization or individual person outside of national organization using non-national finance funds. This new mechanism tried to explore a new model of running private university on the base of full use of public education resources. According to this regulation, the applicant should be the public education institution, and social private organization or person invests money to build the independent institution. Public higher education institution should appoint the president
for the independent institute. The independent institution should pay probably 30% of tuition fees annually as a management fee to its partner- public higher education institution. This new regulation changed the competition situation among all universities in China. Obviously these new independent institutes have more attractiveness than general private universities because they can use part of the name of the public university as the name of the independent institution (for example, Xi’an Jiaotong University established its independent institute called Xi’an Jiaotong University City College), and many close connections with the cooperative public universities to attract students. However, recent years some of these independent institutions had made a lot of trouble for the government resulted in students’ complain and protest since the students did not obtain what they expected of the similar excellent education resources as the public higher education resources during they studied at the independent institution. Even most students could not obtain their Bachelor’s degree because of the conflicts between the partners. The public university controlled the quota of degrees to ensure its payment of management fee. Furthermore, some of the investors had no enthusiasm and enough money to build the institute continuously because of the conflicts resulted from the mixed management mechanism and unexpected return of investment. As a result, Chinese government has taken many measures to control its unhealthy development in recent years. Some of the independent institutions have been closed for many years.

There were 698 private institutions including independent institutions with 5.05 million students (3.11 million are undergraduate students) and 371,554 full-time teachers by 2011 in China (China Statistic Yearbook, 2011). The private training education institutions (these institutions cannot issue diploma for learners) were excluded. Private
universities accounted for almost about one-third of the total universities in China (Brandenburg & Zhu, 2007).

Comparing with public university, Chinese private university has following differences: the College Board is the highest decision-making organization in private university. The College Board composes investors or their representative, president, and staff representatives. The College Board can make decisions on president appointment, developing and modifying college constitution, organizational settings, personnel employing, raising and manage funds, financial budget auditing, major project investment, examine and approval of annual plan, and establishment & suspend of the college. There are no any funds disbursed by government for private university. However, students can apply for scholarship and aid given by government. Probably 20% of the students can obtain range of 800 RMB through 2500 RMB aids annually from government in Chinese private university. With the rapid development of Chinese private university, Chinese government reinforced the control and management of private university more than before. Since 2007, Chinese Communist Party started to assign supervision of commissioner to each private university to ensure the stability and healthy development. The supervision of commissioner is directly responsible for the local government to supervise the running risk. Chinese Ministry of Education or the provincial department of education also controls the annual number of student recruitment, student recruitment process (unified students’ admission procedures), and tuition standard of each private university. Additionally, Chinese Ministry of Education conducts the comprehensive assessment every five years for each private university to ensure the education quality.
In China, it is commonly considered that public universities especially those national ones are better than private universities that were originally influenced by the Soviet Union's higher education system. Universities in China generally select their students based on students' performances in the National Higher Education Entrance Examination (Gao Kao, 高考), the entrance scores required by public universities are typically much higher than those of private universities. However, it is noted that private universities in China have been developing only in recent decades, thus many people can easily regard private universities academically less competitive.

**Challenges.** China exhibits a great need for better regulation as well as more academic qualifications, teaching experience, and understanding of social changes and technology. To achieve success, the state realizes that the impacts of the Cultural Revolution on education must be reversed. To this end, top universities now function as centers of excellence that serve as a model for all other institutes. A helpful model involved "twinning" of poorer institutes with model institutes to provide equipment, curricula, and faculty development.

There is also an issue of funding and equity. Although many academics praise the reforms for moving the higher education sector from a unified centralized and closed system to one that allows openness and diversification, they understand that decentralization and semi-privatization has led to further inequity in educational opportunity.

There is growing concern about the teaching quality and the value of practical application in the workplace when student graduate for college. Many employers feel the quality of rote learning instilled in Chinese students serves as a detriment to creative
thinking and the lack of real-world experience during the formative years negatively impacts students' ability to adapt to the global business environment easily. Researchers suggest that these above issues need to be addressed in the coming years if China aims to continue its drive for excellence.

**Introduction of Xi’an, China.** Xi’an is one of the oldest cities in the world with a vivid and rich history and culture. It is not only the birthplace of the Chinese Nation, but also the birthplace of human civilization in Asia and the cultural center of prehistoric civilization. The city of Xi’an (population 8 million) was the first Chinese city to open up its doors to the Ancient world, not in 1980 under the "Open Door" policy but in fact during the Tang dynasty when Xi’an blossomed as the first stop on the Silk Road. Over a period of more than 2000 years, Xian was the capital for eleven dynasties. Along with Rome and Constantinople, this city was a world leader in culture and trade and played a vital role in bridging the gap between east and west.

As a result, the city has a large student population who contribute to the cultural life of the city. Xi'an is powerful in terms of its scientific and technological strength, the comprehensive strength ranks second in China. Xi’an boasts 727 scientific research institutions; technical personnel constitute 26.4% of the total working staff in Xi’an. The proportion of technical personnel in Xi’an is the highest in China. A batch of advanced experimental bases and testing centers has the capability of assimilate, digest and transfer state-level and world-level technologies. The applied technologies in the fields of aeronautics, aerospace, mechanics, electronics, meter and instrument, optics, textile and power equipment are in the leading position in China. Xi'an is one of the important scientific research and higher education bases in China (China International Travel
Service, 2013). There are 109 higher education institutions including 19 adult higher education institutions with 1.38 million college students in ShaanXi province in total. Among 90 regular higher education institutions, there are 30 private universities (8 regular undergraduate-level private universities like XEU, 10 associate diploma-level colleges and 12 independent institutions which were founded on the base of public universities with independent campus, independent name including part words of the name of public university, independent diploma issue etc.) with 300 thousand students (ShaanXi Province Education Development Statistics Bulletin, 2011); most of the universities are located in Xi’an. Zhang (2009) reported that ShaanXi provincial private university was ranked No. 1 of the whole Chinese private university. Xi’an Eurasia University is one of the 8 private universities in ShaanXi province.

Education plays an important part in social and economic development in Xi’an. As a city rich in education resources with large faculty and student population, faculty development is requiring more attention by both education departments and higher education institutions.

**Xi’an Eurasia University.** Xi’an Eurasia University (XEU) was established in 1995. It is a non-profit private university with 23,000 full-time students and 400 full-time faculty. XEU has increased enrollments dramatically since 1997, rising from about 600 students to a total of more than 23,000 students today, coming from different region of the whole country at XEU. Half of the students come from the local province of ShaanXi. All students are required to live on campus according to the regulation of the government. Half of the students are males and another half of the students are females. XEU is a nonprofit private university, offering four-year undergraduate programs and a
small proportion of 3-year vocational programs accredited by the Ministry of Education of China. There are 10 schools with more than 40 different programs under the university, these are: School of Logistics and Trade, School of Accounting, School of Business Administration, School of Finance, School of Journalism and Communication, School of Architecture Engineering, School of Information Engineering, School of Foreign Languages, School of Arts and Design, School of Science and Technology.

Compared with other similar private universities in China, XEU was the first private university that recognized the challenges coming from the declining demographic and teaching quality accountability. Since 2000, XEU conducted the strategy shifting from quantity development strategy to quality development strategy. Under the systematic examine of the university competition environment, XEU decided to establish the first faculty development organization, Center for Teaching Excellence, among Chinese universities in order to improve teaching quality. The faculty development program designed to transition from teacher-directed to student-centered instruction was initiated in 2011 at XEU.

**Summary of Literature Review**

There is strong evidence that faculty development plays an important role in improving quality of education in higher education institutions. Faculty development is an ongoing continuous process that supports faculty improvement in their knowledge, skills and attitudes extending to students’ learning improvement.

Learning theories overwhelmingly supports the conclusion that student-centered learning has the positive impact on student engagement in learning. Student-centered instruction occurs when classroom experience has been redesigned to facilitate active
learning. It seems safe to conclude that integrating technology into the classroom and facilitate student-centered learning is the new direction of faculty development in the future.

Faculty’s knowledge and practices are the most immediate and most significant outcomes of any professional development effort. Faculty’s performance is the primary factor influencing the relationship between professional development and improvements in student learning. In other words, if the faculty development program alters the faculty’s behavior to the intended outcome, the positive impact on student improvement will likely take place.

Faculty development is a systematic process that is covered the aspects of design or plan, implementation, and evaluation. The body of evidence reviewed in this paper suggests that when evaluating the faculty development program, more attentions should be paid on multiple methodologies to measure the impact of faculty development in terms of demonstrable improvements in student learning. It seems that the deeper and fundamental reasons behind the results are neglected by previous literature. This suggestion is necessary but is insufficient. More reasoning factors at the design section which cause the effect fundamentally should be considered in the future research.
Chapter Three

Method

Introduction

The purpose of this study was to determine the effectiveness of the two-year faculty development program designed to transition from teacher-centered to student-centered approach at Xi’an Eurasia University. The faculty development program was centered around a two-year workshop that was offered by an American educational team that provided Eurasia University faculty with opportunities to explore new instructional technologies, new instructional methods and techniques, to learn new skills and to engage in collegial discussions about teaching and learning in higher education (Appendix A3.1). Faculty development is an ongoing and endless process for faculty improvement (Guskey, 2000, 2002). This program was further facilitated by the development of a Center for Teaching Excellence (CTE) on Eurasia’s campus.

This research design was based on the following three-step assumptions (Fink, 2013): 1) The Scholarship of Teaching and Learning (SoTL) research literature has already clearly established that certain teaching behaviors (e.g., the use of active learning and student-centered learning course design) have a positive impact on student engagement and student learning; 2) Therefore, if the faculty development programs can provide a rationale for the advantages of a student-centered approach, as well as demonstrate these new behaviors to teachers resulting in participants using these behaviors more frequently and using them properly; 3) It is not unreasonable to assume that these behaviors from teachers will ultimately have the same effects on participants’ students that they had on students in the SoTL research literature.
On the basis of the above assumption in addition to assessing student outcomes requiring a longitudinal study, this research put full assessment effort to determine whether participants are in fact properly using some of the intended changes in their teaching practices. Of course, the ultimate goal would be an evaluation of students’ achievement following teacher-centered instruction; however this goal was beyond the scope of the present study.

**Participants**

There are 400 full-time faculty at Eurasia University. Among the full-time faculty, 78 percent of the faculty are female and 22 percent are male. Eighty-nine percent of the faculty are under 40 years of age, 8 percent of the faculty are 40 to 55 years old, and 3 percent are older than 55 years of age. Sixty-five percent of the full-time faculty hold the Master’s degree and 35 percent of the faculty have Bachelor’s degree (none have a doctorate degree). Most of the faculty have the title of lecturer or assistant teachers; only 4 percent of the faculty are associate professors and professors.

Initially, 100 faculty were chosen to participate in the training. These faculty were expected to attend each of the four levels of training offered as part of the development program in 2011 through 2013. Thirty-nine out of 100 participants were eliminated for current study, as they did not participate in the entire four level seminars result of different normal reasons. Among the 39 eliminated participants, 9 missed some of the four seminars since they took their student to do the internship off campus when the seminars carried out at that moment; 18 because of maternity leave, 12 because of position transferring from teacher to administrator. It is necessary to note that the equivalent numbers of alternate participants were assigned to fill the vacancies of those
who did not attend the program due to the above reasons. Nine out of the remaining participants (61) were absent either because of illness or business trip when the study was carried out although they attended the entire four level seminars. As a result, the current study consisted of fifty-two participants.

**Instruments**

On the basis of Kirkpatrick’s (1998) evaluation model and Guskey’s (2000, 2002) professional development evaluation model, the researcher developed three instruments: 1) a questionnaire to assess participants’ reaction to the training program and effectiveness of the faculty development program (Appendix A3.2); 2) pre-test and post-test questionnaire for raters’ training (Appendix A3.3); 3) a student-centered teaching behavior rubric for participant (Appendix A3.5). Three evaluation levels were included both in participants’ questionnaire and the observation checklist to evaluate not only the process of faculty development but also the product of the program (see Figure 3.1).

**Figure 3.1. Kirkpatrick’s Evaluation Model**

![Kirkpatrick's Evaluation Model](image)

These three evaluation levels were as follows: Level 1: participants’ reaction level that focused on measuring participants’ initial satisfaction with the experience was to
respond to the research question at participants’ dimension: How did participants perceive the faculty development? The sub-question in Level 1 included content questions, process questions and context questions; Level 2: participants learning level that addressed to assess the new knowledge and skills participants acquired through the faculty development program was to respond to the research question: Did participants make any improvement in their knowledge and skills through the faculty development experience? This level was classified in three categories: cognitive goals, psychomotor goals, and affective goals. Specifically, cognitive goals were related to specific elements of content and pedagogic knowledge; psychomotor goals were related to the skills, practices, and behaviors that participants were to acquire through the faculty development program. In this study, psychomotor goals referred to participants’ ability to use SCL strategies they learned in their teaching practice, make adaptations when necessary, and determine the effectiveness of implementation efforts; affective goals related to the attitudes, beliefs, or dispositions that participants were to develop as a result of the faculty development program; Level 3: participants behavior level focused on one central research question: Did participants’ teaching behavior transit from teacher-centered to student-centered? In other words, did what they learn through faculty development program translate to any change in their teaching behaviors or activities? The indicators of evaluating participants’ behavior change in Level 3 were developed on the basis of Weimer’s Five Dimensions of Learner-Centered Teaching (Weimer, 2002) and Blumberg’s (2008) Rubric for Five Dimensions of Learner-Centered Teaching. All the indicators of Level 3 covered the five dimensions: the function of content, the role of the instructor, the responsibility for learning, the purposes and processes of assessment, and
the balance of power; Level 4: the result level was not covered in this study since the seminars just completed for only three months when the study was carried out.

**Participant questionnaire**

A questionnaire was created by the researcher to assess participants’ learning, the uses of their learning, and the reactions of the program. To ensure the face validity of the scale, the evaluation questionnaire was reviewed by three educational experts who have more than 20 years’ experience of higher education in the United States. Following their review and editorial feedback, eighty-one closed-ended questions and nine open-ended questions were included in the final version of the questionnaire. A copy of the questionnaire is included in Appendix A3.2. A seven-point Likert Scale was used to measure the degree of the agreement, the use of frequency, and the degree of satisfaction. The questionnaire was designed in English and was translated into Chinese so that the answers were accurate in terms of interpreting and understanding the questions. A Chinese bilingual expert reviewed the translation to ensure the accuracy.

The design of the instrument was based on four considerations: 1) deriving instrument components deductively from program established goals, 2) moving beyond simple measures of satisfaction to individual level changes in knowledge, skills, attitudes and behaviors, 3) developing instruments that could be used repeatedly to gather follow-up study data, 4) conforming to improvement-oriental evaluation principle. On the basis of the above consideration, the researcher looked through all the materials related to the program carefully, and categorized four parts of the questionnaire: Part I was the demographic information of participants in order to gather the characteristics of each individual participant including age, gender, academic title, years of teaching experience,
 greter pretest question (Question 6) was designed to ask participants think back to the period before their participation in the program. As a result, 35 structured questions in this section were used to measure what participants learned through the program; Part III stressed the evaluation of the uses of participants’ new knowledge and skills learning, 20 structured questions covering all knowledgebase they learned addressed to assess how often participants use what they learned; Part IV evaluated the reactions of participant and the organization support for participants’ learning and practice, 21 structured questions and 9 open-ended questions were to evaluate the degree of they regarded to the program and the other suggestions or opinions for the future improvement of the program.

**Participant observations**

A second component of the study was the use of classroom observations. Classroom observations were used to observe how participants used what they learned through the faculty development program experience in their teaching practice. Before participants’ observations were carried out, the researcher conducted a raters’ training program in the use of the observation rating scale in order to establish inter-rater reliability.

First, a pre-test and post-test survey called raters’ knowledge base training survey (Appendix A3.3) was designed by the researcher to test the degree of the knowledge of student-centered teaching that the raters have before and after the training. The knowledge base training survey consisted of 20 structured questions covering the knowledge base of learning theories, the raters’ perspective of different kind of teaching
method, the teaching method which was used frequently by the raters, the characteristics of the student-centered teaching, and the understanding of the teaching behavior difference between teacher-directed and student-centered teaching method.

Secondly, the checklist of student-centered teaching behaviors guidelines for the raters training (Appendix A3.4) developed by the researcher was used to make the training video. The student-centered teaching observation rating rubric (Appendix A3.5) was designed both for raters’ training and participants’ classroom observation. Five dimensions of change for student-centered teaching (Weimer, 2002) were included in the raters’ checklist: 1) the function of content in learner-centered teaching included giving students a strong knowledge foundation, the ability to apply the content, and the ability to learn more independently, 2) the role of the instructor focused on helping students learn. The instructor should not just disseminate information, they should create an active learning environment, 3) the responsibility for learning shifted from the instructor to the student, 4) the purposes and processes of assessment shifted from only assigning grades to include providing constructive feedback to assist student improvement, and 5) the balance of power shifted so that the instructor shared some decisions about the course with the student. Each dimension was followed by an explanation sentence for easy understanding.

Twenty-two teaching behaviors were included in the evaluation form to assess both the raters’ understanding of the student-centered teaching and participants’ using of student-centered strategies in class. All the items on the checklist were teaching behaviors that were characteristic of student-centered teaching. The score section followed each teaching behavior was for raters to rate 1 as “see” or 0 as “not see” the
desired teaching behaviors. If the raters observed the same behavior multiple times, it was required to be scored only once. The total score was determined by the number of learner-centered teaching behaviors observed by the raters. A final score was obtained by summing five subscales, which quantitatively rated an instructor on above five dimensions. The total score was an indicator of the degree of active-learning instruction observed in a classroom (Sawada et al. 2002). The higher scores represented more student-centered behaviors that the rater observed, whereas the lower scores indicated lower level of student-centered behaviors observed in class.

Before the rating rubric was used for participants’ observation, it was first used for rater’s field pilot test to see whether the rating form was in appropriate length, the items were understandable and wording was appropriate. Again, three American educational experts who have more than 20 years experiences of teaching in higher education reviewed the observation rating form and contributed comments to the final version to ensure validity and reliability of the items. The checklists for both raters and classroom observations were translated into Chinese and reviewed by bilingual experts to ensure the accurate understanding each teaching behavior for raters.

**Data Collection**

Before conducting data collection, approval was secured from the Institutional Review Board of Duquesne University on Oct. 18th, 2013. Following IRB approval, a letter was sent by the researcher to the administration of Xi’an Eurasia University, explaining the purpose of the study and the details of the research schedule, and seeking permission to conduct the study. The specific process for data collection was the following:
Participant questionnaire. 1) A letter describing the proposed research was provided to the Director of the Center for Teaching Excellence (CTE) prior to the start of the survey explaining explicitly its purpose and use of results, basic directions of the process, ethical issues, assurance of confidentiality, and encouragement to respond accurately and honestly. Additionally, the CTE Director was asked to distribute consent forms (Appendix A3.6) to potential participants; 2) After consent was obtained, the survey questionnaire was delivered online by the director of CTE for one week to all participants. The survey was voluntary and participants were told that they could withdraw at any time. Statements of anonymity and confidentiality were included in the directions and guaranteed to all of participants; 3) The online survey was administered to a total of 52 participants on Oct. 23th, 2013 through Oct. 30th, 2013 (three months after completion of the program). In view of the fact that many of participants had facility in English and developed their knowledge base from the American, the survey was delivered online in both the English and Chinese languages. Written instructions were included, describing each part of the online survey. Participants were told that there was no time limit for completing the questionnaire; however it took approximately 20 minutes for participants to complete it.

Rater’s training. The raters’ training consisted of two parts. The first part was the knowledge base training for rater that was designed by the researcher. A two-day seminar was offered by the researcher to train the raters on Nov. 9th through Nov. 10th, 2013. The first part training was designed to establish a strong knowledge base of student-centered teaching and learning for raters. Before the training, a pre-test was administered to the eight candidate raters in order to establish their base-line knowledge.
At the end of the training program, all raters were required to meet a criterion of mastery of 90% on the post-test to demonstrate mastery of the knowledge and skills of student-centered teaching. Meeting the 90% criterion of mastery can ensure that the raters know student-centered teaching, understand the why and how of student-centered teaching, and can recognize the behaviors of the student-centered teaching in a classroom setting.

The second part was the observation training for raters. A training video was prepared for the raters’ training. The raters were asked to watch the training video and identify each of the student-centered teaching behaviors on the checklist. All raters were required to correctly identify 90% of the student-centered behaviors on the training videos in order to meet the minimum criterion for inter-rater reliability. Specifically, trainer’s training for observation was conducted under the following procedures:

1) Eight persons (four were experienced faculty majoring in education psychology came from Shaanxi Normal University, one experienced faculty who has been taught teaching methods course for many years came from Xi’an Liberal Arts and Science University, three persons who majored in education psychology came from Xi’an Eurasia University) were hired and trained to conduct classroom observations and rated participants on their use of student-centered learning techniques.

2) A pre-test survey for raters’ training was administered to the raters to assess the previous knowledge base of the raters related to student-centered teaching method as well as the gap between the previous knowledge base and the required criterion of the student-centered teaching behaviors before the raters’ training started. There was no discussion about the pre-test questionnaire between the researcher and the raters before and after the pre-test. The pretest data was collected by the researcher in order to determine the raters’
entry-level behavior before instruction began. Five out of eight candidate raters got a score of fewer than 85 for pretest, 3 out of 8 raters got a score of 90 for the pre-test.

3) After the pre-test for raters, the researcher conducted a two-day instruction seminar designed on the basis of the pre-test survey result for the raters to describe the theory, practice and knowledge base of student-centered teaching. The seminars covered the field of learning theories, best learning of college students, the characteristic of the student-centered teaching and learning, the difference between teacher-directed teaching and student-centered teaching behavior, why student-centered teaching, how student-centered teaching, and how to recognize the student-centered teaching behaviors.

4) After the completion of the seminar for raters, a post-test survey that was an alternate form of the pre-test survey was administered by the researcher to measure the knowledge base that the raters learned through the seminar as a result of the training.

5) Following the post-test survey, the researcher analyzed the data collected through the pre-test and post-test survey and found that there was a significant difference between the pre-test and post-test survey. After knowledge base training was completed, all raters received a score of 100 for post-test and reached the qualification of knowledge base.

6) Before the observations started, a training video was prepared to established inter-rater reliability among their raters. The training video was made by a faculty member at Eurasia University who has completed the faculty development program. A student-centered teaching behaviors guideline was designed by the researcher specifically for the training video (Appendix A3.4) and was provided to the faculty who make the training video. The faculty who made the training video maintained confidentiality of the
items included in the video and not share them with any of the other participants. A professional videographer recorded the training video, which was approximately 20 minutes in length. Initially, 10 student-centered behaviors listed in the checklist were included in the training video. When the videographer finished recording, the Director of Center for Teaching Excellence at Eurasia University previewed the video and verified that it included 5 additional student-centered learning behaviors within the video. After asking for permission from the IRB, 15 behaviors were kept in the raters’ training video for the raters’ observation training.

7) At the conclusion of the rater’s training program, the raters were asked to watch the training video. Specifically, they were asked to write down and score each behavior they see on the Observation Rating Form (Appendix A3.5) that had been demonstrated in the training video.

8) Following the raters completed the ratings, they were asked to share their ratings with the other raters and discuss why they agree or disagree to ensure the consistency among raters.

After the pair-discussion, all eight raters obtained the criteria and were identified to be qualified raters. After implementing the pilot test using the rating form, the additional consent was obtained from the advisor that the raters was allowed to note down the observed SCL behaviors which were not be included in the form and score it when doing the classroom observation.

Classroom observations. Following the collection of surveys, thirty-two out of 52 participants (62%) were calculated to be a sample for observation. As a result, 32 participants were selected randomly using R 3.01 Software and asked to consent to
classroom observations (Appendix A3.7: R-code 1). The Director of CTE at XEU was responsible for gathering participants’ observation data. The following process was used to collect observational data:

1) The Observation Rating Form for Participant was used by team raters to record their observations (Appendix A3.5).

2) Each participant was observed twice by two different raters. Each time the participant was required to take the same classes and the same students when they were observed by different raters. The first time was scheduled with participants during the third week of November, 2013 (four months after completion of the program) and the second observation was unannounced (the second observation started two weeks after completion of the first observation and was ended at the second week of December, 2013). Thirty-two of the initial observations were assigned randomly to each of the 8 raters (Appendix A3.7: R-code 2). For the second observation, raters were asked to observe faculty that they have not previously observed (Appendix A3.7: R-code 3).

3) The raters observed the participants’ class for 90 minutes (one session) each time and rated each participant’s behavior according to the criteria of the instrument (Appendix A 3.5). Completed observation forms were scored by the Director and staff of Center for Teaching Excellence at XEU. Again, written consent was secured from each faculty member who was asked to be observed in their classroom.

Data Analysis

Before data analysis, the data was checked to ensure correct and accurate data entry. The following processes were used to analyze the data collected:
1) Self-reported survey data was analyzed using the Statistical Package for Social Sciences (SPSS) 21.0 and R 3.01 software. Descriptive statistics were used with the survey questionnaire to describe the features of the total sample and each of the subgroups. Descriptive statistics included frequency distributions, means, standard deviations, and cross tabulation frequencies of interested items. In order to calculate descriptive statistics, questionnaire items were grouped in accordance with five independent variables: gender, age, academic title, years of teaching, and course of teaching, and also descriptive categories were developed from the data itself for the sections.

For deep analyses, the inferential statistical techniques were adopted, including Pearson Product-Moment correlation coefficients and Welch’s T-test for finding the relationships between the overall evaluation score and each of part described previously in participant questionnaire. The rationale for using inferential, parametric statistics was based on the assumption that the survey questionnaire asked questions at an interval level of measurement.

The nonparametric Kruskal-Wallis test procedure was utilized for examining the differences between participants’ learning, the using and the reaction level and each independent variable. A further step ahead, a step-wise regression tool was applied to select the significant predictors for overall evaluation score. In order to increase the reliability of the regression conclusions, a series of diagnostic procedures of regression analysis were performed, such as Variance Inflation Factor for detecting multicollinearity among predictors, Durbin-Watson test for detecting autocorrelation of error terms, Breusch-Pagan test for detecting heteroscedasticity of error terms, also the
Ramsey’s RESET test for assessing whether the second or the third powers of predictors can significantly improve the model was used.

2) For the classroom observations data, the sample means score of observed behaviors by two times were calculated to examine the actual practice performance of SCL strategy in class. First, descriptive statistics was used to describe the percentage and frequency of observed behaviors by five dimensions; furthermore, the frequency and percentage of individual behavior was also computed. Additionally, a non-parametric Kruskal-Wallis one-way analysis of variance to determine the significant difference between the observed SCL behaviors and sex as well as courses was applied. Again, the rationale for using non-parametric statistics was based on the assumption that the classroom observation checklist asked questions at an ordinal level of measurement.

3) Open-ended questions on the survey form were documented separately and were analyzed to supplement the survey data. The open-ended data was analyzed by the researcher using thematic analysis and content analysis method. The specific process of analysis was as follows: After carefully and repeated reading of each response, the researcher intended to find the emerging common themes to create different categories. Afterwards, the categories were coded to sort the descriptive data according to different themes related to the research question, then each response was labeled one or more coding categories; afterwards the researcher checked the responses to be appropriate, reviewed each category that has the most responses and represents the major themes to identify the patterns and trends both within and between categories. These patterns and trends were interpreted into words to demonstrate participants’ comments. Frequencies of the related common themes were calculated and analyzed to find potential correlations.
between the open-ended data and the close-ended data. Lastly, a summary of participants’ responses was summarized based on the major themes and patterns found in the data to supplement the close-ended data.
Chapter Four

Results

This chapter reports the findings of this study. The purpose of this study was to
determine the effectiveness of the two-year faculty development program designed to
transition from teacher-centered to student-centered approach at Xi’an Eurasia University.
Multiple analysis methods including quantitative and qualitative analysis were employed
to address the research questions. The results of both a self-reported survey and
classroom observations were analyzed under three parts of the evaluation level (reaction
level, learning level, and behavior level) developed by Kirkpatrick (1998). Self-reported
survey data were analyzed using SPSS 21.0 and R 3.01 software and qualitative data
were analyzed through thematic and content analysis.

The survey questions and open-ended questions aimed to gather data related to
participants reaction to the program, the learning through the program, and the
application of what they learn through this program. The data were presented in the
sequence according to the evaluation model. A cross-sectional survey with a self-reported
data including open-ended data was employed to examine the research questions. In order
to find out the reliability of the questionnaire, reliability coefficient was calculated for
each section separately after the data were collected. Section I was not calculated since it
contained the demographic information of participants. The Cronbach alpha reliability
coefficient was found to be 0.95 for section II, 0.87 for section III, and 0.94 for section
IV.

The observation data obtained from the live classroom observations was to
examine the actual practice behaviors that the instructors use in class. The inferential
statistics were employed to determine if there were significant differences among dependent variables and independent variables as well as the observed results and the self-reported results.

4.1. Demographic Information of Participants

The frequency and percentage of participants that took part in the study are illustrated in Table 4.1.

Table 4.1.

*Characteristics of Participants*

<table>
<thead>
<tr>
<th>Category</th>
<th>Sub-category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>12</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>40</td>
<td>77%</td>
</tr>
<tr>
<td>Age</td>
<td>Under 30 year-old</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>30-39 year-old</td>
<td>40</td>
<td>77%</td>
</tr>
<tr>
<td></td>
<td>40-49 year-old</td>
<td>10</td>
<td>19%</td>
</tr>
<tr>
<td>Academic Title</td>
<td>Assistant teacher</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>Lecture</td>
<td>49</td>
<td>94%</td>
</tr>
<tr>
<td>Years of Teaching</td>
<td>3-5 years</td>
<td>8</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>6-9 years</td>
<td>12</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>10-15 years</td>
<td>32</td>
<td>62%</td>
</tr>
<tr>
<td>Course of teaching</td>
<td>Liberal arts</td>
<td>19</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>7</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>Engineer</td>
<td>8</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>18</td>
<td>35%</td>
</tr>
</tbody>
</table>
As shown in Table 4.1, 52 full-time faculty participated in the survey. Among participants, it can be seen that there were more females (77%) than males (23%) and 81% percent of participants were under 40 years of age, 19% of participants were between 40 and 49 year-old. Ninety-four percent of participants were lecturers, 6% of participants were assistant teachers, no higher titles than lectures participated the program.

Additionally, almost two-thirds of participants (62%) reported that they had 10-15 years of teaching experience, 15% of participants had 3-5 years of teaching experience, and 23% of participants had 6-9 years of teaching experience. Among participants, more than one third (37%) reported they taught the courses of liberal arts, 35% taught the course of business, 15% of engineering, 13% taught the course of science, which include teaching classes to both 4-year undergraduate students and 3-year associate diploma program students.

4.1. Participants' Reaction Level

The reaction level categorized as four dimensions: overall evaluation of the program, trainer’s ability, program design, and organization support. The percentage and frequencies of participants’ overall satisfaction and degree of reaction to the program are illustrated in Table 4.2.

As can be seen in Table 4.2, ninety-three percent of participants selected greater than somewhat satisfaction with the program as overall evaluation. For the sub-dimension of the reaction level, 82% of participants were somewhat or greater than somewhat satisfaction with the trainers’ ability; 85% of participants were somewhat or greater than somewhat satisfaction with the program design; 93% of participants were somewhat or greater than somewhat satisfaction with the organization support to the program.
Table 4.2.

Participants’ Reaction to the Program

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Sw. Agree</th>
<th>Satisfaction/Agree</th>
<th>Str. Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall evaluation</td>
<td>15</td>
<td>29%</td>
<td>28</td>
<td>54%</td>
</tr>
<tr>
<td>Trainer’s ability</td>
<td>16</td>
<td>31%</td>
<td>25</td>
<td>49%</td>
</tr>
<tr>
<td>Program design</td>
<td>16</td>
<td>31%</td>
<td>22</td>
<td>42%</td>
</tr>
<tr>
<td>Organization support</td>
<td>10</td>
<td>19%</td>
<td>31</td>
<td>60%</td>
</tr>
</tbody>
</table>

Note. Sw. = Somewhat, Str. = Strongly, Freq. = Frequency, Perc. = Percentage. The algorithm of computing frequencies of ‘Somewhat Satisfaction/Agree’, ‘Satisfaction/Agree’ and ‘Strongly Satisfaction/Agree’: With ‘Trainer’s ability’ as an example, since the questions of Question 61 to Question 69 including Question 75 (total 9 questions) are set to reflect participants’ evaluation to ‘Trainer’s ability’. Each of participant’s scores on each item was summed up and then averages this summation. These averages were regarded as the final scores to ‘Trainer’s ability’ by each participant. Then, the scores were categorized into three intervals: the scores fall into [5, 6) being regarded as the level of ‘Somewhat Satisfaction/Agree’, the scores fall into [6, 7) being regarded as the level of ‘Satisfaction/Agree’, the scores equal to 7 being regarded as the level of ‘Strongly Satisfaction/Agree’. Likewise, the same algorithm was computed with the dimension of program design and organization support.

Nonparametric Kruskal-Wallis Rank Sum procedure was utilized for examining whether the overall evaluation was responded differently among various level of gender,
academic title, years of teaching, and course of teaching. The corresponding Kruskal-Wallis chi-squared values and p values are summarized in Table 4.3.

Table 4.3

*The Values of Overall Reaction by Categories*

<table>
<thead>
<tr>
<th>Categories</th>
<th>Chi-square value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.086</td>
<td>0.769</td>
</tr>
<tr>
<td>Gender</td>
<td>0.768</td>
<td>0.681</td>
</tr>
<tr>
<td>Academic title</td>
<td>0.680</td>
<td>0.409</td>
</tr>
<tr>
<td>Years of teaching</td>
<td>1.436</td>
<td>0.488</td>
</tr>
<tr>
<td>Course of teaching</td>
<td>11.533</td>
<td><strong>0.009</strong></td>
</tr>
</tbody>
</table>

*Note.* The p-value that is less than 0.05 is in boldface.

From Table 4.3, it can be seen that, except the independent variable, the course of teaching, all the other variables were not significantly differentiated with respect to the reaction score. The data reported that there existed significant differences between the reaction level and the courses of teaching.

A box plot for exhibiting the differences of reaction score among various courses can be seen in Figure 4.1. As shown in Figure 4.1, participants who teach science courses reported lower reactions than other participants; participants who teach courses of engineer reported the highest reaction, and participants who teach courses of business and liberal art reported the same reaction level in the middle.
The specific level of participants’ reaction by different courses that participants taught is displayed in Table 4.4.

Table 4.4.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>N.</th>
<th>Below Sw. A.</th>
<th>Sw. agree</th>
<th>Agree</th>
<th>Str. agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberal art</td>
<td>19</td>
<td>0</td>
<td>0.0%</td>
<td>5</td>
<td>26%</td>
</tr>
<tr>
<td>Science</td>
<td>7</td>
<td>2</td>
<td>29%</td>
<td>4</td>
<td>57%</td>
</tr>
<tr>
<td>Engineer</td>
<td>8</td>
<td>0</td>
<td>0.0%</td>
<td>2</td>
<td>25%</td>
</tr>
<tr>
<td>Business</td>
<td>18</td>
<td>2</td>
<td>11%</td>
<td>4</td>
<td>22%</td>
</tr>
</tbody>
</table>

*Note.* N. refers number of participant, Sw. A.= somewhat agree, Str.= strongly, Freq.= Frequency, Perc.= percentage.

As shown in Table 4.4, among seven participants who taught science course, two selected below somewhat agreement of the reaction. Nevertheless, there are one 3 and one 4 score of below somewhat agreement of participants in Science course instead of 1
or 2 score. This result is consisted with Figure 4.1. The results implied that participants who taught courses of science course reported less positive reaction than others; however they did not hate the program.

4.2. Participants’ Learning Level

Participants’ learning level consists of three dimensions (Reigeluth, 1999): cognitive goal (knowledge), psychomotor goal (skills), and affective goal (attitudes, beliefs). The frequencies and percentage of participants learning level were displayed in Table 4.5.

Table 4.5.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive goal (knowledge)</td>
<td>52</td>
<td>100%</td>
</tr>
<tr>
<td>Psychomotor goal (skill)</td>
<td>49</td>
<td>94%</td>
</tr>
<tr>
<td>Affective goal (attitude, belief)</td>
<td>50</td>
<td>96%</td>
</tr>
</tbody>
</table>

Note. The three dimensions’ frequencies (≥5 including 5= somewhat agree, 6=agree, and 7=strongly agree) are computed according to the same algorithm described in Table 4.2.

As shown in Table 4.5, the self-reported data revealed significant positive changes in their learning level. Specifically, greater than somewhat agree of participants’ learning the knowledge through the program reached 100%, learning of skills accounted for 94%, and the change of attitudes and belief accounted for 96%. Almost all participants reported that they learned knowledge and skills, and they changed their attitudes toward teaching through this program.
A series of Kruskal-Wallis tests were performed to detect initially which independent variable(s) would result in significantly different scores with respect to cognitive goal, psychomotor goal, and affective goal.

4.2.1. Cognitive goal dimension. For cognitive goal (knowledge), the Kruskal-Wallis test’s results are shown in both Table 4.6 and Figure 4.2. It can be seen that for the variable of title, the chi-square test is 4.097 and the p-value is 0.043 ($p < 0.05$). The data indicated that participants’ title had effected on participants’ learning of knowledge. Teachers with assistant title learned more than teachers with lecture title. In order to see the specific influences of title, a box plot (Figure 4.2) is displayed for exhibiting the differences of learning score among various titles. Of course, this conclusion maybe conservative since the number of participants in the category of assistant teacher accounts for a relatively small sample size; just 3 are assistant teacher. The box plot showed that participants who were assistant teachers reported more learning of knowledge than participants who were lectures at the knowledge dimension.

Table 4.6.

*Participants’ Learning of Knowledge by Categories*

<table>
<thead>
<tr>
<th>Categories</th>
<th>Chi-square value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.014</td>
<td>0.905</td>
</tr>
<tr>
<td>Gender</td>
<td>1.105</td>
<td>0.575</td>
</tr>
<tr>
<td>Academic title</td>
<td>4.097</td>
<td>0.043</td>
</tr>
<tr>
<td>Years of teaching</td>
<td>3.002</td>
<td>0.223</td>
</tr>
<tr>
<td>Course of teaching</td>
<td>6.752</td>
<td>0.080</td>
</tr>
</tbody>
</table>

*Note.* The p value <.05 is in boldface.
Actually when compared with lectures, assistant teacher in China are young teachers who have less teaching experience so that they have more needs for knowledge learning than participants who have higher levels of academic title. Additionally, the p-value for course of teaching is above 0.05, however, if the cutoff point is set as 0.10, it can be concluded that the different courses had effects upon the participant’s learning of knowledge.

4.2.2. Psychomotor goal dimension. For Psychomotor goal (skills), the Kruskal-Wallis test’s results are shown in Table 4.7. As shown in Table 4.7, the chi-square value of academic title is 5.279, and the p-value is 0.022 (< 0.05). It was reported that participants’ learning of skills were differentiated by academic title.
Table 4.7.

*Participants’ Learning of Skills by Categories*

<table>
<thead>
<tr>
<th>Category</th>
<th>Chi-square value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.499</td>
<td>0.480</td>
</tr>
<tr>
<td>Age</td>
<td>0.458</td>
<td>0.796</td>
</tr>
<tr>
<td>Academic title</td>
<td>5.279</td>
<td><strong>0.022</strong></td>
</tr>
<tr>
<td>Years of teaching</td>
<td>3.528</td>
<td>0.171</td>
</tr>
<tr>
<td>Course of teaching</td>
<td>5.180</td>
<td>0.159</td>
</tr>
</tbody>
</table>

*Note.* p value < .05 is in boldface.

Specifically, the box plot was performed to see the specific differences between the learning of skills and the academic title as Figure 4.3. The box plot showed that participants who were assistant teachers reported learning of skills more than participants who were lectures although there were only three of participants were assistant teachers. Likewise, since assistant teachers had less teaching experience than lectures, they reported they learned more skills than lectures.

4.2.3. **Affective goal dimension.** For Affective goal (attitude), the Kruskal-Wallis test’s results are shown in Table 4.8. The data showed that there was no any significant difference between participants’ attitudes and the independent variables.
Figure 4.3. Participants’ Learning of Skills Differences by Academic Title

Table 4.8.

Participants’ Attitude by Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Chi-square value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.015</td>
<td>0.904</td>
</tr>
<tr>
<td>Age</td>
<td>1.084</td>
<td>0.582</td>
</tr>
<tr>
<td>Academic Title</td>
<td>2.342</td>
<td>0.126</td>
</tr>
<tr>
<td>Years of teaching</td>
<td>3.694</td>
<td>0.158</td>
</tr>
<tr>
<td>Course of teaching</td>
<td>5.907</td>
<td>0.116</td>
</tr>
</tbody>
</table>
4.2.4. The learning improvement assessment. In order to examine whether participants’ knowledge, skills and attitudes improve, paired t-test was employed to assess the significant differences between overall learning level after training program and the previous learning experience about the SCL strategies before participation of the program.

Question 6 as a retrospective pretest question was asked participants’ agreement degree of knowing about SCL before participation of the program. Because the score magnitude of Question 6 is reverse at that of other questions in the survey, for comparing purposes, the scores of Question 6 were firstly reversed prior to using the t test technique. Specifically, for the scores in Question 6, the scores of 2,3,4,5,6,7 were re-coded as 7,6,5,4,3,2 without losing any information.

By performing the Welch paired t test procedure, the t statistic is -6.163 and corresponding p value is smaller than 0.05. It can be obvious to see that there is a significant difference between participants’ learning level before training and after training through self-reported data (using learning overall averages as variable). The result revealed significant positive changes in their learning. In other words, participants reported that their learning of knowledge, skills and attitudes were improved after participation in the program.

Actually, for the robustness of the above conclusion, the nonparametric paired Wilcoxon procedure was also utilized (the command Wilcox.test in R). The results were similar to the paired t-test with which p value is less than 0.05.

4.2.5. Open-ended questions related to participants’ learning analysis. The open-ended question related to participants’ learning was: What do you value most from
The frequency of participants most valued from the program is displayed in Figure 4.4.

**Figure 4.4. Frequency of Participants’ Most Valued from the Program**

![Bar chart showing frequency of participants' most valued aspects.

Note. The total frequency of four categories is not equal to 52 participants since each category was possibly stated by more than one participant.

Four overlapping common themes were derived from participants’ statements: knowledge, skills, attitudes and behaviors. Among four categories, the SCL skills ranked the first; the knowledge was followed as the second; the behavior ranked the third and the attitude ranked the fourth. Specifically, some sample statements from participants valued most are illustrated in Table 1. Appendix B. Twenty-eight of participants stated that they valued most of some effective instructional technologies and strategies (skills), 27 of participants stated the advanced teaching philosophy of SCL (knowledge). Seventeen participants stated that the most valued they learned were some effective teaching
strategies and the applications in their class. Fifteen participants expressed the positive attitudes toward teaching and learning transformation.

As shown in Table 1. Appendix B, the open-ended responses from participants justified the quantitative analysis results. In other words, both quantitative data and open-ended data showed that participants learned the knowledge, skills through the program, and the positive attitudes and beliefs towards the teaching were reported clearly. However, among three dimensions, attitudes ranked lower than others. Generally attitudes can facilitate learning improvement and skills improvement. If the attitudes changed more, the learning and skills will improve more. Nonetheless, the self-reported data expressed the positive satisfaction and promising prospective to the program.

4. 3. Participants’ Behavior Level

Participants’ behaviors were categorized as five dimensions according to Weimer’s SCL behavior (2002). Three types of data related to participants’ behaviors were analyzed as follows.

4.3.1. The self-reported results of using SCL behaviors by instructors.

Descriptive analysis was used to analyze the frequency and percentage of greater than frequently used behaviors (≥5) and the corresponding participants. The frequency and percentage of behaviors and participants is illustrated in Table 4.9.

As shown in Table 4.9, an average of 50% of participants reported they frequently used behaviors which were at the dimension of the role of the instructor, average of 42% of the function of the content and the purpose and process of assessment, average of 39% of the responsibility for learning, average of 25% of balance of power, average of 19 of the SoTL.
### Table 4.9.

**Participants’ using of Learning by Five Dimensions and Individual Behavior**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FC</td>
<td>22 (42%)</td>
<td>N42</td>
<td>27</td>
<td>52%</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N49</td>
<td>17</td>
<td>33%</td>
<td>9</td>
</tr>
<tr>
<td>RI</td>
<td>22 (50%)</td>
<td>N43</td>
<td>24</td>
<td>46%</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N44</td>
<td>27</td>
<td>52%</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N54</td>
<td>16</td>
<td>31%</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N55</td>
<td>36</td>
<td>69%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N56</td>
<td>17</td>
<td>33%</td>
<td>9</td>
</tr>
<tr>
<td>RL</td>
<td>20 (39%)</td>
<td>N45</td>
<td>23</td>
<td>44%</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N46</td>
<td>22</td>
<td>42%</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N47</td>
<td>13</td>
<td>25%</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N51</td>
<td>21</td>
<td>40%</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N53</td>
<td>20</td>
<td>39%</td>
<td>8</td>
</tr>
<tr>
<td>PPA</td>
<td>22 (42%)</td>
<td>N48</td>
<td>15</td>
<td>29%</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N50</td>
<td>30</td>
<td>58%</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N52</td>
<td>20</td>
<td>39%</td>
<td>8</td>
</tr>
<tr>
<td>BP</td>
<td>13 (25%)</td>
<td>N41</td>
<td>13</td>
<td>25%</td>
<td>11</td>
</tr>
<tr>
<td>SoTL</td>
<td>10 (19%)</td>
<td>N57</td>
<td>11</td>
<td>21%</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N58</td>
<td>13</td>
<td>25%</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N59</td>
<td>6</td>
<td>12%</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N60</td>
<td>9</td>
<td>17%</td>
<td>13</td>
</tr>
</tbody>
</table>

*Note. FC= Function of Content, RI= Role of Instructor, RL= Responsibility for Learning, PPA= Purpose and Process of Assessment, BP= Balance of Power, SoTL= Scholarship of Teaching and Learning, Av.= Average, Perc.= percentage, Beh.= Behavior, Fre.= Frequency. Survey questions 41- 60 are as follows: N41. I state course policies in the syllabus including assessment methods, and deadlines and discuss them with students to get agreement before I make final decision. N42. I upload the course syllabi to BlackBoard in order to enhance students understanding of the course objectives. N43. I use BlackBoard to support student-centered learning. N44. I use web-based communication tools (e.g. Email, Discussion Board, BB, QQ, WeChat, etc.) to ensure*

For the specific behaviors, more than half of participants reported that they frequently or more often used the following SCL behaviors in class: “I roam around the classroom and provide student feedback (69%)” “I find ways to acknowledge/reward those who actively participate in class (58%)” “I upload the course syllabi to BlackBoard in order to enhance students understanding of the course objectives (52%)” “I use web-based communication tools (e.g. Email, Discussion Board, BB, QQ, WeChat,
etc.) to ensure convenient access to students (52%)” Participants reported that they used multiple SCL methods both in class and out of class.

4.3.2. Analysis of open-ended data related to participant using SCL behavior. The open-ended question related to participants’ using what they learn through this program was: 你将来打算怎样实施你通过此培训项目所学的以学生为中心的教学方法和技术? How will you implement the student-centered methods and techniques that you learned through this faculty development program?

Regarding the question of how to implement SCL strategy, two common themes including specific implementation method and the scope of implementation rose from the responses. Eighty-five percent of participants spoke about the specific method of implementation plan, 15% of participants mentioned the scope of implementation (see Table 4.10).

The method of implementation (n = 44, 85%) consisted of two items: 1) self-improvement and translation into practice gradually: nine participants reported that they would plan to learn continually by practicing for improvement and try to translate it into action in their class; 2) thirty-six participants planned to integrate what they learned into some specific process of teaching and learning including five dimensions changes of learner-centered teaching (Weimer, 2002): a) fourteen participants briefly stated that they would apply what they learned to the whole process of the teaching and learning; b) one participant mentioned to implement SCL through the function of content; c) thirteen participants planned to change the role of instructor in their practice; d) two participants planned to transfer the responsibility for learning to students;
Table 4.10.

The Statement of How to Implement SCL Approach in the Future

<table>
<thead>
<tr>
<th>Dimension (Frequency)</th>
<th>Themes (Frequency)</th>
<th>Items (Frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Method of Implementation (44)</td>
<td>Self-improvement and Translation into practice (9)</td>
<td>(9)</td>
</tr>
<tr>
<td></td>
<td>Apply SCL to the process of teaching and learning (36)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>a) Briefly statement of application to the process of teaching &amp; learning (14)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) The function of content (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c) The role of instructor (13)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d) Responsibility for learning (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>e) The purpose and process of assessment (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>f) The balance of power (3)</td>
</tr>
<tr>
<td>The Scope to Implementation (8)</td>
<td>Course-based implementation</td>
<td>(6)</td>
</tr>
<tr>
<td></td>
<td>Multiple-used implementation</td>
<td>(2)</td>
</tr>
</tbody>
</table>
e) three participants mentioned the purpose and process of assessment; f) three participants planned to shift the balance of power concerning course policies.

The scope of implementation (n = 8, 15%) includes two items: 1) six participants planned to implement the SCL through course-based implementation: growing from one course to more courses; from practical to theoretical; inside and outside of class; 2) two participants planned to multiple use the SCL strategies in teaching, research, and service.

The qualitative data above reflects participants’ specific implementation and using plan of SCL and it verified and enhanced the result of quantitative analysis of participants’ using of SCL behaviors.

**4.3.3. The observation data related to the using of the SCL behavior analysis.**

The mean score of frequently using of SCL behaviors by two observations, which was categorized as four intervals, the number of participants that was in the corresponding interval, and the percentage of each interval, are illustrated in Table 4.11.

Table 4.11.

*The Average Frequency Distribution of Observed Behaviors by Two Observations*

<table>
<thead>
<tr>
<th>Mean Score of Frequency</th>
<th>(0-2)</th>
<th>(2-4)</th>
<th>(4-6)</th>
<th>&gt;6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants</td>
<td>9</td>
<td>7</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Percentage</td>
<td>28%</td>
<td>22%</td>
<td>31%</td>
<td>19%</td>
</tr>
</tbody>
</table>
Figure 4.5. The Distribution of the Mean Score of Observed Behaviors

The data showed that 28% of participants used average of 0 to 2 SCL behaviors listed in the checklist by two observations, the minimum mean frequency of observed behavior was 0.5; 22% of them used average of 2 to 4 SCL behaviors listed in the checklist; 31% of the them used average of 4 to 6 SCL behaviors listed in the checklist; 19% of them used average of more than 6 SCL behaviors listed in the checklist. The maximum mean frequency of observed SCL behavior was 8.5 (see Figure 4.5)
Table 4.12.

The Percentage of Observed Behaviors by Five Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>FC</th>
<th>RL</th>
<th>RI</th>
<th>PPA</th>
<th>BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>41%</td>
<td>21%</td>
<td>16%</td>
<td>13%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Note. FC refers the dimension of the function of content; RI refers the role of instructor; RL refers the responsibility for learning, PPA refers the purpose and process of the assessment; BP refers the balance of power.

The percentage of SCL behaviors observed in class in terms of five dimensions was displayed in Table 4.12 as well as Figure 4.6.

Figure 4.6. The Mean Scores of Observed Behaviors by Five Dimensions
The data showed that the observed behaviors which were at the dimension of the function of content accounted for 41% ranked the first, the behaviors which were at the dimension of the responsibility for learning accounted for 21% ranked the second, the behaviors which were at the dimension of the role of instructor accounted for 16% ranked the third, the behaviors which were at the dimension of the purpose and process of assessment accounted for 13% ranked the fourth, and the behaviors which were at the dimension of the balance of power accounted for 9% ranked the last.

Specifically, the average frequency and percentage of observed individual behavior was displayed in Table 2 Appendix B.

As shown in Table 2 Appendix B, different behaviors listed in the checklist was frequently used differently by different range of participants. Two observations data reported that the average of more than half of participants used the seven SCL behaviors and less than half of them applied other behaviors listed in the checklist in their teaching class. The average of 91% of participants (29) used the behavior of No. 1 (the instructor gives concrete examples related to the content stimulate students’ interest in learning) ranked the first; the average of 83% of participants (26.5) used the behavior of No. 16 (the instructor frequently checks for understanding) ranked the second; the average of 69% of participants (22) used the behavior of No. 4 (the instructor uses case vignettes, simulations, students’ own experiences, or service-learning activities to help students solve real world problems) ranked the third; the average of 66% of participants (21) used the behavior of No. 7 (the instructor forms learning groups; the teacher walk around the class to observe students’ interaction and lead the discussion) ranked the fourth; the average of 63% of participants (20) used the behavior of No. 5 (the instructor asks
students develop understanding by making their own associations with new content, developing their own examples of a concept, putting concepts into their own words, or reflecting on the meaning of the content) ranked the fifth; the average of 59% of participants (19) used the behavior of No. 3 (the instructor uses small-group problem-solving exercises to help develop inquire skills) ranked the sixth; the average of 52% of participants (16.5) used the behavior of No. 9 (the instructor gives “mini” lectures in class) ranked the seventh; the remaining behaviors were frequently used less than above behaviors.

Figure 4.7. Behavior of No. 7 by Courses that Participant Taught
Additionally, during the first time observation, the raters observed 22 additional behaviors from 13 different participants, which were not included in the checklist, and 21 behaviors for 13 different participants were observed for the second time observation.

4.3.3. **Analysis of observed behaviors across independent variables.** In order to find whether significant difference exists between each observed behavior and the independent variables, the Kruskal-Wallis Rank Sum Test was employed. Three behaviors were found that had significant difference with independent variables. The results were shown as follows:

**Figure 4.8. The chi-square and p-value of No. 13 Behavior by Courses**
1) The behavior of No. 7 (the instructor forms learning groups; the teacher walk around the class to observe students’ interaction and lead the discussion) has significant difference with various courses (chi-squared value = 8.589 p-value = .035). It can be seen that the mean score is 2 for behavior of No. 7 in course of Science (see box plot Figure 4.7).

2) The behavior of No. 13 (the instructor invites student group or partners to present the assigned reading and lead the class in discussion) was found that chi-squared value was 12.418, p-value was 0.006, specifically, participants who taught course of science demonstrated least behavior of No.13 among others (see Figure 4.8).

   It can be seen that the mean score for the course of science and engineer is 0.5. It indicated that the raters observed only one time behavior of No.13 at the course of science and engineer among two-time observation. They are less than other courses.

3) The behavior of No.11 (the instructor uses Think-Pair-Share activities leading to students’ learning responsibility) was found that had significant difference with courses (see Figure 4.9): chi-squared value = 8.988, p-value = 0.029 (p < 0.05).

**Figure 4.9. The chi-square and p-value of No.11 Behavior by Courses**

![Box plot](image)

*Note. 1=Liberal and Arts, 2= Science, 3=Engineer, 4= Business*
It can be seen that the mean score of science is 0.5. The raters observed only one time behavior of No. 11 at the course of science between two observations less than other courses. Additionally, the behavior of No. 11 (the instructor uses Think-Pair-Share activities leading to students’ learning responsibility) had significant difference with gender (chi-squared value= 4.3581, p-value= 0.037). Female participants demonstrated less behavior of No. 11 than male. The mean score for female is 7.5; it is less than male (see Figure 4.10).

**Figure 4.10. The chi-square and p Value of No.11 Behavior by Gender**

Note. 0= male 1= female

### 4.4. Inferential Analysis of Detecting Significant Predictors for Participants’ Overall Evaluation of the Program

In this section, firstly the Pearson’s correlation coefficients between participants’ Overall Evaluation (Question 81) and Learning, Using, and Reaction were computed. The basic reason for using the parametric Pearson instead of the nonparametric Spearman is
that for the learning, using, and reaction, each of categories contains several related questions and the mean scores of each category being computed out are interval-based. Actually, the Spearman’s approach was performed and was found the similar results as the Pearson’s way. Secondly, two regression models were built to examine the significant predictors for influencing the dependent variable (the overall evaluation). The corresponding statistical techniques were also introduced in this section briefly.

Here is the brief representation of the formula of Pearson's correlation coefficient, which is defined as the covariance of the two variables divided by the product of their standard deviations.

$$ r = \frac{\sum_{i=1}^{n} (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \bar{X})^2 \sum_{i=1}^{n}(Y_i - \bar{Y})^2}} $$

For pairs from an uncorrelated bivariate normal distribution, the sampling distribution of Pearson's correlation coefficient follows Student's t-distribution with degrees of freedom $n - 2$. Specifically, if the underlying variables have a bivariate normal distribution, the variable

$$ t = r \sqrt{\frac{n - 2}{1 - r^2}} $$

has a Student's t-distribution in the null case (zero correlation).

**4.4.1. Pearson correlation coefficient analysis for overall evaluation and learning.** By performing Pearson's product-moment correlation procedure, there is a significant correlation between participants’ overall evaluation and learning. The correlation coefficient is 0.72; the corresponding $t$ statistic is 7.25 and $p$ value is $2.41 \times 10^{-9}$ ($< 0.05$).
This statistical analysis indicated that participants’ high overall evaluation on the program had significant correlation with their learning improvement. In other words, the high degree of the overall program evaluation significantly related to their learning improvement through the program.

4.4.2. Pearson Correlation Coefficient analysis for overall evaluation and using. By performing Pearson's product-moment correlation procedure, there is a significant correlation between participants’ overall evaluation and the using. The correlation coefficient is 0.36; the corresponding t statistic is 2.71 and p value is 0.009 (< 0.05).

This analysis showed that participants’ high overall evaluation on the program had significant correlation with their using what they learned through the program. They could use what they learned through the program so that they scored high degree of evaluation on this program.

4.4.3. Pearson Correlation Coefficient analysis for overall evaluation and reaction. By performing Pearson's product-moment correlation procedure, there is a significant correlation between participants’ overall evaluation and reaction. The correlation coefficient is 0.81. The corresponding t statistic is 9.94, and p value is 1.99e-13 (< 0.05).

It can be concluded safely that participants’ reaction in three dimensions including trainers’ ability, program design, and organization support demonstrated that they rated high degree of the overall program evaluation.

4.4.4. Regression analysis of detecting significant predictors for casual relationship between overall evaluation and three evaluation levels. Stepwise
regression includes regression models in which the choice of predictive variables is carried out by an automatic procedure. The main approaches include: Forward selection, which involves starting with no variables in the model, testing the addition of each variable using a chosen model comparison criterion, adding the variable (if any) that improves the model the most, and repeating this process until none improves the model; backward elimination, which involves starting with all candidate variables, testing the deletion of each variable using a chosen model comparison criterion, deleting the variable (if any) that improves the model the most by being deleted, and repeating this process until no further improvement is possible; bidirectional elimination, a combination of the above, testing at each step for variables to be included or excluded. The forward elimination procedure was used and the results were presented in Table 4.13.

Table 4.13.

*Step-wise Regression Analysis Result for Overall Evaluation by Using Three Dimensions as Predictors*

|                | Estimate | Std. Error | t value | Pr (>|t|) |
|----------------|----------|------------|---------|-----------|
| Intercept      | 0.615    | 0.528      | 1.164   | 0.250     |
| Learning       | 0.243    | 0.144      | 1.685   | 0.098     |
| Reaction       | 0.631    | 0.123      | 5.113   | 5.24e-06 *** |
| Adjusted R-squared: |          |            |         | 0.669     |

*Note.* Estimated regression equation: Y=0.615+0.243X1 + 0.631X2

X1: learning;  X2: reaction
As shown in Table 4.13, the learning and reaction were selected to contribute to the overall reaction. The reaction contributed more than the learning.

In fact, it is not so appropriate to use the above regression technique since the continuous responses are ordinarily required for the estimation and inferences while the response of overall evaluation is ordinal in essence. However, here the aim of developing regression models in this section is just to find the causal relationship between the overall evaluation of participants and significant predictors (to be selected) instead of using the estimated model to make predictions. Therefore, the values of overall evaluation are regarded as continuous values in the section.

To verify the assumption of regression analysis and validity of the regression results, the diagnostic graphs are drawn in Figure 4.11 for testing whether there were any violation of assumptions in the classical linear regression analysis.

**Figure 4.11. Diagnostic Linear Regression Analysis for Three Dimensions’ Regression**
It can be seen from Figure 4.11 that the constant and the residuals also follow normal distribution from QQ norm plot. The outlier is also not obvious by examining the Cook’s distance plot.

More exquisite standard statistical procedures are performed as below for drawing safe conclusion of the estimated regression equation. All the results were computed by R 3.01 Software and are summarized in Table 4.14.

Table 4.14.

| The Result of Regression Verification Computerization in Learning and Reaction Level |
|---|---|---|---|---|
| Predictors | Learning | Reaction | Statistic | P value |
| VIF procedure | VIF=2.49 | VIF=2.49 | | |
| Durbin-Watson test | | | DW=1.89 | 0.336 |
| Breusch-Pagan test | | | BP=3.29 | 0.193 |
| RESET test | | | F=1.19 | 0.31 |

The Variance Inflation Factor (VIF) procedure was performed to detect whether there exists multicollinearity among predictors. The VIF quantifies the severity of multicollinearity in an ordinary least squares regression analysis. It provides an index that measures how much the variance (the square of the estimate’s standard deviation) of an estimated regression coefficient is increased because of collinearity.

The VIF can be calculated and analyzed in three steps:

Step one: Calculate $k$ different VIFs, one for each $X_i$ by first running an ordinary least square regression that has $X_i$ as a function of all the other explanatory variables in the
first equation.

If \( i = 1 \), for example, the equation would be

\[
X_1 = \alpha_2 X_2 + \alpha_3 X_3 + \cdots + \alpha_k X_k + c_0 + \epsilon
\]

Where \( c_0 \) is a constant and \( \epsilon \) is the error term.

Step two: Then, calculate the VIF factor for \( \beta_i \) with the following formula:

\[
VIF = \frac{1}{1 - R_i^2}
\]

where \( R_i^2 \) is the coefficient of determination of the regression equation in step one, but with \( X_i \) on the left hand side, and all other predictor variables (all the other \( X \) variables) on the right hand side.

Step three: Analyze the magnitude of multicollinearity by considering the size of the \( VIF(\beta_i) \). A common rule of thumb is that if \( VIF(\beta_i) \) is greater than 10 then multicollinearity is high. Also 10 has been proposed as a cut off value (Kutner, 2004).

As shown in Table 4.1, it can be seen that the VIF for both predictors are less than 10 (VIF=2.49). Therefore, the multicollinearity has been solved by the above step-wise approach.

The Durbin-Watson test (1971) has been performed for detecting the presence of autocorrelation in the residuals from a regression analysis. The presence of autocorrelation is one of the basic assumptions required for a valid regression results. The violation of this assumption will invalidate the regression result. It is named after James Durbin and Geoffrey Watson. The procedure is briefly reviewed here. If \( ET \) is the residual associated with the observation at time \( t \), then the test statistic is
\[ d = \frac{\sum_{t=2}^{T} (e_t - e_{t-1})^2}{\sum_{t=1}^{T} e_t^2}, \]

where \( T \) is the number of observations. Since \( d \) is approximately equal to \( 2(1 - r) \), where \( r \) is the sample autocorrelation of the residuals, \( d = 2 \) indicates no autocorrelation. The value of \( d \) always lies between 0 and 4. If the Durbin–Watson statistic is substantially less than 2, there is evidence of positive serial correlation. As a rough rule of thumb, if Durbin–Watson is less than 1.0, there may be cause for alarm. Small values of \( d \) indicate successive error terms are, on average, close in value to one another, or positively correlated. If \( d > 2 \), successive error terms are, on average, much different in value from one another, i.e., negatively correlated. In regressions, this can imply an underestimation of the level of statistical significance.

To test for positive autocorrelation at significance \( \alpha \), the test statistic \( d \) is compared to lower and upper critical values (\( d_{L, \alpha} \) and \( d_{U, \alpha} \)):

- If \( d < d_{L, \alpha} \), there is statistical evidence that the error terms are positively auto-correlated.
- If \( d > d_{U, \alpha} \), there is no statistical evidence that the error terms are positively autocorrelated.
- If \( d_{L, \alpha} < d < d_{U, \alpha} \), the test is inconclusive.

Positive serial correlation is serial correlation in which a positive error for one observation increases the chances of a positive error for another observation.

To test for negative autocorrelation at significance \( \alpha \), the test statistic \( 4 - d \) is compared to lower and upper critical values (\( d_{L, \alpha} \) and \( d_{U, \alpha} \)):
• If \((4 - d) < dL, \alpha\), there is statistical evidence that the error terms are negatively auto-correlated.

• If \((4 - d) > dU, \alpha\), there is no statistical evidence that the error terms are negatively auto-correlated.

• If \(dL, \alpha < (4 - d) < dU, \alpha\), the test is inconclusive.

Negative serial correlation implies that a positive error for one observation increases the chance of a negative error for another observation and a negative error for one observation increases the chances of a positive error for another.

The critical values, \(dL, \alpha\) and \(dU, \alpha\), vary by level of significance (\(\alpha\)), the number of observations, and the number of predictors in the regression equation. Their derivation is complex—statisticians typically obtain them from the appendices of statistical texts.

By using the command dwtest in lmtest package of R software, the result of DW=1.89 and p value is 0.336. Based on the results, it can be concluded that there are no sign of autocorrelation in residuals.

Under the classical assumptions, ordinary least squares is the best linear unbiased estimator (BLUE), i.e., it is unbiased and efficient. The efficiency is lost, however, in the presence of heteroscedastic disturbances. Breusch-Pagan procedure (named after Trevor Breusch and Adrian Pagan) was adopted to test for heteroscedasticity in a linear regression (1979). The Breusch–Pagan test is based on models of the type \(\sigma_i^2 = h(z_i' \gamma)\) for the variances of the observations.
where $z_i = (1, z_{2i}, \ldots, z_{pi})$ explain the difference in the variances. The null hypothesis is equivalent to the $(p - 1)$ parameter restrictions: $\gamma_2 = \ldots = \gamma_p = 0$.

The following Lagrange multiplier (LM) yields the test statistic for the Breusch–Pagan test:

$$LM = \left( \frac{\partial l}{\partial \theta} \right) ' \left( -E \left[ \frac{\partial^2 l}{\partial \theta \partial \theta'} \right] \right)^{-1} \left( \frac{\partial l}{\partial \theta} \right).$$

This test is analogous to following the simple three-step procedure:

Step 1: Apply OLS in the model

$$y = X\beta + \varepsilon.$$

and compute the regression residuals.

Step 2: Perform the auxiliary regression

$$e_i^2 = \gamma_1 + \gamma_2 z_{2i} + \ldots + \gamma_p z_{pi} + \eta_i.$$

Step 3: The test statistic is the result of the coefficient of determination of the auxiliary regression in Step 2 and sample size $n$ with:

$$LM = nR^2.$$

The test statistic is asymptotically distributed as $\chi^2 (p - 1)$ under the null hypothesis of homoscedasticity.

By using the bptest in lmtest package of R software, the result is shown that BP statistic = 3.29 and $p$ value = 0.193. It can be safely drawn the conclusion of no heteroscedasticity in the estimated model.
The misspecification of model also will bring detrimental effects to the final model. Hence, the Ramsey Regression Equation Specification Error Test (RESET) test (Ramsey, 1969) here was employed to test whether non-linear combinations of the fitted values help explain the response variable. This procedure is briefly summarized as below.

Consider the model

\[ \hat{y} = E\{y|x\} = \beta x.\]

The Ramsey test then tests whether \((\beta x)^2, (\beta x)^3, \ldots, (\beta x)^k\) has any power in explaining \(\hat{y}\). This is executed by estimating the following linear regression

\[ y = \alpha x + \gamma_1 \hat{y}^2 + \ldots + \gamma_{k-1} \hat{y}^k + \epsilon, \]

and then testing, by a means of a F-test whether \(\gamma_1\) through \(\gamma_{k-1}\) are zero. If the null-hypothesis that all \(\gamma\) coefficients are zero is rejected, then the model suffers from misspecification.

By using the RESET test from R software, the result obtained that the F statistic = 1.193 and p-value is 0.312. Therefore, the model form is acceptable. Therefore, the final estimated step-wise regression equation is reliable. The result implied that the reaction on the program and the learning contributed to overall evaluation, and the reaction contributed more than participants’ learning to overall evaluation. Specifically, the trainers’ ability, the program design, and the organization support are the main factors of ensuring the quality of the program resulting in the higher contribution to overall evaluation level than participants’ learning.
4.4.5. Regression analysis by using sub-dimensions as predictors. In this subsection, all sub-dimensions as predictors to be used to build regression model in order to find the significant factors for influencing the overall evaluation variable. The step-wise regression procedure is also performed here to select predictors. The diagnostic procedures were also performed similar to section 4.4.4. First, the regression results are presented as below in Table 4.15.

Table 4.15.

The Regression Analysis of Sub-Dimensions as Predictors

|                  | Estimate | Std. Error | t value | Pr (>|t|) |
|------------------|----------|------------|---------|----------|
| Intercept        | 0.709    | 0.615      | 1.151   | 0.257    |
| Knowledge        | 0.036    | 0.155      | 0.230   | 0.819    |
| Skills           | 0.192    | 0.167      | 1.147   | 0.258    |
| Attitudes        | 0.194    | 0.173      | 1.118   | 0.270    |
| FC               | 0.017    | 0.069      | 0.243   | 0.809    |
| RI               | -0.026   | 0.093      | -0.275  | 0.785    |
| RL               | 0.084    | 0.102      | 0.827   | 0.414    |
| PPA              | -0.057   | 0.104      | -0.549  | 0.586    |
| BP               | -0.008   | 0.052      | -0.148  | 0.883    |
| Trainers’ ability| 0.431    | 0.215      | 2.005   | 0.052    |
| Program design   | 0.126    | 0.220      | 0.573   | 0.570    |
| Organization support | 0.095 | 0.134      | 0.708   | 0.483    |
Using sub-dimensions as predictors performed stepwise Regression analysis result for overall evaluation by using sub-dimensions as predictors here (see Table 4.16).

Table 4.16.

**Stepwise Regression Analysis of Overall Evaluation by Sub-Dimensions**

|                | Estimate | Std. Error | t value | Pr (>|t|) |
|----------------|----------|------------|---------|----------|
| Intercept      | 0.954    | 0.467      | 2.041   | 0.047    |
| Skills         | 0.194    | 0.104      | 1.869   | 0.068    |
| Trainers’ ability | 0.635  | 0.095      | 6.663   | 2.21e-08 *** |
| Adjusted R-squared: |          |            |         | 0.685    |

*Note.* Estimated regression equation: \( Y=0.954+0.194X_1 + 0.635X_2 \)

X1: skills    X2: trainers.

As shown in Table 4.16, among all sub dimensions, skills and trainers’ ability emerged and demonstrated that the trainers’ ability contributed to the overall evaluation more than skills participants learned through the program.

The diagnostic procedures were also performed, the result is displayed in Figure 4.12 and Table 4.17.

**Figure 4.12. Diagnostic Linear Regression Analysis for Sub-Dimensions**
Table 4.17.

*The Result of Regression Verification Computerization in Sub-Dimensions*

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Skills</th>
<th>Trainer’s ability</th>
<th>Statistic</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIF procedure</td>
<td>VIF=1.75</td>
<td>VIF=1.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Durbin-Watson test</td>
<td></td>
<td></td>
<td>DW=1.91</td>
<td>0.370</td>
</tr>
<tr>
<td>Dreusch-Pagan test</td>
<td></td>
<td></td>
<td>BP=1.08</td>
<td>0.58</td>
</tr>
<tr>
<td>RESET test</td>
<td></td>
<td></td>
<td>F=0.14</td>
<td>0.87</td>
</tr>
</tbody>
</table>

From the above diagnostic Figure 4.12 and Table 4.17, it can be seen that the estimated regression equation is reliable and the corresponding conclusion is creditable. It can be safely to conclude that the trainers’ ability contributed more to the overall evaluation than the skills which participants learned through the program. It implied that the trainers’ ability was the core competition power to support the overall evaluation.

### 4.5. The Open-ended Data Analysis
The open-ended data related to the improvement of the program was analyzed using thematic and content analysis method as follows.

**Question 84.** In your opinion, what is the current most important thing for the university to implement student-centered teaching successfully?

Six themes were derived from the responses: institutional support, teaching and learning environment improvement, student attitude, SCL context, faculty’s motivation and capability, class size, and course materials. The analysis of the responses to the Question 84 is illustrated in Figure 4.13.

As shown in Figure 4.13, 20 out of 52 participants stated that the most important concept to successfully implement the SCL was institutional assessment support that was redesigned to consist with SCL such as reduction of workload for faculty, assessment system transformation both in faculty level and student level, motivation of faculty and strengthen CTE leadership support; Teaching and learning physical environment improvement was mentioned 14 times to emphasize improving the physical learning environment to consist with SCL; Ten out of 52 participants
emphasized that the most important thing was to transform the student’s learning philosophy that was responsible for their own learning; Nine participants indicated that creating a SCL context on entire campus was the most important thing; Six participants stated that faculty’s motivation and capability of applying what they learned to their class was the most important process; Two participants presented that the most important thing was compile SCL textbook.
Table 4.18.

The Direct Related Organizational Policies of SCL

<table>
<thead>
<tr>
<th>Organizational policy</th>
<th>Frequency</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Assessment System (FAS)</td>
<td>17</td>
<td>Faculty performance assessment; SCL performance assessment;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization Support (OS)</td>
<td>11</td>
<td>Aligned philosophy and leadership; CTE enhancement; recognition and incentive mechanism of SCL;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Assessment &amp; management System (SAS)</td>
<td>11</td>
<td>Course selection mode; course assessment and grading mode; class size</td>
</tr>
<tr>
<td>Teaching &amp; learning environment</td>
<td>9</td>
<td>Physical environment improvement; IT (BB) support</td>
</tr>
<tr>
<td>Faculty Compensation Management System (FCMS)</td>
<td>5</td>
<td>Compensation management system (workload allocation, incentive mechanism)</td>
</tr>
<tr>
<td>Student attitude</td>
<td>2</td>
<td>Student attitude toward the new paradigm</td>
</tr>
<tr>
<td>No idea</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**Question**: 85. 你认为哪些组织政策（学院制度）直接与以学生为中心的教学的实施相关？What organization policies do you think relate directly to student-centered teaching implementation?
Regarding the direct related organizational policies of SCL reported by participants (see Table 4.18), faculty assessment system was mentioned the most related organizational policy statistically; organization support and student assessment system were reported the second; teaching and learning environment was the third; faculty compensation management system was the fourth; Two participants mentioned students’ attitudes and the other two reported no any idea about it.

**Figure 4.14. The Influencing Factors and Barriers of SCL Implementation**

![Influence frequency chart](image)

**Question 86.** In your opinion, what are the influencing factors and barriers for you to implement student-centered teaching successfully at your university?

The responses of influencing factors and barriers of SCL implementation can be categorized as four levels: university level, school level, faculty level, and student level (see Figure 4.14).

The influences factors at the university level consists of teaching and learning environment ranked the fist(16), faculty assessment ranked the second(13), student
assessment and management ranked the third (9), and the leadership of the university ranked the fourth (3).

For the student level, participants indicated some influencing factors as follows:

“学生素质和学风 student’s quality and the style of study”
“对学生知识量的要求 the requirement for knowledge quantity of student”
“学生对学习的理解和思维是一种障碍。Barriers of understanding and thinking of learning from students”
“学生的理解能力和表达能力及其学习态度 students’ comprehensive ability, presentation skill and attitude toward learning”
“主要还是学生没有完全接受 Students have not accepted completely the SCL philosophy”
“学生的配合程度过低，很多的教学活动不好开展；教师的工作量大，时间和精力有限” Student’s lower level of cooperation influences the organization of teaching activity; faculty have too much workload, limited time and energy to implement SCL.
“学生的学习基本功底 students’ low entry level of basic knowledge and learning skills”
“学生配合程度不高，以及教师无更多精力投入教学设计 Students’ lower degree of cooperation and Faculty’s limited energy to engage in curriculum design”
“学生的观念、考核制度和激励政策 student’s philosophy, assessment system and incentive policy”

For the faculty level, participants expressed the following anxieties:

“我们学院领导层对于以学生为中心的教学方法还是比较支持的，主要障碍是在课程本身上，工科在实施过程中, 有些理论性的课程确实有一定难度，需要教学小
组多讨论 SCL is supported by the leader of university, the main obstacle is the course itself, especially for the science and engineer course, and it is difficult to implement in some theoretical courses, and it needs to be discussed by teaching team”

“缺乏教学研究团队。Lack of research team for teaching and learning”

“教学进度 progress of teaching”

“转换师生观念，领导重视 leader’s emphasis and perception transformation of teachers and students”

“障碍在于工科课程中有些原理性的课程的教学方法还在迷茫，仍然在探索教学方法 We have obstacles of being confused with some specific teaching method for the theoretical courses of science and engineer, we are still exploring the corresponding teaching method”

“以学生为中心教学活动是一个尝试、改进的过程，所以效果无法确定，整个教学效果的好坏会影响同事、领导对个人教学能力的怀疑 SCL is an experimental and improving process of teaching activity, the effectiveness is hard to be certain immediately. However the ultimate effectiveness will cause the suspicion of instructors’ teaching ability from colleagues, leaders even instructors themselves”

For the school level, participants emphasized the support from the leader of school level and the restriction of subject content.

Question 87. 提高教师发展项目的（培训质量）还需要做哪些工作？What could be done to improve this faculty development program?
Figure 4.15. What could be done to improve program?

Note. The total frequency is more than population since some participants proposed more than one.

Participants proposed some suggestions on improvement of the future training program (see Figure 4.15). Among 52 participants, twenty-three participants proposed to enhance training continually (23) for improvement including discipline-based training (8), off-campus training (4), and objective-oriented training (2); ten participants indicated to establish incentive mechanism to support training quality improvement; Six participants mentioned Scholarship of Teaching and learning; self-practice and peer exchange was mentioned by five participants respectively; academic exchange and matched policy was reported by three participants respectively; one participant proposed to provide individual consultant for improvement; the other three participants have no comments on this question.
**Question 88.** You believe this training project is best in each period for how many days (A = 10 days or more, B = 10 days, C = 5 days, or less than D = 5 days)? How many days do you think the best for the program?

Twenty three participants among 52 participants suggested that the best period of the training program was 5 days for each seminar, 14 participants reported 10 days, 9 participants suggested less than 5 days, and only 6 participants suggested more than 10 days (see Table 4.19).

Table 4.19.

*Program Duration Statements*

<table>
<thead>
<tr>
<th>Duration of the program/semester</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 days</td>
<td>23</td>
<td>44%</td>
</tr>
<tr>
<td>10 days</td>
<td>14</td>
<td>27%</td>
</tr>
<tr>
<td>Less than 5 days</td>
<td>9</td>
<td>17%</td>
</tr>
<tr>
<td>More than 10 days</td>
<td>6</td>
<td>12%</td>
</tr>
</tbody>
</table>

**Question 89.** How is the training session organized best (A the same as the previous; B one-time intensive training only in summer vacation; C combination of face-to-face and online method, plus self-studies)?

Among all participants, 19 participants selected the best organization of combination of face-to-face and online teaching method, plus self-study ranked the first;
13 participants agreed with the same as the previous teaching model; and 11 participants suggested one time intensive training only in summer vocation (see Table 4.20).

Table 4.20.

**Program Deliver Methods Statements**

<table>
<thead>
<tr>
<th>Deliver methods</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face and online, plus self-study</td>
<td>19</td>
<td>37%</td>
</tr>
<tr>
<td>Three times Onsite workshops per year</td>
<td>13</td>
<td>25%</td>
</tr>
<tr>
<td>One time intensive training in summer vacation</td>
<td>11</td>
<td>21%</td>
</tr>
<tr>
<td>No comments</td>
<td>9</td>
<td>16%</td>
</tr>
</tbody>
</table>

**Question90.** 你对此项目培训的内容有什么样的看法？如何平衡理论、教学方法与技术和教与学的学术三者的权重？What do you think of the content of the program? What do you weight the content of theory, instructional technology and SoTL?

Regarding the perspective of the content, 88% of participants expressed their positive attitudes towards the content and reported that the content was practical and useful; 6 out of 52 participants (12%) reported that the content was too simple and insufficient, needed to be increased and enhanced theoretically (see Table 4.21).
Table 4.21.

*Statements for Perspective of the Content*

<table>
<thead>
<tr>
<th>Perspective of the content</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical and useful</td>
<td>46</td>
<td>88%</td>
</tr>
<tr>
<td>Simple and insufficient</td>
<td>6</td>
<td>12%</td>
</tr>
</tbody>
</table>

Table 4.22.

*Statements for the Weight of the Content*

<table>
<thead>
<tr>
<th>Sequence ranking</th>
<th>Fre.</th>
<th>Perc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional technology (40-50%) &gt; SoTL (30-40%) &gt; theory (10-20%)</td>
<td>45</td>
<td>90%</td>
</tr>
<tr>
<td>SoTL (40-50%) &gt; instructional technology (30-40%) &gt; theory (10-20%)</td>
<td>4</td>
<td>6%</td>
</tr>
<tr>
<td>Theory (30-40%) &gt; instructional technology (30-40%) &gt; SoTL (20-40%)</td>
<td>3</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Note. Fre. = Frequency, Perc. = Percentage*

After the completion of the program, 90% of participants (45) valued the sequence and the weight of three parts of contents as follows (see Table 4.22):

- Instructional technology (40-50%) > SoTL (30-40%) > theory (10-20%); 6% of participants (4) valued the sequence and the weight as: SoTL (40-50%) > instructional technology (30-40%) > theory (10-20%); 4% of participants (3) valued as: theory (30-40%) > instructional technology (30-40%) > SoTL (20-40%).

4.6. Summary of Findings

In this chapter, the results of the study were presented under the reaction level, the learning level, and the behavior level of Kirkpatrick’s evaluation model. Both self-
reported data including closed-end and open-ended responses and observation data were analyzed using a series of statistical techniques.

For the reaction level, participants reported high positive overall evaluation on the faculty development program. Ninety-three percent of participants selected greater than somewhat satisfied with the program as overall reaction. Specifically, 82% of participants were somewhat or greater than somewhat satisfied with the trainers’ ability; 85% of participants were somewhat or greater than somewhat satisfied with the program design; 93% of participants were somewhat or greater than somewhat satisfied with the organization support to the program. Except the independent variable of course of teaching, all the other variables were not significantly differentiated with respect to the reaction score. The data reported that there existed differences between the reaction level and the courses that participants taught (chi-square= 11.533, p =0.009). Participants who teach courses of science reported lower reaction than other participants, participants who teach courses of engineer reported the highest reaction, and participants who teach courses of business and liberal reported the same reaction level in the middle.

For the learning level, by performing the Welch paired t test procedure, the t statistic is -6.163 and corresponding p value is far small than 0.05. It can be obviously to see that there is a significant difference between participants’ learning level before training and after training through self-reported data (using learning overall averages as variable). In other words, participants reported that their learning of knowledge, skills and attitudes were improved through the program. For the robustness of the conclusion, the nonparametric-paired Wilcox procedure was also utilized (the command wilcox.test in R). The results were similar to the paired t test with which p value is less than 0.05.
Specifically, all participants reported that they greater than somewhat agreed their learning the knowledge through the program, 94% of participants reported they learned the skills, and 96% of participants reported the program changed their attitudes towards the teaching. The data conservatively indicated that participants’ academic title had effected on their learning of knowledge and the learning of skills. Participants who are assistant teachers reported their more learning of knowledge and skills than participants who are lectures. The data showed that there was no any significant difference between participants’ attitudes and the independent variables.

The open-ended data showed the consistent results with the self-reported results for the learning. Twenty-eight out of 52 participants stated that the advanced teaching philosophy of SCL and some effective instructional technologies were the most valued achievements they learned from the program. Seventeen participants stated that the most valued they learned were some effective teaching strategies and the applications in their class. Fifteen participants expressed the positive attitudes toward teaching and learning transformation.

For behavior level, three types of data showed the using of SCL behaviors. A) The survey data concerning using of the SCL behavior showed that more than half of participants reported that they frequently or more often used four behaviors among total 20 behaviors inside and outside of the class. The remaining behaviors were also used frequently by less than 50% of participants. B) The open-ended data reported that participants had specific plans to use SCL behaviors in their future teaching practice. Nine participants reported that they would plan to learn continually by practicing for improvement and try to translate it into action in their class; thirty-six participants
planned to integrate what they learned into some specific process of teaching and learning including five dimensions changes of learner-centered teaching (Weimer, 2002); six participants planned to implement the SCL through course-based implementation: growing from one course to more courses; from practical to theoretical; inside and outside of class; two participants planned to multiple use the SCL strategies in teaching, research, and service. C) The observed data showed that 28% of participants used average of 0 to 2 SCL behaviors listed in the checklist by two times, the minimum mean frequency of observed behavior was 0.5; 22% used average of 2 to 4 SCL behaviors listed in the checklist by two times; 31% used average of 4 to 6 SCL behaviors listed in the checklist by two times; 19% used average of more than 6 SCL behaviors listed in the checklist by two times, the maximum mean frequency of observed SCL behavior was 8.5. The data showed that the average number of observed behaviors were different at each dimension: the function of the content accounted for 41% ranked the first; the responsibility for learning accounted for 21% ranked the second, the role of instructor accounted for 16% ranked the third, the purpose and process of assessment accounted for 13% ranked the fourth, and the balance of power accounted for 9% ranked the last. Specifically, different observed behavior listed in the checklist was frequently used differently by different range of participants: the average of 91% of participants (29) used the behavior of Question 1 (the instructor gives concrete examples related to the content stimulate students’ interest in learning) ranked the first; the average of 83% of participants (26.5) used the behavior of Question 16 (the instructor frequently checks for understanding) ranked the second; the average of 69% of participants (22) used the behavior of Question 4 (the instructor uses case vignettes, simulations, students’ own
experiences, or service-learning activities to help students solve real world problems) ranked the third; the average of 66% of participants (21) used the behavior of Question 7 (the instructor forms learning groups; the teacher walk around the class to observe students’ interaction and lead the discussion) ranked the fourth; the average of 63% of participants (20) used the behavior of Question 5 (the instructor asks students develop understanding by making their own associations with new content, developing their own examples of a concept, putting concepts into their own words, or reflecting on the meaning of the content) ranked the fifth; the average of 59% of participants (19) used the behavior of Question 3 (the instructor uses small-group problem-solving exercises to help develop inquire skills) ranked the sixth; the average of 52% of participants (16.5) used the behavior of Question 9 (the instructor gives “mini” lectures in class) ranked the seventh; the remaining behaviors were frequently used less than above behaviors.

Additionally, during the first time observation, the raters observed 22 additional behaviors from 13 different participants, which were not included in the checklist, and 21 behaviors for 13 different participants were observed for the second time observation.

Three behaviors were found that had significant difference with independent variables. The results were shown as follows: 1) the behavior of Question 7 (the instructor forms learning groups; the teacher walk around the class to observe students’ interaction and lead the discussion) has significant difference with various courses (chi-squared value= 8.5893, p value= .035). The average score is 2 for behavior of Question 7 in course of Science; 2) the behavior of Question 13 (the instructor invites student group or partners to present the assigned reading and lead the class in discussion) was found that chi-squared value was 12.418, p value was 0.006, specifically, participants who taught
course of science demonstrated least behavior of Question 13 among others, the average score for the course of science and engineer is 0.5. It indicated that the raters observed only one time behavior of Question13 at the course of science and engineer among two-time observation. They are less than other courses; 3) the behavior of Question11 (the instructor uses Think-Pair-Share activities leading to students’ learning responsibility) was found that had significant difference with courses (see Figure 4.9): chi-squared value = 8.989, p value= 0.029 (p < 0.05), the average score of science is 0.5. The raters observed only one time behavior of Question 11 at the course of science among two-time observation less than other courses.

Additionally, the behavior of Question 11 (the instructor uses Think-Pair-Share activities leading to students’ learning responsibility) had significant difference with gender (chi-squared value= 4.358, p value= 0.037). Female participants demonstrated less behavior of Question 11 than male. The average score for female is 7.5; it is less than male (see Figure 4.10).

By calculating Pearson's product-moment correlations, the results indicated that there existed significant correlation between participants’ overall evaluation and their learning (the correlation coefficient is 0.716; the corresponding t statistic is 7.254 and p value is 2.408e-09), their using (the correlation coefficient is 0.358; the corresponding t statistic is 2.711 and p value is 0.009), and their reaction (the correlation coefficient is 0.815. The corresponding t statistic is 9.937 and p value is 1.987e-13). It can be concluded safely that the participant’s reaction in three dimensions including trainers’ ability, program design, and organization support demonstrated high degree of the overall program evaluation.
By performing a series of step-wise regressions, the learning and the reaction were selected to contribute to the overall evaluation. The reaction contributed more than the learning. Specifically, among all sub dimensions, skills and trainers’ ability emerged and demonstrated the contribution to overall evaluation. The trainer’s ability contributed more than the skills to overall evaluation.

In addition to the three levels of evaluation results, some unexpected outcomes were found through open-ended questions. The open-ended data presented some suggestions for the future program improvement and successfully implementation. Participants indicated that some of the factors such as teaching and learning environment improvement, faculty assessment, student assessment and management, and the leadership of the university would influence the SCL strategy successfully implementation.

Participants proposed some suggestions on improvement of the future training program (see Figure 4.15). Among the 52 participants, twenty-three participants proposed to enhance training continually (23) for improvement including discipline-based training (8), off-campus training (4), and objective-oriented training (2). Ten participants indicated to establish incentive mechanism to support training quality improvement. Six participants mentioned Scholarship of Teaching and Learning. Self-practice and peer exchange each was mentioned by five participants respectively. Academic exchange and matched policy was each reported by three participants respectively. One participant proposed to provide individual consultant for improvement.
Chapter Five

Discussion and Implications

This study reports the results of a two-year faculty development training program designed to assist faculty in making the transition from a teacher-centered to student-centered approach to instruction at Xi’an Eurasia University. The project was initiated in May of 2011 and ran through July of 2013. After experiencing a two-year investment of time, money, and human resources, faculty development stakeholders needed to know whether the program changed faculty’s teaching behavior. The program designers also needed to know whether the faculty development program was effective in reaching the expected goal of changing faculty’s teaching styles to a student-centered instructional approach. Specifically, the following three research questions were examined in this study: how did participants perceive this program? Did participants make improvements in their learning of knowledge, skills and attitudes as the result of the program? Did participants use what they learned through the program and transition to a student-centered strategy? The model used in this research strategy was based on Kirkpatrick’s evaluation model (1998) that assessed outcomes of faculty who participated in program at the level of reaction, the level of learning, and the level of behavior. Four months after completion of the program, the results indicated that participants had significant positive reactions to the faculty development program; they learned new knowledge and new skills related to student-centered strategies, and they had positive attitudes toward the faculty development program; participants also started using student-centered teaching behaviors they learned in the faculty development program in their class. The discussion is categorized into four following sections: discussion of participants, participants’
reactions to the program, participants’ learning, and participants’ behaviors, the implications for faculty development program application in China, for program improvement, and for future research.

5.1. Discussion

5.1.1. Discussion of participants. Although the specific faculty demographics at other Chinese private universities differed in each category, there existed many similar characteristics within Chinese private universities including (Wang, 2013): there were more female faculty than male faculty; more faculty at the academic rank of lecturer than at more advanced academic ranks of associate professor and professor.

Compared with public Chinese universities, Eurasia faculty had fewer years of teaching experience than experienced faculty, more faculty at lower level academic rank than higher level academic rank at Chinese private universities. These differences are likely a result of the fact that private universities are a recent occurrence in China, having been approved by the Ministry of Education since 1990s, and have a shorter developmental history than public universities. The younger a university is, the more it is in need of a faculty development program in order to meet the same academic standards as public university (Wang, 2013).

Attending the faculty development program at XEU was treated as a unique opportunity with benefits for both faculty and department leaders since this program were the first on-site, foreign faculty development program designed for a only limited number of participants. Department leaders were reluctant to lose the opportunity for their faculty to participate in the program; however, that was inevitable in some cases. Therefore, whenever a participant had to miss the opportunity to attend the seminar for normal
reason, the department leaders assigned alternative faculty who worked in their
department to fill the vacancy. Consequently each seminar was ensured of an enrollment
of 100 participants to attend the program during the two-year workshop. However, it is
worth mentioning that it was not for a subjective reason that some participants did attend
the entire four-level program. Actually far more than 100 faculty at XEU participated in
the program within two years in total. It is inevitable that some normal reasons resulted in
participants changing over time. This inevitable participant alternation during two years
of the program (April, 2012 through July, 2013) produced opportunities for more faculty
to attend the program. Nevertheless, it did not exclude the possibility of the department
leaders’ intentional arrangement to assigned alternative faculty to attend the program
when the inevitable situation arose that a participant missed one of the training classes.
Therefore, those who did not attend the entire four-level program were excluded in this
study.

5.1.2. Participants’ reaction to the program. This study reinforced previous
findings reported in the literature regarding limited efforts and abilities to demonstrate
faculty development program effectiveness by deriving the specific instrument
component deductively from the established goals, exploring the subscale of the reaction
level specifically rather than the superficial overall satisfaction level (Hines, 2009;
Guskey, 2000). This study hypothesized that overall evaluation consisted of three sub-
dimensions of reaction covering the content, the process and the context of the program:
program design, trainers’ ability, and organization support. Each of these sub-dimensions
was explored as well as participants overall reaction to the faculty development program.
Participants expressed a high degree of satisfaction in the program both at the dimension of overall evaluation and the three sub-dimensions. This positive reaction finding is consistent with most of the similar literature findings and the finding of Eble and McKeachie (1985)’s study on Bush Foundation Program, which faculty members expressed a high degree of satisfaction with the program.

In the present study, results indicated that there were significant differences between participants’ reaction and the courses that participants taught. Participants who taught courses in engineering reported the highest satisfaction with the program, the business and liberal arts ranked in the middle. Participants who taught courses in science reported the lowest reaction score. Specifically, participants who taught courses in science expressed less positive reaction than participants who taught courses in engineering, business, and liberal arts, but they did not rate the program in negative terms. The same finding was supported by open-ended questions that assessed the relationship between SCL strategy implementation and the specific course characteristic. Comments such as “SCL strategy only can be used for the courses of liberal arts rather than the course of science” were common among participants with specialization in the sciences. They need to see more examples and evidence that SCL techniques can be effective in their subject areas. This perception might be an obstacle of changing teaching behavior for these faculty. This finding supported Blumberg’s (2008) discussion of the common myths that some of the instructors thought the SCL strategy was not appropriate for all courses. Blumberg (2008) asserts that transitioning the course to be as learner-centered should be the goal for instructors although achieving the learner-centered standard for every component of all five dimensions is not realistic for most courses. However, all
courses can have learner-centered components. The finding implies that some of participants thought that SCL would only be effective for the courses in liberal arts rather than courses in sciences.

It is noted that SCL is a philosophy integrated with multiple teaching approaches to meet the students’ diverse needs, not a single specific teaching method. The multiple teaching approaches include knowledge delivery, teaching environment establishment, the level of thinking facilitation, and learning skills instruction. Different subject areas can appropriately use different SCL approaches both at each dimension and at a different degree of student-centered learning. The finding of reactions difference by courses suggests that faculty development program needs to take into consideration of the different needs of faculty in each subject area specialty, recognizing that implementing SCL strategies in the course in science are different than for courses in the liberal arts or business. Furthermore, the discipline-based training is needed to convince faculty who taught courses in sciences to justify and have confidence that SCL can be used effectively in any course.

The results further indicated that the overall evaluation had significant correlations with participants’ learning improvement, the using of learning (behavior change) and their reactions. This finding inferred that participants’ high degree of satisfaction in the program was close related to their learning improvement, their positive reaction, and their using of learning. However, three evaluation levels contributed to overall evaluation differently. Learning and reaction contributed to high degree of overall evaluation. Furthermore, the result indicated that participants’ reaction contributed to overall evaluation more than learning improvement. Specifically the process used to
conduct the program was largely correlated with the outcome of the overall evaluation to the program. The result further evidenced that trainers’ ability strongly contributed to high degree of overall evaluation among three sub-dimensions of the reaction. In other words, participants rated high degree of the overall program because of the high satisfaction with trainers’ ability at the most. Trainers’ ability included that how well the trainers prepared for the content knowledge and the organization of each class, the degree to which the trainers met the diversity of students’ needs by increasing their active engagement in their learning process, how well the trainers used SCL strategies to conduct the training in each class, whether the trainers created a comfortable and active learning environment for participants, and how well the trainers gave opportunities for participants to demonstrate what they learned in class. Borko and Putanam (1995) assert that participants generally express more positive perceptions toward the content of professional development activities if they have some say in determining what that content will be. Actually, when participants can learn what they expect to learn through trainers’ instruction in class, they will express positive perceptions towards the faculty development program.

Participants’ comments also tend to be more favorable when the content addresses specific problems and offers practical, relevant solutions that can be implemented immediately (Doyle & Ponder, 1977; Fullan, 1991). Obviously, as a pilot faculty development, the trainers’ ability contributed to the high degree of overall evaluation of the program. The finding implies that trainers’ quality plays an important role in implementing an effective faculty development program. The trainers’ ability was a critical factor in determining the quality of the program and the ultimate effectiveness of
the program. Moreover, pertinent program design and administrative support could also ensure participants learning improvement resulting in higher score of positive reaction. A goal-oriented program design based on the needs assessment could increase the satisfaction of participants. A supportive program organization including a comfortable learning environment, considerate service to support the teaching and learning was also important to ensure the program goes smoothly and implements successfully.

Although participants rated a high degree of satisfaction with the program, the open-ended statements from participants still expressed many specific expectations for future improvements to the program. Some of the expectations and suggestion went beyond the scope of this study. These expectations included continuous training, a supportive institutional policy, faculty and student assessment system redesigned and aligned with the new teaching strategy, teaching and learning environment improvement, and the program design and organization styles.

First, less than half of participants stated that they needed to continuous training for improvement. They suggested multiple training methods such as discipline-based training, off-campus and experiential training, and objective-oriented training. Faculty development is an endless and ongoing process. The purpose of training is to make positive change and improvement in teaching and learning; however, change is a gradual process over time. After completion of training, participants need more time to put into practice what they have learned. During the process of practice, both positive and negative change can occur. Continuous training can enhance those who make positive change to further improvement and lead those who make negative change to be confident in incremental change. Eventually continuous training should become an intentional
activity for faculty to be vibrant in their teaching career. Participants further suggested having multiple types of training to meet diverse needs of different faculty. Faculty who teach different courses might have specific needs for training. The discipline-based training can improve their instructional technology aligned with their specific subject area. Participants also suggested experiential training off campus such as attending academic conference, observing demonstration class, peers academic exchange.

Second, participants indicated to establish supportive institutional policy to support new teaching strategy implementation. Although the influences of supportive institutional policy on SCL were not a part of this study, the open-ended responses reflected some unintended outcomes which participants suggested beyond the scope of this study. Specifically, participants were anxious to implement SCL successfully in the traditional teacher-centered context. Actually, there existed many differences between teacher-centered teaching context and student-centered context. As for a teacher-directed compensation system, the payment for faculty’s salary is mainly calculated by administrator according to how many teaching hours faculty teach monthly. The more time faculty teach, the more payment they receive. Therefore, faculty focus on how many hours they teach rather than the effectiveness of the instructional strategy they apply. Although administrators try to make efforts to establish connections between salary and faculty’s performance through evaluation, it is still an utterly inadequate method to change the faculty’s primary focus. However, for the system of student-centered learning, the role of the instructor is to facilitate and assist students’ learn effectively. In order to reach this goal, faculty need to spend more time on both preparing and implementing SCL strategy than teacher-centered instruction to ensure the strategy
work successfully extent to which students are more engagement in their own learning. Actually using learner-centered approaches should help instructors to succeed more than using instructor-centered approaches (Blumberg, 2008). In other words, the more time and elaborations the faculty spend on, the more learner-centered activities offered to students. When faculty implement strategies focused on student-centered, those strategies work successfully and students are more engaged in their own learning. In Student-centered learning, the evaluation of faculty’s performance is not only limited in how many hours they spend on teaching, but also depend on how well faculty use SCL strategy successfully. Additionally, for teacher-centered learning system, annual final examination is the main method to assess students’ academic performance, rather than both formative and summative assessment in student-centered learning system. Student-centered learning is a tremendous paradigm shift comparing with teacher-centered learning. Hence, establishing a supportive institutional management system both for faculty and student is very important for faculty to implement SCL successfully.

Third, participants suggested improving the teaching and learning environment to match student-centered teaching. They argued that the big size of class (more than 50 students each class) and the seats in rows classroom were hard to implement student-centered learning, especially for group-discussion activity. Creating a student-centered learning environment is an important role for both administrators and faculty to implement SCL strategy successfully in higher education institutions. Both hardware and software teaching used in the learning environment influence SCL strategy implementation. In order to create a student-centered learning environment, the size of the class and the types of seats should be in favor of communication and discussion
between students and faculty as well as students. Mobile and composable tables and chairs are much better than fixed tables and chairs in rows. Computer and web-based, internet-covered, and multimedia technology supported classroom are much better than traditional classroom.

Last, as for faculty development program organization, the majority of participants suggested 5-day intensive workshop in summer vacation with blended training (face-to-face and online self-learning). Participants’ expectations for future program improvement expressed their needs for continuous training and brought insights about future faculty development program design. These expectations are suggested to consider for future faculty development program design and implementation.

The open-ended responses implies that the SCL faculty development program provides an atmosphere for faculty to think about widen and deeper factors which ensure SCL strategy and faculty development program to implement successfully beyond the scope of this study.

5.1.3. Participants’ learning. Results from the current study also indicated that participants made improvement in their knowledge, skills, attitudes and beliefs after completion of the program. The cognitive goal, psychomotor goal, and affective goal were all identified and evidenced that they reached the intended goal as the result of the program. The retrospective survey that focused on assessing participants’ learning change before and after attending the program indicated that participants made a great improvement in their learning as a result of the program. Even though some of participants stated that they had learned some SCL strategies before they participated in the program, they still stressed that this learning experience enhanced, deepened, clarified
their understanding of the strategy, and increased their confidence in implementing their previous learning. The overlapping open-ended responses enhanced the survey result that participants valued a great deal of SCL strategy at the end of the program. In this study, more than half of participants (28) stated that they valued most of some effective instructional technologies and strategies (skills), 27 of participants stated the advanced teaching philosophy of SCL (knowledge). Seventeen participants stated that the most valued they learned were some effective teaching strategies and the applications in their class (behavior). Fifteen participants expressed the positive attitudes toward teaching and learning transformation (attitudes). This finding is similar to the conclusions reached by the research of Pololi et al. (2001).

The most accepted criterion for measuring good teaching is the amount of student learning that occurs. There are consistently high correlations between students’ ratings of the “amount learned” in the course and their overall ratings of the teacher and the course. Those who learned more gave their teachers higher ratings (Cohen, 1981; Theall & Franklin, 2001). The results in this study indicated that there existed significant correlation between participants’ overall evaluation and their positive reaction at three dimensions. This finding supported the findings of Marsh’s (1982) and Gaubatz’s (2000) meta-analyses. It provided a strong support of the evidence that there were consistently high correlations between learners’ ratings of “amount of learned” in the program and their overall evaluation of the program. Furthermore, the results from this study provided strong evidence that the learning of participants contributed to overall evaluation of the program. In other words, the more participants learned through the program, the more positively was their rating for the overall evaluation of the program. While there is no
conclusive evidence that such learning improvements in participants learning through the program results in a better performance in their teaching practice, it is reasonable to assume that most of participants will use new skills of SCL strategies in their class in some ways. Whether or not this improves student learning in their classes is an area for future research. The open-ended responses also revealed that participants were curious to learn more new teaching technologies and they intended to use these new strategies in their classes in the future. Overall, given the results of this study, it is safe to speculate that participants made improvement in their knowledge, skills and positive attitudes as a result of participating in the faculty development program.

Among the learning of knowledge, skills, behaviors and the attitudes, the results indicated that skills contributed to overall evaluation more than others. Likewise, participants on the open-ended responses statistically rated what they learned as follows: SCL skills ranked the most frequently (Dixon & Scott, 2003; Howland & Wedman, 2004; Postareff et al., 2007), followed by knowledge, behaviors and attitudes. In this study the attitude was rated positively but not statistically significant compared with other indicators of learning at the question of the most valued through the program. This finding supported Guskey’s study of “Model of Teacher Change” and his finding that significant change in teachers’ attitudes and beliefs occurs primarily after they see evidence of improvements in student learning (Guskey, 1985; 1986). However this finding seemed more optimistic than the Stes’ (2010) review that 2 out of 6 studies revealed no significant difference of the teachers’ attitudes after the completion of the program. The finding implies that attitudes change comes later than knowledge and skills.
Evidence that the program has been effective in increasing student learning is prerequisite for a change in faculty attitudes concerning the efficacy of the program.

The results from this study also indicated that there was a significant difference between the academic rank of participants and their learning of knowledge and skills, but the academic rank was not related to a change in attitudes. The faculty who had ranks of assistant lectures reported their more learning of knowledge and skills than lecturers. However, since the number of the faculty who ranked assistant lecturers was small in this study, the result of the differences between the learning of knowledge and skills by rank may be regarded as suggestive in this finding. However, it is possible to explain this finding that faculty who have lower level of rank have more expectations to learn new knowledge and skills than advanced since they lack of experience of teaching. Faculty who have higher level of rank might have more self-confidence, more experience and a rich fund of knowledge so that they have lower expectations of learning new knowledge and skills. Further research on this topic is needed.

5.1.4. Participants’ behaviors. The results revealed that participants applied student-centered teaching behaviors they learned four months after completion of the program. The data showed that participants frequently used some of the student-centered behaviors. The open-ended respondents’ statement revealed that most of them had some specific plans to implement behaviors they learned in different ways in their teaching practice. The observation results enhanced the self-reported results that almost all participants used the newly learned behaviors in their class four months after completion of the program. Although each individual behavior was applied in different frequency by different participants, they all started to use what they learned through the program.
Overall, it is safe to conclude that the faculty started to change their traditional teacher-directed teaching approach transferring to student-centered teaching approach after completion of the program. Participants changed their teaching behaviors and became more student-centered rather than teacher-centered as a result of the faculty development program.

Specifically, each individual behavior was used with different frequency. According to Weimer’s (2002) five dimensions of behavior change, participants used behaviors differently at different dimensions as following order (from more to less): the function of content, the responsibility for learning, the role of instructor, the purpose and process of assessment, and the balance of power. One possible explanation for this finding is that Chinese faculty were used to primarily transferring content knowledge, and they started with shifting the function of content earlier than others. For Chinese faculty, they are familiar with transferring content to students. Starting with shifting the function of content is easier for them to shift than other behaviors change. They need to change their content delivery method from single-way memorization-oriented transferring to two-way object-oriented communication and facilitate students to understand why and how they learn the content. By contrast, other behaviors are strange for them. Certainly institutional system transformation at the university will also influence participants’ changing in each dimension. For example, for the dimension of the balance of power, if the university controls everything regarding the course policy instead of faculty involvement, the faculty cannot empower course policy decisions to the students in order to shift the balance of power. Therefore, the paradigm shift is heavily relying on the organizational support and leadership.
The observation results revealed similar findings as previous results regarding to participants’ reaction difference by courses they taught. The observation results indicated that 3 out of 22 SCL observed behaviors in the classes had significant difference with various courses taught by participants. The classes in science were significantly different from others classes observed. Although the number of observed behaviors which had significant difference with courses was small (3) among 22 behaviors listed in the checklist, this finding still supported the conclusion that participants who taught the courses in science consistently demonstrated a less positive attitude toward the SCL strategy. It is controversial for most faculty who teach courses in sciences that SCL strategy can be used for all courses. That is a common myth identified by Blumberg and Everett (2005). Blumberg (2008) asserts that all courses can have some learner-centered components. This does not require that all courses should be learner-centered on all components, but nearly every course can be learner-centered to some degree.

It is noted that more than 20 additional behaviors that were not included in the checklist were recorded by the observers among 13 different participants during two observations. This unexpected finding reflects that participants actively dedicate to change their teaching paradigm to student-centered approach in their teaching practice. Similar evidence was found in Kahn and Pred’s (2002) study that the teachers were seeking new ways to improve their teaching through the use of technology after completion of the program. Their analysis revealed that most teachers were utilizing technology and they were seeking new ways to improve their teaching with technology. The observation result in this study enhanced the finding that participants were
intentionally seeking new ways to transfer their teaching method to a student-centered approach to instruction except the common student-centered behaviors.

Considering that the sample of classroom observations were selected randomly and two observations of each class were conducted, with the first observation announced and the second time unannounced, the results of the observations were robust and moderate. Results of the observation showed that participants at XEU used what they learned in their teaching practice and transitioned to SCL approach after completion of the faculty development program.

Nevertheless, change is an ongoing process; it is time consuming and cost consuming which coincides with challenges. This finding is different from Ebert-May et al. (2011)’s study. In their study, the results indicated that the majority of participants applied teacher-centered rather than student-centered behaviors in their science teaching class after completion of the program. Ebert-May et al. argued that practical matters of time, practical aspects of teaching implementation, and student attitudes and evaluation were cited as substantive challenges influencing participants’ interest and motivation to implement SCL strategies. Although this finding is contrary for Ebert-May et al. (2011)’s finding, it implies that trained participants will not to use what they learned in their teaching practice over time if there is no systematic and supportive environment and institutional system. In other words, although the results in this study reported participants used what they learned through the program after completion of the program, it does not mean that they can maintain the change over time. The current change is not enough; it needs incremental and comprehensive change in paradigm (Harris & Cullen, 2010). There exists uncertainty for participants’ future performance over time. The
findings suggest that positive behavior changes requires more encouragement and systematic supports from both the college level and department administration to be sustainable.

5.2. Implications

5.2.1. Implications for faculty development program designed to transition to student-centered approach application in China. Institutions of higher education are being challenged on all fronts and are attempting to change the ways of education in response to these challenges. The need for moving to a student-centered teaching will become increasingly crucial for all higher education practitioners. This initial study in China implies that faculty who work at Xi’an Eurasia University, were curious to learn new teaching strategies of SCL, and the faculty development program designed to transition to SCL approach was accepted by Chinese faculty. The program was designed to transition to a student-centered approach is an innovative way for Chinese university leaders to rethink the nature of education and the future trend of education. Leadership is crucial for higher education institutions to make a right decision and a major paradigm shift in order to improve the declining quality of higher education. A major paradigm shift, not incremental change, is necessary in order for Chinese higher education institutions to meet the increasing challenges of the changing world.

5.2.2. Implications for faculty development program improvement. The findings of the faculty development program evaluation in this study suggest several ways for improving the faculty development program to a great extent.

First, change occurs slowly and one must be patient when attempting to change faculty’s attitudes. The result indicates that participants most valued through the program
are skills and knowledge more than attitudes. The finding suggests that faculty
development program developers should be patient to obtain the faculty’s attitudes and
belief change until the faculty see improvement in the actual outcomes in students’
learning. Many of the faculty developers try to gain acceptance, commitment, and
enthusiasm from faculty and administrators prior to the implementation of new practices
and strategies in the hope that this will increase the programs acceptance. To do so, will
erode confidence and lead to frustration. A significant change in faculty’s attitudes will
only occur primarily after they gain evidence of improvement in student learning
(Guskey, 2000).

Second, faculty need to overcome resistance and myths about Student-Centered
Learning. The open-ended statements reported some myths and anxieties about SCL. The
myths and even negative attitudes towards the program should be brought to the forefront.
Although the myths and negative attitudes towards the program were fewer than positive
reactions, negative attitudes will create an obstacles and resistance to the paradigm shift
and it will be expanded to be a critical influence factor that affect the new strategy
implementation over time. The few myths and negative opinions stated by participants in
this study were likely the common myths about learner-centered teaching presented by
Blumberg and Everett (2005). The myths about learner-centered teaching include that it
cannot be used in science courses, it requires small class, it requires upper-level or
graduate classes, it reduces the content covered, and it reduces the rigor of the courses. If
both program developers and program designers ignore these myths, it will increase
participants’ resistance to the philosophy transformation. Research shows that
epistemological beliefs about teaching are an important predictor of the success and the
long-term viability of changes in teaching (Brownlee, Purdie, & Boulton-Lewis, 2001; Polich, 2007). Hence, participants need to establish trust in the SCL philosophy that SCL approaches result in more student learning. In order to overcome these common myths or resistance and establishing trust in SCL philosophy, Blumburg asserts some suggestions (2008) including: faculty should make an incremental change plan starting with one specific strategy in one course to make a small change; faculty should use formative assessment techniques to examine the effectiveness of change and make ongoing improvements; to work with a partner, share the changes with peers, and consult experts or seek help from experienced colleagues; faculty should get buy-in from student.

Students can be powerful allies in providing evidence that the paradigm shift to student-centered learning is effective in improving their learning and engagement in their studies.

Third, the success of faculty development program implementation should coincide with the systematic institutional support from the entire organization. The overlapping responses of institutional system reconstruction were stated by participants for improving the program. Participants stated that the systematic institutional support such as faculty and student assessment system redesigning, teaching and learning environment improvement, student attitudes, class size and teaching load directly influenced the SCL new strategy implementation process. The results provide support for previous speculation about multiple challenges that affected the use of SCL methods in participants’ classroom (Ebert-May et al. 2011). The findings suggest that the faculty development program should go beyond changing the faculty themselves and extend to the administrators and the entire campus training to create a supportive transformation
climate. The corresponding institutional system aligned with SCL should be redesigned to support faculty to implement new strategy smoothly and successfully.

Fourth, the barriers which influence SCL implementation should be addressed. The open-ended response showed that such factors as overloaded teaching hours, lack of time and energy to prepare SCL course, students attitudes toward SCL, lack of support and cooperation from the organization and staff, top-down controlled course policies, and traditional faculty and student evaluation systems influenced the success of program implementation. Such influencing factors should be resolved to ensure the success of the program implementation. Additionally, the physical teaching and learning environment should be reconstructed to match the SCL learning environment. In summary, creating a supportive culture for SCL implementation is essential to succeed in new paradigm shifting.

Finally, ongoing and multiple training activities should be continued to support, maintain and enhance the learning and facilitate changes. Participants suggested that the continued training should be subject focused to facilitate the interest of each participant who worked at different subject areas. Demonstration training based on a specific discipline or a particular course is welcomed. The organization of the faculty development program can be diverse with hybrid learning, experiential learning, and academic conference exchange. Five-day intensive workshops conducted during summer vacation is preferred for most of participants. Scholarship of Teaching and Learning is welcomed for future training.

5.2.3. Implications for future research. Considering the faculty development program is an ongoing process, this study stressed the impact on faculty instead of the
organization and the students. A follow-up and longitudinal research is still needed to track the effectiveness evaluation at the result dimension including the impact on the organization and the impact on students’ learning achievement over time. Additionally, different types and levels of universities in China may have different results when using the same approach in the teaching and learning practice. More types of university contexts including both private and public universities need to be added to the research sample in the future research. More samples should be considered to determine the program distribution effect around the larger scope of within or outside of one private university.

The SCL behavior observation in this study was only addressed to how many behaviors participants applied after completion of the program in their classroom. The further research is suggested to determine the degree of the SCL teaching that participants’ change transferred to. However, because the positive findings of the program were found in one individual private university in China, the evidence should be viewed as suggestive and subject to further investigation when a faculty development program that focuses on student-centered learning is conducted on a larger scale at other institutions.
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Appendix A

Appendix A1.1.

Introduction of Xi’an, China

Xi’an is one of the oldest cities in the world with a vivid and rich history and culture. It is not only the birthplace of the Chinese Nation, but also the birthplace of human civilization in Asia and the cultural center of prehistoric civilization. The city of Xi’an (population 8 million) was the first Chinese city to open up its doors to the Ancient world, not in 1980 under the "Open Door" policy but in fact during the Tang dynasty when Xi’an blossomed as the first stop on the Silk Road. Over a period of more than 2000 years, Xian was the capital for eleven dynasties. Along with Rome and Constantinople, this city was a world leader in culture and trade and played a vital role in bridging the gap between east and west.

As a result, the city has a large student population who contribute to the cultural life of the city. Xi'an is powerful in terms of its scientific and technological strength, the comprehensive strength ranks second in China. Xi'an boasts 727 scientific research institutions; technical personnel constitute 26.4% of the total working staff in Xi'an. The proportion of technical personnel in Xi’an is the highest in China. A batch of advanced experimental bases and testing centers has the capability of assimilate, digest and transfer state-level and world-level technologies. The applied technologies in the fields of aeronautics, aerospace, mechanics, electronics, meter and instrument, optics, textile and power equipment are in the leading position in China. Xi'an is one of the important scientific research and higher education bases in China. There are 109 higher education
institutions including 19 adult higher education schools with 1.38 million college students in ShaanXi province in total. Among 90 regular higher education institutions, there are 30 private universities (8 regular undergraduate-level private universities like XEU, 10 associate diploma-level colleges and 12 independent institutions which were founded on the base of public universities with independent campus, independent name including part words of the name of public university, independent diploma issue etc.) with 300 thousand students (ShaanXi Province Education Development Statistics Bulletin, 2011); most of the universities are located in Xi’an. Zhang (2009) reported that ShaanXi provincial private university was ranked No. 1 of the whole Chinese private university. Xi’an Eurasia University is one of the 8 private universities in ShaanXi province.
Appendix A1.2.

Mission and Vision of Xi’an Eurasia University

**Mission:** To Provide High-quality Education Services

By means of innovation and reform in educational practices, to prepare the students for their future careers and to win public praise for their excellent performance in the workplace after graduation.

To encourage and support teaching staff toward excellence in course development and creative instruction.

To build a cultural landscape within the campus and through cooperation with the region and its industries, to strengthen our social impact on the region.

To work towards student satisfaction, to win employees’ trust, to cultivate respect among peers, to achieve social recognition, and to reassure the government

“Education is a kind of service. We emphasize a sincere spirit of service, a fine culture of service and an exquisite quality of service. Our education services are for our students, for the region, for society and for our country. At the same time, we ensure that our employees and shareholders are satisfied. This mission statement is based on our profound understanding of China's purpose of higher education, as well as our own active and sensitive response to the development and reform initiatives of higher education in China.”

**Vision:** To Be the Most Respected Private University in China
To win the respect of students and parents by providing high-quality education and services

To win the respect of other institutions by exploring actively into education

To win the respect of employers by improving student employability and cultivating professionalism and supporting graduates’ continued development

To win the respect of society by building an outstanding organizational culture

**Core values:** responsibility, innovation, partnership and usefulness

**Responsibility.** Xi’an Eurasia University is not an independent entity as it shoulders responsibility for various stakeholders. Hence, we lay stress on responsibility, pragmatism and dedication in the whole management system including recruitment, teaching, student management, employment service activities and so on. We resolutely believe that irresponsible universities will eventually be washed out by the society and irresponsible staff phased out by our university.

**Innovation.** The continuous ability to innovate is central to ensuring Xi’an Eurasia University’s survival and future development. The foundational goal for XEU is to leave its mark in history and to move towards a glorious future. We are opposed to outdated and conservative ideas, as well as empiricism, pessimism, conservatism and dogmatism. For Xi’an Eurasia University, any reform that can better adapt to and meet the
needs of its students and the community - and therefore help the university build its reputation - can be called innovation. At the same time, the innovation we advocate is based on two elements - education and market laws - and must be consistent with the current direction and situation of our university.

**Partnership.** We stress partnership in our staff relations and in the teacher-student relationship, emphasizing equality, cooperation, and human-based management; we are committed to the pursuit of win-win situations coordinated by internal and external relevant parties. We believe that only through respect, tolerance and sharing will we unite in faith and with dedication; only when we are with one heart, one mind and one effort will we build a better university together. This partnership will be reflected in the following areas: We advocate inter-departmental teamwork and mutual support; We encourage faculty and staff to cooperate and support one another; We attach importance to partnership with competitors; We stress partnership with all relevant parties in the upstream and downstream of the education value chain; We emphasize partnership with institution at home and abroad.

**Usefulness.** Xi’an Eurasia University is committed to cultivating outstanding practical, skills-based, application-oriented individuals who can rapidly meet the needs of the market. Our school characteristics, professional settings, curricula offerings, teaching methods, student
development goals and community service objectives all regard effective practical value as criteria.

Achievements of the university

- China's top ten million people in well-known private colleges and universities
- China's top ten brands of Private Colleges and Universities
- China's top ten best private universities
- China's famous private universities in the top ten million people in
- National Top Ten aesthetic education institutions, private
- National Student Employment strength of the top ten private colleges and universities
- National Student Employment Demonstration Private Colleges and Universities
- National Employment force private institutions to the core of model schools

National employment force private institutions
- Core Experimental University
- National Student Employment Demonstration Private Colleges and Universities
- National Student Employment strength of the top ten private colleges and universities
- China’s top ten most outstanding employment prospects of Private Colleges and Universities. Retrieved from: http://www.eurasia.edu
Appendix A1.3.

Assessment of the need of faculty’ instructional development at Xi’an Eurasia University

A closed and open-ended questionnaire survey of need of faculty’ instructional development was administered to 227 full-time faculty by the developer at XEU in November 2010 before the faculty development program started. Two hundred twenty five of 227 faculty responded. The questionnaires consisted of 20 closed and 4 open-ended questions covering basic information of faculty, faculty development, training program, and the expectations of the faculty development program.

Responses came from 6 different disciplines of the university, 78% of the faculty were female and 21% were male. Fifty two percent of participants were at the age of between 30-40 year-old, 38% of them were younger than 30 year-old, 7% of them were at the age of 40-55 year-old, and only 3% of them were at the age of older than 55 year-old. Sixty four percent of them had Master’s degree, 35% of them had Bachelor’s degree. Sixty four percent of participants had the title of lectures, 27% of them were teaching assistant, 4% of them were associate professors, and only 1% of them were professors.

The following chart showed the importance order of 26 different types of classroom instructional approaches which the faculty wish to attend from the higher to the lower:
Among 26 different types of teaching approaches, case teaching were rated the highest, experiencing teaching, being humors in classrooms, applying games and simulation, small groups and teamwork, team teaching, question-based learning, discovery learning, laboratory teaching, actively learning in large classrooms or small classrooms, facilitating discussion, argumentative questions in classroom teaching, and so on were rated followed in turns. Teaching in large classrooms was rated the lowest. This result showed the strong positive attitudes towards student-centered teaching and learning approaches.

For fostering students’ ability, the result was displayed as follows:
Oral communication skills, critical thinking, and analytical reading ability were rated as the first three. Basic knowledge of writing, global perspective, basic knowledge of information, quantitative analysis ability were followed, citizen consciousness, academic ethics and morality, basic knowledge and ability, visual presentation capability, and ethical implications of technological development were rated as the last five.

As for course syllabus and course design, designing activities, assignments and project was rated the highest one. Combination of objectives, measures, and assessment was followed rated as the second. Writing standard syllabus and new course syllabus design were rated lower than designing research project to student. The process of course development was rated the lowest. This result implicated that participants couldn’t have clear understanding of the structure and knowledge base of new syllabus designing.
As for assessment techniques, effective and objective exam and effective grading were rated as the first two. Classroom assessment techniques and standardized assessment was rated as the third. Assessing various activities, effective result announcement, project evaluation, effective thesis exam, and evaluation for team work were followed from higher to lower.

For IT instructional technology, information-based instruction technology was rated the highest, applying internet to teach and learn was followed as the second, development and teaching of composite courses which apply traditional and information technology, developing online course resources, online assignment evaluation, developing course webpage, and online discussion and chat were rated from higher to lower in turns.

As for relationship between teacher and student in teaching and learning process, encouraging students was rated the highest. Setting up relationship with students, teach students how to learn, effective guidance from teachers, students’ learning styles, EQ were followed from higher to lower.

Classroom management skills were rated from higher to lower as follows: classroom culture, encourage and promote academic ethics, management of difficulty discussion, and to treat difficult student.

For teacher career issues, diversification of overall design of teaching method was rated the highest. Finding and strengthening their own teaching style, maintaining their enthusiasm for teaching, teaching evaluation, advanced university learning and teaching practice, to development the working relationship between colleagues, organizing effective teachers conferences, setting up teachers’ website, colleagues teaching
evaluation, writing down reflections on their own teaching, and introduction on university learning and teaching research and development were rated from higher to lower in turns.

The statistics showed that participants preferred training that included methods of questions, exercises and case-based learning, lectures, group interaction with discussions. In other words, participants preferred to student-centered learning as students themselves. They also indicated that they preferred a training format that consisted of short-term training for several days during the holidays.

Among the opening questions, participants suggested on types of training program, trainers’ preferences, and other specific suggestions as follows: participants requested that training would help them communicate with students efficiently using modern communication technologies; they were expected that teaching methodology and self-improvement courses, instructional technology would be included in the program; participants also expected to perceive knowledge and information related to international cooperation, international affairs, academic frontiers, and practical teaching methods through training program; they expected to be brought insight into the academic, technological frontiers; participants indicated a preference for people who had practical experience, or who were experts or scholars in teaching and research fields to be trainers; they also suggested that the training program design should be not only top-down but also bottom-up, more relaxed to participate the program instead of much pressure and burdens, and the development stage of different schools and differences among teachers should be considered; the Training should also pay particular attention to the needs of young faculty; additional suggestions such items as increasing outward training opportunities,
strengthening organizational culture, constructing and utilizing various activities to increase collective cohesion were proposed.

In summary, the result of this needs assessment provide explicit and adequate information about what participants expected to obtain from the faculty development program. It was common that some of the items might be rated illogically since they did not learn the corresponding knowledge and concept. Nevertheless participants expressed their obvious intendances of experiencing and exploring Student-centered teaching and learning methodologies through this faculty development program.
Appendix A3.1.

Introduction of the faculty development program at Xi’an Eurasia University, China

XEU has increased enrollments dramatically since 1997, rising from about 600 students to a total of more than 22,000 students today, coming from different region of the whole country at XEU. Half of the students come from the local province of ShaanXi, another half of them come from different provinces of China, there is no international students in the university. Half of the students are males and another half of the students are females. All students are required to live on campus according to the regulation of the government. XEU is a nonprofit private university, offering four-year undergraduate programs and 3-year vocational programs accredited by the Ministry of Education of China. Seventy percent of the students are undergraduates, 30 percent are associate diploma program students. There are 11 schools with more than 40 different programs under the university, these are: School of Logistics and Trade, School of Accounting, School of Business Administration, School of Finance, School of Journalism and Communication, School of Architecture Engineering, School of Information Engineering, School of Foreign Languages, School of Arts and Design, School of International Studies, and School of Science and Technology.

Now there are 400 full-time faculty and more than 700 part-time faculty at the university. Among the full-time faculty, 78 percent of the faculty are female and 22 percent are male. Eighty nine percent of the faculty are under 40 year-old, 8 percent of the faculty are 40 to 55 year-old, and 3 percent left are older than 55 year-old. Sixty five percent of the full-time faculty hold the Master’s degree and 35 percent of the faculty
have Bachelor’s degree. Most of the faculty have the title of lecturer or assistant teacher; only 4 percent of the faculty are associate professors and professors.

The faculty development program is a two-year workshop given by American educational experts’ team, which provide faculty with opportunities to explore new instructional technologies and techniques, learn new skills and to engage in collegial discussions about teaching and learning in higher education. The primary objective of all of the workshops is the dual goals of improving student engagement and teaching in an effort to improve student learning. All of the trainers are full-time faculty members at universities in the United States and have earned doctoral degrees in their respective areas of specialization. Several of the trainers have previously visited China as presenters at international conferences or as consultants to Chinese universities. Workshops have been organized around two separate but overlapping themes: (1) Using instructional technology to enhance student engagement and learning, and (2) the effective use of instructional techniques that increase student engagement and improve student learning. Workshops are often only a first step in this process of improving instruction. Participants need to follow-up and try the newly learned instructional technique or instructional technology in their own teaching. Participants must also engage in reflection and critical judgment and ask the question, “Has this technique or technology enhanced my teaching, increased student engagement and contributed to more effective student learning?”

Demonstration teaching is also one part of this program to lead the faculty and students to experience the real student-centered teaching environment on the basis of classroom teaching.
Individual consultant service was offered by the trainers to the faculty at any time either by face-to-face or by email & online communication medias.

Additionally, this faculty development program was designed the special session for the administrators during the ongoing workshops. The primary objective of the administrators’ session is to help administrators who work at the university clearly understand the new teaching strategy and support faculty who participate the program to apply what they learned in their practical classroom so that they can reach the original goal of the program.

One hundred faculty were selected to participate in the training program. Each training program was offered three times a year for a period of ten days.

Classes were team taught by two American trainers, an expert in instructional technology and a curriculum and instruction specialist. A supervising consultant was available to provide day-to-day supervision and consultation to the administration and staff of the CTE. In addition, the CTE staff and members of the XEU faculty supported the training programs.
Appendix A3.2.

Participant Evaluation Form for Faculty Development Program of SCL at XEU

西安欧亚学院“以学生为中心的教师发展项目”参训者评估调查表

Instructions:

I am writing to ask if you would take time to complete the following survey that has been developed by the CTE faculty. This survey provides evaluation information about what you learned during overall training seminars through the faculty development program that was designed to prepare you to make the transition from teacher-centered to student-centered instruction. Your honest and accurate response is important and the results of the survey will help us determine how we can better improve our service.

Your participation in this survey is voluntary: you can withdraw this survey before you submit it. The survey will take about 20 minutes of your time. Your answers will be completely anonymous and will be kept confidential. The survey results will only be used for the purpose of research and program improvements. At the conclusion of the study, the results of the survey will be shared with you. This survey is composed of four parts.

导语：非常期盼您有时间完成下列由学院卓越教学中心设计好的问卷调查。此调查表提供了有关您在参加所有“旨在帮助您从以教师为中心的教学转变到以学生为中心的教师发展项目”期间所学知识技能的评估信息。您诚实、准确的完成此问卷调查的每一项内容以及此调查的最终结果对于帮助我们更好的为您提供教师发展服务非常重要。

此项调查属于自愿参加，您可以在您提交之前任何时候选择退出参与调查。这项调查大约占用您20分钟时间，您参加此项调查的所有信息都是匿名的并且为您
严格保密确保不对外泄漏您的个人信息，此项调查目的仅仅是为了研究和项目提高之用，研究的结论也会供您分享。调查共有四个部分组成。

**Part I. Basic Information. Please select the most appropriate item.**

**第一部分：请选择最适合您的选项。**

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>1.Gender 性别</td>
<td>0= male 男性, 1= female=女性</td>
</tr>
<tr>
<td>2.Age 年龄</td>
<td>1=under 30（1=1-29 岁以下）, 2= 30-39（2=30-39 岁之间）, 3= 40-49（3=40-49 岁之间）, 4= more than 50 （4=50 岁以上）</td>
</tr>
<tr>
<td>3.Title 职称</td>
<td>1= professor（1=教授）, 2= associate professor（2=副教授）, 3= lecture（3=讲师），4= assistant（4=助教）</td>
</tr>
<tr>
<td>4. Years of teaching 从事教学工作时间</td>
<td>1= 3-5 years（1=3－5 年），2= 6－9years（2=6－9 年以上）3= 10-15years, 4= more than 15years</td>
</tr>
<tr>
<td>5. Courses of teaching 所教课程</td>
<td>1=Liberal art（1=文科类），2= Science（2=理科类），3= Engineer（3=工程类），4=Business（4=商科类），5=others（5=其它）</td>
</tr>
</tbody>
</table>
Part II. What you learned through the faculty development program about student-centered instruction. Please indicate the extent to which you agree or disagree with the statement by click the corresponding number according to the following scales.

第二部分：关于您所学到的以学生为中心的教学的知识和技能。请您按照下列量表选出您对每一项陈述的同意程度并标出相应的代码。

Level of Agreement Scale: 1= strongly disagree; 2= disagree; 3= somewhat disagree; 4= neither agree or disagree; 5= somewhat agree; 6= agree; 7= strongly agree

同意程度：1= 强烈不同意 2= 不同意 3= 某种程度上不同意 4= 无法确定 5=某种程度上同意 6= 同意 7= 强烈同意

6. I did not know about the student-centered approach before participation of the CTE program. 我在我参加 CTE 培训项目前不了解有关以学生为中心的教学方法。

   强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意
   1 2 3 4 5 6 7

7. I learned the definition of student-centered teaching through the CTE program. 我通过 CTE 项目学到了以学生为中心的教学的定义。

   强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意
   1 2 3 4 5 6 7

8. Student-centered teaching approach can be used in any sized classrooms. 以学生为中心的教学方法可以被用到任何规模大小的教室。

   强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意
   1 2 3 4 5 6 7
9. Student-centered teaching approach can be used in any subject or discipline. 以学生为中心的教学方法可以用于任何学科和课程。

10. I think student-centered teaching can make students more actively engaged in their own learning. 我认为以学生为中心的教学能够使学生更积极主动地投入到自己的学习。

11. Designing a student-centered course syllabus is essential to implementing student-centered teaching approach. 设计以学生为中心的教学大纲是实施以学生为中心的教学最基本的要素。

12. I understand the theory and rational for student-centered learning. 我理解了以学生为中心的学习的基本原理和基本理论。

13. I agree that student engagement is a valid measure of student learning improvement. 我同意学生投入是学生学习提高的一种有效措施。
14. I understand basic theories of intrinsic and extrinsic student motivation. 我理解学生内部动机和外部动机的基本理论。

15. I am aware of the different learning theories that support student-centered learning. 我意识到了支持以学生为中心的不同的学习理论。

16. I understand the value of having students work in cooperative learning groups. 我理解让学生在合作学习小组工作的价值。

17. Vygotsky's theory of the social construction of meaning helped me understand the rationale for student–centered learning (SCL). Vygotsky 的社会建构理论的含义帮助我理解了以学生为中心的学习原理。

18. I think Bloom’s Cognitive Domain Model is useful in planning and assessment of student learning. 我认为Bloom的认知领域模型对规划和评估学生学习是有用的。
19. I learned how to use instructional technology to enhance teaching and learning. 我学会了怎样使用教学技术增强教学和学习。

   强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

20. I learned how to design a student-centered syllabus using ABCs’ (Audience, Behavior, Criterion) of Behavioral Objectives. 我学会了怎样使用 ABC 行为目标法设计以学生为中心的教学大纲。

   强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

21. I learned sufficient learning theories to support my deep understanding of why we use student-centered teaching. 我学到了足够的学习理论支持我深刻理解为什么我们要使用以学生为中心的教学。

   强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

22. I learned how to adjust Powerpoints for student-centered teaching. 我学会了怎样调整 PPT 设计以适用以学生为中心的教学。

   强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

23. I learned how to use Blackboard to support my student-centered instruction. 我学会了怎样使用 BB 系统以支持我的以学生为中心的教学。

   强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意
24. I learned how to write a student-centered lesson plan. 我学会了怎样撰写以学生为中心的教学计划。

强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

25. In student-centered classroom, the instructor plays a role of a facilitator, a recorder, a reporter, and a timekeeper. 在以学生为中心的课堂里，教师扮演着促进者、记录者、报告者和时间管理者的角色。

强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

26. I learned how to use KWHL Chart to identify the students’ interest and need for effective lesson plan. 我学会了如何使用 KWHL 表识别学生对于有效的教学计划的兴趣和需要。

强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

27. I learned the techniques of forming groups in creating student-centered learning environments. 我学会了使用小组构成技术创造以学生为中心的教学环境。

强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

28. I learned strategies for developing mini-lectures to be used in large class sizes. 我学会了在大规模课堂使用小讲座的策略。

强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

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29. I learned how to create flip teaching in my classroom. 我学会了怎样在我的教室创建翻转教学。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

30. I learned how to use Think-Pair-Share activities to organize the student-centered activities. 我学会了怎样使用“思考－结对－分享”活动组织以学生为中心的教学活动。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

31. I learned, using Web-based communication tools to increase effective communication between student and me. 我学会了使用基于网络的沟通技术增加我与学生之间的有效沟通。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

32. Instructional technology can effectively support my instructional objectives. 教学指导技术能有效支持我的教学指导目标。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

33. I learned how to write a teaching philosophy concerning student-centered teaching. 我学会了怎样撰写以学生为中心的教学理念。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意
34. I learned discipline-based pedagogy for improving effective teaching behaviors in subject area classrooms. 我学会了基于学科的教学方法提高在具体学科课堂的有效的教学行为。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

35. I learned classroom observation strategies that can be used to assess the student-centered teaching. 我学会了用于评价以学生为中心的教学的课堂观察策略。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

36. I learned both quantitative and qualitative assessment techniques to design instrument that focus on student-centered learning. 我学会了用定量和定性评价技术设计以学生为中心的学习测量量表。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

37. I learned how to gather evaluation data and analyze these data for student-centered teaching improvement. 我学会了怎样搜集和分析数据以提高以学生为中心的学习效果。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

38. I learned theories and techniques for effective facilitating and coaching student-centered teaching. 我学会了有效促进和指导以学生为中心的教学的理论和技术。
39. I learned formative and summative assessment techniques for student-centered teaching improvement.

强烈不同意  不同意  某种程度不同意  无法确定  某种程度同意  同意  强烈同意

1  2  3  4  5  6  7

40. I learned about SoTL (the Scholarship of Teaching and Learning) and how to use my classroom and discipline as a source for research and publications.

强烈不同意  不同意  某种程度不同意  无法确定  某种程度同意  同意  强烈同意

1  2  3  4  5  6  7

Part III. The following items assess your use of what you learned through the faculty development program. Please indicate how frequency with which you use what you learned in your teaching by click the representative number according to the following scales:

强烈不同意  不同意  某种程度不同意  无法确定  某种程度同意  同意  强烈同意

1  2  3  4  5  6  7

Level of Frequency Scale: 1= never; 2= rarely, in less than 10% of the chances when I could have; 3= occasionally, in about 30% of the chances when I could have;
4= sometimes, in about 50% of the chances when I could have; 5= frequently, in about 70% of the chances when I could have; 6= usually, in about 90% of the chances when I could have; 7= every time

频率程度：1=从来没有 2=很少（少于10%的使用机会）3=偶尔（大约30%的机率）4=有时（大约50%的机率）5=频繁（大约70%的机率）6=通常（大约90%的机率）7=每次

41. I state course policies in the syllabus including assessment methods, and deadlines and discuss them with students to get agreement before I make final decision. 我在教学大纲中陈述了包括考核方式、作业截至期限在内的有关课程规定，在最终确定这些规定之前我与学生们进行了讨论并达成一致。

从来没有 少 很少 偶尔 有时 频繁 通常 每次

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

42. I upload the course syllabi to BlackBoard in order to enhance students understanding of the course objectives. 我为了增强学生对课程目标的理解将课程教学大纲上传到了 BB 系统上。

从来没有 少 很少 偶尔 有时 频繁 通常 每次

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

43. I use BlackBoard to support student-centered learning. 我使用 BB 软件系统支持以学生为中心的学习。

从来没有 少 很少 偶尔 有时 频繁 通常 每次

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
44. I use web-based communication tools (e.g. Email, Discussion Board, BB, QQ, WeChat, etc.) to ensure convenient access to students. 我使用基于网络的沟通工具（例如电子邮件，讨论版，BB，QQ，微信等）以确保与学生方便沟通。

从来没有  非常少  偶尔  有时  频繁  通常  每次
       1     2     3     4     5     6     7

45. I use Think-Pair-Share activities in my classroom. 我在我的课堂使用“思考-结对-分享”活动。

从来没有  非常少  偶尔  有时  频繁  通常  每次
       1     2     3     4     5     6     7

46. I form learning groups in my classroom. 我在我的课堂构建学习小组活动。

从来没有  非常少  偶尔  有时  频繁  通常  每次
       1     2     3     4     5     6     7

47. I use flip teaching strategies in my classroom. 我在我的课堂使用翻转教学策略。

从来没有  非常少  偶尔  有时  频繁  通常  每次
       1     2     3     4     5     6     7

48. I use formative assessment in my teaching process. 我在教学过程中使用形成性评价技术。

从来没有  非常少  偶尔  有时  频繁  通常  每次
       1     2     3     4     5     6     7

49. I use video scenarios, brief narratives, students’ own experiences, newspaper articles, graphs, and even data sets to help student apply difficult concepts to real-world problems.
I use video scripts, summary narratives, student self-experiences, newspaper articles, diagrams, even databases to help students apply difficult concepts to real-life problems.

I find ways to acknowledge/reward those who actively participate in class. I look for opportunities to reward students who participate actively in class discussions.

I invite student groups or partners to present assigned readings and lead the class in discussion.

I administer some kind of check for understanding throughout the class and at the end of class to assess student mastery of class objectives.

I answer questions working with small groups, guiding the learning of each student individually.
54. I conduct mini-lectures with groups of students. 我实施学生小组型小讲座

从来没有 很少 偶尔 有时 频繁 通常 每次
[1 2 3 4 5 6 7]

55. I roam around the classroom and provide student feedback. 我在教室里漫步行走并给学生提供反馈。

从来没有 很少 偶尔 有时 频繁 通常 每次
[1 2 3 4 5 6 7]

56. I use student-centered approach in large classes. 我在大课堂使用以学生为中心的教学方法。

从来没有 很少 偶尔 有时 频繁 通常 每次
[1 2 3 4 5 6 7]

57. I use peer observation and classroom interviews strategies to enhance my student-centered approach. 我使用同伴观摩和课堂访谈技术以增强我的以学生为中心的教学方法。

从来没有 很少 偶尔 有时 频繁 通常 每次
[1 2 3 4 5 6 7]

58. I utilize quantitative assessment instruments that focus on student-centered learning. 我使用以学生为中心的定量评价测量技术。

从来没有 很少 偶尔 有时 频繁 通常 每次
[1 2 3 4 5 6 7]

59. I observe my colleague teach a class and collect qualitative data using anecdotal techniques. 我观察同事所教的课程并且用轶事技术搜集定性数据。
60. I serve as a trainer of student-centered teaching approach for my colleagues. 我作为同事的培训师培训他们以学生为中心的教学方法。

Part IV. The following items assess your reactions to the faculty development program. 下列项目旨在评估你对此教师发展项目的反应。请按照下列量表指出你对各项陈述的同意程度并选出相应的代码。

Level of Agreement Scale: 1= strongly disagree  2= disagree  3= somewhat disagree 4= neither agree or disagree  5= somewhat agree  6= agree  7= strongly agree

同意程度: 1= 强烈不同意  2= 不同意  3= 某程度上不同意  4= 无 法确定  5= 某程度上同意  6= 同意  7= 强烈同意

61. The trainers were friendly and created a warm, supportive learning environment. 培训师很友好，为我们营造了温暖，支持的学习氛围。

62. The trainers encouraged me to learn, participate and try new activities and methods. 培训师鼓励我去学习，参与并尝试新的活动和方法。
63. I had an opportunity to interact with and get to know the trainers in and out of class.
我有机会在课堂内外与培训师交往并进一步了解对方。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

64. I felt comfortable in asking the trainers any questions during the class sessions. 我觉得在课堂期间向培训师提问任何问题都很融洽愉快。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

65. I had the opportunity to participate in class discussions and activities. 我有机会参与课堂讨论和活动。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

66. I was given the opportunity to demonstrate in class what I had learned. 培训师给我提供在课堂上展示我所学知识的机会。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

67. I was able to choose learning projects, activities and group presentations. 我能够（有权利）选择学习项目、学习活动以及小组发言。

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意
68. I had some choice in what I learned and how I learned it. 在我所学习内容以及我如何学习方面我有一些选择（权）。

强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

1 2 3 4 5 6 7

69. I prepared for the training program and class sessions by reading and completing homework assignments. 我通过阅读和完成课后作业为培训项目和培训课程做准备。

强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

1 2 3 4 5 6 7

70. I had a positive change attitude about the value of student-centered learning as a result of the training program. 通过此培训项目我对以学生为中心的教学的重要性有积极转变的态度。

强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

1 2 3 4 5 6 7

71. The content delivered by the trainers helped me understand student-centered teaching. 培训师提供的课程内容帮助了我理解以学生为中心的教学。

强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

1 2 3 4 5 6 7

72. What I learned is useful for my professional development. 我在此培训项目所学到的知识与技能对我的职业发展有用。

强烈不同意 不同意 某种程度不同意 无法确定 某种程度同意 同意 强烈同意

1 2 3 4 5 6 7

73. What I learned increased the confidence of being an excellent teacher and motivated
my interest to student-centered teaching. 我通过此项目培训所学的知识技能增加了我成为一名优秀教师的信心，也激发了我对以学生为中心的教学的积极性。

74. The activities in which I engaged in all seminars were carefully planned and well organized. 我在所有培训期间所参与的活动都是（培训师）经过认真规划和精心组织的。

75. The trainers for the seminars facilitated my understanding of student-centered learning. 讲习班的培训师促进了我对以学生为中心的学习的理解。

76. The refreshments and drinks were adequate and the classrooms were comfortable for the activities involved. 课间茶点、饮料以及教室环境是很舒服的，有利于我投入各种学习活动。

77. This training program fit my understanding of our professional development plan. 此项培训与我对组织发展规划的理解是相匹配的。
78. This programs and activities are aligned with our university mission, vision and goals. 此培训项目和活动与我们学院的使命、愿景和目标是相匹配的。

79. The administration and faculty of our school or departmental level support me to implement student-centered teaching. 我所在的分院或系部的管理层以及员工支持我实施以学生为中心的教学。

80. Organization support including organization policies, resources, collegial support, higher-level administrator’s leadership and support, recognition of success and provision of time is very important for me to ensure successful implementation of student-centered teaching in my teaching. 组织支持（包括组织政策、资源、学院支持、高管的领导力与支持，对取得成功的认可以及时间提供）对于确保在我的教学实践中成功实施以学生为中心的教学非常重要。

81. My overall evaluation for entire training program is: 我对整个培训项目的整体评价是:

1= completely dissatisfied 2= mostly dissatisfied 3= somewhat dissatisfied 4= neither satisfied nor dissatisfied 5= somewhat satisfied 6= mostly satisfied 7= completely satisfied
satisfied 评价程度：1=完全不满意 2=不满意 3=某种程度上不满意 4=无法确定 5=某种程度上满意 6=满意 7=完全满意

82. What do you value most from this experience? 你从此培训项目中获取的最有价值的是什么？

83. How will you implement the student-centered methods and techniques that you learned through this faculty development program? 你将来打算怎样实施你通过此培训项目所学的以学生为中心的教学方法和技术？

84. In your opinion, what is the current most important thing for the university to implement student-centered teaching successfully? 以你的意见，对学院来说当前成功实施以学生为中心的教学最重要的事情是什么？

85. What organization policies do you think relate directly to student-centered teaching implementation? 你认为哪些组织政策（学院制度）直接与以学生为中心的教学的实施相关？
86. In your opinion, what are the influencing factors and barriers for you to implement student-centered teaching successfully at your university? 以你的意见，在你们学院影响你成功实施以学生为中心教学的因素和障碍有哪些？

87. What could be done to improve this faculty development program? 提高教师发展项目的（培训质量）还需要做哪些工作？

88. How many days do you think the best for the program (more than 10 days, 10 days, 5 days or less than 5 days)? 你认为此培训项目最好是每期进行几天时间（10 天以上，10 天，5 天，还是少于 5 天）?

89. How is the training session organized best (the same format as the previous, one time intensive training sessions only in summer vocation, combination of face-to-face and online delivery method, plus self-studies)? 此培训讲习班怎样的组织形式最好（与以前形式形同，仅在夏天暑假集中举办一次，面授结合网络学习再加上自学）?
90. What do you think of the content of the program? What do you weight the content of theory, instructional methods and technology and the Scholarship of Teaching and Learning?

你对此项目培训的内容有什么样的看法？如果平衡理论、教学方法与技术和教与学的学术三者的权重？

We really appreciate your contributions to this survey. Thanks again and have a nice day!

非常感谢你对此项调查的贡献。再次感谢并祝愿拥有美好的今天！
Appendix A3.3.

Raters’ Knowledge Base Training survey

附录 3.3。观察评分员知识基础培训调查表

Raters’ Knowledge Base Training Survey Form

观察评分员知识基础培训调查表

Instructions: this survey is to test the knowledge base experiences of teaching methods that you have had. Please select one appropriate item that best express you current situation of the knowledge base related to teaching methods.

导语：本调查是为了检测你所拥有的教学方法方面的知识基础。请选择一项最能表达你当前所拥有的教学方法方面知识基础的现状的选项。

1. Which of the following learning methods will have the highest memory retention for college student? 下列哪项学习方式对大学生来说有最高的记忆保持率？
   a) lecture 讲座  b) discussion 讨论  c) practice doing 练习实践  d) teach others 教别人

2. What is the highest level of college students’ critical thinking? 下列哪一个是大学生批判性思考的最高级别？
   a) memorize all the concept and the knowledge points well in mind to meet the criteria of the examination 牢记所有概念及知识点满足考试标准要求
   b) memorize the concept they learned and understand it clearly 记住所学概念并有清晰的理解
   c) understand the content they learned clearly and enable to use the content to solve the problems 清晰理解所学内容并能够使用所学知识解决问题
d) understand the content clearly and can do the analysis and evaluations using the content 清晰理解所学内容并能利用所学知识进行分析和评价

3. What is the best learning strategy/method for college students? 哪项对大学生来说是最好的学习策略（方式）？

   a) when teacher give lectures in class, student should listen carefully without any behaviors beyond listening 当老师讲课时，学生应该认真仔细听讲，除此之外什么也不做

   b) when teacher give lectures in class, student should listen carefully and take necessary notes 老师讲课时，学生一边认真听讲同时做好必要的记录

   c) when teacher give lectures in class, student can ask any questions at any time 老师讲课时学生可以在任何时间提问题

   d) teacher give mini lectures in class, then facilitate students to engage in different activities to learn collaboratively. 老师在课堂上进行小型讲座，然后促进学生从事各种合作学习活动

4. Which kind of the following teaching method have you used most frequently in your teaching practice? 你在你的教学实践中曾经使用最多的教学方法是下列哪一个？

   a) teacher-directed lectures 教师主导的讲座  b) case study teaching 案例教学  c) problem-based learning 基于问题的学习  d) student-centered teaching 以学生为中心的教学

5. Which of the following statements best described your knowledge of student-centered learning? 下列各项陈述最能表达你关于以学生为中心教学的知识基础？
a) I have never heard of student-centered teaching 我从来没有听说过以学生为中心的教学的概念

b) I heard of student-centered teaching but I have no any idea about it 我听说过以学生为中心的教学但是我对它不了解

c) I learned student-centered teaching method but I have never applied it in my classroom 我学过以学生为中心的教学方法但是我从来在我的课堂没有用过

d) I learned student-centered teaching and I used this method frequently 我学过以学生为中心的教学并且经常使用这种教学方法

6. Which of the following learning theories do you think best explains student-centered learning. 下列哪个学习理论你认为最能解释以学生为中心的教学

a) Dewey’s learning theory 杜威的学习理论  b) Confucian’s philosophy on education 孔子的教育理念  c) Vygotsky’s learning theory 维果斯基的学习理论  d) constructivism learning theory 建构主义学习理论

7. Which of the following statements best described the student-centered teaching method? 下列哪项陈述最能描述以学生为中心的教学方法?

a) students learn by themselves without any support from the teacher 学生自学不需要老师的任何支持

b) student responsible for their learning in the classroom, teacher monitor the students’ learning 学生在课堂上对自己的学习负责，老师负责监督学生的课堂学习

c) teacher gives lectures first, student do exercises under the guide of the teacher 老师首先做讲座，学生然后在老师指导下做练习
d) teacher gives most of lectures in class, student do most homework after class 老师在课堂上以讲为主，学生课后做大量的作业

8. What role should the teacher play in the effective teaching classroom? 在有效的课堂教学中教师应该扮演什么角色

a) lecturer 授课者  b) knowledge transformer 知识传授者  c) have a overwhelming power to control the class to the right teaching direction 对课堂有绝对的控制权以确保教学的正确方向 d) facilitator, coacher, timekeeper 促进者，教练，时间管理者

9. What role should the college students play in class in order to improve their learning effectiveness? 为了提高学习效果，学生应该在课堂扮演什么角色？

a) careful and patient listener 认真耐心的听课者  b) recorder 记录者  c) active learner 主动学习者  d) participant 参与者

10. which kind of the learning is most effective for long term understanding and retention? 下列哪种学习对于长期理解并保持最有效？

a) teacher- directed 教师主导的  b) textbook-focused 聚焦于教材的  c) examination-oriented 考试导向的  

  d) student-centered, self-directed, active involved, more engaged in learning 学生为中心的，自我导向的，主动投入的，学习投入度较高的

11. I have learned different learning theories in the past few years. 我曾经在过去几年中学过各种学习理论

强烈不同意  不同意  某程度不同意  无法确定  某程度同意  同意  强烈同意

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273
12. Teacher-directed teaching is the best teaching method for Chinese students. 老师主导的教学对中国学生来所是最好的教学方法

强烈的不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

1 2 3 4 5 6 7

13. teacher –directed teaching can ensure learners reach the learning objective 老师主导的教学能够确保学习者学习目标的达成

强烈的不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

1 2 3 4 5 6 7

14. student-centered teaching only can be used in small sized class 学生为中心的教学仅仅只能在小班课堂使用

强烈的不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

1 2 3 4 5 6 7

15. student-centered teaching can not be used for all disciplines 学生为中心的教学不能适用于所有学科

强烈的不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

1 2 3 4 5 6 7

5. student-centered teaching can improve the students’ engagement in their learning 学生为中心的教学能够提高学生学习的投入度

强烈的不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

1 2 3 4 5 6 7
6. student-centered teaching cannot be controlled by the teacher in class. 学生为中心的教学老师在课堂无法控制

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

1 2 3 4 5 6 7

18. student-centered teaching requires more time than teacher directed teaching 学生为中心的教学比教师为中心的教学要花更多的时间

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

1 2 3 4 5 6 7

19. there is less preparation required for the teacher in student-centered teaching than in teacher-directed teaching. 学生为中心的教学老师需要做的准备要少于教师为中心的教学

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

1 2 3 4 5 6 7

20. compared with teacher-directed teaching, student-centered teaching can improve students’ learning achievement more effectively. 相比教师主导的教学，学生为中心的教学能更有效地提高学生的学习成绩

强烈不同意 不同意 某程度不同意 无法确定 某程度同意 同意 强烈同意

1 2 3 4 5 6 7

275
Instructions: Please incorporate the following student-centered teaching techniques in the lesson that is to be recorded.

### The function of the content

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<tbody>
<tr>
<td>1</td>
<td>the instructor asks students develop understanding by making their own associations with new content, developing their own examples of a concept, putting concepts into their own words, or reflecting on the meaning of the content. 复述内容的含义。</td>
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<tr>
<td>2</td>
<td>The instructor asks students to apply what they learned to solve the practical problems. 教师要求学生应用所学知识解决现实问题。</td>
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### The role of the instructor

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<tr>
<td>3</td>
<td>the instructor forms learning groups; the teacher walk around the class to observe students’ interaction and lead the discussion. 教师组成学习小组；教师在教室慢慢行走观察学生们相互交流并引导讨论</td>
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<td></td>
<td>the instructor gives “mini” lectures in class. (12-15 minutes) 复述内容的含义。</td>
</tr>
<tr>
<td>The responsibility for learning</td>
<td>the instructor uses Think-Pair-Share activities leading to students’ learning responsibility.</td>
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<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The purpose and process of assessments</td>
<td>the instructor frequently checks for understanding.</td>
</tr>
<tr>
<td>The balance of power</td>
<td>the instructor shares the ideas of course policies with students before making decisions on course policies.</td>
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- **4** lecture followed application exercises

  教师在课堂上使用“小型讲座”（教师讲课时间 12-15 分钟然后应用各种练习活动组织课堂教学）

- **5** the instructor uses Think-Pair-Share activities leading to students’ learning responsibility.

  教师使用“思考－结对－分享”活动引导学生的学习责任

- **6** the instructor invites student group or partners to present the assigned reading and lead the class in discussion.

  教师邀请学生小组或者结伴讲解布置的阅读作业引导课堂讨论

- **7** the instructor frequently checks for understanding.

  教师频繁检查学生知识理解状况

- **8** the instructor asked students to assess peer’s assignment and lead the discussion.

  教师请学生评价同伴关于作业的理解并引导课堂讨论

- **9** the instructor shares the ideas of course policies with students before making decisions on course policies.

  教师在做出课程政策之前与学生分享讨论有关课程政策的一些想法

- **10** the instructor routinely uses assignments that are open-ended or allow alternative paths.

  教师习惯性的使用开放式作业布置或
者允许其它的可替代的途径上交作业。
Appendix A3.5.

Student-Centered Teaching Behavior Rating Form

附录 3.5. 观察评分员课堂观察评分量表

Instructions:

This checklist is used for both raters’ training evaluation and participant classroom observation.

Please score the corresponding behavior(s) you see as a 1 for “See” or 0 for “Not see” on the followed Column. If you observe the same behavior multiple times, it will only be scored once.

导语：请将你所看到的行为在其后面计分栏内计作 1，没有看到的行为在其后面计分栏内计作 0。如果你看到相同的行为多次出现只能计分一次。

Date: 日期__ / ___ / ___ (MM/DD/YYYY 月/日/年)

Instructor No. 授课教师代码________ Gender 性别: _________(0= 男 1=女)

Course Type________（课程类别 1= liberal art 文科, 2= science 理科, 3= engineer 工程, 4= business 商科, 5= others 其它）

Rater 观察评分员: ____________

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Behavior Checklist</th>
<th>Score</th>
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<tbody>
<tr>
<td>维度</td>
<td>行为清单</td>
<td>1 or 0</td>
</tr>
<tr>
<td>1. The function of content: giving students a strong</td>
<td>1. the instructor gives concrete examples related to the content</td>
<td></td>
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</tbody>
</table>
| knowledge foundation, the ability to apply the content, and the ability to learn more independently. | stimulate students’ interest in learning.  
教师给学生举出与授课内容相关的具体事例以激发学生学习的兴趣。 |
| --- | --- |
| 授课内容的功能：  
给学生牢固的知识基础，给学生应用内容的能力，给学生独立主动获取更多知识的能力 | 2. the instructor directs students how to read the figures and tables, or how to cite sources accurately, how to read primary source material.  
教师指导学生怎样阅读数字和图表，怎样准确引用资料，怎样阅读第一手来源资料 |
| 3. the instructor uses small-group problem-solving exercises to help develop inquire skills.  
教师使用小组式的基于解决问题的练习帮助学生发展探究能力. |
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| **4.** | the instructor uses case vignettes, simulations, students’ own experiences, or service-learning activities to help students solve real world problems.  
教师使用案例插曲，模拟，学生自我经历或者服务学习活动帮助学生使用内容解决现实生活问题 |
| **5.** | the instructor asks students develop understanding by making their own associations with new content, developing their own examples of a concept, putting concepts into their own words, or reflecting on the meaning of the content.  
教师请学生通过建立新知识的自我联系增强理解，请学生给出自己的与概念相关的例子，用自己的语言解释概念或者反 |
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<tbody>
<tr>
<td>2. The role of the instructor: the instructor should create an environment in which students can learn actively. Appropriate teaching and learning methods should be used for student learning goals.</td>
<td>6. The instructor asks students questions that require them to make predictions rather than just memorize facts. 教师提问学生要求他们作出预测而不是仅仅记住事实。</td>
</tr>
<tr>
<td>7. the instructor forms learning groups; the teacher walk around the class to observe students’ interaction and lead the discussion. 教师组成学习小组；教师在教室慢慢行走观察学生们相互交流并引导讨论.</td>
<td>8. the instructor uses Blackboard to support student active involve in</td>
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<tr>
<td><strong>9.</strong></td>
<td>the instructor gives “mini” lectures in class. (12-15 minutes lecture followed application exercises)  教师在课堂上使用“小型讲座”（ 教师讲课时间 12-15 分钟然后应用各种练习活动组织课堂教学）</td>
</tr>
<tr>
<td><strong>10.</strong></td>
<td>the instructor uses “flip” lessons ( assigns online video lessons as homework and lead students to discuss what they watched on the video to solve problems in class).  教师使用“翻转”教学技术（教师布置在线视频作为作业要求学生上课前自己完成，上课期间引导学生讨论利用所看视频解决实际问题）</td>
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communication and learning. 
教师使用 BB 支持学生积极投入交流和学习
<p>| | |</p>
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<tbody>
<tr>
<td>3. The responsibility for learning: Instructors should proactively assist their students to take responsibility for their own learning by creating situations that motivate students to accept this responsibility.</td>
<td>11. the instructor uses Think-Pair-Share activities leading to students’ learning responsibility. 教师使用“思考－结对－分享”活动引导学生的学习责任</td>
</tr>
<tr>
<td>12. the instructor answers questions working with small groups, guiding the learning of each student individually. 教师回答小组问题，逐个指导每个学生学习</td>
<td></td>
</tr>
<tr>
<td>13. the instructor invites student group or partners to present the assigned reading and lead the class in discussion. 教师邀请学生小组或者结伴讲解布置的阅读作业引导课堂讨论.</td>
<td></td>
</tr>
<tr>
<td>14. the instructor asks peers give each other feedback for the assignment. 教师请同学之间相互给出作业的反馈.</td>
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<tr>
<td>4. The purposes and processes of assessment: the instructor integrates assessment with feedback as a part of the learning process.</td>
<td>15. the instructor posts answers and explanations online and let the students determine how well they did using a grading rubric that instructor develops.  教师把答案和解释放在网上让学生运用教师设计的评分标准确定他作业的完成情况。</td>
</tr>
<tr>
<td>评价的目的和过程： 教师把评价和反馈结合起来作为学习过程的一部分。</td>
<td></td>
</tr>
<tr>
<td>16. the instructor frequently checks for understanding. 教师频繁检查学生知识理解状况。</td>
<td></td>
</tr>
<tr>
<td>17. the instructor talked to the students that he/she can improve their grade if the students can made all changes based on his/her feedback. 教师告诉学生如果学生能够按照反馈的要求把所有部分予以改动可以给出更高的成绩。</td>
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<tr>
<td>18.</td>
<td>the instructor allow students take more times of examinations to demonstrate mastery over time. 教师允许学生多次参加考试以展现随着时间推移学生对知识的掌握</td>
</tr>
<tr>
<td>5.</td>
<td>The balance of power: Instructor shares some decisions about the course with the students, such that the instructor and the students collaborate on course policies and procedures. 权力的平衡：教师与学生分享关于课程政策的决定，教师和学生合作完成课程政策的制定和授课程序的确定</td>
</tr>
<tr>
<td>19.</td>
<td>the instructor shares the ideas of course policies with students before make decision on course policies. 教师在做出课程政策之前与学生分享讨论有关课程政策的一些想法.</td>
</tr>
<tr>
<td>20.</td>
<td>the instructor discuss the leaning methods and assessment methods with students. 教师与学生讨论学习方式和评价方式.</td>
</tr>
<tr>
<td>21.</td>
<td>the instructor routinely uses assignments that are open-ended or allow alternative paths. 教师习惯性的使用开放式作业</td>
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<tr>
<td>22. the instructor uses test questions that allow for more than one right answer.</td>
<td>教师使用允许不止一个正确答案的试题</td>
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<tr>
<th>Total Score 合计得分</th>
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Appendix A3.6. Consent Form

附录 3.6：知情同意书

DUQUESNE UNIVERSITY

杜肯大学

600 FORBES AVENUE ♦ PITTSBURGH, PA 15282

CONSENT TO PARTICIPATE IN A RESEARCH STUDY 同意参加一项研究

TITLE: 题目

A Follow-Up Study to Determine the Effectiveness of a Faculty Development Program Designed to Transition to a Student-Centered Approach at Xi’an Eurasia University in China 一项确定教师发展项目（在中国西安欧亚学院进行的旨在转化为以学生为中心的教学方法的项目）效果的跟踪研究

INVESTIGATOR: 研究者

Joseph C. Kush, Ph.D.

327 Fisher Hall
School of Education
412 396 1151
PURPOSE: 目的
This study is being performed as partial fulfillment of the requirements for the doctoral degree in Education at Duquesne University. 此研究的执行将作为杜肯大学教育学博士要求的部分成果

The purpose of this study is to examine the effectiveness of a recently completed, faculty development, training program. One aim of this study is to determine your satisfaction with the training you received. A second goal of the study is to determine whether the skills you received within the training program are being implemented in your classrooms. 此项研究的目的是为了检测刚刚完成的教师发展培训项目的效果。其中的一项目标是确定你对接受的培训项目的满意度。另外一个
YOUR PARTICIPATION: 你的参加

Your participation will consist of two parts.

The first component is a brief questionnaire that asks questions that relate to your satisfaction with the training program. The questionnaire uses a Likert format and several open-ended questions and will take approximate 10 to 15 minutes to complete.

In addition, you will be asked to allow an independent observer to come into your classroom on two occasions to determine which methods you were exposed to are being incorporated in your instruction. The first observation will take place at a time that you select and the second observation will occur unannounced.
确定你将哪种方法应用到你的课堂教学。第一次观察将会在你可以选择的时间进行，而第二次观察将会在你未被告知情况下进行。

**RISKS AND BENEFITS:** 风险及益处

There are no risks in participating in this study that are greater than those encountered in everyday life. There are also no direct benefits to participating in this study other than the knowledge that you will be providing important information to the university that will influence future training programs by helping us better understand the strengths and weaknesses of the training. 参加此项调查不会有大于你在日常生活中遇见的风险。当然参与此项研究除了通过你为学院提供的重要信息帮助我们更好的理解此培训项目的优、劣势以影响未来的培训项目外也没有直接的好处。

**COMPENSATION:** 报酬

Participants will not be compensated in any way. However, participation in the project will require no monetary cost to you. 参加者没有任何报酬。当然，参加此项目将要求不能给你带来财务方面的成本。
CONFIDENTIALITY:保密

To protect your privacy and to maintain anonymity, your name will appear only on this consent form. Pseudonyms will be used to replace your name and the names of any individuals mentioned. Only your role demographic information will be disclosed, (e.g., gender, years of service, the School you teach in). If you believe that the disclosure of any of this information will reveal your identity, it will be documented in more general terms. 为了保护你的隐私和保持匿名,你的名字将仅仅出现在这张知情同意书上。笔名（代码）将用于代替你的名字以及任何提到的个性化名称。只有你的角色人口信息将被公开（如：性别，服务年限，所教课程）。你不用担心这些任何信息的披露会暴露你的身份,因为这些信息将会以更趋概括性的措辞而非个性化的方式予以记录和报告。

Several third-party individuals will be hired by the researcher to conduct the classroom observations. The observer will record teaching behavior on a checklist rubric that includes your pseudonym. All
recorded and written materials will be stored securely in the researcher’s home study.

Documentation will be stored in a locked file cabinet, and the computer on which data will be stored is password-protected and is accessed only by the researcher. All data will be destroyed five years after the completion of the study. 几个第三方个体将被研究人员雇佣来实施课堂观察。观察者将会在标准量表上记录下包括你的笔名（代码）在内的教学行为。所有记录的资料都会安全地储存在研究者的审查文件中。文件将被储存在锁定的文件夹中，计算机中的数据也被以密码保护而且只有研究者本人可以接触的方式储存。所有数据将会在研究完成五年后销毁。

RIGHT TO WITHDRAW: 退出权利  You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time. You are also free to decline answering any specific question that you choose not to. Should you choose to withdraw from the study, any and all files or documents related to your participation will be destroyed immediately.
Additionally, your decision to participate or not, will in no way impact your standing within the university. 你没有义务参加此项研究。你可以在任何时间选择退出你同意参加此研究。你也可以选择谢绝回答任何你不愿回答的具体问题。一旦你选择了退出此项研究，所有的涉及你参加的文件或资料将立即被销毁。另外, 你是否选择参加, 将丝毫不影响你在学院的身份、地位。

SUMMARY OF RESULTS: 结果总结   You will have the opportunity to review Chapter 4, “Findings”, once near completion to ensure your identity has been protected to your satisfaction and to determine that the responses reflected in the findings are those as intended by you. A full copy of the completed dissertation will be supplied to you, at no cost, upon request. 在研究者接近完成了：确保你的身份已经得到保护，确定了研究发现中反映了你的预期情况下，你将有机会审阅第四章，“研究发现”。如有要求，完整的论文副本将无成本为你提供。
VOLUNTARY CONSENT: 自愿同意

I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this quality project.

I understand that should I have any further questions about my participation in this study, I may call Joseph Kush, Principal Investigator, the student researcher Huixiang Yuan, or Dr. Linda Goodfellow, Chair of the Duquesne University Institutional Review Board 412-396-6326.

我阅读了上述条款并理解了将对我的要求。我也理解我的参加是自愿的，而且任何时候我无理由可以自由选择退出同意。基于这些条款，我证明我愿意参加此项质量工程。

如果我有任何关于参加此项研究的问题，我可以拨打电话 412-396-6326 给主研究员 Joseph Kush 博士，学生研究者袁辉祥，或者杜肯大学制度审查委员会主席 Linda Goodfellow 博士
Appendix A3.7.

Random Sample of Observation Using R Software

Participants were coded as Arab number of 1 through 52, and the eight raters were coded as letter A through H. R software was used to select the samples randomly.

R-code 1:

```r
> set.seed (1)
> sample (52,32,replace=F)
[1]  14  19  29  45  10  43  44  30  28  3  9  8  46  15  49  51  26  35  13  36  38  7  20  4  41  11
[20]  48  21  40  27  34
```

R-code 2:

The First time observation: eight raters were assigned to 32 participants randomly

```r
> set.seed (1)
> sample (32)
A:  9  12  18  27
B:  6  25  29  17
C: 16  2  5  4
D: 14  8  20  32
E: 31  15  28  11
F:  24  3  7  23
G: 13  19  1  26
H: 21  22  30  10
```
R-code 3:

The Second time observation: eight raters were assigned to 32 participants randomly differently as previous group

> set.seed (2)
> sample (32)
A: 6  25  29  17
B:9  12  18  27
C:14  8  20  32
D:16  2  5  4
E: 24  3  7  23
F: 31  15  28  11
G: 21  22  30  10
H: 13  19  1  26
## Appendix B

**Table 1.**

*Sample Statement of Participants’ Learning*

<table>
<thead>
<tr>
<th>Themes</th>
<th>Sample Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>I valued most of the SCL skills</td>
<td>帮助我更加清晰地理解并掌握以学生为中心的教学方法的内涵，并能够从培训中学习到一些行之有效的具体的教学技巧 <em>It helped me to clearly understand and master the connotation of SCL approach, and learned some effective techniques from the training program;</em> 学会了如何组建小组；学会了如何设计“以学习者为中心的”的教学大纲 <em>I learned the theory of SCL, Bloom Objective Taxonomy, how to form group and how to design SCL syllabus</em></td>
</tr>
<tr>
<td>I valued most of the knowledge of SCL</td>
<td>系统性的以学习者为中心的教与学理论及实施方法 <em>The most valued is the systematic theory and implementation method of SCL</em></td>
</tr>
<tr>
<td>I valued most of the SCL behaviors</td>
<td>了解到国外的 CTE 教学理念，以及相关支持理论, 并运用到自己的课程教学中 <em>The most valued is that I know about CTE philosophy and the related theories supported coming from foreign country, and how to apply it in my own</em></td>
</tr>
</tbody>
</table>
| I valued most of the attitudes toward SCL | 此培训项目促进了我对优秀课堂和教学的理解，增强了我作为教师的信心。The program facilitated my understanding of excellent teaching, led me to transform the traditional teaching philosophy, deepen my understanding the role of instructor, enhanced my confidence of being a teacher;

对于本人的终身学习和教学研究方面，有了启示作用。The program enlightened my lifelong learning and teaching research;

学生学会自主学习，教师只是课堂环节的设 |

| class; 对以学生为中心理念的理解，以及该理念在教学中的应用技巧 | The most valued from the program is the understanding of SCL concept and the techniques of how to use the philosophy in class;

在课堂教学中的教学方式上注意了引导学生学习，改变的原来的一味的讲述的教学方式I was aware of the guiding student’s learning rather than the traditional way of domination of lecture |

| I valued most of the attitudes toward SCL | 此培训项目促进了我对优秀课堂和教学的理解，增强了我作为教师的信心。The program facilitated my understanding of excellent teaching, led me to transform the traditional teaching philosophy, deepen my understanding the role of instructor, enhanced my confidence of being a teacher;

对于本人的终身学习和教学研究方面，有了启示作用。The program enlightened my lifelong learning and teaching research;

学生学会自主学习，教师只是课堂环节的设 |
A student should be self-directed learning, the instructor plays a role of a designer, organizer, guide and evaluator;

学习的关键是学生学了多少并不是教师教了多少 the key factor of learning is how much the student learn rather than how much the instructor teach;

其实没有学习过此培训之前，我们也会应用到类似的方法，比如课堂提问，与学生互动等等。但是学完此培训之后，可以使我的课堂设计更加系统和完善，以前一些不敢用或者没有想过使用的方法，都敢于尝试。I had applied similar techniques such as classroom questioning and interaction with students before I participated this program; after completion of the program, it made the curriculum design more systematic and more perfect; I dared to use some of the teaching method either I had never dared to use or I did not dare to use before
Table 2.

The Average Frequency and Percentage of Observed Behaviors

<table>
<thead>
<tr>
<th>Observed behavior</th>
<th>Average Frequency</th>
<th>Percentage (Dimension)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N 1. The instructor gives concrete examples related to the content stimulate students’ interest in learning.</td>
<td>29</td>
<td>91% (FC)</td>
</tr>
<tr>
<td>N16. The instructor frequently checks for understanding.</td>
<td>26.5</td>
<td>83% (PPA)</td>
</tr>
<tr>
<td>N4. The instructor uses case vignettes, simulations, students’ own experiences, or service-learning activities to help students solve real world problems.</td>
<td>22</td>
<td>69% (FC)</td>
</tr>
<tr>
<td>N7. The instructor forms learning groups; the teacher walks around the class to observe students’ interaction and lead the discussion.</td>
<td>21</td>
<td>66% (RI)</td>
</tr>
<tr>
<td>N5. The instructor asks students develop understanding by making their own associations with new content, developing their own examples of a concept, putting concepts into their own words, or reflecting on the meaning of</td>
<td>20</td>
<td>63% (FC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>N3.</strong> The instructor uses small-group problem-solving exercises to help develop inquire skills.</td>
<td>19</td>
<td>59% (FC)</td>
</tr>
<tr>
<td><strong>N9.</strong> The instructor gives “mini” lectures in class. (12-15 minutes lecture followed application exercises)</td>
<td>16.5</td>
<td>52% (RI)</td>
</tr>
<tr>
<td><strong>N6.</strong> The instructor asks students questions that require them to make predictions rather than just memorize facts.</td>
<td>15.5</td>
<td>48% (FC)</td>
</tr>
<tr>
<td><strong>N12.</strong> The instructor answers questions working with small groups, guiding the learning of each student individually.</td>
<td>15.5</td>
<td>48% (RL)</td>
</tr>
<tr>
<td><strong>N13.</strong> The instructor invites student group or partners to present the assigned reading and lead the class in discussion.</td>
<td>15.5</td>
<td>48% (RL)</td>
</tr>
<tr>
<td><strong>N11.</strong> The instructor uses Think-Pair-Share activities leading to students’ learning responsibility.</td>
<td>15</td>
<td>47% (RL)</td>
</tr>
<tr>
<td><strong>N14.</strong> The instructor asks peers give each other feedback for the assignment.</td>
<td>13.5</td>
<td>42% (RL)</td>
</tr>
<tr>
<td>Number</td>
<td>Statement</td>
<td>Score</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>N2</td>
<td>The instructor directs students how to read the figures and tables, or how to cite sources accurately, how to read primary source material.</td>
<td>10.5</td>
</tr>
<tr>
<td>N21</td>
<td>The instructor routinely uses assignments that are open-ended or allow alternative paths.</td>
<td>7</td>
</tr>
<tr>
<td>N20</td>
<td>The instructor discusses the learning methods and assessment methods with students.</td>
<td>6.5</td>
</tr>
<tr>
<td>N22</td>
<td>The instructor uses test questions that allow for more than one right answer.</td>
<td>6.5</td>
</tr>
<tr>
<td>N17</td>
<td>The instructor talked to the students that he/she could improve their grade if the students can make all changes based on his/her feedback.</td>
<td>6</td>
</tr>
<tr>
<td>N10</td>
<td>The instructor uses “flip” lessons (assigns online video lessons as homework and lead students to discuss what they watched on the video to solve problems in class).</td>
<td>5.5</td>
</tr>
<tr>
<td>N8</td>
<td>The instructor uses Blackboard</td>
<td>3.5</td>
</tr>
</tbody>
</table>
support student active involve in communication and learning.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N19. The instructor shares the ideas of course policies with students before make decision on course policies.</td>
<td>3.5</td>
<td>11% (BP)</td>
</tr>
<tr>
<td>N15. The instructor posts answers and explanations online and let the students determine how well they did using a grading rubric that instructor develops.</td>
<td>3</td>
<td>9% (PPA)</td>
</tr>
<tr>
<td>N18. The instructor allows students take more times of examinations to demonstrate mastery over time.</td>
<td>1</td>
<td>3% (PPA)</td>
</tr>
</tbody>
</table>

*Note. FC refers the dimension of the function of content; RI refers the role of instructor; RL refers the responsibility for learning, PPA refers the purpose and process of the assessment; BP refers the balance of power.*