

Higher Education in Thailand: Educational Logistics and Entrepreneurial Success

Pannarat Wansavatkul
Faculty of Education, Rangsit University, Thailand
pannarat@laminationthailand.com

Ruja Pholsward
Faculty of Education, Rangsit University, Thailand
ruja@rsu.ac.th

Abstract

It has been currently recognized that the higher education sector has used business models in their managerial approach to organizational structures as well as applied entrepreneurial strategies in satisfying the needs and preferences of their stakeholders. In this regard, the researcher identified concepts and theories on entrepreneurship as applied to the business sector and to the field of education. The purpose is to investigate entrepreneurial activities and strategies which universities apply to six processes of educational logistics established by Bergström & Bulter (2009). These processes are (1) student information management, (2) examination, (3) flexible study path of the individual student, (4) staff workload planning, (5) planning and timetabling, and (6) space management. A structured interview based on these six processes was constructed to obtain data regarding entrepreneurial activities carried out by six of the top universities highly ranked in quality assurance by the Office of External Quality Assurance, Thailand. Data on entrepreneurial activities in the framework of educational logistics after Bergström & Bulter (2009) were obtained by interviews with university executives. The data analysis identified ten entrepreneurial activities and strategies ranked in frequency and percentage. It was noted that some strategies, particularly student support activities and university social responsibility, appear not to be entirely confined by the framework of educational logistics processes used in the study. The results of the study are expected to shed light on opportunities for universities in bringing about innovations and client-oriented strategies for educational entrepreneurship via educational logistics in order to achieve their competitive advantage in the long run.

Keywords: *entrepreneurship, educational entrepreneurship, entrepreneurial activities, higher education, logistics, processes of educational logistics*

1. Introduction

Thailand's education reform instigated by the National Education Act of 1999 started the transformation of the Higher Education sector. One of the aims of the reform is to empower public universities to have more autonomy when it comes to its management of academic affairs and personnel as well as the management of its financial and budget affairs. Traditionally, Thai higher education institutes were mainly public entities. But during the last two decades, private colleges and universities, supported by the Thai private sector, has provided a significant portion of delivering higher education as the demand for it has increased to meet the demand of manpower for modern economic development. Consequently, the application of business models to the higher education sector has precipitated a managerial approach to organizational structures (Preston, 2001). In as much as the main objective of businesses is to create value to customers, the higher education industry also aims to create value to its customers.

Nowadays, desirable strategies and models for higher education have to be on par with global competition; globalization raises the expectations for service quality, availability, and reliability of these higher education institutions. The traditional universities function is not sustainable, as industrialization demands more from graduates, thus graduates demand more from academic institutions. Higher education institutions that neglect to strategize and plan their future course of action, as well as disregard the development of new business models may not survive the highly competitive global higher education environment. Accordingly, to enable these changes, the costs of education is consequently and constantly increasing while the perceived surplus acquired from these universities is surprisingly less or not commensurate when compared to the increase in cost. Thus, universities need to identify a source of competitive advantage through its ability to differentiate itself from other competitors by operating its business at a lower cost and at the same time giving more value to its customers.

2. Background of Entrepreneurship Concepts in Business and Education

In the creation of differentiated value, universities need to innovate and engage themselves in entrepreneurial activities that identify opportunities in the economic system (Penrose, 1980) and utilize existing resources to create new wealth-producing endeavors (Drucker, 1985). Entrepreneurship is composed of processes and activities that are not generally done in ordinary business routines (Schumpeter, 1949). Moreover, entrepreneurship exploits innovations and inventions to create new products, new means of production and new forms of organization, in which all must add value to the society (McGrath & MacMillan, 2000 citing Schumpeter, 1934). Entrepreneurship involves behaviors such as initiative thinking and the ability to organize and reorganize social and economic mechanisms in order to maximize efficiencies of resources and situations; entrepreneurs in addition accept that there is always a risk of failure (Hisrich, Peters, & Shepherd, 2007). In an ever increasing and hyper-competitive world (Porter, 1996), entrepreneurial activities are essential to encouraged businesses to nurture and maintain continuous innovation (Antoncic & Hisrich, 2001). It is because of the exact same reasons that it is also imperative that universities engage in entrepreneurial activities and behaviors in order to satisfy their consumers' needs and preferences (Eyal & Inbar, 2003).

Entrepreneurs need to undertake entrepreneurial activities to create value that consumers are seeking. University students are considered consumers of the educational output (Vanderstraeten, 2004) whereas professors, lecturers, teachers, and the administration are treated as product providers. A strategy or an activity is recognized as entrepreneurial if it builds on innovation and defies the "dominant logic of competition" in an industry, for the purpose of profit creation (Prahalad & Richard, 1986). An entrepreneurial activity involves the process of change, emergence and creation (Bruyat & Julien, 2000). Furthermore, entrepreneurial activities involve four key considerations: the enterprising human activity, the assembly of unique bundles of resources, identification of market opportunities and/or utilization of innovative capabilities, the significance of the business and wider environments, and the creation of value (Ahmad and Seymour, 2008).

It should be noted that good entrepreneurs cope well with change. In implementing any change, entrepreneurs take different approaches such as an introduction of a new good or quality,

new method of production, opening a new market, new supply source of new materials and establishing a new form of organization in an industry (Schumpeter, 1934). Since entrepreneurial activity requires innovation, creativity and originality, entrepreneurs are said to be risk takers (Covin & Slevin, 1989); entrepreneurs use creativity and innovation to break through the norms and seize opportunities; entrepreneurs also explore and embark on new territories such as business ventures to generate value (Hisrich, Peters & Shepherd, 2005). Entrepreneurs are business owners, incorporated or otherwise (Ahmad & Seymour, 2008) who manage to redistribute economic resources from a low productivity area into a high productivity area, which yields a greater return (Drucker, 1985). In addition, an entrepreneur is a person or an entity who identifies, creates and innovates business opportunities, as well as manage new combinations of resources to gain the most profit (Leibenstein, 1968). Moreover, entrepreneurs are ‘pro-jectors’ (Defoe, 2001), are speculators dealing with the uncertainty of conditions in the future (von Mises, 1996), a ‘co-ordinator’ (Walras, 1954) and an ‘arbitrageur’ who identifies profit-earning activities and acts upon it (Kirzner, 1973).

In the educational or academic context, the word *entrepreneurship* does not directly imply concepts of “profit creation”, “risk taking” or the increased leaning to execute market activities. It simply refers to the organization’s attitude towards self-reliance (Yokoyama, 2006). Entrepreneurial activities, as defined in an educational setting, refer to the activities that encourage social awareness regarding the institution’s accountability. Accordingly, entrepreneurialism is the process by which the universities become increasingly involved in these so called entrepreneurial activities (Yokoyama, 2006). In our modern society, educational success is not achieved if it is limited and static. Dynamism, adaptability and the ability to respond to the current changes of society, economy, human behavior and experience are all incorporated in the university-industry collaboration, which results from being an academic entrepreneur. More so, entrepreneurial success is often equated to a firm’s success and its success depends on the effective methods being implemented to gain satisfaction from various stakeholders such as customers, employees, suppliers, government and the community (Pickle & Friedlander, 1967; Robinson, 1983). A firm’s success is generally measured using three factors: profit, which is the essential outcome of an entrepreneurial activity (Cantillon, 1931), employment creation, which indicates a firm’s growth and social success that is it helps provide jobs to the community, and lastly, duration, or the length of active period (Lussier & Pfeiffer, 2001). In turn, entrepreneurial success of a university can be measured and expressed using financial and non-financial measures (Chivukula et. al, 2009).

Academic entrepreneurship is not a new concept. By definition, it is the leadership process of creating value through acts of organizational creation, renewal or innovation that occurs within or outside the university and results in research and technology commercialization (Yusof et. al, 2010). It is an environment that actively supports knowledge exploitation to stimulate entrepreneurial behavior among all the members of the institution as well as the academic community, such as the increase of intellectual patenting and licensing and the creation of spin-off companies among academic researchers (Wright et al., 2007; Siegel et al., 2003). Universities and higher educational institutions tend to be more engaged in the entrepreneurial concept through understanding the market value of research and the continuous search for new institutional methods that utilizes the benefits of both scientific research and innovation (OECD, 2003; Siegel,

2006; Rothaermel et al., 2007). To these universities, research has become an essential part of the process of innovation and in turn has served as a tool in realizing their responsibility to their stakeholders.

As for entrepreneurial success for organizations, the Council of Supply Chain Management Professionals in 2004 stated that logistics in different areas of operations could play a vital role in attaining the goals, including those in the field of higher education. Logistics can be helpful in improving the capabilities of an institution's management, product generation and in specific the ability to create improved curricula, teaching methods and research to fulfill consumers' expectations. When higher education institutions focus on improving logistics the institutions often increase their competitiveness in the market by being more customer-focused (Bentley, 2001). As a result of this, universities can be more effectively develop academic products and services, which often leads to an increased demand for the universities products. It is this specific chain of events that ultimately led to the entrepreneurial success of the institution.

3. Standpoint of Higher Education in Thailand

Thailand's higher education system has been experiencing a significant growth, since the introduction of Quality Assurance in Higher Education in Thailand in 1996 (Kanjanapanyakom, 2011). There has been a considerable development in the number of higher education institutions (Commission on Higher Education, 2009) and the number of student enrollment (Ministry of Education, 2007). In an effort to raise the quality of education and teaching in Thailand, a public organization, Office of the National Education Standards and Quality Assessment (ONESQA), along with the Bureau of Standards and Evaluation, Commission on Higher Education, Ministry of Education, was tasked with the responsibility of assessing the quality standards of Thai universities, both External Quality Assurance (EQA) and Internal Quality Assurance (IQA). The indicators and criteria used for IQA are (1) Philosophy, Commitments, Objectives and Implementation Plans, (2) Teaching and Learning, (3) Student Development Activities, (4) Research, (5) Academic Services to the Community, (6) Preservation of Arts and Culture, (7) Administration and Management, (8) Finance and Budgeting, and (9) Systems and Mechanisms for Quality Assurance (Manual for the Internal Quality Assurance for Higher Education Institutions, 2013). In addition, the EQA emphasizes nine components, slightly different from those of the IQA: (1) Quality of Graduates, (2) Learning Process, (3) Learning Support Resources, (4) Research and Innovation, (5) Academic Services, (6) Preservation of Art and Culture, (7) Administration and Management, (8) Internal Quality Assurance System, and (9) Identity of Graduates.

As seen in the QA components specified by the IQA and the EQA, Thai universities are under regulations for high quality in their operations. It also means that the IQA Component 7 on Administration and Management requires their accountability for the way they deliver their products. In this regard, the Thai higher education institutions counted in 2013 over 200 are required to develop a more business-like or specifically entrepreneurial perspective in dealing with different activities classified for inspection and evaluation by the IQA and the EQA. It should be noted that the ONEC Office of National Education Commission which is responsible for educational research reported in 2013 its recent findings to prompt adjustments in higher

education institutions in eight areas: (1) Competitiveness, (2) Quality and Differentiation of Product, (3) Networking, (4) Specialization in focus, (5) Research, (6) E-education, (7) Imported education model, and (8) Commercialization trend. Considering the QA components and the areas of adjustment from the ONEC research findings, it is clear that higher education institutions urgent need to treat their operations no longer on prescribed terms and conditions, but from an entrepreneurial standpoint not simply for their survival, but for growth in quality and innovation they can offer to the public or their target customers.

4. Educational Logistics under Study

In order to understand educational logistics and the entrepreneurial success of universities, the researchers would like to identify entrepreneurship as applied to the field of education as well as investigate educational entrepreneurship components and entrepreneurial activities and strategies which universities apply to the six processes of educational logistics.

5. Research Objectives

This paper aims to (1) identify entrepreneurship as applied to the field of education as well as (2) investigate educational entrepreneurship components and entrepreneurial activities and strategies, which universities apply to the six processes of educational logistics.

6. Research Methodology

6.1 Subjects:

The subjects in this study were university administrators, department heads and/or professors of top universities in Thailand. Six universities were selected on the basis of an “excellent” quality assurance rating given by Office of External Quality Assurance in Thailand. These universities were chosen so as to obtain reliable information about entrepreneurial activities being implemented by successful universities in terms of quality assurance components, particularly Component 7 on Administration and Management. Moreover, they have been recognized in the Thai higher educational circle for their managerial practices which are entrepreneurial in nature, thus presumably reflecting the use of educational logistics to a certain extent. Four interviewees per university were asked several questions pertaining to the entrepreneurial activities and strategies implemented in the operations of the university.

6.2 Materials for Research Instrument: Entrepreneurship Components of Universities

The researchers first adopted eight entrepreneurship components after Hisrich, Peters, and Shepherd, (2008) and identified two more components unique to university operations, i.e., estate management and corporate social responsibility. All ten entrepreneurship components are: (1) university’s competency, (2) product, (3) human resource management, (4) research and development, (5) financial flexibility, (6) estate management, (7) student population growth, (8) business industry collaborative efforts, (9) contribution to the economic development of the country and (10) corporate social responsibility of the university. The researchers constructed question items pertinent to ten identified entrepreneurship components, and six processes of educational logistics established by Bergstrom & Bulter (2009). Six processes are (1) student information management, (2) examination, (3) flexible study path of the individual student, (4) staff workload planning, (5) planning and timetabling, and (6) space management.

6.3 Research Instruments:

The researchers used information on entrepreneurship components of universities and six processes of educational logistics to develop specifications and questions for structured interview as Instrument 1. It contains ten questions for structured interview with university executives [see Appendix A]. These ten questions generate 36 response items derived from the structured interviews. Some responses carry examples of entrepreneurial activities for clarity of the given data [see Tables 1-10].

7. Data Collection

The researchers made appointments with the subjects for research instrument 1 on structured interview; they were university executives, department heads and/or professors of top public and private Thai universities highly ranked by the Office of External Education Quality Assurance Thailand. Four interviewees per university were asked ten questions in Instrument 1 on the entrepreneurial activities and strategies implemented in the operations of the university. All interview data were recorded and transcribed for analysis.

8. Data Analysis

The researchers used qualitative data secured from the structured interviews for a content analysis to generate categorized entrepreneurial activities by ten entrepreneurship components. Such categorized data were condensed into 36 items [see Tables 1-10]. Then the researchers selected 19 items of percentage over 65 to map along the processes of business logistics and educational logistics [see Table 11]. This is the way the researchers expected to see from the obtained data the extent to which the top Thai Universities engaged themselves in entrepreneurship particularly as perceived from a business as well as an educational perspective.

9. Results of the Study

All data were obtained from structured interviews with university executives. From content analysis, responses were classified and recorded for frequency and percentage. Each table represents one interview question, as shown in Tables 1-10.

Table 1: Competency: Subjects' Responses by High to Low Frequency

1. The university has an online database and an open-access journal wherein students, staff and the faculty can use for research. [Item6] [24/24 or 100%]
2. The university offers study trips and company visits in and out of Thailand to expose students to different industries and experts in the field. [Item1] [22/24 or 91.67%]
3. The university uses an ERP system in its operation to manage its information flow between its stakeholders. [Item3] [14/24 or 58.33%]
4. The university utilizes CAI (computer assisted instruction) medium of teaching such as on-line writing labs, e-classrooms, e-learning portals, etc.) [Item7] [7/24 or 29.17%]
5. The university houses their own commercial businesses (restaurants, airlines/aviation institute, etc.) to serve as training grounds for the students. [Item8] [4/24 or 16.67%]
6. The university emphasizes "Active Learning" wherein students get to learn more on real

world situations rather than textbook teaching. [Item9] [4/24 or 16.67%]
7. The university uses social media networks to post and share ideas such as new breakthroughs, case studies, etc. to reach a wide number of audiences. [4/24 16.67%]
8. The university uses an e-office (used for example: online conferences) to effectively communicate between departments and campuses. [Item4] [3/24 or 12.5%]
9. The university uses LMS or Learning Management System, which utilizes media technologies in teaching and learning. [Item5] [2/24 or 8.33%]

Question 1: How does the university encourage and support innovation and creativity throughout the university, including teaching, research, service and all operations?

All respondents identified an online database and an open-access journal accessible to students, the faculty, and staff. Almost all of the respondents [22/24 or 91.67%] also gave information on study trips and company visits in and out of Thailand to expose students to different industries and experts in the field. It is interesting to see that nearly 30% of the respondents stated that the use of computer assisted mode of instruction is considered innovative.

Table 2: Product: Subjects' Responses by High to Low Frequency

1. The university hires professional experts in the field to teach courses offered. [Item3] [23/24 or 95.83%]
2. The university regularly and rigidly evaluates the need to create or change curriculum through surveys and meetings with experts in the field of study, alumni and academic administrators. [Item1] [22/24 or 91.67%]
3. The university regularly evaluates its lecturers and professors' performance in terms of teaching, advising, and research. [Item 2] [21/24 or 87.5%]
4. The university conducts follow-up surveys on its graduates in order to gauge the compatibility of teachings and real-life working conditions. [Item4] [3/24 or 12.5%]
5. The university offers courses which focuses on the vocational field. [Item5] [2/24 or 8.33%]
6. The university offers courses that would meet the ASEAN standards. [Item6] [2/24 or 8.33%]
7. The university regularly amends the course syllabus to make it more current. [Item7] [2/24 or 8.33%]
8. The university offers a special course for entrepreneurial students, taught by successful business owners and CEOs, with the aim of doing a collaborative project between the business and the students. [Item 8] [2/24 or 8.33%]
9. The university has opened an international program to accommodate the growing number of foreign students who wants to enroll at the university. [Item 9] [2/24 or 8.33%]

Question 2: How does the university offer a course profile that reflects student demand and to meet workforce needs?

The first three responses to question 2 clearly indicate vital importance of hiring and maintaining staff developing programs and courses for teaching, advising, and research. The staff is therefore the most valuable product of the university to make graduate production highly effective.

Table 3: Human Resource Management: Subjects' Responses by High to Low Frequency

1. The university offers free workshops and training seminars to faculty and staff for skill development. [Item 2] [23/24 or 95.83%]
2. The university awards promotions, scholarships, recognition and financial rewards based on work performance and/or research quality. [Item 4] [23/24 or 95.83%]
3. The university offers teacher and staff exchange programs to widen their perspective and knowledge. [Item 3] [7/24 or 29.17%]
4. The university provides orientation for new staff and faculty in order to communicate the expectation of the university, as well as motivate them by expressing their role in its success. [Item 1] [7/24 or 29.17%]
5. The university offers very good healthcare plan/benefits for employees. [Item 10] [4/24 or 16.67%]
6. The university awards promotions to faculty members who can integrate the findings of their research in their teaching strategies. [Item 5] [3/24 or 12.5%]
7. The university encourages each department to conduct peer-evaluation in terms of teaching strategies and to give constructive criticism to its faculty members. [Item 6] [3/24 or 12.5%]
8. The university allows faculty members to maintain the practice of their profession aside from conducting classes (e.g. engineering faculty can still work in the private sector as engineers, professors in college of medicine still work as doctors in hospitals, etc.). [Item 7] [3/24 or 12.5%]
9. The university provides other benefits (health insurance, scholarships, etc.) to the immediate family members of the employee. [Item 8] [2/24 or 8.33%]
10. The university maintains the high standards of its lecturers through filtering – only lecturers with a doctorate degree or in the process of getting their doctorate degree, high standards of English skill, and is research active gets accepted and retained. [Item 9] [2/24 or 8.33%]
11. The university has open communication between high management and the faculty and staff. [Item 11] [2/24 or 8.33%]
12. The university encourages its faculty and staff to pursue post-graduate studies and academic rankings for better academic preparedness. [Item 12] [2/24 or 8.33%]

Question 3: How does the university attract and maintain high quality workforce?

The subjects responded to question 3 with two answers common to all six universities. The first and most common answer involved trainings and workshops provided by the university, for skill development of their employees. The second most common answer involved rewards and incentives to employees such as recognitions, promotions, scholarship grants and financial incentives.

Table 4: Research: Subjects' Responses by High to Low Frequency

1. The university offers adequate funding to support its faculty in doing research. [Item 1] [24/24 or 100%]
2. The university supports researches, which aid the community and/or the country by collaborating with other departments and outside organizations to disseminate the information either through seminars and workshops or through project creation. [Item 4] [24/24 or 100%]
3. The university provides recognition and rewards for published researches made by the faculty. [Item 3] [20/24 or 83.33%]
4. The university houses an intellectual property center wherein it creates, protect and utilize intellectual property as well as enforce the rights of its author/originator through patents. [Item 2] [4/24 or 16.67%]
5. The university provides funding for projects, which portrays innovation in the field. [Item 5] [4/24 or 16.67%]
6. The university awards promotions and rewards to faculty members who can integrate the findings of their research in their teaching strategies. [Item 6] [3/24 or 12.5%]

Question 4: How does the university demonstrate their role as co-creators and custodians of knowledge in terms of research?

Table 4 presents the responses given to Question 4 which refers to the role of universities in the creation of knowledge through research. All subjects mentioned the importance of research support, research for the community and/or the country by collaborating with other departments and outside organizations to disseminate the information either through seminars and workshops or through project creation.

Table 5: Financial Flexibility: Subjects' Responses by High to Low Frequency

1. The university employs a risk management system, and an investment analysis and planning system, to avoid unnecessary risks, control the probability and/or impact of unfortunate events, and to maximize the realization of investment opportunities. [Item 1] [19/24 or 79.17%]
2. The university has a financial expert (e.g. university management company) as its partner/investor, which plans its finances. [Item 3] [4/24 or 16.67%]
3. The university aims to balance its short and long term plans in terms of finances. [Item 2] [2/24 or 12.5%]

Question 5: How has the university established a sustainable financial position?

The subjects perceived financial flexibility of the university as a sustainable financial position regarding risk management and investment opportunities. They could relate financial flexibility to the annual and interim reports available for expense updates and discussion at meetings. In their view, every department has adequate budgets; all proposed projects will go

through committee reviews for funding. Such a procedure can be followed by a clear audit process or counterchecks for financial justification.

Table 6: Estate Management: Subjects' Responses by High to Low Frequency

1. The university has long-term plans of increasing the number of its investments in terms of fixed assets. [Item 4] [24/24 or 100%]
2. The university continuously improves its estate through the construction of land improvements (e.g. bicycle lanes, tram lanes, e.g.) and expansion and renovation of rooms and buildings (e.g. skywalks to connect buildings, new building for library, new laboratories, mock rooms for special trainings, etc.). [Item 7] [20/24 or 83.33%]
3. The university has plans of increasing its business and commercial zones (e.g. malls/restaurants/stalls inside the campus that are paying rent). [Item 5] [9/24 or 37.5%]
4. The university has a regular maintenance schedule for all its assets. [Item 8] [8/24 or 33.33%]
5. The university regularly checks the satisfaction rate of users (students, staff and faculty) of university's assets. [Item 1] [7/24 or 29.17%]
6. The university effectively manages its wastelands and garbage collection in support of the university's image of being a green university. [Item 6] [4/24 or 16.67%]
7. The university keeps an updated database of all its assets. [Item 3] [3/24 or 12.5%]
8. The university has ongoing renovations of old buildings and construction of new buildings. [2/24 or 8.33%]
9. The university keeps a master plan for flood crisis management. [Item 9] [2/24 or 8.33%]

Question 6: How will the university expand and maintain its estate over the next five years?

Table 6 presents entrepreneurial activities pursued by the university for the management of its estate. All of the respondents affirmed that their universities have long-term plans of increasing their investments on fixed assets. The respondents also reiterated that continuous expansion, improvements and renovations have been on-going every year to accommodate a growing number of students, as well as improving and updating the facilities used by students, staff and faculty all alike.

Table 7: Student Population Growth: Subjects' Responses by High to Low Frequency

1. The university is offering student exchange programs to current and prospective students. [Item 2] [24/24 or 100%]
2. The university is offering student scholarships to current and prospective students. [Item 3] [8/24 or 33.33%]
3. The university is planning to increase more on its 'international' aspect such as using English as the medium of teaching in certain subjects in the Thai program and offering an ASEAN Language Program in support of the AEC (ASEAN Economic Community). [Item 1] [8/24 or 33.33%]
4. The university is aiming to increase the number of students in its graduate programs (Master and Doctorate Degrees) by integrating an international aspect in their programs.

[Item 4] [4/24 or 16.67%]
5. The university is aiming to increase the number of students through public relations, road shows in and around Thailand and other media advertising. [Item 7] [4/24 or 16.67%]
6. The university aims to raise the level of Quality Assurance and improve business service to motivate prospective students to enroll. [Item 8] [4/24 or 16.67%]
7. The university has overseas recruitment agencies and is utilizing several forms of advertising to reach a wide number of audiences. [Item 9] [4/24 or 16.67%]
8. The university offers programs with broader scope in terms of job field (e.g. business management). [Item 5] [2/24 or 8.33%]
9. The university aims to raise the quality level of vocational education. [Item 6] [2/24 or 8.33%]

Question 7: How will the university improve its student population growth over the next five years?

All respondents mentioned that offering exchange programs to current and prospective students was a key factor in growing its student population. They also asserted that it is essential that the university offer exchange programs to their students because students tend to be interested in gaining international exposure and experience. This is a current demand of students for the universities to have connections with other educational institutions preferably outside the country.

Table 8: Business Development and Growth: Subjects' Responses by High to Low Frequency

1. The university has a research department, which offers consultation and actual research for companies. [Item 2] [22/24 or 91.67%]
2. The university has an intellectual database, storing original patented researches, wherein companies can have access. [Item 1] [8/24 or 33.33%]
3. The university formed partnerships and collaborations with companies in order to communicate business practices through seminars and conferences. [Item 3] [4/24 or 16.67%]
4. The university offers seminars, workshops and trainings to various companies for the dissemination of best industry practices (e.g. HR practices, usage of IT software, etc.). [Item 4] [4/24 or 16.67%]

Question 8: How does the university demonstrate a provision of academic expertise to the needs of business development and growth?

The subjects signified knowledge sharing and current business practices and methods in the context of local industries. The university research units deal with providing consultation as well as conducting research projects commissioned by the industry.

Table 9: Economic Development of the Community: Subjects' Responses by High to Low Frequency

1. The university promotes and encourages students to apply for internships and on-the-job trainings to increase their experience before they become part of the workforce. [Item 1] [24/24 or 100%]
2. The university provides seminars, workshops and in-house job training in order to increase the working skills of students for better job placement. [Item 2] [24/24 or 100%]
3. The university encourages students to create business plans and market research for local businesses and entrepreneurs in order to help the community. [Item 3] [16/24 or 66.67%]

Question 9: How does the university contribute to the economic development of the community in terms of job creation?

As seen in Table 9, all subjects of the study indicated that their university supports students to apply for an internship program or on-the-job training. The staff members are to prepare their graduates for the workforce. Students are encouraged to get connected with the local industries through these types of job-based activities.

Table 10: Corporate Social Responsibility: Subjects' Responses by High to Low Frequency

1. The university joins and/or hosts seminars, workshops and conferences to share knowledge from published academic works and researches (sample topics: strategies and procedures in starting up a business, knowledge about health and how to improve their daily lives, farming techniques and practices, etc.). [Item 1] [24/24 or 100%]
--

Question 10: How does the university ensure the dissemination of existing best practices in the field to other universities, government agencies and stakeholders?

The subjects stated that their university disseminates existing research findings and best professional practices via seminars, workshops and conferences. This is how the university serves the public and the target community as corporate social responsibility. The university includes programs of excellence, such as outreach programs, Thai cultural immersion programs, medical and dental missions and volunteer work in rural areas.

10. Discussion of Results

In this section, the authors observed and noted specific points for attention of those who are involved in educational logistics, particularly in the Thai context regarding ten entrepreneurship components: (1) Competency, (2) Product, (3) Human resource management, (4) Research, (5) Financial responsibility, (6) Estate management, (7) Student population growth, (8) Business development and growth, (9) Economic development of the community, and (10) Corporate social responsibility.

As for entrepreneurial activities under *competency*, innovations are of prime importance, particularly in providing an online database which students, staff and faculty could access for information on student data and research findings. This is in fact the creation of differentiated value universities need to innovate and engage themselves in entrepreneurial activities as earlier emphasized by Drucker (1985).

Such differentiated value can be seen in entrepreneurial activities under *product* and *human resource management* in that the universities hire professional experts in the field to teach the courses they are offering. The use of high quality staff is perceived as a strategy that responds to student demands in relation to course profiles relevant in today's market. As seen in the response data obtained in the study, the universities also compete for qualified workforce and provide trainings and workshops for skill development of their employees. Other incentives to keep their employees are rewards such as recognitions, promotions, scholarship grants and financial incentives. These actions reflect academic entrepreneurship in creating value through acts of organizational creation, renewal or innovation that will result in research and technology commercialization (Yusof et. al, 2010).

Entrepreneurial activities in the component of *research* signifies the role of universities in the creation of knowledge through research works. All respondents agreed to two points: (1) the universities provide research funds available for the faculty, and (2) the universities support research work that support activities and well-being of the target community. As required by the Office of Higher Education Commission (2013), research has definitely become an essential part of the process of innovation and in turn has served as a tool in realizing the university's accountability toward their stakeholders. In so doing, the universities utilize the entrepreneurial concept with awareness of the market value of research, and the continuous search for new institutional methods utilizes the benefits of both scientific research and innovation (OECD, 2003; Siegel, 2006; Rothaermel et al., 2007).

As for the entrepreneurial component of *financial responsibility*, the respondents were not very familiar with or directly involved in the finances of the university; however, they could relate finance to the annual and interim reports either received or discussed at meetings. All departments reported that they had adequate budgets for project that require funding for data collection and analysis. As pointed out by Preston (2001), an awareness of finance in operations reflects application of business models to the higher education sector that takes into consideration a managerialistic approach to organizational structures.

It is obvious that the university executives were well aware of *estate management* used by their university. They are currently involved in long-term plans of increasing investments on fixed assets. They also elaborated on continuous expansion, improvements and renovations of their university in maintaining or expanding its estate. This is to accommodate a growing number of students, as well as improving and updating the facilities used by students, staff and faculty. Estate management utilized by the universities clearly reflects the type of entrepreneurial activities encouraged by businesses to nurture and maintain continuous innovation, as highlighted by Antoncic & Hisrich (2001). The point on the need for university executives to keep themselves

competitive in the market was mentioned earlier by Porter (1996). In addition, the respondents acknowledged the trend in which universities are inevitably forced by globalization to engage themselves in entrepreneurial activities to satisfy their consumers' needs and preferences; this was in accordance with the standpoint of universities being globalized in a business trend suggested in the work of Eyal & Inbar (2003). Such a trend also includes the entrepreneurial component of *student population growth*. From the respondents' data, it is now a demand of students for most universities to have connections with other educational institutions, preferably outside the country.

The university executives emphasized that entrepreneurial activities on *business development and growth* utilize business models as pointed out by Preston (2001). It is somewhat imperative that business collaborative efforts focus on the sharing of knowledge and current business practices and methods to the local industry. All six universities stated that they offer business advices and consultations, as well as industry & market research, and scientific and technological research to businesses. Such collaboration with the industrial sector is also required by the independent educational agents in Thailand, mainly the Office of Higher Education Commission (OHEC), the Office of Internal Quality Assurance (IQA) and the Office of External Quality Assurance (EQA) (Kanjanapanyakom 2011, Ministry of Education 2009, Manual of IQA 2013, Manual of EQA 2013, OHEC 2013).

Entrepreneurial activities under the component of *economic development of the community* involve universities encouraging their students to apply for an internship program or an on-the-job training. It is expected that such experience would widen students' perspective of being part of the workforce. University graduates are expected to be well-prepared to be employed by companies by universities' provision of skill-building and improvement seminars, trainings and workshops. This type of employability support is also required for education quality specified by the OHEC, the IQA and the EQA (2013).

The component of *corporate social responsibility* plays a vital role in upgrading quality of higher education in Thailand. All three external educational agencies in Thailand—Office of Higher Education Commission, Office of Internal Quality Assurance, and Office of External Quality Assurance—have given high value to academic activities that can benefit target communities. Such activities can take the form of seminars, workshops and conferences as channels for sharing new knowledge and keep themselves updated in specific fields of specialization. The universities are required to fulfill their social responsibility with outreach programs, Thai cultural immersion programs, medical and dental missions, volunteer work in teaching children in rural areas supplying community services. These activities in turn reflect the organization's attitude towards self-reliance as well as social awareness regarding the institution's accountability (Yokoyama, 2006). This can be claimed as one of the ultimate goals of practices in educational entrepreneurship.

11. Entrepreneurial Activities Classified into Business Logistics and Educational Logistics

After obtaining data on entrepreneurial activities used by six top Thai universities, the researcher selected those items with high frequency at 16 [66.67%] and higher to map their

correspondence with processes of business logistics (Frazelle, 2002) and educational logistics (Bergström & Bulter, 2009) as shown in Table 11.

Table 11: Entrepreneurial Activities Classified into Business Logistics and Educational Logistics

Entrepreneurial Activity	Business Logistic Process	Educational Logistic Process
1. The university offers study trips and company visits in and out of Thailand to expose students to different industries and experts in the field.	Packaging & Utilization Transport	Flexible Study Path of the Individual Student
2. The university has an online database and an open-access journal wherein students, staff and the faculty can use for research.	Storage, Warehousing, & Materials Handling Inventory	Student Information management
3. The university regularly and rigidly evaluates the need to create or change curriculum through surveys and meetings with experts in the field of study, alumni and academic administrators.	Packaging & Utilization	-
4. The university regularly evaluates its lecturers and professors' performance in terms of teaching, advising, and research.	Packaging & Utilization	Staff Workload Planning
5. The university hires professional experts in the field to teach courses offered.	Packaging & Utilization	Staff Workload Planning
6. The university offers free workshops and training seminars to faculty and staff for skill development.	Information & Control	Staff Workload Planning
7. The university awards promotions, scholarships, recognition and financial rewards based on work performance and/or research quality.	Information & Control	Staff Workload Planning
8. The university offers adequate funding to support its faculty in doing research.	Information & Control	Staff Workload Planning
9. The university provides recognition and rewards for published researches made by the faculty.	Information & Control	Staff Workload Planning
10. The university supports researches which aid the community and/or the country by collaborating with other departments and outside organizations to disseminate the information either through seminars and workshops or through project creation.	Information & Control Inventory Transport	Staff Workload Planning
11. The university employs a risk management system, and an investment analysis and planning system, to avoid unnecessary risks, control the probability and/or impact of	Information & Control Inventory	Planning

	unfortunate events, and to maximize the realization of investment opportunities.		
12.	The university has long-term plans of increasing the number of its investments in terms of fixed assets.	Storage, Warehousing, & Materials Handling	Space Management
13.	The university continuously improve its estate through the construction of land improvements (e.g. bicycle lanes, tram lanes, e.g.) and expansion and renovation of rooms and buildings (e.g. skywalks to connect buildings, new building for library, new laboratories, mock rooms for special trainings, etc.).	Storage, Warehousing, & Materials Handling	Space Management
14.	The university is offering student exchange programs to current and prospective students.	Packaging & Utilization	Flexible Study Path of the Individual Student
15.	The university has a research department which offers consultation and actual research for companies.	Transport	Staff Workload Planning
16.	The university promotes and encourages students to apply for internships and on-the-job trainings to increase their experience before they become part of the workforce.	Transport	[Relevancy of Academic Activities to the Workforce]
17.	The university provides seminars, workshops and in-house job training in order to increase the working skills of students for better job placement.	Transport	[Relevancy of Academic Activities to the Workforce]
18.	The university encourages students to create business plans and market research for local businesses and entrepreneurs in order to help the community.	Transport	[Relevancy of Academic Activities to the Workforce]
19.	The university joins and/or hosts seminars, workshops and conferences to share knowledge from published academic works and researches (sample topics: strategies and procedures in starting up a business, knowledge about health and how to improve their daily lives, farming techniques and practices, etc.).	Transport	[Corporate Social Responsibility]

As seen in Table 11, the selected entrepreneurial activities appear to fit into five processes of business logistics: (1) Packaging and utilization, (2) Storage, warehousing and materials handling, (3) Inventory, (4) Transport, and (5) Information and control. It should be noted that three entrepreneurial activities (items 1, 2, 10) deal with more than one entrepreneurship component regarding their coverage of activities.

As for six processes of educational logistics after Bergström & Bulter (2009): (1) student information management, (2) examination, (3) flexible study path of the individual student, (4) staff workload planning, (5) planning and timetabling, and (6) space management, it was found that eight activities [items 4, 5, 6, 7, 8, 9, 10, 15] fall into the process of Staff Workload Planning. The dominance of the educational logistic process reflects the significance of staff quality and imposition of research work on staff at the higher education level in Thailand. It is interesting to see item 3 [The university regularly and rigidly evaluates the need to create or change curriculum through surveys and meetings with experts in the field of study, alumni and academic administrators.] not fitting in any of six educational logistic processes. This finding could stem from the fact that Thai higher education as monitored by the Office of Higher Education Commission strictly requires the use of Thai Qualification Framework [TQF] for the university curriculum and its revision be required after the period of three years in use.

It was obvious that those entrepreneurial activities in items 16, 17, 18 did not fit into any of six processes of educational logistics. This finding could be explained by the requirement used by the Office of the Internal and the External Quality Assurance [IQA and EQA] that the university is to provide activities to prepare graduating students for the job market. The Entrepreneurial Activity Item 19 also resulted from the requirement of IQA and EQA that the university is to provide evidence on corporate social responsibility via academic services to ensure relevancy between the university research or academic innovations/ services and the curricula/ programs/ courses offered to current students.

It can be concluded from Table 11 that most entrepreneurial activities fall into processes of business and educational logistics. It should be noted that Thai higher education has been strictly monitored in terms of quality for university products and overall operations by three of five independent educational agents, namely the Office of Higher Education Commission, the Office of Internal Quality assurance and the Office of External Quality Assurance. As a result, the entrepreneurial activities identified by the interviewees or university executives tend to fall into such priorities prescribed by the three educational agents as university curriculum, quality of graduates and research conducted by staff members as well as graduate students at the Master and Doctoral level. In this regard, educational logistic processes pertinent to the Thai context could include three more processes: (1) Student Support Activities, (2) Research, and (3) Corporate/ University Social responsibility. Such addition can help us to have a comprehensive view of processes of educational logistics in Thailand.

12. Conclusion

This study explored entrepreneurial activities and strategies which Thai universities have used in operating different processes of educational logistics in order to develop an approach in achieving their target market as their competitive advantage. The results of the study reveal that most of the entrepreneurial activities identified by the subjects or selected higher education institutions in Thailand in response to the structured interviews can to a certain extent be categorized in the framework of six classified processes of educational logistics. There are three more processes identified as unique to the Thai Higher Education context: (1) Student Support Activities, (2) Research, and (3) Corporate/ University Social responsibility. These findings point

to the current trend in action that universities in Thailand are adopting business strategies as seen in their entrepreneurial activities of high frequency identified to meet the demands of their customers. Having secured such empirical information on the activities of Thai universities perceived as innovative and creative, the authors are well aware of the limited generalization of research findings only to the Thai context. However, they feel that generalizability of the study results to a wider context should be possible with more research investigating details of these categorized activities identified in this study. They definitely account for entrepreneurial success of the universities' operations in this study regarding how they can effectively satisfy and earn respect from their stakeholders.

13. Acknowledgements

The authors would like to thank the participants most sincerely for their time in interviews and particularly the host universities for their kind permission on staff access in data collection.

14. The Authors

Pannarat Wansavatkul, Ed.D. is a full-time staff member in the M.Ed. Program in Educational Administration, Faculty of Education, Rangsit University. Her recent research and publications deal with Educational Logistics and business concepts as applied to Tertiary Education.

Ruja Pholsward, Ph.D. is an Associate Professor in the Faculty of Education, Rangsit University. Her research and publications are in the areas of English for academic Purposes, Functional Language Communication, Language Communication, Authentic Assessment, and Educational Practices in Higher Education.

15. References

Ahmad, N. & Seymour, R.G. (2008). Defining entrepreneurial activity: Definitions Supporting Frameworks for Data Collection. Available at: <http://www.oecd.org/industry/business-stats/39651330.pdf>

Ahmad, N., & Seymour, R. (2008). Defining entrepreneurial activity: definitions supporting frameworks for data collection.

Antonicic, B., and Hisrich, R.D. 2001. Intrapreneurship: Construct refinement and crosscultural validation. *Journal of Business Venturing*, 16(5), 495-527.

Bergström, A. & Bulter, R.J. (2009). Educational Logistics: How can you be in control. *Scientia Resource Management*

Bruyat, C & P-A Julien. 2000. Defining the Field of Research in Entrepreneurship. *Journal of Business Venturing*, 16: 165-80.

Cantillon, R. 1755/1931. *Essai sur la Nature du Commerce en Général*. London, UK: MacMillan.

Cargill, B.J. (2006). The entrepreneurial university – Is it ‘All about the money’ or does ‘Being entrepreneurial’ mean something different for a university? Annual Conference of the British Academy of Management, Belfast, 12-14 September.

Charoenwongsak, K. (1998). *A Look at Future Dream: Vision of Thailand in Year 2017*. Bangkok: Success Media Press.

Council of Supply Chain Management Professionals. (2004). Available at: <http://www.cscmp.org>.

Covin, J G & D P Slevin. 1989. Strategic Management of Small Firms in Hostile and Benign Environments. *Strategic Management Journal*, 10(1): 75-87.

Defoe, D. 1887/2001. *An Essay on Projects*, Project Gutenberg eTexts: Project Gutenberg eTexts.

Dnicker, P.F. (1985) *Innovation and Entrepreneurship*. London: Heinemann,

Drucker, P F. 1985. *Innovation and Entrepreneurship: Practice and Principles*. New York, USA: Harper Business.

Eyal, O. & Inbar, D. E. (2003). Developing a public school entrepreneurship inventory: Theoretical conceptualization and empirical examination. *International Journal of Entrepreneurial Behavior and Research*, 9(6), 221–244.

Frazelle, E. *Supply Chain Strategy*. McGraw Hill Professional, 2002. [Business logistics]

Hisrich, R.D., Peters, M.P. and Shepherd, D.A. (2005). *Entrepreneurship*. Third edition. New York: McGraw-Hill,

Hisrich, R.D.M.P. Peters, & D.A. Shepherd. (2008). *Entrepreneurship*. Sixth edition. New York: McGraw-Hill, Irwin. *Innovations, Business Cycles and the Evolution of Capitalism*, edited by Richard V. Clemence,

Kanjanapanyakom, R. (2011). “Thai Experience with Quality Assurance.” Office of External Quality Assurance Thailand. *Manual for the External Quality assurance for Higher Education Institutions*.

Kirzner, I M. (1973). *Competition and Entrepreneurship*. Chicago, Illinois: The University of Chicago Press.

Leibenstein, H. (1968). Entrepreneurship and Development. *American Economic Review* 58(2):72–83.

Lussier, R. N. and Pfeifer, S. (2001), *A Crossnational Prediction Model for Business Success*.

Journal of Small Business Management, 39: 228–239. doi: 10.1111/0447-2778.00021

McGrath, R. M., & MacMillan, I. C. (2000). *The entrepreneurial mindset*. Boston: Harvard Business School Press.

Ministry of Education. (2009). *Education Statistics in Brief*. Office of Permanent Secretary , [Online] available at: http://www.moe.go.th/data_stat/, October 1, 2012.

Office of Higher Education Commission (OHEC). (2009). *Guidelines to Thailand Qualification Framework TQF*.

Office of the National Education Development (OECD). 2003. *Turning science into business, patenting and licensing at public research organisations*. Paris: Office of the National Education Development

Office of the National Education Development (OECD). (1999). *National Education Act B.E. 2542 (1999)*. Available at: www.onesqa.or.th/en/publication/nation_edbook.pdf

Office of Internal Quality Assurance Thailand. (2013). *Manual for the Internal Quality assurance for Higher Education Institutions*.

Office of External Quality Assurance Thailand. (2013). *Manual for the External Quality assurance for Higher Education Institutions*.

Penrose, E. (1980). *The Theory of the Growth of the Firm*. Second edition. Oxford: Basil Blackwell Publisher.

Pickle, H. and Friedlander, F. (1967). *Seven Societal Criteria of Organizational Effectiveness*. *Personnel Psychology*, 20 (2), 165-178.

Portter, M.E. (1996). *What is Strategy?*, *Harvard Business Review*, November-December: 61-78.

Prahalad, C. K., & Bettis, R. A. (1986). *The dominant logic: A new link between diversity and performance*. *Strategic Management Journal*, 7: 485–501.

Preston, D. (2001) *Technology, Managerialism and the University*. Glenrothes Press: Fife, Scotland.

Ramana, Chivukula Venkata et al. (2009) *Influence of Socio Demographic Factors on Entrepreneurial Attributes and Success 2009 - 2009 - 111-126 V. 16 Issue. 4*.

Robinson Jr., R.B. (1983). *Measures of Small Firm Effectiveness for Strategic Planning Research*. *Journal of Small Business Management*, 21 (2), 22-29.

Rothaermel, F.T., Agung, S.D., Jiang, L. (2007). University Entrepreneurship: A Taxonomy of the literature. *Industrial and Corporate Change* 16 (4), 691-791.

Rushton, A., Croucher, P. & Baker, P. (2006). *The Handbook of Logistics and Distribution Management*. Philadelphia, PA : Kogan Page.

Schumpeter, J A. (1934). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. Cambridge, MA.: Harvard University Press.

Schumpeter, J. (1949). *Economic Theory and Entrepreneurial History, Change and the Entrepreneur*, pp. 63-84, reprinted in Schumpeter, J. (1989) *Essays on Entrepreneurs*,

Siegel, D.S. (2006). *Technology Entrepreneurship: Institutions and Agents Involved in University Technology Transfer*. Vol 1. London: Edward Elgar.

Siegel, D.S., Waldman, D., Link, A. (2003). Assessing the Impact of Organizational Practices on the Productivity of University Technology Transfer Offices: An Exploratory Study. *Research Policy* 32 (1), 27-48.

Vanderstraeten, R. (2004). "The Social Differentiation of the Educational System", *Sociology* 38: 255-272.

Von Mises, L. (1996). *Human Action: A Treatise on Economics*. Fourth Revised Edition. San Francisco: Fox & Wilkes.

Walras, L. (1954). *Elements of Pure Economics, or The Theory of Social Welfare*. London: Allen

Wright, M., Clarysse, B., Mustar, P., Lockett, A. (2007). *Academic Entrepreneurship in Europe*. Cheltenham, UK : Edward Elgar.

Yokoyama, K. (2006). Entrepreneurialism in Japanese and UK Universities: Governance, Management, Leadership, and Funding. *Higher Education*, 52(3), 523–555.

Yusof, M. & Jain, K.K. (2007). Leadership Challenges in Developing an Entrepreneurial University. *Indian Journal of Training and Development*, Vol. 37, No. 4.

Yusof, M. (2010). Academic Entrepreneurship in Research Universities: An Organizational Perspective. In: *The First Seminar on Entrepreneurship and Societal Development in ASEAN (ISE-SODA 2010) "Achieving Regional Growth through Entrepreneurship Education"*, 27th February-1st March 2010, City Bayview Hotel Langkawi. ASEAN Universities Consortium of Entrepreneurship Education (AUCEE), pp. 40-54. ISBN 983-2078-36-4.

16. Appendices

Appendix A: Instrument 1 for Structured Interview

Rangsit University
 Doctor of Education Program

“The Impact of Educational Logistics on Entrepreneurial Success in Higher Education”
 Structured Interview Questions

In completing the requirements of the doctoral program in Education Studies at Rangsit University, Thailand, I am conducting this survey for the purpose of identifying educational entrepreneurship components and their classified process on the basis of logistics application. The importance of this study will aid universities to identify opportunities for innovation and strategies in fueling educational entrepreneurship via different educational logistic processes. All your answers will be kept confidential and your assistance in completing this survey will be greatly appreciated. Thank you for your time and kind assistance.

[Researcher’s name]

Please read each question thoroughly and provide your best answers.

Specifications	Question
To acquire data pertaining to the competency of the university.	1. How does the university encourage and support innovation and creativity throughout the university, including teaching, research, service and all operations?
To acquire data pertaining to the product of the university.	2. How does the university offer a course profile that reflects student demand and meets workforce needs?
To acquire data pertaining to the human resource management of the university.	3. How does the university attract and maintain high quality workforce?
To acquire data pertaining to the research and development plan of the university.	4. How does the university demonstrate their role as co-creators and custodians of knowledge in terms of research?
To acquire data pertaining to the financial flexibility of the university.	5. How has the university established a sustainable financial position?
To acquire data pertaining to the estate management of the university.	6. How will the university expand and maintain its estate over the next five years?
To acquire data pertaining to the student population growth of the university.	7. How will the university improve its student population growth over the next five years?
To acquire data pertaining to the business industry collaborative efforts of the university.	8. How does the university demonstrate a provision of academic expertise to the needs of business development and growth?
To acquire data pertaining to the economic development of the university.	9. How does the university contribute to the economic development of the community in terms of job creation?

To acquire data pertaining to the social responsibility of the university.

10. How does the university ensure the wide dissemination of existing best practices in the field to other universities, government agencies and stakeholders?

Appendix: Definition of Terms

1. Entrepreneurship – is the act of innovation involving endowing existing resources with new wealth-producing capacity (Drucker, 1985); entrepreneurship is a context dependent social process through which individuals and teams create wealth by bringing together unique packages of resources to exploit marketplace opportunities (Ireland, Hitt, & Sirmon, 2003); entrepreneurship is the mindset and process to create and develop economic activity by blending risk-taking, creativity and/or innovation with sound management, within a new or an existing organization (Commission of the European Communities, 2003).
2. Entrepreneurs – are those persons (business owners) who seek to generate value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets (Ahmad & Seymour, 2008); entrepreneurs attempt to predict and act upon change within markets and bears the uncertainty of market dynamics (Knight, 1921); the entrepreneur is the innovator who implements change within markets through the carrying out of new combinations such as introduction of a new good or quality thereof, introduction of a new method of production, opening of a new market, conquest of a new source of supply of new materials or parts and carrying out of the new organization of any industry (Schumpeter, 1934).
3. Entrepreneurship in Education – are strategies to improve education, mostly associated with the development of new alternatives in the marketplace wherein the rewards of the marketplace provide incentives for undertaking the risk of innovation that is required to develop better educational alternatives (Levin, 2006)
4. Entrepreneurial Activity – involves identifying opportunities within the economic system (Penrose, 1959/1980); entrepreneurial activity is the enterprising human action in pursuit of the generation of value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets (Ahmad & Seymour, 2008).
5. Entrepreneurial Success – is a function from the ability of the entrepreneur to determine available opportunities, initiate, alter as well as create worth through options (retrieved from: <http://fortune999.blogspot.com/2011/09/entrepreneurship-definition-one-way-to.html>); is defined in terms of innovative capacity that enables a form to renew itself and hence survive longer (Echols and Neck, 1998).
6. Intellectual Property – refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce (World Intellectual Property Organization: retrieved from <http://www.wipo.int/about-ip/en/>)
7. Intellectual Property Rights allow creators or owners of patents, trademarks or copyrighted works to benefit from their own work or investment in a creation (retrieved from:

http://www.wipo.int/freepublications/en/intproperty/450/wipo_pub_450.pdf); intellectual property rights are the rights given to persons over the creations of their minds, and they give the creator exclusive right over the use of his/her creation for a certain period of time (World Trade Organization: retrieved from http://www.wto.org/english/tratop_e/trips_e/intell_e.htm)

8. Business Incubation – is a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the business incubator and through its framework of contacts. A business incubator's main goal is to produce successful firms that will leave the program financially viable and freestanding. These incubator graduates have the potential to create jobs, revitalize neighborhoods, commercialize new technologies, and strengthen local and national economies (National Business Incubation Association: retrieved from http://www.nbia.org/resource_library/what_is/)

Appendix B: Record of an interview with a government university executive

Respondent 1

Researcher Good afternoon. Thank you for taking the time to answer my questions about the university's entrepreneurial strategies. The first question is how does the university encourage and support innovation and creativity throughout the university, including teaching, research, service and all operations?

Respondent 1 Good afternoon. Well the university has operating units, centers of expertise and technical centre. University 1 has excellent center and research unit. The teachers can set up these units with the support from the university in order to build and create innovation.

University 1's goal is to build a new plant through the use of various tools in the lab wherein they will utilize and create machines in the form of semi-industry. Currently, this plant is in Saraburi province.

Researcher What does the plant make?

Respondent 1 It is the institution for learning, teaching and to do research that leads to reality because in the past, those two which I mentioned are just what we put on the shelf.

Researcher Now that they have a factory makes it more realistic.

Respondent 1 I want you to talk to the board because they can give you information of what we have. This brochure is only one part of the packaging unit. Here is a printing packaging factory that applies research; the industry can also come in to have a look.

Researcher How about [University 1] print, ego-print, is the factory operating and where?

Respondent 1 Yes. It is similar to the plant, and it is located here. We get job orders from outside such as making packaging biodegradable, eco friendly products, and no carbon. So this is the answer to the first question that there are two types of conventional or traditional. The third type may do something else such as the University of Agriculture which innovate the agricultural industry into reality.

Researcher Lets move on to the second question. How does the university offer a course profile that reflects student demand and to meet workforce needs?

Respondent 1 We call it problem oriented structures, which was originally called student oriented. Student based structure looks at the needs of the students for what they like then teach that. The students might like what they learned in the past. Then there is the center-based structure which depends on the teachers.

Today, University 1 structure focuses on solutions. Therefore, they would identify the industry and the problem then learn, think and solve problems, whether it is the subject of research or whatever. So now, the Bachelor degree project focuses on the problem and there is research that finds the solutions to those problems.

Researcher So, we have to have information first. At the present, they are about economic or how to make business and what can be adapted to the new curriculum.

Respondent 1 Now, many universities adopt Problem based structures.

Researcher Lets move on to the third question. How does the university attract and maintain high quality workforce?

Respondent 1 Besides the money, there are also the budget paid for the position and the university itself is partly responsible in improving the living environment, such as the workplace which suits the working environment as not part of the government. The university has budget so that teachers can attend seminars and trainings as well as for staff. The university also offers scholarships to foreign university. This is very difficult for universities that do not have enough money, because they have to wait for the government budget. In addition, they would like to have the budget to hire experts from abroad to stay for one year. An estimate of at least 60,000 Baht to 100,000 Baht / month is needed for this. However, the university is willing to pay to allow teachers to improve their quality and potential. This is how the university maintains a high-quality workforce.

Researcher The fourth question is how does the university demonstrate their role as co-creators and custodians of knowledge in terms of research?

Respondent 1 The university has excellent center and research unit, or is likely to, in the pilot plant, which will have a place for research and development to improve the quality plant in Saraburi. The plant has 3,000 acres; the current area of the university is just a thousand acres. Therefore, the plant in Saraburi is more than three times the space. It is very vast. We have this land more than ten years but we have just begun the process. There, it is both the lowland and mountain slopes. The University encourages faculties to collaborate with industry, both domestically and abroad. There is full support in terms of the research, support in financial matters and in everything.

Researcher The fifth question is how has the university established a sustainable financial position? Such as does the faculty have risks management plan, investment plan, and risk management in different parts.

Respondent 1 Currently, the university started to develop the outskirts of the Expropriate of the university in order to adjust to the study zone, the business zone and the environment zone. In business zone, we are trying to adjust to increase in value.

The university plans to develop itself to increase its revenues by building new buildings and commercial buildings, it seems to be the financial source of the university that is sustainable. For the sake of risk management, the university has a base knowledge of risk management to set the policy for business zone and create the value of business zone such as Sam-Yan, Suanluang or even at Rama 4.[names of places] At the present, the university began to improve in value.

Researcher Question six, how will the university expand and maintain its estate over the next five years?

Respondent 1 In relation to the last question, the university is planning to expand its business zone. Moreover, the university aims to acquire revenues and hopes that a lot of money would come in because the government starts to cut the budget. Thus, the university needs to cut its expenditure and start earning somewhere else for itself.

Researcher Question seven, how does the university improve its student population growth over the next five years?

Respondent 1 The university does not have plan to increase the number of undergraduate students, the university has been focused on increasing the number of graduate students in Master degree. PhD focuses more to be as university of research. Thus, we focus more on Master degree and PhD in domestic and international markets. For example, we accept more of exchange students including college; most of them are ASEAN students who come to continue their study.

Researcher Does the university have any additional new courses in line that support ASEAN goals?

Respondent 1 Now, half of the courses are international to support AEC. In the next 5 years, an increase in the number of university students is definite, and that to increase the emphasis of research students in the country and abroad, especially in Asia.

Researcher The eighth question, how does the university demonstrate a provision of academic expertise to the needs of business development and growth?

Respondent 1 The university has intellectual property rights unit and owns a company which brings out the work of the teachers as a commercial product. The company is a medium sized company which sells the products to other companies.

Researcher The detergent is a product of research?

Respondent 1 Yes, silver nano is being developed on a small scale; a silver nano is the molecule. A company bought the rights to use it and mix it to form a new product. Companies buy the information from research works. An example is a chemical solution, found from research, that make orchids bloom sooner. Villagers and farmers buy this to accelerate flowering.

Researcher How does the university contribute to the economic development of the community?

Respondent 1 There university sponsors a project in a province to support the economic development of the country. The province has a learning center for community development, which is supported by

Princess Maha Chakri Sirindhorn. Some research work are sold to the community; an example is corn paper derived from a previous research.

Researcher And educate people so they can do that themselves?

Respondent 1 There are trainings and seminars and not only in the province of Nan, it can be from anywhere and about the subject of food, frogs' farm and agricultural ideas which Nan will be the center. In addition, the university also began to accept new students for the new courses in the North part. It is a new course for the communities. It is to learn the basic lessons which is held in the university for 1 year and the 2nd, 3rd and 4th year, they will go to Nan for ecological research to finish program then go to work in the village.

The university has developed its own economy by the creation of learning centers. The university has a learning center in Saraburi province, Nan and Sri-chang Island. In the south is Phuket. The research centers spread out to the North East and try to go into the community. I do the research there and the teaching is through distance learning. If there is a need for some practical training then I must fly to Nan to teach. Phuket is an e-learning center, most provincial are e-learning centers but not Saraburi, and Saraburi is not a learning center. It is a factory that is still active today as the actual factory.

Researcher It is not a school but a place where students can practice and develop products. Last question, how does the university ensure the dissemination of existing best practices in the field to other universities, government agencies and stakeholders?

Respondent 1 The university is supported by MOU to upgrade the knowledge of professors through studying graduate studies such as Masters Degree and Doctoral Degree.

Researcher So that they have the knowledge to develop the University of their own.

Respondent 1 The university also focuses on the staff of the University, encouraging them to finish graduate studies too.

Researcher Is there any research that has been done and publishes for free?

Respondent 1 It can be free in terms of distribution but must be patented and licensed. To know how to develop is the function of the Intellectual Property Institute.

Researcher Is there any other CSR like to help the relief center or free dental examination?

Respondent 1 There is. The university has a dental program at Maha Sarakham province, the health sector is the service sector from the university. Whether it is doctors, pharmacy, job, the university started as a project itself. Also, there is Her Royal Highness Princess Galyani's program.

Researcher Does the main income come from business zones that the university has?

Respondent 1 The university has business zones because it is the work of Rama 6. Follow his work we have Siam, Sam-Yan and Suan-luang with the funds from the government.

Researcher Thank you very much for having me professor.

Appendix C: Record of an interview with a private university executive

Respondent 2

Researcher Good afternoon. Thank you for taking the time to answer my questions about the university's entrepreneurial strategies. The first question is how does the university encourage and support innovation and creativity throughout the university, including teaching, research, service and all operations?

Respondent 2 We have changed the way of teaching which is called "active learning". It means that before joining the class students have to read their topic which they are about to learn, so they will be able to discuss with lecturer while they're in the class. We try to minimize the use of powerpoint presentations and put the priority on real-world education, which will allow our students to learn from real experience by inviting CEO from well-known companies to share their experiences in running business. This is much better than reading text just before doing examination.

Researcher Is there any workshop like language or computer workshop for students?

Respondent 2 These are basic requirements, but what we give more is a 480-hour internship, and some programmes are giving more than that. For example, the 4th year Hotel Management Programme students will have to do internship for 1,000 hours. This will allow our students to learn from a real situation and when they enter to a real career, they will be well adjusted, not only knowing how to brew coffee or serving meals to customers, but they will be ready to be an assistant manager, be able to help to analyze the situation and what needs to be improved. So our students have a high chance to be hired and having higher English skills.

Researcher What about research?

Respondent 2 We do encourage our lecturers to conduct researches and we also have a 1 million baht subsidy for each programme every year. Furthermore I also bring in projects from the outsides. We also have rewards for any guides who can dissert textbooks or conduct researches.

Researcher Let's reverse a little bit to "course of study or programme". There is a tour guide programme, right? Does the university encourage students to qualify for a license or certificate?

Respondent 2 Yes, we do. We've encouraged our students to take licensure exams to get qualified for certification. For English skills, our students must be able to strive for TOEIC for 650 if working in Bangkok, TOEIC 600 if working in Hua Hin.

Researcher What prominent point does the university have in the service field?

Respondent 2 We are conducting surveys in the service field every year which is called NPS (Net Promoter survey) by questioning in every field such as service, enrollment, teaching, etc. in order to improve our university's quality. After collecting data, our administrators will discuss which field needs to be improved first.

Researcher Question no. 2. In order to acquire data pertaining to the product of the university, how does the university offer a course profile that reflects students demand and to meet workforce needs?

Respondent 2 The way we manage our programme is to link with industrial sector, by hiring a market research company to conduct a market research for the need of workforce needs, before opening the programme we must need to know the demand of workforce, the proper tuition fee we should collect from students, the number of students that we can enroll, will the programme be a success. Marketing and administration must work together. Just like other companies doing their businesses, before launching new products a survey needs to be done first. So, our programme is the product.

Researcher Let me go to the 3rd question; it's about university's human resource management. How does the university attract and maintain high quality workforce?

Respondent 2 We have improved by providing better benefits, social security and health insurance. The way we manage our human resource is looking for the best, we believe that if we have intellectual people to work for us, our work will be perfect. So we put the priority to recruit intellectual people to work for us. There are both Thais and foreigners who work for us, such as a head of a department now who used to be the president of a prestigious school in Japan. We give them salary that meets their satisfaction, so the salary here is higher than other private universities. We also train them in "cooperation culture". Our direction is quite obvious, all of these for effectiveness of our work.

Researcher I may step to question no.4. How does the university demonstrate their role as co-creators and custodians of knowledge in terms of research?

Respondent 2 Now, our Thai lecturers have been conducting researches, but lately our foreign lecturers have join conducting researches as well. Our policy is utilizing everyone having the same standard. Mostly, Thai lecturers will conduct researches related to community service, area development, such as in Hua Hin and surrounding provinces whose getting benefits from our researches. They support us by providing the funds so we have to work for them by conducting researches for them, so they can utilize data of researches to increase their potential. Foreign lecturers will conduct researches related to teaching and the social effect in Bangkok. Then we will post researches in website and publish them in journals.

Researcher I may step to question no.5. How has the university established a sustainable financial position?

Respondent 2 We always analyze a financial plan. We are in partnership with a company which manages a network of international universities, and a financial expert.

Researcher Can you elaborate on this?

Respondent 2 We had a financial problem before but now it's gone, our finance is stable now. The concept is "Viable financial" which is the profit we get will be invested in education; it will not be specifically allocated to shareholders only. So, the education in this world shall go further. There are 66 universities in 29 countries who is in partnership with this company.

Researcher Are there any advantages in this partnership?

Respondent 2 We can get through a financial problem easily. Our concept is different from other universities in the country, we are more flexible, and we have different ways in which we tend to grow. We do as a professional, a business perspective.

Researcher That's great. I may step to question no.6. In order to acquire data pertaining to the estate management of the university, how will the university expand and maintain its estate over the next five years?

Respondent 2 We bought a land about 100 Rai in Bangkok to build our new campus. In the next 5 years, we are expecting the number of students to increase to 8,000-9,000. So, we will continue to build new buildings and extend our campus.

Researcher Let us go to Question no. 7. How will the university improve its student population growth over the next five years?

Respondent 2 The number of students now is around 2,000. To increase the number of students we need to increase QA level and improve our business service. Our Administration Division has the software which other universities don't have (I can't disclose the software) we work differently from other universities to help us in the recruitment of students. We also have agents overseas to help us recruit students from overseas. We have the right strategy, right direction, right concept and we pay attention to our work.

Researcher Let us move on to Question no.8. How does the university demonstrate a provision of academic expertise to the needs of business development and growth?

Respondent 2 We respond to the needs of the industrial sector, by appointing those people to be our consultants which right now, there are around 40-50 of them, they have many roles such as a member of the board of directors, head of programmes, and lecturers. Also having other cooperation such as providing trainings to HR of various companies and providing seminars.

Researcher Let us go to Question no.9. In order to acquire data pertaining to the economic development of the university, how does the university contribute to the economic development of the community in terms of job creation?

Respondent 2 We are the community consultant in the area of Hua Hin. Giving them knowledge to improve their OTOP products so they will have more profit. We sent our IT lecturers to train them as well.

Researcher For Question no.10. How does the university ensure the dissemination of existing best practices in the field to other universities, government agencies and stakeholders?

Respondent 2 We have been doing this. We sent our students to help flooding areas, repair and paint houses, teaching English to children there. Lately, we sent our students to Kanchanaburi province, to help build houses for people in Chaiyaphum province with the cooperation with some companies. We emphasize in CSR.

Researcher Thank you very much for having me professor.