

Competencies of Successful Entrepreneurs: Perspectives of Students and Entrepreneurs

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Abstract

The objectives of this research were 1) To study the entrepreneurial competencies of entrepreneurs in manufacturing, trading and service businesses 2) to study the competencies of students and 3) to compare the competency between entrepreneurs and students by opinion level. The sample groups used for the research were 1) 390 undergraduate students, quota sampled by university categories; and, 2) 20 purposively sampled entrepreneurs. The tools used in this survey research were interviews and questionnaires. Data were analyzed by descriptive statistics using percentage, mean and standard deviation, and t-test. The research conclusions are as follows. 1) Entrepreneurs have a high level of opinion on entrepreneurial competencies ($\bar{x} = 3.92$). 2) Students have a medium level opinion on entrepreneurial competencies ($\bar{x} = 3.39$). 3) In comparing entrepreneurs and students in terms of their entrepreneurial competencies, there is a significance level of 0.05 in all three aspects, the average entrepreneurs' opinion level being higher than that of students.

Keywords: 1) Entrepreneurship 2) Entrepreneurial competencies 3) Students and Entrepreneurs

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Introduction

Technological innovations result in ever-changing business models and processes. New business platforms, e-commerce, and global supply chains for small economies create new chances for student entrepreneurs to be adaptive in response to changing circumstances. To be successful in the present and the future, however, young entrepreneurs must constantly acquire new talents. Entrepreneurial characteristics are crucial to entrepreneurs' success in business, particularly when establishing a new venture (Startup). Owning a business may be the dream of many individuals. Nonetheless, there are quite a few unfortunate individuals who failed. This is because they are more concerned with external factors than internal ones which are the "entrepreneurial characteristics". In accordance a study by European Union (2016, p.43), the impact of entrepreneurial competencies on higher education entrepreneurship programs was investigated. It was found that the initiative, which is one of the eight characteristics or lifelong learning, was necessary for individual achievement. Phan and Nguyen (2014, pp.5-9) surveyed 938 young adults in Ho Chi Minh City between the ages of 18 and 35, including students, employees, and entrepreneurs. 70 percent of youth desired to launch their own business. Their entrepreneurial characteristics were passionate, receptive, responsible, materialistic, having low-risk and low-reliability. They have needs and motivations, both physical and mental, to be an entrepreneur. In addition, Phungphol and Jadesadalug (2018, p.2) investigated the characteristics of a new

generation of entrepreneurs that influenced business operations through the competitive advantage of start-up. It was discovered that the significance of entrepreneurial characteristics development should be linked with the creation of competitive advantages and the conduct of business.

This study examined the opinion level of entrepreneurial competencies of undergraduate students from five types of universities: autonomous universities, public universities, Rajabhat Universities, Rajamangala Universities of Technology, and private universities. This research compared entrepreneurial competencies from the perspectives of students and entrepreneurs. The research findings will be used as guidance or recommendations for fostering student entrepreneurial potential.

Objectives

1. To examine the entrepreneurial competencies of entrepreneurs in the manufacturing, trading, and service sectors.
2. To investigate the entrepreneurial competencies of students.
3. To compare the entrepreneurial competencies of entrepreneurs and students based on their level of opinion.

Literature Review

Concept of Student entrepreneurship

Education in entrepreneurship refers to the process of preparing students or graduates to generate more entrepreneurial concepts and abilities. This entrepreneurship education equips students with the additional knowledge and characteristics required to apply to the

establishment of a new firm or corporation. All of this is required for entrepreneurial effectiveness, that is, the capacity to work effectively as an entrepreneur (The Quality Assurance Agency for Higher Education, 2012, p.8).

The Quality Assurance Agency for Higher Education (2012, pp.13-15) reported the growth of student entrepreneurship in the United Kingdom. A learning development model empowering students to become powerful entrepreneurs consists of the following items:

1) Entrepreneurial mindset includes personality and social identity, personal ambitions and goals, personal confidence and flexibility, self-discipline and personal organization, understanding of one's motivation, the ability to surpass perceived limitations and achieve success, tolerance for ambiguity, uncertainty, danger, and failure, awareness of ethical, social, and environmental values.

2) Entrepreneurial capability includes a variety of behaviors, traits, and skills. For instance, creativity and innovation, recognizing opportunities, creating and evaluating, decision-making supported by critical analysis and judgment, bringing ideas to leadership and management, reflection and action, interpersonal skills, communication and strategy skills.

3). Entrepreneurial effectiveness includes the use of appropriate business strategies, the independence of self-direction, the progress of each goal and method, the implementation of an enterprising idea, the making of business and career decisions, the creation of new ventures, and the identification of the target market and associated value mechanisms.

4). Entrepreneurial awareness fosters an understanding of new venture creation and recognizes the courage required to be entrepreneurs.

To summarize, the study of students' entrepreneurship is the process of preparing students with entrepreneurial knowledge and abilities. In addition, these entrepreneurial characteristics must be fostered for the growth of students, since it is directly tied to the entrepreneur's business success.

The conception of Entrepreneurial characteristics

Research in Thailand

According to the Office of the Civil Service Commission (2010, pp.4-7), competency refers to the behavioral attributes that result from a person's knowledge, skills, abilities, and other characteristics that enable them to deliver superior results than their peers.

Numerous researches have demonstrated the importance of entrepreneurial characteristics to entrepreneurial success. Wiset's (2000, pp.33-37) investigated the entrepreneurship of bachelor's degree students and found that the entrepreneurial traits of students included taking risks, perseverance, human relations, wishing for success, dealing with failure, motivation and power, seeking information, creativity, self-confidence, the willingness to take the initiative and assume responsibility, as well as opportunity and honesty. In addition, Wuttikaro (2000, pp.39-48) studied the characteristics of successful entrepreneurs from the department of industrial promotion to promote industrial business



entrepreneurs. It was discovered that the good characteristics of entrepreneurs included moderate risk audacity, a commitment to success, a commitment to the goals set, the ability to influence others, perseverance and hard work, enthusiasm and dynamism, the ability to learn from experience, responsibility, self-confidence, an interest in acquiring more knowledge, the ability to manage, creativity, environmental adaptability, the courage to make decisions, the capacity to think and analyze, the ability to form alliances, honesty, and savior.

Kharawaisi, Pooncharoen, and Jamornmarn (2011, p.9) examined the characteristics of successful hotel owners in the hotel industry in the lower northern provinces of Thailand. They identified nine skills, including autonomy orientation, concern for success, innovativeness orientation, commitment to patience, creativity, risk taking orientation, self-confidence, prompt problem resolution, and responsibility. Kettian (2013, p.5) examined the characteristics of entrepreneurs in the lower Northeast that influence the success of operating a medium-sized firm. They identified six skills: individuality, innovation, management of risk-taking, consistency and passion for learning, and a desire for achievement. Chantarasupasen (2014, pp.25-31) studied the desirable characteristics of tourism entrepreneurs including self-discipline, creativity and risk-taking, enthusiasm, routine work enjoying, orderliness, taking business as a soul, having a solid determination to be successful, diligence, high responsibility, optimism, and high regard for human resources.

Chokpromanan and Jadesadalug (2015, pp.967-988) examined the characteristics of entrepreneurs that contribute to the business success of shop owners in Don Wai Floating Market, Nakhon Pathom Province. There are individuality, innovation, risk-taking, competitive aggression, consistency, a desire to learn, and a passion for success. Tungsongcharoen (2015, pp.16-21) investigated the characteristics of entrepreneurship among MBA students in Bangkok, categorizing them into five major categories: creativity, risk-taking, proactive work, the bravery to compete, and administrative independence.

Bunnapa (2016, p.32) examined the characteristics of entrepreneurs and business opportunities that influence the success of entrepreneurs; construction materials in Bangkok: a deep understanding of the market, the ability to persuade, planning for the future, independence, decision-making power, awareness of the possibility of return on investment, self-understanding, and perseverance. Phungphol and Jadesadalug (2018, p.6) investigated the characteristics of new generation of entrepreneurs that influence business operations through the competitive advantages of startup companies. 1) business potential: proactive success, a sense of responsibility, a code of conduct, an acceptance of risk, and ongoing education, 2) recognizing the worth of others, including establishing relationships with others and a willingness to compromise, cooperating and 3) interactions between societies, including physical and communication skills. Korsukthaweechoon (2018, p.41) analyzed the motivation and entrepreneurial ambitions of

Thailand's higher education students including 1) general motivations: desire for achievement, belief in control variables, risk-taking, tolerance for uncertainty, and desire; 2) specific motivations: self-awareness and goal planning. Sornsermsombut (2018, pp.117-138) explored the seven characteristics that influence the entrepreneurial intention of Chiang Mai Rajabhat University students. 1) the drive for success, 2) the willingness to take chances, 3) the tolerance for ambiguity, 4) the sort of business ambitions, 5) a positive attitude toward failure, 6) a positive attitude toward novelty and 7) confidence in one's abilities. Jantar (2019, p.2) stated that the five important characteristics of private dormitory business owners in Chang Phueak, Mueang, Chiang Mai were 1) financial inspiration, 2) risk-taking, 3) self-confidence, 4) innovation, and 5) business-related inspiration. Kiatepornphichet and Parncharoean (2019, p.5) examined the qualifications and entrepreneurship intent of Dhurakij Pundit University: 1) commitment and effort, 2) desire for success and growth, 3) emphasis on opportunity and goals, 4) initiative and accountability, 5) severe problem solving, 6) realism and humour, 7) find and use feedback, 8) internal power, 9) consider risk, 10) status requirements, and 11) adherence to integrity and credibility.

In summary, the majority of research conducted in Thailand focused on various entrepreneurial competencies based on the research setting, but comprehensive examination and grouping of entrepreneurial competencies (attributes, behaviors, and abilities) have not been conducted. Therefore, the researcher recognizes an opportunity to

expand the research area about entrepreneurial characteristics in Thailand to develop the entrepreneurial competency of students to better prepare students for entrepreneurship.

International research

According to the Quality Assurance Agency for Higher Education in England (2012, p.16), the following elements influenced entrepreneurial success: 1) behaviors included perception of opportunities, problem-solving, action, self-management and personal perspective, network and communication, 2) attributes included aims and ambitions: self-confidence, perseverance, the knowledge that they control their destinies, the willingness to take action and learn via action, invention, and creativity and 3) skills included creativity and innovation, a solicitation and negotiation management approach, the ability to evaluate issues and make decisions in situations of ambiguity, uncertainty, and risk, and the ability to use networking skills, opportunity perception, and financial and business literacy effectively.

Lackeus, M. (2013, p.25) studied entrepreneurial competencies, which consisted of the following key components: 1) knowledge (mental models) referred to the understanding of how to carry out tasks with no resources. Understanding risk and probability models were the foundation of entrepreneurship, value creation, conceptualization, accounting prospects, finance, technology, marketing, risk, and so forth. Self-awareness was the realization that one's personality was beneficial to business. 2) skills included marketing skills, resource skills, opportunity-seeking skills,



interpersonal skills, learning skills and strategic skills and 3) attitudes included a passion for business ownership, self-efficacy, entrepreneur identity, proactivity and managing under uncertainty/ambiguity, creativity, and diligence.

The Quality Assurance Agency for Higher Education (2018, pp.9-15) conducted a study for organizations and entrepreneurs for higher education institutions in the United Kingdom and discovered that the following elements influenced effective entrepreneurship behaviors: 1) behaviors: initiative, making things happen, and reflection, communication, rotate and modify, storytelling, responsibilities, networks, personal performance, and risk management. 2) attributes: generosity, proactivity, curiosity, self-efficacy, flexibility, adaptability, determination, and the ability to recover when in a difficult circumstance under high pressure and stress while retaining confidence and a positive attitude. 3) competency: common sense making decisions, spotting commercial possibilities, creative problem solving, innovative practice, and strategic thinking.

The European Union (2016, pp.12-15) reviewed the European Commission's Entrepreneurship Framework. It consisted of three domains and fifteen competencies: 1) ideas and possibilities: opportunities recognition, creativity, vision, and valuable concepts, 2) resources: self-awareness and self-efficacy, motivation and perseverance, resource mobilization, financial and economic literacy, and mobilizing networks and 3) deployments: initiatives, planning and management, dealing with uncertainty, ambiguity, and risk, working with others, and gaining knowledge through

experience.

To conclude, international research papers focused on an overview of successful entrepreneurs' competencies which were classified as attributes, behaviors, and skills. They connected each aspect of a successful entrepreneur to determine which sub-factors each learner lacked or needed to become a successful entrepreneur.

The researcher implemented the concept of student entrepreneurship development in England. A learning development model for systematically preparing students to become influential entrepreneurs included 1) entrepreneurial mindset, 2) entrepreneurial capability, 3) entrepreneurial effectiveness, and 4) entrepreneurial awareness. There were step-by-step preparation and development of entrepreneurship skills for students. The three components of entrepreneurial competencies include attributes, behaviors, and skills. Each aspect is associated with a successful entrepreneur for students to recognize and comprehend the significance of student entrepreneurial development. They are shown as follows:

1. Enterprising attributes: 1) the ability to establish objectives and develop oneself to success, 2) self-confidence and self-belief, 3) commitment and perseverance in all problematic situations, 4) self-confidence in one actions to control over various situations, 5) self-improvement through actions and experiences, and 6) creative problem solving.

2. Enterprising behaviors: 1) opportunities and business development seeking, 2) finding innovative solutions, 3) problems and

business risks-taking management, 4) goal determination, 5) finding solutions and achieving goals from challenging situations, and 6) building networks and relationships

3. Enterprising skills: 1) creative problem solving skills in various approaches, 2) persuading and negotiating skills , 3) projects

prioritization skills, 4) risk analysis and decision making skills, 5) effective networking skills, 6) circumstances awareness and self-adaptability skills for changes, and 7) identifying opportunities skills, as shown in Table No. 1.

Table No. 1 An overview of entrepreneurial competencies' concept

| Enterprising | Factors | Authors |
|--------------|---|---|
| Attributes | 1) The ability to establish objectives and develop oneself to success | Wiset (2000); Wuttikaro (2000);European Commission (2012); Lackeus (2013); Bunnapa (2016); Sornsermsombut (2018) ; The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 2) Self-confidence and self-belief | Wiset (2000);Wuttikaro (2000); Kharawaisi, Pooncharoen and Jamornmarn (2011); European Commission (2012);The Quality Assurance Agency for Higher Education: QAA (2012) ;Lackeus (2013); Chokpromanan and Jadesadalug (2015); Sornsermsombut (2018);The Quality Assurance Agency for Higher Education: QAA (2018); Jantar (2019) |
| | 3) Commitment and perseverance in all problematic situations | Wiset (2000); Wuttikaro (2000); European Commission (2012); The Quality Assurance Agency for Higher Education: QAA (2012); Lackeus (2013); Kharawaisi, Pooncharoen and Jamornmarn (2011); Bunnapa(2016); Phungphol and Jadesadalug (2018); Sornsermsombut (2018) |
| | 4) Self-confidence in one actions to control over various situations | Kharawaisi, Pooncharoen and Jamornmarn (2011); European Commission (2012);The Quality Assurance Agency for Higher Education: QAA (2012); Kettian (2013); Lackeus (2013); Bunnapa (2016); Sornsermsombut (2018) ;The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 5) Self-improvement through actions and experiences | Wuttikaro (2000); The Quality Assurance Agency for Higher Education: QAA (2012); Lackeus(2013);European Commission (2012); Chokpromanan and Jadesadalug (2015); Phungphol and Jadesadalug (2018) ; The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 6) Creative problem solving. | Wiset (2000); Kharawaisi, Pooncharoen and Jamornmarn (2011); The Quality Assurance Agency for Higher Education: QAA (2012); The Quality Assurance Agency for Higher Education: QAA (2018); Sornsermsombut (2018) |



| Enterprising | Factors | Authors |
|--------------|--|--|
| Behaviors | 1) Opportunities and business development seeking | Wiset (2000) ;The Quality Assurance Agency for Higher Education: QAA (2012) ; European Commission (2012), The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 2) Finding innovative solutions | Wiset (2000) ; Wuttikaro(2000) ; European Commission (2012); The Quality Assurance Agency for Higher Education: QAA (2012) ; The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 3) Problems and business risks-taking management | Wiset (2000); Wuttikaro (2000); Kharawaisi, Pooncharoen and Jamornmarn (2011); European Commission (2012);The Quality Assurance Agency for Higher Education: QAA (2012); Kettian (2013);Lackeus (2013); Chokpromanan and Jadesadalug (2015); Tungsongcharoen (2015); Phungphol and Jadesadalug (2018); Sornsermsombut(2018); The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 4) Goal determination | Wiset (2000); Wuttikaro (2000); The Quality Assurance Agency for Higher Education: QAA (2012); The Quality Assurance Agency for Higher Education: QAA (2018); Bunnapa (2016) |
| | 5) Finding solutions and achieving goals from challenging situations | Wiset (2000); Chokpromanan and Jadesadalug (2015); Kharawaisi, Pooncharoen and Jamornmarn (2011);The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 6) Building networks and relationships | Wiset (2000); European Commission (2012);The Quality Assurance Agency for Higher Education: QAA (2012); The Quality Assurance Agency for Higher Education: QAA (2018) |
| Skills | 1) Creative problem solving skills in various approaches | Wiset (2000); Kharawaisi, Pooncharoen and Jamornmarn (2011);European Commission (2012);The Quality Assurance Agency for Higher Education: QAA (2012), Lackeus (2013); Chantarasupasen (2014); Chokpromanan and Jadesadalug (2015);The Quality Assurance Agency for Higher Education: QAA (2018); Jantar (2019) |
| | 2) Persuading and negotiating skills | Wuttikaro (2000); European Commission (2012); The Quality Assurance Agency for Higher Education: QAA (2012); Lackeus (2013); Bunnapa (2016); The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 3) Projects prioritization skills | Wuttikaro (2000); European Commission (2012); Kettian (2013); The Quality Assurance Agency for Higher Education: QAA (2018) |

| Enterprising | Factors | Authors |
|--------------|---|--|
| | 4) Risk analysis and decision making skills | European Commission (2012); The Quality Assurance Agency for Higher Education: QAA (2012); Lackeus (2013); Bunnapa (2016); The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 5) Effective networking skills | Wiset (2000); Wuttikaro (2000); European Commission (2012); The Quality Assurance Agency for Higher Education: QAA (2012); Lackeus (2013); The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 6) Circumstances awareness and self-adaptability skills for changes | Wuttikaro (2000); Phungphol and Jadesadalug (2018);The Quality Assurance Agency for Higher Education: QAA (2018) |
| | 7) Identifying opportunities skills | Wiset (2000); European Commission (2012);The Quality Assurance Agency for Higher Education: QAA (2012); Lackeus (2013); Bunnapa (2016); The Quality Assurance Agency for Higher Education: QAA (2018) |

Methods

The sample of this research consists of science and non-science students from five categories of universities, including, public universities, autonomous universities, Rajabhat universities, Rajamangala universities of technology and private universities.

The sample groups were divided into two groups: undergraduate students and entrepreneurs.

1. 390 undergraduate students were selected based on the types of universities using a quota sampling method. First, universities in each of the four regions of Thailand (North region, Central region/Bangkok, North-eastern region, and Southern region) were selected, a total of 13 universities. Afterwards, 30 students who were 15 science major students and 15 non-science major students in each university were chosen, a total of 390 students. A sample of 13 universities was as follows:

- two public universities: Suranaree University of Technology and Naresuan University.

- three autonomous universities: Chulalongkorn University, Chiang Mai University and Walailak University.

- two Rajabhat Universities: Loei Rajabhat University and Uttaradit Rajabhat University

- two Rajamangala Universities of Technology: Rajamangala University of Technology Sriwichai and Rajamangala University of Technology Phra Nakhon

- four private universities: University of the Thai Chamber of Commerce, Rangsit University, Bangkok University and Payap University

2. 20 successful entrepreneurs who have operated their businesses for at least five years were selected by purposive sampling. The sample included eight entrepreneurs in manufacturing, seven in trading and five in service sectors.



Research Instrument

The research instruments were 1) the questionnaire on opinion level of entrepreneurial competencies and 2) the interview form of successful entrepreneurs.

Research Validity

1) The questionnaire on the opinion level of entrepreneurial competencies was reviewed and corrected by the thesis advisor in terms of content accuracy and use of language.

After that, 5 experts checked the content accuracy, consistency and language. Then the experts' results were used to calculate the Item-Objective Congruence Index (IOC index), in which an index of IOC must be higher than 0.5. The recommendations were made for improvement. The researcher used the questionnaire to try out with 30 students. The test reliability of this questionnaire was based on Cronbach's Alpha, and the alpha coefficient for the questionnaire is 0.970.

2) The entrepreneurs' interview form was also reviewed and corrected by the thesis advisor in terms of the content accuracy and use of language. After that, the questionnaire was offered to 5 experts to check the content accuracy, consistency and language.

Data analysis

The researcher analyzed the data using basic statistics such as percentage, mean, standard deviation and t-test using a statistical package program (SPSS).

Data Collection

1) The researcher collected data from

a questionnaire about the opinion level of entrepreneurial competencies of 390 undergraduate students. A quota and selective sampling method were used to select the sample based on university categories in the 4 regions of Thailand (North region, Central Region/Bangkok, Northeastern region and Southern region). There are 13 universities overall. Then 30 students from each university were selected who were 15 from the science major and 15 from the non-science major.

2) The researcher interviewed 20 entrepreneurs in manufacturing, trading and service businesses about the opinion level of entrepreneurial competencies by a purposive sampling method.

3) The research period was from January 2018 to December 2018, with a total period of 1 year.

Results

1) The results showed the competencies of entrepreneurs in manufacturing, trading and service businesses. It was found that entrepreneurs had a high opinion level of entrepreneurial competencies ($\bar{x} = 3.92$, $SD = 0.707$). Enterprising attributes had the highest opinion level ($\bar{x} = 4.07$, $SD = 0.653$), followed by enterprising behaviors ($\bar{x} = 3.92$, $SD = 0.733$) and enterprising skills ($\bar{x} = 3.77$, $SD = 0.736$).

Enterprising attributes: entrepreneurs had the highest opinion level of entrepreneurial competency in self-confidence and self-belief ($\bar{x} = 4.30$, $SD = 0.657$), while the ability to establish objectives and develop oneself to success received the lowest level ($\bar{x} = 3.85$, $SD = 0.587$).

Enterprising behaviors: entrepreneurs agreed that the highest opinion level of entrepreneurial competency was finding solutions and achieving goals from challenging situations ($\bar{x} = 4.15$, $SD = 0.671$) and building networks and relationships received the lowest score ($\bar{x} = 3.65$, $SD = 0.813$).

Enterprising Skills: effective networking skills and identifying opportunities skills obtained the highest opinion level of entrepreneurial competency ($\bar{x} = 3.90$, $SD = 0.718$) whereas circumstances awareness and self-adaptability skills for changes had the lowest score ($\bar{x} = 3.60$, $SD = 0.681$).

According to interviews with entrepreneurs, it was found that the majority of them, or 85% (17 participants), believed that entrepreneurial competencies could be learned and developed through activities that support entrepreneurship, such as practical training or internships with entrepreneurs. 75% of them (15 participants) agreed that setting goals, determination, perseverance and the ability to cope with changes were essential for successful entrepreneurs. Furthermore, most of them stated that successful entrepreneurs must possess the following knowledge: 1. Marketing (16 participants, 80%) 2. Finance (14 participants, 70%) 3. Accounting (12 participants, 60%) 4. Operations management (9 participants, 45%) 5. Business planning (8 participants, 40%) 6. Business law, leadership and behavior in the organization (7 participants, 35%), respectively.

2) The results demonstrated the students' entrepreneurship competencies. The overall opinion level of the students' entrepreneurial competencies was moderate

($\bar{x} = 3.39$, $SD = 0.962$). The opinion level on enterprising attributes was ($\bar{x} = 3.51$, $SD = 0.975$), enterprising behaviors was ($\bar{x} = 3.35$, $SD = 0.963$) and enterprising skills was ($\bar{x} = 3.30$, $SD = 0.948$).

The opinion level of entrepreneurial competencies among science students and non-science students was as follows:

- Science students had a moderate level of opinion on entrepreneurial competencies with an average of 3.30 ($SD = 0.811$). The opinion level on enterprising attributes was ($\bar{x} = 3.42$, $SD = 0.830$), enterprising behaviors was ($\bar{x} = 3.28$, $SD = 0.816$) and enterprising skills was ($\bar{x} = 3.21$, $SD = 0.788$).

- Non-science students also had a moderate level of opinion on entrepreneurial competencies with an average of 3.47 ($SD = 0.803$). The opinion level on enterprising attributes was ($\bar{x} = 3.59$, $SD = 0.829$), enterprising behaviors was ($\bar{x} = 3.42$, $SD = 0.787$) and enterprising skills was ($\bar{x} = 3.40$, $SD = 0.793$).

For the opinion level of entrepreneurial competencies among types of universities, it was found that autonomous universities had the highest opinion level with an average of 3.44, followed by public universities and private universities with an equal average of 3.38, Rajamangala universities of technology with an average of 3.36 and Rajabhat universities with an average of 3.32.

Autonomous universities: the students had a moderate level of opinion on entrepreneurial competencies, with an average of 3.44 ($SD = 0.718$). The opinion level on enterprising attributes was ($\bar{x} = 3.64$, $SD = 0.700$), enterprising behaviors was ($\bar{x} = 3.44$, $SD = 0.670$) and



enterprising skills was ($\bar{x} = 3.34$, $SD = 0.784$).

Public Universities: the students had a moderate level of opinion on entrepreneurial competencies, with an average of 3.38 ($SD = 0.713$). The opinion level on enterprising attributes was ($\bar{x} = 3.51$, $SD = 0.761$), enterprising behaviors was ($\bar{x} = 3.35$, $SD = 0.698$) and enterprising skills was ($\bar{x} = 3.27$, $SD = 0.698$).

Rajabhat Universities: the students had a moderate level of opinion on entrepreneurial competencies, with an average of 3.32 ($SD = 0.859$). The opinion level on enterprising attributes was ($\bar{x} = 3.47$, $SD = 0.821$), enterprising behaviors was ($\bar{x} = 3.25$, $SD = 0.938$) and enterprising skills was ($\bar{x} = 3.23$, $SD = 0.938$).

Rajamangala Universities of Technology: the students had a moderate level of opinion on entrepreneurial competencies, with an average of 3.36 ($SD = 0.893$). The opinion level on enterprising attributes was ($\bar{x} = 3.47$, $SD = 0.930$), enterprising skills was ($\bar{x} = 3.31$, $SD = 0.894$) and enterprising behaviors was ($\bar{x} = 3.30$, $SD = 0.855$).

Private Universities: the students had a moderate level of opinion on entrepreneurial competencies, with an average of 3.38 ($SD = 0.854$). The opinion level on enterprising attributes was ($\bar{x} = 3.44$, $SD = 0.911$), enterprising behaviors was ($\bar{x} = 3.36$, $SD = 0.850$) and enterprising skills was ($\bar{x} = 3.36$, $SD = 0.850$).

3) When comparing the opinion level of entrepreneurial competencies between entrepreneurs and students, the results indicated that entrepreneurs had higher opinion level than students in all three aspects. The entrepreneurs rated the opinion level of enterprising attributes, behaviors, and skills as 4.07,

3.92 and 3.77, respectively. Students' entrepreneurial competencies levels were 3.51, 3.35 and 3.30, respectively.

Enterprising attributes: entrepreneurs had the highest opinion level of entrepreneurial competency in self-confidence and self-belief ($\bar{x} = 4.30$), while the ability to establish objectives and develop oneself to success received the lowest level. For students' opinion level, self-improvement through actions and experiences had highest level with an average of 3.62, whereas the ability to establish objectives and develop oneself to success had lowest level with an average of 3.43.

Enterprising behaviors: entrepreneurs agreed that the highest opinion level of entrepreneurial competency was finding solutions and achieving goals from challenging situations ($\bar{x} = 4.15$) and building networks and relationships received the lowest score ($\bar{x} = 3.65$). However, students rated building networks and relationships as their most preferred entrepreneurial competency received the highest score ($\bar{x} = 3.49$) and the lowest was problems and business risks-taking management ($\bar{x} = 3.19$).

Enterprising skills: effective networking skills and Identifying opportunities skills received the highest opinion level of entrepreneurs' entrepreneurial competency ($\bar{x} = 3.90$), while awareness and adaptability for changes had the lowest score ($\bar{x} = 3.60$). As for the students' opinion level, the highest opinion level was Identifying opportunities ($\bar{x} = 3.44$) and with the lowest level of opinion was creative problem solving skills in various approaches ($\bar{x} = 3.24$), as shown in Picture No. 1.

When comparing entrepreneurial

competencies between entrepreneurs and students in terms of enterprising behaviors, attributes, and skills, it was discovered that the opinion levels between the two were statistically significant at the 0.05 level. The

entrepreneurs had higher levels in all aspects except the topic “circumstances awareness and self-adaptability skills for changes” in enterprising skills, which was not statistically significant at the 0.05 level.

Table No. 2 Results of differences in entrepreneurial competencies’ opinion level between entrepreneurs and students

| Entrepreneurial competencies | t | df | Sig. (t-test) | Mean Diff. (i - j) | Levene Statistic | Sig. (Levene’s test) |
|---|--------------|---------------|---------------|--------------------|------------------|----------------------|
| Attributes | -4.87 | 25.339 | 0.003* | -0.560 | 6.605 | 0.011 |
| 1) The ability to establish objectives and develop oneself to success | -3.02 | 24.397 | 0.006* | -0.422 | 9.573 | 0.002 |
| 2) Self-confidence and self-belief | -5.37 | 23.974 | 0.000* | -0.836 | 5.135 | 0.024 |
| 3) Commitment and perseverance in all problematic situations | -3.68 | 24.105 | 0.001* | -0.559 | 10.164 | 0.002 |
| 4) Self-confidence in one actions to control over various situations | -2.03 | 408 | 0.043* | -0.474 | 3.655 | 0.057 |
| 5) Self-improvement through actions and experiences | -2.67 | 22.938 | 0.014* | -0.429 | 6.246 | 0.013 |
| 6) Creative problem solving. | -4.87 | 24.422 | 0.000* | -0.641 | 12.749 | 0.000 |
| Behaviors | -6.13 | 29.788 | 0.000* | -0.564 | 7.957 | 0.005 |
| 1) Opportunities and business development seeking | -3.78 | 23.278 | 0.001* | -0.596 | 6.317 | 0.012 |
| 2) Finding innovative solutions | -2.61 | 408 | 0.009* | -0.541 | 3.283 | 0.071 |
| 3) Problems and business risks-taking management | -3.52 | 408 | 0.000* | -0.758 | 1.675 | 0.196 |
| 4) Goal determination | -3.05 | 408 | 0.002* | -0.649 | 3.788 | 0.052 |
| 5) Finding solutions and achieving goals from challenging situations | -4.30 | 23.515 | 0.000* | -0.681 | 6.388 | 0.012 |
| 6) Building networks and relationships | -2.93 | 24.658 | 0.007* | -0.400 | 5.161 | 0.024 |
| Skills | -2.61 | 408 | 0.009* | -0.468 | 3.574 | 0.059 |
| 1) Creative problem solving skills in various approaches | -2.35 | 408 | 0.019* | -0.506 | 0.008 | 0.931 |



| Entrepreneurial competencies | t | df | Sig. (t-test) | Mean Diff. (i - j) | Levene Statistic | Sig. (Levene's test) |
|---|-------|--------|------------------|--------------------------|---------------------|----------------------------|
| 2) Persuading and negotiating skills | -2.93 | 24.658 | 0.007* | -0.400 | 5.161 | 0.024 |
| 3) Projects prioritization skills | -2.38 | 408 | 0.018* | -0.513 | 0.748 | 0.388 |
| 4) Risk analysis and decision making skills | -2.26 | 408 | 0.025* | -0.478 | 0.823 | 0.365 |
| 5) Effective networking skills | -3.01 | 408 | 0.003* | -0.638 | 2.417 | 0.121 |
| 6) Circumstances awareness and self-adaptability skills for changes | -1.27 | 408 | 0.206 | -0.279 | 2.625 | 0.106 |
| 7) Identifying opportunities skills | -2.72 | 22.630 | 0.012* | -0.456 | 7.294 | 0.007 |

Remark: * P < 0.05, I = students, j = entrepreneurs

Conclusion and Discussion

The comparative analysis of the opinion level of entrepreneurial competencies between entrepreneurs and students found significant differences. In every aspects, the entrepreneurs had a higher opinion level of entrepreneurial competencies than students. The average entrepreneurial competencies levels in attributes, behaviors, and skills were 4.07, 3.92 and 3.77, respectively, while the students' entrepreneurial competencies levels were 3.51, 3.35 and 3.30, respectively. When comparing the entrepreneurial competencies between entrepreneurs and students in all three aspects, it was found that entrepreneurs rated their level of entrepreneurial competencies as "high". On the other hand, students rated it as "moderate". The statistical significance was at the 0.05 level.

The researchers believe that the differences in opinion levels between the two groups - one with a high level of opinion and the other with a moderate level of opinion - are related to their experiences in the real

business sector. From these differences, the researcher can promote the entrepreneurial potential for students so that they can become future entrepreneurs, as their opinion levels were in the medium-to-high range. Kiatepornpichet and Parncharoean (2019, p.1) studied and compared the characteristics and entrepreneurial intention of undergraduate students in Dhurakij Pundit University. The sample was 400 undergraduate students at Dhurakij Pundit University. It was discovered that undergraduate students in Thai program had a high level of entrepreneurship characteristics and a high level of intention to become an entrepreneur.

From the results, the average percentage of enterprising attributes' opinion level between entrepreneurs and students was the highest and opinion levels were also "high". This demonstrates that they both recognize the significance of attributes' characteristics. Similar to the research by Kharawaisi, Pooncharoen and Jamornmarn (2011, p.9), the study of the relationship between entrepreneurial characteristics and the success of hotel busi-

ness entrepreneurs in the lower northern provinces of Thailand was conducted. The sample for a quantitative research was 95 hotels in the lower northern provinces of Thailand. For a qualitative research, 9 hotel entrepreneurs in Phitsanulok province were used as a sample. The success of the hotel business entrepreneurs and their characteristics were found to be statistically significant at the 0.05 level. The nine skills of successful entrepreneurs are autonomy orientation, achievement orientation, innovativeness orientation, commitment to patience, creativity, risk taking orientation, self-confidence, prompt problem resolution, and responsibility. Kettian (2013, p.83) examined the characteristics of entrepreneurs on the success of running a medium-sized enterprise in the lower northeastern region. The sample was 167 entrepreneurs in 4 provinces (Chaiyaphum Province, Nakhon Ratchasima Province, Buriram Province and Surin Province). The success of medium-sized businesses was influenced by six entrepreneurial competencies: individuality, innovation, risk-taking management, consistency and passion for learning, and a desire for achievement. Moreover, Mustapha and Selvaraju (2015, p.1) examined factors influencing the entrepreneurship inclination of 178 undergraduate accounting students in Malaysian universities. The results showed that personal characteristics, family influence, entrepreneurial education had a positive correlation with students' inclination to become entrepreneurs.

The average values of entrepreneurial competencies in enterprising behaviors, attributes, and skills between entrepreneurs

and students were compared. They were statistically significant at the 0.05 level with the exception of enterprising skills: circumstances awareness and self-adaptability skills for changes. It was not statistically significant at the 0.05 level.

The researcher believes that circumstances awareness and self-adaptability skills for changes is an essential entrepreneurial characteristic because of the intense competition and frequent change in today's business. As a result, businesses must therefore be adaptable by considering their skills, time, financial resources, human resources, and other resources. It is vital to rely on expertise and diligence in business management to accomplish the goals that have been set. In accordance with Wuttikaro's study (2000, pp.39–48), he investigated the department of Industrial Promotion's Industrial Business Entrepreneurs Development Project since 1980. It was discovered that successful entrepreneurs need to be adaptive to various circumstances. They have to be dissatisfied with what they have and avoid following the norm. They actively sought new and better ways to work and tried to apply their experiences while also preferring to learn more. Entrepreneurs in the past typically did not complete higher education degrees, but they were experts in their fields. A successful entrepreneur is said to be one who is constantly eager to learn new things.

The comparative study on the opinion level of entrepreneurial competencies of science and non- science students found that both groups had moderate opinion levels. The average opinion level of science students is



3.30 and non-science students is 3.47. Both science and non-science students had moderate opinion level of entrepreneurial characteristics, however the key factor in developing students' entrepreneurial characteristics is to provide an environment for entrepreneurship education. This way, they will be able to know the entrepreneurial characteristics of a successful entrepreneur and how to fill in what they are lacking. In consistent with the study by Gál, Holienková and Holienka (2015, pp.7-12), they examined entrepreneurial characteristics of university students in 4 different majors (business administration, applied informatics, psychology and education). The scores were divided into three levels: high scores (44 to 54 points) indicated a high level of entrepreneurial traits, moderate scores (27 to 43 points) indicated a moderate level of entrepreneurial traits, and low scores (0 to 26 points) indicated a low level of entrepreneurship. The results showed that students in 4 majors had moderate entrepreneurial characteristics. Students majoring in business administration had the greatest average of the general enterprising tendency ($\bar{x} = 34.605$), followed by those majoring in psychology ($\bar{x} = 31.871$), applied informatics ($\bar{x} = 31.184$), and education ($\bar{x} = 30.444$), respectively.

Recommendations

Recommendations for the institutions

This research identified the competencies or attributes of entrepreneurship among students in Thai higher education institutions. Such competencies or attributes are significant for the success of business operations. The university should apply this entrepreneurial

competencies concept to test and develop students interested in entrepreneurship, since results of this research showed that both science and non-science students had moderate levels of entrepreneurial competencies. Therefore, colleges or other relevant institutions could use the research findings as guidance when designing programs that could help students develop their entrepreneurial skills.

Recommendations for future research

There should be further research on the entrepreneurial competencies of various types of entrepreneurs, including those in the robotics industry, new business entrepreneurs with the New S-Curve, and digital media designers who might not have the same entrepreneurial competencies.

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