

# Examining Entrepreneurial Competences of Asian Female University Students: A Four Country Comparison

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## Abstract

While the number of female entrepreneurs has been increasing, and female entrepreneurship has been increasingly perceived as a driving force of sustainable economic development, there is a lack of studies of female entrepreneurship, particularly in the non-Western regions. This study aims to explore current levels of entrepreneurial competences of female college students in four Asian countries (i.e., Indonesia, Korea, Philippines, and Vietnam), differences in the competences between countries, and factors affecting their entrepreneurial competences. Using online surveys, the present study collected data from 516 female Asian college students and examined their entrepreneurial competences in six dimensions-entrepreneurship, sensibility, business management, relationship management, strategic management, and multi-tasking. This study also investigated effects of four variables (i.e., entrepreneurship course taking experiences, on-campus entrepreneurship experiences, off-campus entrepreneurship experiences, and entrepreneurial intentions) on the six aspects of entrepreneurial competences. Data analysis reveals that female Asian college students as a whole group possess quite high levels of entrepreneurial competences while the Filipino students show the biggest competence in all the six dimensions measured. As regards affecting factors, this study finds that, in the total sample, regression equations are significant in all the six dimensions of entrepreneurial competences. On-campus experiences have significantly positive effects on those six dimensions while course taking experiences and entrepreneurial intentions positively affect three different dimensions each. However, out-of-campus experiences turn out to be negative though their effects are insignificant. Meanwhile, in individual samples, different factors affect different dimensions of entrepreneurial competences. Based on these findings, the present study suggests some actions for promoting female entrepreneurship and for conducting future studies.

*Keywords: female entrepreneurship, entrepreneurial competences, female entrepreneurial competences, Asia, female college students*

## I. Introduction

Since entrepreneurship was perceived as playing a significant role in employment, innovation, and economic growth(Aparicio & Audretsch, 2016; Kaur & Bains, 2013; Langevang & Gough, 2012; Meyer & Meyer, 2017; Naudé, 2013), researches on entrepreneurship have been widened and become diversified in terms of focus, context, methodology, and many others. Recognizing the entrepreneur's critical impact on venture initiation and outcomes(Chawla et al., 1997; Home et al., 1992;

Man et al., 2002), researchers have investigated entrepreneurs' characteristics, such as demographic characteristics, including gender, education, and age(Honjo, 2004; Robb, 2002), psychological and behavioral characteristics, including risk-taking propensity, perseverance and flexibility(Sadler-Smith et al., 2003), and social and human capital(Batjargal, 2005).

More recently, research has increasingly adopted the competence approach, which focuses on entrepreneurial competences, as a means of studying entrepreneurial characteristics(Ahn & Yoo, 2017; Bae & Lee, 2018; Baron & Markman, 2003; Bird, 1995; Kyndt & Baert, 2015; Man et al.,

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2002; Man et al., 2008; Volery et al., 2015). Competences are defined as higher-level characteristics encompassing personality traits, skills and knowledge, whose formulation is influenced by many factors, including education, prior experiences, family background and other demographic variables (Bird, 1995; Herron & Robinson, 1993; Man et al., 2002). An increasing adoption of the competence approach was motivated by a realization that entrepreneurial competences are observable and behavioral, and are thus more closely related to business performance than other entrepreneurial characteristics, such as intentions, motivations, and personality (Bird, 1995; Man & Lau, 2005). Furthermore, it is speculated that competences can be acquired and changed, at least to some extent (Blenker & Christensen, 2010; Boyatzis, 2008; Nekka & Fayolle, 2010) whereas personality traits are relatively difficult to change and, if so, take long to change, and therefore entrepreneurial competences can be the main target to be developed in entrepreneurship education for entrepreneurs and potential entrepreneurs. As regards the main advantage of the competence approach, Man et al. (2002) argued that this approach allows for an investigation of entrepreneurial characteristics that have long-term effects and closer links to organizational performance.

Multiple studies demonstrated that there is a strong relationship between the existence of entrepreneurial competences and venture performance (Daily et al., 2002; Glancey, 1998; Goedhuys & Sleuwaegen, 2000; Kaur & Bains, 2013; Mitchelmore & Rowley, 2013; Schneider, 2017). An entrepreneur's competences are a main factor contributing to venture performance and growth, and furthermore developing competences positively affects the growth of a firm.

There is considerable variation in the scope of entrepreneurial competences identified in the literature as crucial for business performance partly because of the variation in theories and research methods (Entrialgo et al., 2000; Rezaei-Zadeh et al., 2014). Entrepreneurial competences most commonly referred to include innovation (Tajeddini & Mueller, 2009; Wong et al., 2005), risk perception and risk-taking propensity (Lans & Gulikers, 2010; Petrakis, 2010; Rezaei & Rahsepar, 2009), opportunity identification (Byrne, 2010; Weaver et al., 2009), tolerance for ambiguity (Pearson & Chatterjee, 2001), need for achievement (Entrialgo et al., 2000), communication skills (Izquierdo & Deschoolmeester, 2010), and decision making (Busenitz, 1999).

Meanwhile, in the field of entrepreneurship, female entrepreneurs are growing in number across the world, and it is reported that their contribution to economy is expanding (Brush, et al., 2009; Cabrera & Mauricio, 2017; De Vita, 2013). This phenomenon has led to research on women's entrepreneurship

steadily advancing (De Bruin et al., 2006, 2007; Elam, 2008; Elam & Terjesen, 2007). Nonetheless, however, there is still considerable uncertainty surrounding female entrepreneurship (Bullough et al., 2017; De Bruin et al., 2006), which calls for more research on the issue. Besides, most of the research on female entrepreneurship has been situated largely in the non-Asian context (Kawai & Kazumi, 2020; Minniti & Naudé, 2010), and therefore little is known about the current status of female entrepreneurship, particularly female entrepreneurial competencies (Schneider, 2017), in the Asian context.

Considering the crucial role of entrepreneurial competences in the business performance and the global growth of female entrepreneurship, understanding entrepreneurial competences of female entrepreneurs and would-be entrepreneurs has important economic, social, and political implications. Indeed, there is an ongoing call for more research on women entrepreneurs or potential entrepreneurs in different countries and contexts in order to advance knowledge on female entrepreneurship and gender effects on entrepreneurship (Ahmad et al., 2018). This study therefore seeks to investigate entrepreneurial competences of female university students in four Asian countries—Indonesia, Korea, Philippines, and Vietnam—and examine factors affecting their competences. The reason why those four countries were compared is that Korea is relatively increasing contacts with ASEAN member countries, not limited in trade, investment and cultural aspects, compared with USA, Europe and Japan. As well known, these four countries have distinct cultures and traditions. Vietnam is a socialist country with a concrete Buddhist tradition. Philippines is a capitalist country with a strong Catholic tradition. Indonesia is a capitalist country with Islam-dominant tradition. Korea is a capitalist country with multi-religious tradition. Among ASEAN countries, Vietnam, Laos and Cambodia have common socialist and Buddhist traditions. Indonesia and Malaysia have capitalist and Islam-dominant countries. Philippines is a capitalist and Catholic tradition. So we found it interesting to make comparisons of women entrepreneurship in different system, culture and religion backgrounds. This study also aims to test for differences in the dimensions of entrepreneurial competences among the four student groups. The underlying rationale of focusing on university students is that they have enormous potential for becoming entrepreneurs (Becker & Eube, 2018; Black & Smith, 2004). The present study poses the following research questions

1. What are the levels of entrepreneurial competences of female university students in four Asian countries—Indonesia, Korea, Philippines, and Vietnam?

2. Are there any differences in female entrepreneurial competences among the four countries?
3. What factors affect female entrepreneurial competences in the four countries?

The present study is based on the sample of 516 female undergraduate students in the four Asian countries studying business, economics, or engineering, whose academic fields are most closely related to entrepreneurship. This study contributes to the field of entrepreneurship by advancing knowledge of the entrepreneurial competences of female potential entrepreneurs. Understanding entrepreneurial competences of female university students also helps to design entrepreneurial education programs and to implement sound coherent policies for female entrepreneurship.

## II. Literature Review

This literature review summarizes previous research that informs this study, in the areas of entrepreneurial competences, female entrepreneurship in general, and female entrepreneurship in the four Asian countries-Indonesia, Korea, Philippines, and Vietnam.

### 2.1. Entrepreneurial Competences

Studies of entrepreneurial competences have reported on close associations between the competences and new venture performance(Mitchelmore & Rowley, 2010). Previous research on entrepreneurs' roles generally took either of the two approaches: the personality trait approach and the competence approach(Kyndt & Baert, 2015; Wagener et al., 2010). The personality trait approach, which characterizes the early research on entrepreneurs, seeks to identify mostly fixed dispositions of successful entrepreneurs, but it turned out difficult to identify such success traits since there is a wide variety of traits among entrepreneurs (Mitchelmore & Rowley, 2010). On the other hand, the competence approach focuses on entrepreneurial competences, which are changeable and learnable through experiences and training(Man et al., 2002; Volery et al., 2015; Wagener et al., 2010), and therefore research on entrepreneurial competences has the potential to contribute to designing and implementing more effective entrepreneurship education or intervention programs (Bird, 1995).

The term, competences, has been widely used in an array of academic disciplines, such as management, education, and law, leading to considerable confusion surrounding its meaning

(Silveyra et al., 2021). Nonetheless, it is generally agreed that competences are a global concept that refers to the set of capacities, knowledge, and skills required for a person to perform a particular task successfully. By extension, entrepreneurial competences are competences necessary for entrepreneurial activities. The current study draws on Bird's(1995) definition of entrepreneurial competences as "underlying characteristics such as generic and specific knowledge, motives, traits, self-images, social roles, and skills which result in venture birth, survival, and/or growth"(p. 51).

Worth noting is that previous research made a distinction between entrepreneurship and management competences(Chandler & Hanks, 1994; Lerner & Almor, 2002; Mitchelmore & Rowley, 2010). The former refers to the competences needed to start a new venture or implement a business plan while the latter refers to the competences needed to grow existing companies. Highlighting the importance of dealing with two different types of competences, Sadler-Smith et al.(2003) argued.

Entrepreneurship and managerial competence represent two important and complementary strands for small firm research and practice that appear to have led largely separate existences. An exploration of both of these issues may help to further meaningfully circumscribe the areas of entrepreneurship and small business management and to shed additional light on those managerial behaviours that are associated with entrepreneurship and small firm performance.

Several attempts have been made to design entrepreneurship competence models. Boyatzis(1982) set forth a concept of competence in his model of managerial competence based on a study involving 2,000 managers. His model consists of 21 discrete competences which are organized into four dimensions: human resource management, leadership, goal and action management, and directing subordinates. Boyatzis(1982)' model served as a useful springboard for subsequent research on entrepreneurial competences.

Acknowledging the limitations of applying Boyatzis(1982)' model rooted largely in management theories to the field of entrepreneurship, researchers have attempted to define entrepreneurial competences based on entrepreneurship theories (Bird, 1995). For example, Bird(1988) proposed a model of entrepreneurial competences, which consists of three: sustaining temporal tension, sustaining strategic focus, and developing intentional posture. Since Bird's(1988) framework was proposed, many researchers have sought to identify core entrepreneurial competences that are crucial for business performance and can thus be used as the target objects of entrepreneurship training programs. For example, recognizing the importance of human factor in entrepreneurial activities, Man et al.(2002) proposed a

conceptual model that links entrepreneurs’ characteristics to their firm’s performance by drawing on the competence approach. After a comprehensive review of entrepreneurial competences identified in the literature, the researchers included six competence areas in their model-opportunity competence, relationship competence, conceptual competence, organizing competence, strategic competence, and commitment competence, and highlighted a need for an entrepreneur to make a balance between those competences. Similarly, after a review of the literature on entrepreneurship, Rezaei-Zadeh et al.(2014) profiled a comprehensive list of entrepreneurial competences identified in the literature and described some of the most commonly cited competences, including locus of control, innovation, tolerance for ambiguity, need for achievement, communication skills, decision making, opportunity identification, leadership and management ability, self-confidence, and risk perception and risk-taking propensity.

To sum up, recognition of entrepreneurial competences as a core element in business performance has led to the development of numerous frameworks and classifications of entrepreneurial competences. <Table 1> summarizes relevant models and classifications of entrepreneurship competences identified in the previous literature.

<Table 1> Entrepreneurial Competences in the Previous Studies

Study	Categories of Entrepreneurial Competences
Chandler & Jansen(1992)	Conceptual, opportunity, exploitation, technical, political
Man et al.(2002)	Opportunity; organizing, strategic; relationship; commitment; conceptual
Priyanto & Sandjojo(2005)	Management; industry; opportunity; technical
Rathna & Vijaya (2009)	Management; interpersonal; decision making; ethical; venturing; managerial; learning
Ahmad et al. (2018)	Strategic; conceptual; opportunity; leadership; relational; technical; personal
Mitchellmore & Rowley(2010)	Entrepreneurship; business and management; relational and human; interpersonal
Chell(2013)	Cognitive; personality; social and interpersonal; specific business; motivational; learning
Dimitratos et al. (2014)	Innovation; proactive; risk-taking; entrepreneurship; networking; autonomy
Barniatzi et al. (2015)	Entrepreneurship, management; human relations; personal
Tehseen & Ramayah (2015)	Strategic; conceptual; opportunity; learning; personal; ethical; familiness
Silveyra et al. (2021)	Entrepreneurship; management and business; human resources; interpersonal

## 2.2. Female Entrepreneurship

Female entrepreneurship is globally on the rise either by necessity or by opportunity. There has been a significant increase in the number of new ventures started by women entrepreneurs, and this rate has outpaced the rate of male entrepreneur-owned ventures in some economies(Ahmad et al., 2018; Minniti & Naudé, 2010). This growth pattern is found not only in advanced economies but also in emerging ones. According to the Global Entrepreneurship Monitor(GEM), more than 160 million women started new businesses worldwide(Kelley et al., 2017), and female entrepreneurs constitute about one third of all businesses operating in the formal economy worldwide(Simpson, 2011). In the midst of the dramatic economic transformation, policy makers and scholars have argued that women can play a significant role by enhancing the pool of human capital and supporting the economic growth(Ahmad et al., 2018; Brush et al., 2010; Minniti & Naudé, 2010; Venkatesh et al., 2017).

Research findings have noted on several characteristics of female entrepreneurship. Whilst the number of women-owned firms has been growing rapidly, women entrepreneurs tend to set up their ventures with smaller capital, and thereby their businesses are generally smaller and younger than their male owned counterparts(Brush et al., 2006). In addition, many of the female businesses are life-style businesses, not high value-added ones(Cho et al., 2020). In terms of personal characteristics, research findings are mixed. Some studies showed that women are less entrepreneurial and are less likely to be successful at new venture creation than their male counterparts as they are more cautious, conservative, and less risk-taking(De Bruin et al., 2006), while some other studies reported that female and male entrepreneurs share more similarities than differences in terms of personal traits(De Bruin et al., 2007; Gatewood et al., 2003). Prior research studies commonly indicated that female entrepreneurs tend to face more difficulties in accessing finance, markets, business networks, and information(Elliott et al., 2020; Vershinina et al., 2020). They also have to deal with dual burdens from work and home as related to socially imposed gender roles, while trying to make a balance between them(Amatucci & Crawley, 2011). Factors affecting female entrepreneurs include resource access and cost(Wu & Chua, 2012), having role models (Ahl, 2002; BarNir et al., 2011), characteristics of the social, institutional environment(Elam & Terjesen, 2010), and gender stereotypes(Gupta et al., 2014).

Several attempts have been made to understand entrepreneurial competences of female entrepreneurs. For example, Schneider(2017), who analyzed entrepreneurial competences of

306 women entrepreneurs in Germany and Ireland, found that female entrepreneurial competences can be best predicted by functional managerial skills, followed by entrepreneurial self-efficacy, three entrepreneurial orientations(i.e., competition, risk-taking, and innovation), and entrepreneur identity in a decreasing order. Another strand of research on female entrepreneurial competences focuses on the relationships between entrepreneurial competences and business performance. Kabir et al.(2017), for instance, examined entrepreneurial competences of 200 women entrepreneurs running various micro businesses in Nigeria with a focus on three dimensions of competence-strategic competence, opportunity competence, and organizing competence. Findings of the study showed that all the three competences have positive effects on firm performance.

Meanwhile, a couple of studies were conducted in the Asian context. In a study aiming to measure six dimensions of entrepreneurial competences(i.e., analytical planning, innovation, enforcement/implementation, leadership, teamwork, and networking) of 117 female entrepreneurs in Malaysia, Ahmad et al.(2018) found that two competence areas-implementation/enforcement and network-have significant positive relationships with business performance while the other four domains have no significant relationships. Later, Kawai & Kazumi(2020) investigated the role of entrepreneurial cognitive characteristics, particularly self-efficacy and tenacity, in stimulating a desire for business growth involving 308 female Japanese entrepreneurs, and reported that there is significantly positive relationship between entrepreneurial tenacity and firm growth whereas entrepreneurial self-efficacy does not significantly affect business growth.

Also, some studies have been conducted to explore entrepreneurial competences of female university students. Villasana et al.(2016) measured the levels of four dimensions of entrepreneurial competences(i.e., creativity, risk management, problem management, and self-confidence) of 1,735 college students enrolled in an entrepreneurship course in nine Latin American countries, about 41 percent of whom are female. A gender comparison revealed that there are significant differences in three dimensions of entrepreneurial competences-problem management, creativity, and risk management-between male and female students. Specifically, levels of those competences of the male students are significantly higher than those of their female counterparts whereas no significant differences are identified in the dimension of self-confidence.

### 2.3. Female Entrepreneurship in Indonesia, Korea, Philippines, and Vietnam

The rise of female entrepreneurship is no exception in Asia. In particular, in many emerging economies, women are perceived as the backbones of economic development(Ndemo & Maina, 2007). Indonesia, Philippines, and Vietnam are member states of the Association of Southeast Asian Nations(ASEAN), and Korea located in the Far East Asia has established close economic, political, and diplomatic ties with the ASEAN member states. Despite unique historical, economic, sociocultural characteristics of those four countries, these four countries are commonly and actively promoting female entrepreneurship at universities and related institutions.

Indonesia's economy is the largest in Southeast Asia, and the tenth largest in the world, based on purchasing power parity. The country has been making an impressive economic development: Indonesia's economy grew by 4.8 percent in 2015, and 5.3 percent in 2016(World Bank, 2016). In the country, micro, small and medium enterprises(MSMEs) play a critical role in economic growth and poverty reduction. In 2017, an estimated total of 57 million MSMEs represented around 99.9 percent of all businesses in Indonesia, contributing approximately 60 percent of the overall GDP of the country(Capri, 2017). MSMEs' portion of the economy is exceptionally large, even compared to neighboring countries in the region. As regards female entrepreneurship, the absolute number of women entrepreneurs in Indonesia is very high. In 2011, women-owned MSMEs accounted for 60 percent of a total of approximately 55 million MSMEs in the country(Melissa et al., 2015). Among Indonesia's total adult female population of 85 million, approximately 26 percent(22 million) is active entrepreneurs(Singer et al., 2015).

In the Philippines, entrepreneurship, particularly MSMEs, has been playing an important role in the economic growth, like in the other ASEAN member states(Velasco, 2013). In 2020, a total of 957,620 business enterprises operated in the country, and MSMEs comprised about 99.65 percent(952,969) of the total firms, while generating 62.7 percent of the country's total employment(Department of Trade and Industry, 2020). Female entrepreneurship in the country is active as well. As of 2006, Filipino women own 45 percent of business enterprises in the country(Resurrection, 2012), and the growth trend has been steady. According to the 2015 report from the Department of Trade and Industry(DTI), women-owned businesses account for 53 percent of the total businesses registered(Aquino, 2016). In the Philippines, most budding enterprises are owned by women(69%) while the more mature and stable businesses are

mostly men-owned(66%). Nonetheless, a high gender equity in entrepreneurship is noticeable in the country, as evidenced by the Philippines Entrepreneurship Report 2015-2016 that there have been more females starting a new business or engaging in TEA than males since 2006(Velasco et al., 2017). Female entrepreneurship in the Philippines has been prompted by necessity factors, particularly a need to increase household income(Velasco, 2013). The Philippine government has sought to promote women entrepreneurship to address the poverty problem through legislation and policies. One of these is the act providing assistance to women, which requires government financing institutions to provide financial assistance for women enterprises, potential women entrepreneurs with sufficient training, and non-governmental organizations supporting female entrepreneurship(Resurrection, 2012).

Like many emerging economies in Asia, Vietnam has made significant economic development since the country embarked on the economic reform policy known as "Doi Moi" in 1986, with an average growth rate of over seven percent(General Statistics Office of Vietnam, 2015). The transition from a centrally planned economy to a market oriented economy has encouraged entrepreneurs to seek for business opportunities in both the domestic and international markets, and MSMEs are regarded as the lifeblood of the Vietnamese economy(Bui & Long, 2021). Worth noting about female entrepreneurship in Vietnam is that, according to the 2015 GEM report, Vietnam was included in the 10-country group where women were as likely to be entrepreneurs as men(Kelley et al., 2017). It is estimated that around 25 percent of business owners in Vietnam are women. The total early-stage entrepreneurship activity(TEA) rates in Vietnam for women and men are almost the same, accounting for both over 15 percent, while the rate for established women-owned businesses is 24 percent and the rate for men-owned counterparts is 20 percent. This is quite different from the patterns in many Asian countries, including China, Indonesia, and Malaysia, where women's TEA rates are much lower than those of men(Kelley et al., 2017).

Korea is one of the world's economic powers(Heo & Roehrig, 2014), currently boasting the 10th largest economy in the world. However, the country is nowadays facing declining growth rates, rising unemployment, and low birth rate. In coping with those problems, the Korean government promotes entrepreneurship as a means of boosting sluggish economic growth and job creation. While startups and SMEs in Korea have steadily increased from 15,401 in 2008 to 33,289 in 2016(Korea Venture Business Association, 2017), they account for about 50 percent of the gross domestic product(Global Entrepreneurship Monitor, 2018; Ministry of SMEs and Startups, 2018), which is much lower

than in Indonesia, Philippines, and Vietnam. As regards female entrepreneurship, while women entrepreneurs have increased from 693 in 2008 to 2,430 in 2016(Korea Venture Business Association, 2017), women in Korea experience relatively limited entrepreneurial opportunities compared to men. The share of female entrepreneurs was 14 percent in 2016, which is much lower than that of Indonesia, Philippines, and Vietnam as shown above, but higher than the 10 percent OECD average. Another data from Korea Venture Business Association(2017) shows that the number of female startups makes up only 7.3 percent of a total of 33,289 startups in 2016. In order to facilitate female entrepreneurship, the Korean government has enacted various policies and legislations, including the act on supporting women enterprises in 1999, and support systems such as the creation of the Ministry of SMEs and Startups in 1996 and Korea Venture Business Women's Association in 1998(Cho et al., 2020). In the following, we examine their entrepreneurial competences of female Asian college students in six dimensions-entrepreneurship, sensibility, business management, relationship management, strategic management, and multi-tasking. This study also investigates effects of four variables(i.e., entrepreneurship course taking experiences, on-campus entrepreneurship experiences, off-campus entrepreneurship experiences, and entrepreneurial intentions) on the six aspects of entrepreneurial competences.

### III. Methodology

#### 3.1. Participants

In the relationship between Korea and ASEAN countries, Vietnam, Laos and Cambodia are pursuing socialist economy and have Bhuddist tradition. Indonesia and Malaysia are market economy and have Islam tradition. Philippines is market economy and has Catholic tradition. We picked up universities in Vietnam, Indonesia and Philippines. The target population for this study was female university students studying business, economics, or engineering. Respondents in the four countries were drawn from the student population(similarly, for example, Kim(2015), Anwar & Saleem(2018), Anwar et. al.(2020), Voda & Florea(2019) adopted university students) at four universities in Indonesia, four universities in Korea, two universities in the Philippines, and four universities in Vietnam. A total of 516 students participated in this study: 130 Filipino students(25.2%); 132 Indonesian students(25.6%); 133 Korean students(25.8%); 121 Vietnamese students(23.4%). Their ages ranged between 19 and 31, and about 69 percent of the students fall in the age group between 19 and 21. A total of 366 students(71%) were

majoring Business or Economics, and 150 students Engineering(29%).

Some differences were found in the respondents' prior experiences in entrepreneurship-related activities. 214 participants(41.5%) reported that they had taken one or more entrepreneurship courses whereas 302 students(58.5%) had no such experiences. 36 percent of the respondents participated in entrepreneurship activities(e.g., club activities) held on campus, and 36.6 percent took part in out-of-campus entrepreneurship activities(e.g., regional/national entrepreneurship competition). As regards entrepreneurship intention, 72 percent of the participants expressed their intention to engage in entrepreneurship after graduation while 28 percent did not. <Table 2> presents the demographic information on the participants.

<Table 2> Demographic Information on the Participants

Variable	Category	N	%
Nationality	Indonesia	132	25.6
	Korea	133	25.8
	Philippines	130	25.2
	Vietnam	121	23.4
Age	19-21	357	69.2
	22-24	137	26.6
	25-27	16	3.1
	28-30	5	1.0
	Above 30	1	0.2
Major	Business/Economics	366	70.9
	Engineering	150	29.1
Entrepreneurship Course Experiences	Yes	214	41.5
	No	302	58.5
On-campus Entrepreneurship Experiences	Yes	186	36.0
	No	330	64.0
Out-of-campus Entrepreneurship Experiences	Yes	189	36.6
	No	327	63.4
Entrepreneurship Intention	Yes	371	71.9
	No	145	28.1

### 3.2. Data Collection Instrument: Entrepreneurial Competences Survey, Construct and Definition

In order to assess the level of female Asian college students' entrepreneurial competences, this study used the Female Entrepreneurial Competence Model that Kim(2020) devised with slight modifications. Recognizing the absence of an entrepreneurial competence model for female entrepreneurs and/or female potential entrepreneurs, Kim(2020) developed this model following the steps suggested by Lucia & Lepsinger(1999). First, she made a comprehensive review of various research studies of entrepreneurial competences and developed a comprehensive list of core entrepreneurial competences as identified in the literature. Through a series of discussion with four experts(two in the field of entrepreneurship and two in the competences) and focus group

interviews with successful female entrepreneurs, she established a model, particularly informed by Spencer & Spencer(1993). The model comprises of 25 discrete competences organized into six major competence dimensions- entrepreneurship, sensitivity, business management, relationship management, strategic management, and multi-tasking. She then developed a female entrepreneurial competence measurement tool with 75 survey items based on the model and measured the competence levels of 442 Korean women entrepreneurs using the model. The present study decided to use the Kim(2020)'s Female Entrepreneurial Competence Model as this is the only model targeting at female entrepreneurs and its Cronbach's alpha coefficient obtained(i.e., .975) was high.

The questionnaire used in this study consists of two parts. The first part is related to personal data(e.g., nationality, age, major, experiences in taking entrepreneurship courses, entrepreneurship intentions), while the second part contains 75 competence-related items from Kim(2020)'s measurement tool. <Table 3> presents information on entrepreneurial dimensions, discrete entrepreneurial competences, their operational definitions, and item numbers(see Appendix for the questionnaire). All the survey items in the second section are based on a five-point Likert scale ranging from strongly disagree(1) to strongly agree(5).

<Table 3> Entrepreneurial Dimensions, Entrepreneurial Competences, and Operational Definitions

Categories of Entrepreneurial Competences		# of Questionnaires	Reliability
<b>Entrepreneurship</b>		<b>24</b>	<b>.923</b>
Challenge spirit	I take measures to launch a new product or extend the business.	3	.700
Concentration	I make continuous efforts or take measures to overcome difficulties.	3	.674
Ability to develop new business	I capture and act promptly on a new business opportunity.	3	.680
Risk management	I try to minimize the potential effects or possibility of a danger.	3	.558
Planning ability	I precisely plan and quickly execute for the success of a business.	3	.642
Creative problem-solving skills	I produce either a new idea or innovative solution.	3	.636
Ability to create opportunities	I strive to create a favorable business environment even under very difficult circumstances.	3	.676
Social responsibility	I take pride in social service.	3	.605
<b>Sensibility</b>		<b>12</b>	<b>.861</b>
Social sense	I quickly notice others' hidden feelings or reactions.	3	.593
Considerateness	I pay attention to others and prioritize their interest.	3	.582

Empathy	I try to listen attentively to others' opinions, feelings, and claims.	3	.642
Sensible leadership	I understand the emotions of other staffs/employees/colleagues' with flexible thinking.	3	.680
<b>Business management</b>		<b>12</b>	<b>.892</b>
Ability to make profits	I re-invest profits into the business and have a capability to fund the project.	3	.740
Organization management	I support, manage and oversee my employees' professional development.	3	.797
Networking ability	I fix the problem through a network with relevant institutions.	3	.600
Expertise	I apply financial, accounting skills, and production practical techniques of business management.	3	.773
<b>Relationship management</b>		<b>12</b>	<b>.843</b>
Human relationship	I make an amicable solution about disputes in a modest way.	3	.718
Client relationship management	I first analyze internal and external data on my client, then conduct customized marketing to my client.	3	.791
Communication	I try to think and see the perspective from the other person's side.	3	.669
Efficiency pursuit	I utilize information or tools to increase efficiency of work.	3	.639
<b>Strategic management</b>		<b>9</b>	<b>.837</b>
Information management	I investigate, research, and analyze the market that is related to my business.	3	.762
Ability to devise strategic alternatives	I can gather information through benchmarking or data collection even under difficult circumstances and derive an alternative.	3	.633
Market analysis	I fully grasp target consumers of a corporation and its rival companies.	3	.577
<b>Multitasking</b>		<b>6</b>	<b>.800</b>
Ability to do multiple tasks	I try not to miss any flicker of thoughts or ideas about the business.	3	.587
Work-home balance	I try to balance work and family life with practical wisdom.	3	.712

\* adapted from the Female Entrepreneurial Competence Model of Kim (2020)

### 3.3. Data Collection and Analysis

The data for the study were collected through the online survey tool Google Forms between September and November of 2020. The researchers contacted 14 professors in the four countries that they had working relations with, and shared information on the purposes and directions of this study with them, asking for their assistance in the respondent recruitment. The 14 professors then encouraged their students in the local universities to participate in the study by completing the survey.

The questionnaire, which was originally developed in the

Korean language, was translated into three languages for this study-Bahasa Indonesian for Indonesian students, English for Filipino students, and Vietnamese for Vietnamese students. The respondents were asked to self-assess their level of entrepreneurial competences by answering the 75-item questionnaire.

Data collected were analyzed in multiple ways according to the research questions. The internal reliability of the items was tested using Cronbach's alpha. As presented in <Table 4>, Cronbach's alpha coefficients obtained were all above 0.800 for the six dimensions, which indicates that the scales were highly reliable. Descriptive statistics were calculated for all the survey items and the entrepreneurial competence categories to understand the entrepreneurial competence levels of the total respondent group and each nationality group. An ANOVA test was conducted to test for any differences in the entrepreneurial competences between the four student groups, using the six dimensions as dependent variables. Finally, multiple regression analysis was conducted to explore the total effects of the independent variables, including experiences in taking entrepreneurship courses, experiences in entrepreneurship-related out-of-campus activities, and entrepreneurship intentions on the entrepreneurial competence levels.

<Table 4> Cronbach's Alpha

Entrepreneurial dimensions	Cronbach's alpha	N. of items
Entrepreneurship	0.923	24
Sensibility	0.861	12
Business management	0.892	12
Relationship management	0.843	12
Strategic management	0.837	9
Multi-tasking	0.800	6

## IV. Findings

### 4.1. Levels of Entrepreneurial Competences of Asian Female University Students

Data analysis shows that, when taken together, four Asian female college student groups possess pretty high levels of entrepreneurial competence. As presented in <Table 5>, means of six dimensions of entrepreneurial competence measured range between 3.86(multi-tasking) and 4.04(relationship management). The highest level of entrepreneurial competence is manifested in the dimension of relationship management(M=4.04), followed by

strategic management(M=4.00).

Comparing countries reveals that Filipino students rank highest in all the six dimensions measured. Also worth noting is that the means of that student group fall higher than 4 in all the dimensions, ranging between 4.15(business management) and 4.29(multi-tasking). Meanwhile, different countries show strength in different areas: Korea is strongest in relationship management(M=4.11); Philippines in multi-tasking(M=4.29); Vietnam in strategic management(M=3.98); Indonesia in relationship management(M=3.96). <Table 5> contains information on the means and the standard deviations of six dimensions of entrepreneurial competencies measured of female university students in four countries.

#### 4.2. Differences in the Students' Entrepreneurial Competences among Countries

Comparison of the four Asian female college student groups shows that there are statistically significant differences between those groups in all the six dimensions of entrepreneurial competences. The Scheffe test results can be summarized as follows. First, the mean of entrepreneurship dimension in the Philippines is significantly bigger than that in Korea, Vietnam and Indonesia while no other comparison is significant. It indicates that the Filipino students possess significantly higher level of entrepreneurship competence than the other three country groups. Second, the mean of sensibility of the Philippines is significantly higher than the corresponding means of Korea and Indonesia, which are then significantly bigger than that of Vietnam. Third, the mean of business management in the Philippines is larger than those in Korea, Vietnam and Indonesia. No other comparison than the above is significant. This result shows that the Filipino students own significantly greater business management competence than the other country groups. Fourth, the mean of relationship management competence in the Philippines is also higher than the corresponding means in Korea and Indonesia, which are then statistically bigger than the mean of Vietnam. Fifth, the results of strategic management competence are similar to those of entrepreneurship competence and business management competence. That is, the Filipino students' strategic management competence is statistically bigger than the Korean, Indonesian, and Vietnamese student groups' competence. There is no significant difference between the three country groups. Sixth, in case of multi-tasking competence, the Filipino students have significantly greater competence than the Indonesian students, whose competence is then larger than those

of Korea and Vietnam. Meanwhile, there is no difference between Korea and Vietnam. In the above six comparisons, F values are all strongly significant at the degree of  $p < .001$ .

One significant observation is that the mean values of the six components of entrepreneurial competences in the Philippines are all significantly greater than those in other countries, indicating that the Filipino female college students possess the highest level of entrepreneurial competencies. Comparing the other three countries, the present study found that in the sensibility and relationship management dimensions, the Korean and Indonesian students show significantly higher levels of competence than the Vietnamese students, while, in the multi-tasking dimension, the Indonesian students are higher than the other two.

<Table 5> Comparison of Competences of Female University Students in Four Countries

	country	N	mean	sd	F	P	Scheffé
entrepreneurship	Korea (a)	133	3.78	0.45	22.298***	.000	b>a, c, d
	Philippines (b)	130	4.20	0.45			
	Vietnam (c)	121	3.82	0.46			
	Indonesia (d)	132	3.93	0.46			
	All sample	516	3.93	0.48			
sensibility	Korea (a)	133	3.99	0.49	17.794***	.000	b>a, d>c
	Philippines (b)	130	4.20	0.49			
	Vietnam (c)	121	3.76	0.47			
	Indonesia (d)	132	3.90	0.51			
	All sample	516	3.97	0.51			
business management	Korea (a)	133	3.91	0.58	11.087***	.000	b>a, c, d
	Philippines (b)	130	4.15	0.54			
	Vietnam (c)	121	3.81	0.44			
	Indonesia (d)	132	3.82	0.58			
	All sample	516	3.92	0.55			
relationship management	Korea (a)	133	4.11	0.44	11.087***	.000	b>a, d>c
	Philippines (b)	130	4.17	0.45			
	Vietnam (c)	121	3.91	0.42			
	Indonesia (d)	132	3.96	0.51			
	All sample	516	4.04	0.47			
strategic management	Korea (a)	133	3.94	0.52	8.267***	.000	b>a, c, d
	Philippines (b)	130	4.19	0.51			
	Vietnam (c)	121	3.98	0.47			
	Indonesia (d)	132	3.91	0.53			
	All sample	516	4.00	0.52			
multi-tasking	Korea (a)	133	3.62	0.51	45.872***	.000	b> d>a, c
	Philippines (b)	130	4.29	0.51			
	Vietnam (c)	121	3.64	0.48			
	Indonesia (d)	132	3.88	0.58			
	All sample	516	3.86	0.59			

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

### 4.3. Factors Affecting Female College Students' Entrepreneurial Competences

In order to examine any differences in the factors affecting female college students' entrepreneurial competences among the four Asian countries, this study regressed four independent variables, such as course(i.e., entrepreneurship course experiences), on-campus(i.e., on-campus entrepreneurship experiences), out-of-campus(i.e., out-of-campus entrepreneurship experiences), and intention(entrepreneurial intention after graduation) on the dependent variables(i.e., each of the six dimensions of entrepreneurial competencies). <Table 6> shows that the models for the combined samples are all significant in all of the six dimensions of entrepreneurial competencies measured. Meanwhile, the individual student groups show varying regression patterns: for the Korean students, regression equations are significant in entrepreneurship and multi-tasking competences; for the Indonesian students, significance of regression is shown in sensibility and business-management competences; for the Vietnamese students, regression equation is significant in multi-tasking competence; for the Filipino students, regression equations are not significant in any dimension though on-campus experiences significantly affect all the dimensions except for business management competence.

<Table 6> Descriptive Statistics and Correlation Analysis

	mean	sd	1	2	3	4	5	6	7	8	9	10
1. Entrepreneurship	3.93	.482	1									
2. Sensibility	3.97	.514	.703**	1								
3. Business management	3.92	.555	.779**	.634**	1							
4. Relationship management	4.04	.467	.803**	.808**	.731**	1						
5. Strategic management	4.00	.518	.835**	.659**	.833**	.805**	1					
6. Multitasking	3.86	.587	.771**	.634**	.698**	.662**	.686**	1				
7. Course	.41	.493	.209**	.146**	.098*	.095*	.131**	.225**	1			
8. On-Campus	.36	.481	.192**	.118**	.137**	.090*	.166**	.219**	.351**	1		
9. Out-of-Campus	.37	.482	.059	-.026	-.008	-.018	.003	.078	.168**	.317**	1	
10. Intention	.72	.450	.256**	.068	.098*	.016	.106*	.268**	.255**	.200**	.243**	1

\*p<0.05 \*\*p<0.01

<Table 7> Regression Results on Competences of Female University Students

Independent Variables	All Sample	Korea	Indonesia	Vietnam	Philippines
Entrepreneurship					
Course	0.120**	0.190**	0.107	0.025	-0.122
On-Campus	0.123**	0.056	0.088	-0.01	0.175*
Out-of-Campus	-0.052	0.07	0.072	-0.002	-0.048
Intention	0.213***	0.175*	-0.024	0.244**	0.097
R <sup>2</sup>	0.1	0.116	0.042	0.06	0.042
F	14.228***	4.203**	1.407	1.862	1.375
Sensibility					
Course	0.117**	0.05	0.105	0.158	-0.119
On-Campus	0.096**	-0.134	0.138	-0.016	0.213**
Out-of-Campus	-0.086*	0.047	0.095	0.053	-0.09
Intention	0.04	0.066	-0.04	0.038	0.036
R <sup>2</sup>	0.033	0.023	0.069	0.033	0.043
F	4.402**	0.748	2.369*	0.997	1.405
Business Management					
Course	0.046	0.047	0.158	-0.118	-0.146
On-Campus	0.129**	0.027	0.083	0.053	0.146
Out-of-Campus	-0.076	-0.072	0.061	0.055	-0.011
Intention	0.079*	0.15	-0.08	0.180*	0.032
R <sup>2</sup>	0.03	0.027	0.065	0.051	0.035
F	4.017**	0.878	2.220*	1.546	1.143
Relationship Management					
Course	0.077	0.133	0.095	0.059	-0.108
On-Campus	0.082*	-0.097	0.06	-0.04	0.249**
Out-of-Campus	-0.055	0.074	0.088	0.035	-0.068
Intention	-0.007	0.008	-0.089	0.097	0.037
R <sup>2</sup>	0.016	0.029	0.044	0.016	0.055
F	2.026*	0.962	1.461	0.473	1.823
Strategic Management					
Course	0.072	0.168*	0.113	-0.052	-0.096
On-Campus	0.149**	0.075	0.073	0.06	0.230**
Out-of-Campus	-0.074	-0.031	0.066	-0.069	-0.091
Intention	0.076	0.101	-0.043	0.138	0.062
R <sup>2</sup>	0.042	0.055	0.04	0.026	0.047
F	5.565***	1.861	1.32	0.769	1.544
Multi-tasking					
Course	0.126**	0.072	0.082	-0.029	-0.094
On-Campus	0.144**	-0.041	0.084	0.147	0.177*
Out-of-Campus	-0.042	0.156	-0.02	0.232**	-0.006
Intention	0.217***	0.118	-0.092	0.143	0.113
R <sup>2</sup>	0.115	0.06	0.029	0.13	0.046
F	16.552***	2.031*	0.962	4.338**	1.501

Note: \*p<0.1, \*\*p<0.05, \*\*\*p<0.001

- 1) Course (Entrepreneurship course experiences)
- 2) On-Campus (On-campus entrepreneurship experiences)
- 3) Out-of-Campus (Out-of-campus entrepreneurship experiences)
- 4) Intention (Entrepreneurship intention after graduation)

#### 4.3.1. Entrepreneurship Competence

As presented in <Table 7>, for the combined samples, individual countries have different  $R^2$  values ranging 0.042(Indonesia, Philippines) and 0.116(Korea). In addition, the regression equations for the combined samples, and for the Korean group are significant while those for the Indonesian, Vietnamese, and the Filipino groups are not.

To be more specific, for the combined samples, entrepreneurship course experiences(coefficient=0.120), on-campus entrepreneurship experiences(0.123) and entrepreneurial intention after graduation(0.213) have all significantly positive impacts on the entrepreneurship, but out-of-campus entrepreneurship experiences have negative but not significant impacts. This result indicates that for the combined groups, female students tend to build up positive attitudes towards entrepreneurship after taking entrepreneurship courses, participating in on-campus entrepreneurship experiences and having intention for entrepreneurship after graduation.

As regards group differences, only Korean regression equation is significant, and other countries' equations are not significant. In the Korea's case, entrepreneurship course taking experiences(0.190) and entrepreneurial intention(0.175) are significant and positive. However, in case of the Vietnamese students, only entrepreneurial intention has positive impacts upon entrepreneurship competence(0.244), and in case of the Filipino group, only on-campus entrepreneurship experiences are significant(0.175).

#### 4.3.2. Sensibility Competence

Results in the regression of factors on the sensibility competence shows that in the total samples,  $R^2$  is 0.033 and its F-value is significant(14.228), while individual countries have varying values of the coefficient of determination. Analysis of individual factors shows that the coefficients for entrepreneurship course experiences(0.117) and on-campus entrepreneurship experiences(0.096) are significant and positive whereas out-of-campus entrepreneurship experiences(-0.086) are significant but negative. Meanwhile, entrepreneurial intention is not significant.

As for the individual countries, Indonesia is the only country in which regression equation is significant though any of the four factors shows no significant effect on the Indonesian students' sensibility competence. Besides, it is worth noting that on-campus experiences have significantly positive influences on the Filipino students' sensibility competence(0.213).

In case of country specific models, as in the sensibility dimension described above, only Indonesian regression equation is significant while the other countries are insignificant. In

addition, the variable of entrepreneurial intention has significantly positive impacts upon the Vietnamese students.

#### 4.3.3. Business Management Competence

As regards the business management competence, the coefficient of determination is 0.03(F-value=4.017). Specifically, the coefficients for on-campus entrepreneurship experiences(0.129) and entrepreneurship intention after graduation(0.079) are significant and positive in the total samples while entrepreneurship course taking experiences and out-of-campus entrepreneurship experiences are not.

In case of country specific models, as in the sensibility dimension described above, only Indonesian regression equation is significant while the other countries are insignificant. In addition, the variable of entrepreneurial intention has significantly positive impacts upon the Vietnamese students.

#### 4.3.4. Relationship Management Competence

For the combined samples, the coefficient of determination is 0.016(F-value=2.026). The coefficient for on-campus experiences(0.082) only is significant and positive, which means that on-campus entrepreneurship experiences have significantly positive impacts upon relationship management competence of the students as a whole group. Worth noting is that both out-of-campus entrepreneurship experiences and entrepreneurial intention have negative impacts though their coefficients are not significant.

Comparison of individual countries reveals that the models of each sample of the four country groups are all insignificant. However, in the Philippines, on-campus experiences have a significantly positive effect on the relationship management competence, while all the other factors are insignificant in all the four countries.

#### 4.3.5. Strategic Management Competence

In the total samples, the factor of on-campus entrepreneurship experiences(0.149) is significant and positive, but all other independent variables are not significant. As in the relationship management competence, no country regression equation is significant.

However, looking at individual factors across the countries reveals that entrepreneurship course taking experiences have significantly positive effects on strategic management competence in Korea while on-campus entrepreneurship experiences positively influence the same competence of the Filipino students. Apart from these two variables for the two groups, the coefficients for all the other variables are not significant.

#### 4.3.6. Multi-tasking Competence

In the total samples, three factors-course taking experiences, on-campus entrepreneurship experiences, and entrepreneurial intention-show significantly positive influences on multi-tasking competence, while out-of-campus entrepreneurship experiences are negative but insignificant.

However, some differences are observed in the impacts of the four factors on entrepreneurship competences between countries. The coefficients of determination of both Korea and Vietnam are significant but those of Indonesia and the Philippines are not. However, in case of Vietnam, out-of-campus entrepreneurship experiences have positive impacts on the students' multi-tasking competence while, in case of the Philippines, on-campus experiences do so.

## V. Discussion and Conclusion

The present study was conducted to examine entrepreneurial competences of female college students in four Asian countries, differences in the levels between the four groups, and effects of factors on their entrepreneurial competences. As stated in the first part of this paper, this study is a response to a call for research studies of female entrepreneurship, particularly in the non-Western context.

Results indicate that female Asian college students have quite high levels of entrepreneurial competences, specifically six dimensions of entrepreneurial competences. In particular, as a whole group, the students show the highest levels of competence in the relationship management and strategic management dimensions.

Another significant finding is that there are significant differences in female Asian college students' entrepreneurial competences between countries, where Filipino students possess significantly higher level of competence in all the six dimensions of entrepreneurial competences measured than any other country groups. This might be cautiously interpreted in view of active attempts made by the Philippines to enact and administer laws and policies for women. For example, the government of the Philippines enacted a comprehensive law in 2009 called the Magna Carta of Women(Philippine Commission on Women, 2010) to seek to eliminate all discriminations against women and to promote women's rights in all aspects of society. With the Magna Carta of Women, a variety of relevant laws and policies have been enacted in order to empower women. As stated earlier, the act providing assistance to women is one of them, and this act enables women enterprises and potential women entrepreneurs to receive diverse benefits, such as sufficient

training and financial assistance(Resurrection, 2012). That point is most salient in Philippines than in other countries. Other countries may have to consider what is supported or happening in the Philippines. Another significant difference between countries is that in the areas of sensibility and relationship management dimensions, the Korean and Indonesian students show significantly higher levels of competence than the Vietnamese students, while, in the multi-tasking dimension, the Indonesian students are showing higher levels than the other two. This indicates that there is no dimension where the Indonesian group shows higher level of competence than the other groups.

Besides, what this study found significant is that the regression equations are all significant in all the six dimensions for the female Asian college students as a whole group. To be specific, among the four factors(i.e., entrepreneurship course taking experiences, on-campus entrepreneurship activities, off-campus entrepreneurship activities, and entrepreneurial intention), on-campus experiences positively affect all the six dimensions measured. Meanwhile, course taking experiences have significantly positive impacts on three dimensions(i.e., entrepreneurship, multi-tasking, and sensibility competences) and entrepreneurial intention influences a different set of three dimensions(i.e., entrepreneurship, multi-tasking, and business management competences). The findings of the present study partially support Kolvereid & Isaksen(2006), who claim that entrepreneurial intentions are a deciding factor for engaging in entrepreneurial behaviors while highlighting the importance of entrepreneurial intentions. More specifically, in case of female Asian students, entrepreneurial intentions positively affect their entrepreneurial competence to some extent, but on-campus entrepreneurship experiences influence the competence more extensively than entrepreneurial intentions. So motivating to encourage entrepreneurial intentions is very crucial for improving entrepreneurial competence. Meanwhile, out-of-campus experiences have negative impacts on all the dimensions though the impacts are not statistically significant. This finding implies that out-of-campus entrepreneurship experiences may have caused difficulties or emotional burdens to the female college students in these four Asian countries. Based on these findings, the present study suggests that female college students should be encouraged to participate in various types of on-campus entrepreneurship activities as much as possible as a way to promote their entrepreneurial competences; besides, female potential entrepreneurs can be encouraged to take entrepreneurship courses and embrace entrepreneurial intention, which leads to enhanced entrepreneurial competence in certain aspects; having out-of-campus entrepreneurial experiences may not be a good option for them to develop entrepreneurial

competencies.

Finally, it should be noted that entrepreneurial competencies in different country groups are affected by different factors. In case of the Korean students, course taking experiences and entrepreneurial intention significantly affect their entrepreneurial competences in a couple of dimensions while the Vietnamese students' entrepreneurial competences are positively affected by their intention for future entrepreneurship. However, in case of the Philippines, on-campus entrepreneurship experiences have significantly positive influences on all the dimensions except for business management competence, indicating that on-campus experiences are the most important variable among the Filipino students. Interestingly, there is no single factor affecting Indonesian students' entrepreneurial competences significantly positively or negatively.

This study contributes to expanding knowledge of female entrepreneurship, which is a relatively understudied topic, by exploring the current levels of entrepreneurial competencies of female college students in Asia, which is also an understudied region, and factors affecting their competences. Additionally, the present study lends insights into the areas that entrepreneurship education programs can and should seek to address for promoting female entrepreneurship as suggested by a great many previous studies, including Bird(1995), and Villasana et al.(2016). Despite such contributions, however, the present study has a couple of limitations. One limitation of the study arises from using a convenience sample. Using a random sample at a greater number of universities, future studies may reveal a more accurate picture of Asian female potential entrepreneurs' competences. Another limitation is that the present study cannot sufficiently explain the reasons for the observed differences between the countries partly because the task is beyond the scope of this study. Future studies are therefore needed to adequately account for differences between the countries in view of economic development stages, policies or laws, gender equality status, and any other relevant issues. Furthermore, this study suggests that future studies should also explore entrepreneurial competences of female entrepreneurs currently running their businesses. Findings of such studies will illuminate aspects of entrepreneurial competences that should be developed and promoted through entrepreneurship education programs, and also shed lights on areas that government policy makers should provide assistance and take actions for.

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## 아시아여성대학생의 기업가역량 연구: 4개국 비교

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### 국문 요약

전세계적으로 여성기업인이 늘어나면서 여성기업가정신이 지속가능경제발전의 추진 동력의 하나로 점점 인식되고 있으나, 여성기업가정신에 대한 연구는 충분히 이루어지지 않고 있다. 특히 서구권 이외의 지역에서의 연구는 더욱 미진한 상황이다. 본 연구는 아시아의 4개국(인도네시아, 한국, 필리핀, 베트남) 여성대학생의 기업가역량 현황, 국가별 기업가역량 격차, 기업가역량에 영향을 주는 요소를 파악하는 것을 목적으로 한다. 온라인설문을 사용하여 총 516명의 여성 대학생들로부터 자료를 수집해서, 6개 차원의 기업가역량(기업가정신역량, 분별력역량, 기업경영역량, 관계경영역량, 전략경영역량, 다중작업역량) 현황 및 국가 간 차이점을 고찰해 보았다. 또한 본 연구에서는 기업가정신교과목 이수 경험, 교내 기업가정신 활동 경험, 교외 기업가정신 활동 경험, 기업가의향의 4개 변수가 6개의 기업가역량에 미치는 영향을 탐색하였다.

자료분석결과, 아시아 여성대학생들은 전체 집단 차원에서 상당히 높은 기업가역량을 보유한 것으로 파악되는데, 특히 필리핀학생들이 6개 역량에서 가장 높은 기업가역량을 가진 것으로 나타났다. 기업가역량에 미치는 4개 변수가 전체집단의 회귀분석에서 모두 유의미한 결과를 보였다. 교내 기업가정신 활동 경험은 6개 기업가역량 모두에서 유의미하게 긍정적 효과를 시현하였으며, 기업가정신교과목 이수 경험과 기업가의향은 3개 기업가역량에서 긍정적 효과를 나타냈다. 그러나, 교외 기업가정신 활동 경험은 부정적 효과를 나타냈으나, 그 관계는 유의미하지 않았다. 한편 개별국가 집단에서는 각각 다른 요소가 기업가역량의 각기 다른 차원의 영향을 주는 것으로 드러났다. 이와 같은 결과를 토대로, 본 연구에서는 여성기업가정신을 기르기 위한 방안과 향후 연구 방향을 제시한다.

핵심 주제어: 여성기업가정신, 기업가 역량, 여성기업가 역량, 아시아, 여성대학생

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