



Development of Home Economics Entrepreneur Indicators for Undergraduate Students

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Abstract

Entrepreneurship is a competency that is crucial for students of any field whose nature is different according to the context. Therefore, the current research develops Home Economics entrepreneurship and tools to be used in the analysis of Home Economics entrepreneurship for undergraduate students. The data was collected from 404 undergraduates from Faculty of Home Economics Technology of Rajamangala University of Technology Krungthep, academic year 2021 by Stratified sampling. The study was divided into two phases. Phase 1 dealt with qualitative data analysis by studying relevant documents and previous research studies as well as interviewing experts in the field, to develop Home Economics entrepreneurship indicators. After that, confirmatory factor analysis was adopted. Phase 2 was quantitative data analysis, implemented by collecting data from 304 undergraduate students by using ANOVA. The results of Phase 1 qualitative research revealed that the Home Economics entrepreneurship potential consisted of 6 components including seeking business opportunities, innovative thinking, risk taking, management, entrepreneurial intentions, and networking. The results of testing the construct validity of Home Economics entrepreneurship potential showed that the model had a comparative fit with the empirical data. Furthermore, the results of Phase 2 quantitative research revealed that students who trained in Home Economics skills for more than 21 hours per week obtained a higher average for the Home Economics entrepreneurship potentials than others with the statistical significance of .05. Those who received Home Economics awards acquired a higher average for the Home Economics entrepreneurship potentials than others with the statistical significance of .05. Students who performed Home Economics-related jobs acquired a higher average for the Home Economics entrepreneurship potentials than those who did not perform any part-time jobs or performed non-related jobs with the statistical significance of .05. Lastly, students with the genuine entrepreneurial intentions had a higher average for the Home Economics entrepreneurship potentials than those who did not with the statistical significance of .05.

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Introduction

Small and medium enterprises (SMEs) play a significant role in Thailand's development, especially in the socioeconomic aspect since there has been a constantly higher marketing potential, which renders the companies to have competitive advantages and success (Ahmad, Suseno, Seet, Susomrith, & Rashid, 2018; Tripopsakul & Choochatpong, 2014). This aligns with the 20-year national strategic plan (2018-2037), which encourages a new generation of SMEs entrepreneurs to develop awareness and understanding of the Thailand 4.0 business model (Office of the National Economics and Social Development Council, 2018). The aforementioned policies have provoked Thai universities to seek ways to develop the educational quality to create graduates with thorough and appropriate knowledge and awareness of being an entrepreneur. They strive to cultivate and maximize students' potentials of being entrepreneurs who contribute to the society, both economically and socially.

Currently, there have been improvements in the curriculum of Home Economics, in order to produce quality university graduates who can fulfill national requirements as well as consistent with the current situations. There are various curriculums and courses in which good morality and ethics are embedded, and computer and information technology are reinforced. Home Economics core courses emphasize on family-related matters, family resource management and community management, while specialized courses focus on career specialization. (Pornthadawit & Ananwaraphong, 2008) However, most curriculum development plans do not include actual specialists, whereas the curriculum development directions should be geared toward professions in private businesses and different industries (Edokpolor, & Somorin, 2017), in order for future graduates from Home Economics to possess pleasant personalities, develop self-awareness, profound academic and specialized knowledge. Moreover, they should have knowledge in other areas including resources management, creative and systematic ways of thinking, far-sighted visions, and 21st Century skills, preparing them to be effective future entrepreneurs.

The Faculty of Home Economics of Technology, Rajamangala University of Technology Krungthep is one of the universities which perceive the importance of supporting young entrepreneurs. The courses and instructions aim to produce graduates who can step into

the professional world to perform diverse types of careers, including manufacturing, service businesses, and private businesses. All of these are pivotal to the development of the tourism industry and the national economy as a whole (Rajamangala University of Technology Krungthep, 2014). Faculty of Home Economics Technology focuses on conducting theoretical learning along with practical learning for students to have knowledge and skill in the field of Home Economics, equipment usage, designing, product development, food operation practice, flower arrangement, tailoring including home economic management and service. However, most of the learning focuses on enriching experience in home economics to cultivate love in home economics, but the learning activities that would allow students to experience real situations or simulation of being entrepreneurs is not enough for students to become entrepreneurs or own a business. For that reason, there must be entrepreneur potential development added to prepare students to become entrepreneurs after graduation and that potential must be developed in both behavior and attitude according to Theory of Planned Behavior (TPB). TPB was developed by Ajzen (1991, referenced in Sánchez, 2011) which is a theory that explains one's decision to behave, created from the existing data combined with the belief of consequences, references and control factor. These beliefs affect behavior through attitude toward behavior. The success of action depends on behavioral intention and the perception of the ability to control behavior and the theory is applied in the entrepreneur program (Sánchez, 2011; Karimi, Biemans, Lans, Mulder, & Chizari, 2012; Phantharak 2019;, Pommi & Naksai, 2020). The current research focuses on developing the entrepreneur potential indicator for students of the Faculty of Home Economics.

Objectives

1. To develop Home Economics entrepreneur indicators for students of the Faculty of Home Economics.
2. To analyze entrepreneurship potentials of students of the Faculty of Home Economics.

Conceptual framework

The review of relevant documents and previous research with regards to Home Economics entrepreneurship competency aspect discovered that each research aimed to study a different aspect of Home Economics entrepreneurship based on their objectives. In addition, a majority of research focused on the entrepreneurship

potential among business students (Hasan, Guampe, & Maruf, 2019; Vashararangi, 2017). The entrepreneurship potential is significant in all educational principles (Edokpolor, & Somorin, 2017), including Home Economics in which most students eventually become Home Economics entrepreneurs (Chibuzor, 2014).

For this reason, the current research developed a conceptual framework for the components of the Home Economics entrepreneurship potential. After looking into related studies and interviewing experts, coupled with the confirmatory factor analysis, it was found that the Home Economics entrepreneurship potential consisted of 6 aspects, including seeking business opportunities, innovative thinking, risk taking, management, entrepreneurial intentions, and networking. This led to the development of Home Economics entrepreneur indicators for Home Economics students. In Figure 1 below, the research conceptual framework is shown.

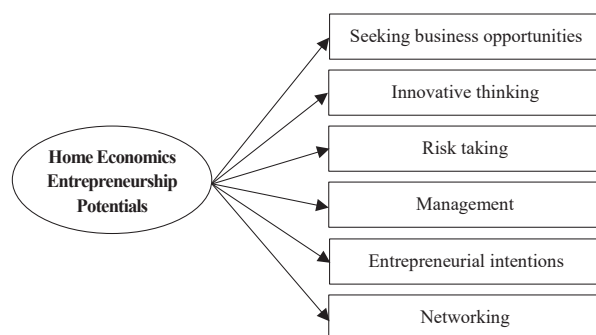


Figure 1 Conceptual framework

Research methodology

The current research endeavor adopted a descriptive research method in order to develop Home Economics entrepreneur indicators for students of the Faculty of Home Economics. The research study was divided into two phases. The first phase dealt with the development of Home Economics entrepreneur indicators and tools, followed by the second phase which involved the analysis of the entrepreneurship potential of students of the Faculty of Home Economics. The steps implemented in the current study are as follows:

Phase 1 The development of home economics entrepreneur indicators and tools

The first phase was conducted in two steps. The first step was the study of Home Economics entrepreneurship elements, while the second step was

the development of Home Economics entrepreneur indicators for students of the Faculty of Home Economics. The details are as follows:

Step 1 The study of Home Economics entrepreneurship elements

Literature and documents relevant to Home Economics entrepreneurship were reviewed in order to define the elements, indicators, and operational definitions, which were further taken to develop a structured interview for 5 Home Economics entrepreneurship experts and/or Home Economics teachers.. The objective of the interview was to investigate the Home Economics entrepreneur indicators and operational definitions, by means of content analysis, the results were adopted in the development of the Home Economics entrepreneur indicators.

Step 2 The development of Home Economics entrepreneur indicators

The elements obtained in Step 1 were implemented in the development of the Home Economics entrepreneur indicators for students in the Faculty of Home Economics. The developed indicators consisted of questions with a 5-point Likert scale. , The content validity, testified by using the IOC, revealed that all questions had IOC > 0.05, which ranged between 0.60 to 1.00 (Kanjanawasee, 2005). The questionnaire was adjusted according to the experts' advice. The construct validity of the Home Economics entrepreneur indicators was analyzed using the confirmatory factor analysis. The Home Economics indicators were used to collect data from 100 undergraduates in the Faculty of Home Economics, academic year of 2021, using stratified sampling. The internal consistency was analyzed using Cronbach's alpha coefficient, which was based on the validity measured by the results of each aspect of the variables, which ranged from 0.69-0.81 Nunnally (1978, referenced in Peterson, 1994).

Phase 2 The analysis of the entrepreneurship potential of students of the faculty of home economics

1. Population and samples

The population adopted in phase 2 was 1,307 undergraduates from the Faculty of Home Economics of Technology, Rajamangala University of Technology Krungthep, academic year of 2021.

The samples comprised of undergraduates from the Faculty of Home Economics, academic year of 2021, using one-way ANOVA by G*power program, with a significance of 0.05, and a confidence level of 95%. There were 3 sample groups, with the influence level of 0.25.

The sample should be composed of at least 252 people (Cohen, 1988) in order to compensate for 40% of the response rate. Therefore, the number of questionnaires was increased to 353. However, 304 questionnaires were returned, accounting for 86.12%, using the stratified sampling.

2. Research instrument

The research instrument used in phase 2 was Home Economics entrepreneur indicators developed from the synthesis of documents, interviews, and instrument quality check in phase 1. The data collected from the students was by google form following the assigned sampling plan and sample size.

3. Data analysis

The fundamental analysis was conducted by using percentage, average, standard deviation, and the analysis of the Home Economics entrepreneurship potential of students of the Faculty of Home Economics, used ANOVA.

Results

The detailed results of the development of Home

Economics entrepreneur indicators used to analyze the Home Economics entrepreneurship potential of students in the Faculty of Home Economics Technology of Rajamangala University of Technology Krungthep, are as follows:

The development of Home Economics entrepreneurship indicators

The findings of the qualitative data analysis revealed that the Home Economics entrepreneurship potential refers to the ability to seek opportunities to develop, improve, and enhance Home Economics work, processes, and services, by adopting creative thinking in terms of planning, resources allocation, and implementation. The ability to work with others as a team and elicit cooperation is of significant importance. A good entrepreneur should be ready to take risks, which stems from the true entrepreneurial intentions. The Home Economics indicators can be divided into 6 aspects, including seeking business opportunities, innovative thinking, risk taking, management, entrepreneurial intentions, and networking. The details are shown below in Table 1.

Table 1 Home economics entrepreneurship indicators

The home economics entrepreneurship potential aspects	Details and examples from experts
1. Seeking business opportunities	This refers to actively seeking business opportunities to develop, improve, and enhance Home Economics work, processes, and services, and making the best of the opportunities to advance and prosper in the future Home Economics business. "I give importance to seeking opportunities because it gives me competitive advantages, to develop the works that satisfy customers' demands." (Expert no. 2)
2. Innovative thinking	It refers to the initiation, improvement, and development of Home Economics work, processes, and services, in order to make it unprecedentedly excellent to respond to people's demands, paving the way to Home Economics innovations. "It should be emphasized that following popular trends and adopting them to develop the work are not the same as copying other people's originality" (Expert no. 1)
3. Risk taking	It refers to the acceptance of the result or possible damage occurring from the uncertainty of the development, improvement, and enhancement of Home Economics work, processes, and services. "In terms of risk taking, risks from uncontrollable external factors such as the Covid-19 situation, which has affected businesses in many branches including Home Economics business, should be taken into consideration." (Expert no. 5)
4. Management	It refers to the planning, management, control, and follow-up by the internal and external processes of resources management, to achieve the goals to develop, improve, and enhance Home Economics work, processes, and services. "To achieve the optimal efficiency and productivity, students must also be able to control the quality to be satisfactory for customers." (Expert no. 4)
5. Entrepreneurial intentions	It refers to the intentions to achieve the goals to develop, improve, and enhance Home Economics work, processes, and services, with the commitment and burning ambitions to overcome difficulties during the journey of becoming a business entrepreneur. "To be a business entrepreneur, we must put our heart and soul, and all that we have into solving daily problems, as well as allocate time to develop ourselves in order to catch up with the world." (Expert no. 5)
6. Networking	It refers to contacting, co-operating, engaging, and convincing people from the opportunities in hands to develop Home Economics work conveniently and smoothly. "Networking facilitates smooth business cooperation. Once we have a direct connection with resources suppliers, we gain better opportunities to receive quality products with cheaper prices." (Expert no. 3)

The results of the analysis of the construct validity of the Home Economics entrepreneurship indicators by using confirmatory factor analysis, revealed that the correlation metrics with item means and standard deviations were 3.27-3.69 and 0.76-0.87, respectively. Indicators were positively related with statistical significance. The relation was at medium to high levels ($r = 0.64-0.77$) The pair with the highest relation was risk taking and management at 77%, signifying the indicative behavior had enough correlation to analyze the components. The details are shown in Table 2.

Table 2 Mean, and S.D. for home economics entrepreneur

	SEEK	INNO	RISK	MANAGE	INT	NETW
Seeking business opportunities	1					
Innovative thinking	0.74*	1				
Risk taking	0.71*	0.64*	1			
Management	0.74*	0.72*	0.77*	1		
Entrepreneurial intentions	0.73*	0.67*	0.67*	0.74*	1	
Networking	0.75*	0.73*	0.68*	0.70*	0.70*	1
M	3.69	3.27	3.52	3.46	3.59	3.49
S.D.	0.86	0.84	0.76	0.78	0.87	0.85

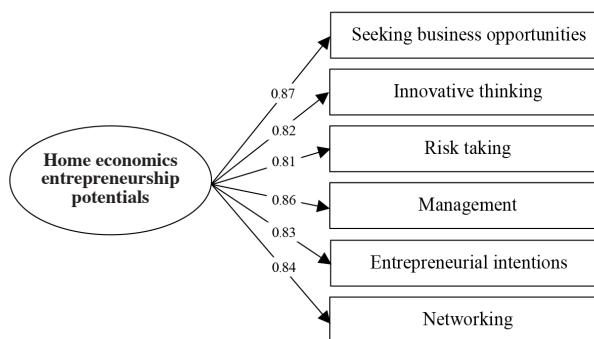
* $p < 0.01$ (Correlation is significant at the 0.01 level (2-tailed))

The results obviously showed the construction validity of Home Economics Entrepreneur and that the model has a comparative fit with the empirical data, (Chi-Square = 18.82, $df = 11$, $P = 0.06$, $RMSEA = 0.06$, $CFI = 0.99$) based on Criteria: $P > 0.05$, $RMSEA < 0.05$, $CFI \geq 0.95$). After analyzing the standardised factor loading of the observed variable, it was discovered that the the total standardised factor loading was positive but each of the 0.81-0.87 had the statistical significance of .001 ($p < .001$) and an R-Squared that could be explained by 67% of the components of Home Economics entrepreneurship to 76% of the standardised factor loading. This proved to be the most significant, such as seeking business opportunities ($B = 0.87$), followed by management ($B = 0.86$) networking ($B = 0.84$) entrepreneurial intentions ($B = 0.83$) innovative thinking ($B = 0.82$) risk taking ($B = 0.81$), respectively. The information is shown below in Table 3.

The results of the analysis of entrepreneurship potentials of students of the Faculty of Home Economics using ANOVA revealed that the faculty ($F = 2.03$, $P = 0.13$) and year ($F = 1.20$, $P = 0.31$) had different average values of Home Economics entrepreneurship potentials without statistical significance of .05. The study of the extra time spent on practicing and training Home

Table 3 Results of testing the construction validity of home economics entrepreneur

Indicative behavior	Factor loading		t	R ²
	b(SE)	B		
Seeking business opportunities	1.00 (0.00)	0.87	41.07	0.76
Innovative thinking	0.93 (0.06)	0.82	29.99	0.67
Risk taking	0.82 (0.06)	0.81	28.62	0.66
Management	0.88 (0.06)	0.86	38.32	0.74
Entrepreneurial intentions	0.99 (0.07)	0.83	43.28	0.68
Networking	0.95 (0.06)	0.84	47.19	0.73
Chi-square = 18.82	df = 11	p= 0.06		
CFI = 0.99	TLI= 0.98	SRMR= 0.02	RMSEA= 0.06	



Chi-Square = 18.82, $df = 11$, $p = .06$, $RMSEA = 0.06$

Figure 2 The home economics entrepreneurship model

Economics skills weekly apart from studying, showed that students who spent more than 21 hours per week had a higher average of Home Economics entrepreneurship potential than those who spent only 11-20 hours per week, and those who spent lower than 10 hours per week, with statistical significance of .05 ($F = 12.84$, $P = 0.00$). Moreover, those who received Home Economics awards obtained a higher average of Home Economics entrepreneurship potential than those who did not with statistical significance of .05 ($t = 4.97$, $P = 0.00$). Students who performed Home Economics part-time jobs had a higher average of Home Economics entrepreneurship potential than those who did not, while those who performed Home Economics part-time jobs had a higher average of Home Economics entrepreneurship potential than those who performed non-related jobs with statistical significance of .05 ($F = 16.07$, $P = 0.00$). Besides, students who had the entrepreneurial intentions had a higher average of Home Economics entrepreneurship potential than those who did not with statistical significance of .05 ($t = 6.01$, $P = 0.00$). The details are shown in Table 4.

Table 4 The analysis of average of Home Economics entrepreneur potential

Variable	M (S.D.)	F/T	P	I
Field of study				
Food technology and nutrition	3.48 (0.59)			
Fashion design	3.52 (0.49)	2.03	0.13	NS
Home economics technology and inventions	3.65 (0.64)			
Level of education				
Year 1	3.61 (0.60)			
Year 2	3.48 (0.59)			
Year 3	3.44 (0.54)	1.20	0.31	NS
Year 4	3.50 (0.61)			
Extra time for practicing and training Home Economics skills per week (apart from studying)				
Lower than 10 hours per week	3.41 (0.59)	12.84	0.00	3>2>1
11-20 hours per week	3.68 (0.51)			
More than 21 hours per week	3.92 (0.63)			
Having received Home Economics awards				
Yes	3.75 (0.53)			
No	3.41 (0.59)	4.97	0.00	1>2
Performing a part-time job after school				
No	3.41 (0.55)			
Doing home economics-related jobs	3.78 (0.55)	16.07	0.00	2>1 2>3
Doing non-related jobs	3.36 (0.60)			
Having the entrepreneurial intentions				
Yes	3.59 (0.55)			
No	3.01 (0.61)	6.01	0.00	1>2

Discussion

The results of the development of the Home Economics entrepreneurship indicators by testing the construct validity of Home Economics entrepreneur found that the model had a comparative fit with the empirical data. After considering the weight of the components in the form of the standard scores of the model, it was found that seeking business opportunities obtained the highest standard score, since it was the foundation that leads to the analysis of external factors and circumstances, to turn novelties into opportunities to achieve creativity and innovations. This is in accordance with studies by Baron (2006); Wathanakom (2020), which stated that business entrepreneurs should possess the ability to perceive and actively seek business

opportunities under the influence of external factors, as well as incorporate those factors into enhancing the opportunities. This is a crucial quality for a successful entrepreneur. The second highest standard score belonged to the management aspect. This is possibly because planning is an initiative process that deals with resources allocation, assignment of responsibilities, and the design of an optimally effective working procedure. Besides, an entrepreneur that possesses good planning and analytical skills tends to make good decisions because he/she has systematic thinking and logical problem-solving methods to accomplish his/her goals (Ahmad, Suseno, Seet, Susomrith, & Rashid, 2018), which was consistent with a study by Chibuzor (2014), which studied strategies enhancing creativity in entrepreneurship through Home Economics education in Nigeria, suggesting making a course to teach how to seek business opportunities in the global market, plan business, analyze the market and manage risks. This is believed to help develop Home Economics entrepreneurship potentials for students.

Prior studies found that psychological characteristics and people behavior in managing skill and entrepreneur technics is the most important factor of potential and success of the medium-size and small-size entrepreneurs (Rasmussen, Mosey, & Wright, 2011; Man, Lau, & Snape, 2008; Man, Lau, & Chan, 2002).

The results of the current study revealed that students' experiences should be enhanced in terms of conducting Home Economics-related activities, in order to accumulate the Home Economics entrepreneurship potentials. This is due to a finding in which students who received Home Economics-related awards, those who performed Home Economics-related part-time jobs, and those who trained in Home Economics skills for more than 21 hours per week, increased Home Economics entrepreneurship potentials than their counterparts. This aligns with studies conducted by Hasan, Guampe, & Maruf (2019); Van Gelderen, Kautonen, & Fink (2015), which found that past experiences play a vital role in developing entrepreneurship skills, which could be acquired by on-hand experiences, trainings, and activities that allow students to be involved in planning and preparing business projects, which was the best method. This was achieved by using solutions for past problems as the basis for starting a new business and increasing self-esteem among potential Home Economics entrepreneurs.

In addition, the results further demonstrated that students who possessed true entrepreneurial intentions to be Home Economics entrepreneurs obtained a higher average for the Home Economics entrepreneurship potentials than those who did not. This corresponds to a study by González-López, Pérez-López, & Rodríguez-Ariza (2021), which investigated issues from potential to early nascent entrepreneurship, by using senior students as the sample. The results found that entrepreneurial intentions and the ability to plan and manage the organization, had a direct impact on new entrepreneurs' behaviors. Moreover, having self-efficacy in being future Home Economics entrepreneurs could stimulate actions to achieve the imposed goals. Also, the research of Cruz Ros, Garzon, & Mas Tur (2017) found that the intention to be entrepreneur is an important component of entrepreneur potential because intention motivates the creation of marketing innovation. It is also in line with the Theory of Planned Behavior: TPB which is the social psychology theory about the connection between attitude and behavior according to the belief that people's behavior is influenced by the intention. However, the intention to behave can explain that those who have ability to control their behavior at a high level will have the opportunity to behave in high level as well.

Suggestion

The current research results personnel in higher education and vocational education intuitions that play a part in setting visions of the graduates In the field of Home Economics used to enhance Home Economics entrepreneurship potentials for students in 6 aspects including seeking business opportunities, innovative thinking, risk taking, management, entrepreneurial intentions, and networking. Also, the Home Economics entrepreneurship indicators can be used to assess students' potentials, in order to find ways to support and develop their Home Economics entrepreneurship potentials.

Future research studies should adopt the findings from the analysis of the Home Economics entrepreneurship potential to create learning activities for students, by designing Challenge-based Learning (CBL) activities to increase the awareness of the Home Economics entrepreneurship potential and enhance students' opportunities to conduct business in different contexts.

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