

Exploring Dimensions of Entrepreneurial Skills among Student Enterprise at Higher Learning Institution in Malaysia: A Case of Student Enterprise of University Utara Malaysia

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Abstract

The objectives of the study were to (1) explore entrepreneurial skills dimensions among student enterprise at the higher learning institution in Malaysia, namely participants of the Program Siswaniaga of Universiti Utara Malaysia (2) assess the reliability of each dimension of the entrepreneurial skills, and (3) assess the validity and overall reliability of the entrepreneurial skills instrument. The researcher performed this study via cross-sectional method. The sample comprised 107 participants of *Program Siswaniaga* who carried out business on campus in the year 2008 and 2009 for a period of six months to a year. The study showed six dimensions were developed in the entrepreneurial skills construct. The validity of the formation of the six dimensions were proved through the process of factor analysis. After the filtration of items using a factor analysis, the instrument ended with 23 valid items that fell into six dimensions. All of the six dimensions of entrepreneurial skills formed, and the overall instrument of entrepreneurial skills consisting of 23 items were proved to be valid and reliable. The implication of the study was that student enterprise possessed more entrepreneurial skills on the “know-how” part as compared to the “know-who” components. Therefore, university and student enterprise should organize relevant programs that could enriched participants with both of these entrepreneurial skills components.

Keywords: Entrepreneurial skills; entrepreneurial skills dimensions; expertise skills; and know-who skills

1.0 Introduction

Entrepreneurs have made a major impact on a country's economic development.

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To be entrepreneurs, among the substances necessary that individuals have to possess are entrepreneurial skills. Thus, the early development of potential entrepreneurs through entrepreneurship education should be conducted at the higher learning institution to inculcate students with this substance. Entrepreneurial skills are important to entrepreneurs at all levels of business; before entrepreneurs start-up a business, during the earlier operations of the business establishment stage, at the growing stage, and at the maturity stage of entrepreneurs business. The scope of the study focus on the entrepreneurial skills acquire by student enterprises at the higher learning institution, namely participants of the *Program Siswaniaga* (PS) of Universiti Utara Malaysia (UUM). This study attempts to identify the dimensions of entrepreneurial skills in student enterprises that involved in business under the PS at UUM. Accordingly, three research objectives were built, namely (1) to explore the dimensions of entrepreneurial skills among student enterprise, namely participants of PS UUM (2) to assess the reliability of each dimension of the entrepreneurial skills, and (3) to evaluate the validity and overall reliability of the entrepreneurial skills instrument that was explored.

By conducting this study, the researcher would be able to find out what are dimensions of entrepreneurial skills possessed by PS participants after they have undergone hands-on experience of doing business on campus. Many studies and scholars in entrepreneurship have been discussing dimensions of entrepreneurial skills in general (Pyysiainen et al., 2006; Gibb, 1993; Mohd. Salleh et al., 2005; Nor Aishah, 2005; Baker, 1994; Hisrich & Peters, 2005; and Chell, 2001; Muhammad Nor Zaini, 2001), but not many attempts have been done to see the contribution of each dimension to the entrepreneurial skills. Most of the previous studies on entrepreneurial skills were conducted among full-time entrepreneurs; this study focused on students enterprise who were entrepreneurs on campus while learning at the higher institution.

This paper started by highlighting the importance of the study for entrepreneurship program, then it introduced the student enterprise program at the higher learning institution in Malaysia, namely, the PS at UUM, followed by a literature review of past studies on entrepreneurial skills. Next is the methodology part, which discussed the process of developing entrepreneurial skill dimensions among student enterprise who were participants of PS UUM which consisted of measurements used, factor analysis of entrepreneurial skill items, and reliability test of entrepreneurial skills components.

The part for findings comprised proposed names of entrepreneurial skill dimensions, validity and the reliability of entrepreneurial skills dimensions, and reliability for the overall instrument of entrepreneurial skills. The study also proposed a model for entrepreneurial skills dimensions. The paper concluded with suggestions in improving entrepreneurial skills among student enterprises on campus, limitation of the study and suggestions for future research.

2.0 The Importance Of The Study For Entrepreneurship Program

The instrument resulted from this study which consist of six dimensions can be used to assess the overall outcome of any entrepreneurship program with respect to the entrepreneurial skills. Besides, the outcome level of each dimension of the entrepreneurial skills construct, namely financial skills, management skills, start-up business skills, operational skills, marketing skills, and communication and management information skills can be assess separately. These entrepreneurial skills assessments can assist university, student enterprise or organizer of entrepreneurship program to organize relevant programs that could enrich participants with these six dimensions of entrepreneurial skills components.

3.0 Program Siswaniaga Universiti Utara Malaysia

Program Siswaniaga (PS) is an entrepreneurship program at UUM that focuses on students who have an interest in entrepreneurship and voluntarily wish to engage in business activities on campus. The program aims to increase the number of entrepreneurs who can contribute productively and effectively to the development and expansion of the country's economy. Specifically the program is to provide experience and practical training for students in entrepreneurship. In addition, this program is to foster entrepreneurial talents and train students to be independent and courageous in carrying out any efforts.

The type of businesses that participant can be involved in depend on the participants interests, ideas, and creativity of the participants themselves, as long as this is not contrary to the regulations enforced by the university. There are two ways that participants can conduct business under the PS, the premises program and the non-premises program.

Under the premises program, participants would conduct business using the business lots provided on campus. The focus of this study was on students in the premises program only.

4.0 Entrepreneurial Skills

Many studies have shown that knowledge and skills play a vital role in small business development (Syahrina & Armanurah, 2004). An entrepreneur must have sufficient skills in his field of work if he wants to achieve success (Mohd. Salleh et al., 2005). Entrepreneurship as asserted by Pyysiainen et al. (2006) contains two important things, the management skills and entrepreneurial attitude, and both involve different categories of activities. Management skills are required to start-up a business and do business effectively (Muhammad Nor Zaini, 2001; Mohd Salleh et al., 2005; Norita et al., 2010). To transform business ideas into viable business opportunities, other than management skills, entrepreneurs also should possess start-up business skills, production and technical skills (Mohd Salleh et al., 2005). According to Pyysiainen et al. (2006) and Norita et al. (2010), the entrepreneurial skills refer to expertise activities or practices, which are required to develop and conduct business successfully. It includes financial management, accounting, marketing, production, human resource management and organizational management (Muhammad Nor Zaini, 2001; Shuhyme, 2004; Nor Aishah, 2005; Pyysiainen et al., 2006 and Norita et al., 2010).

In addition to the entrepreneurial skills above, proficient networking is another skill required by entrepreneurs (Chell, 2001). According to Dubini & Aldrich (1991), networking is the process of strengthening the level of trust among entrepreneurs. Apart from that, networking assists entrepreneurs to build a personal credibility and reputation in business, as such providing entrepreneurs with a competitive advantage over their competitors. Networking is the “know-who” skills that are important for the development of entrepreneur business. This is because human resources outside the business can offer various forms of assistance and support to entrepreneurs (Norita et al., 2007).

In order to build a network with people outside the business, entrepreneurs must have good communication skills which involved the ability to interact with other people.

The benefits gained by entrepreneurs from their networking members are financial support, information resources, market opportunities, business ideas, promotional products, market information, supplier information, motivation and moral support, resources, knowledge and skills, counseling and liaison people (Rosli et al . 2007). Therefore, the ability to networking is an entrepreneurial skills or core competency (Vyakaranan et al. 1995; Hill & McGowan 1996; Gilmore & Carson, 1999). According to Barringer and Ireland (2010) networking is an important attribute for entrepreneurs and is a skill that can be learned.

Based on the concept of entrepreneurial skills from previous studies and from thinkers in the field of entrepreneurship (Pyysiainen et al., 2006); Gibb, 1993; Mohd. Salleh et al., 2005; Baker (1994); Abdul Aziz, 2003; Hisrich & Peters, 2005; and Chell, 2001), mostly all of them agreed on the elements or dimensions of entrepreneurial skills which consist of “know-how” and “know-who”. The elements of “know-how” include management skills, production and technical skills, financial skills, marketing skills, human resource management and organizational management skills and start-up business skills. The element of “know-who” are more focused on the aspect of networking skills.

These elements or dimensions of entrepreneurial skills are no less important for student enterprise to succeed in the campus businesses. Thus, the higher learning institution should inculcate students with elements of entrepreneurial skills. Many studies have proved that entrepreneurial skills and managerial techniques can be trained and developed if potential graduates entrepreneurs have attended and completed proper training and nurturing programs (Abdul Razak et al., 2010). The study done by Louis (1993) showed that university students have good entrepreneurial potentials, but the university needs to identify a comprehensive method to develop these potentials. According to Gibb (1993), one of the ways to inculcate students with entrepreneurial skills is through entrepreneurship education, whereby the main purpose of enterprise education is to develop enterprising skills and attributes.

In the study by Luthe and Franke (2002) of the Massachusetts Institute of Technology (MIT), students who took entrepreneurship courses found that their lecturers provided them with knowledge and skills related to entrepreneurship. Nevertheless, most of these studies do not clearly state the dimensions of entrepreneurial skills developed among student entrepreneur through enterprise education.

Thus for the purpose of this study, the researcher explored the dimensions of entrepreneurial skills developed among student enterprise that have undergone the entrepreneurship education program, namely participants of PS who were doing business on a hands-on basis at the PS premises for a period of six months to a year.

5.0 Methodology

5.1 Sample of the Study

The study was from the perception of student enterprise of PS participants that had run their business on campus for a period of at least six months to a year under the PS in the year 2008 and 2009, for a population of 143 participants. The sample of the study comprised 107 PS participants. This is an appropriate sample size, since according to Krecie and Morgan (1970); the sample size for a population of 143 is 103 respondents. Moreover, a sample of 107 respondents would also enable the researcher to run factor analysis using a factor loading of 0.55 (Hair et al., 2007).

5.2 Measurement

The researchers used a five-item scale instrument to assess entrepreneurial thinking dimensions among participants of PS UUM. The first step in creating the instrument was to review the PS from the year 2008 until 2009 (Couetil et al., 2010). Next, the items were built as proposed by Churchill (1979) and Schwab (1980); which defines the constructs of interest, building items from the available literature and followed by items screening. Developing of items to measure entrepreneurial skills were based on the constructs of entrepreneurial skills that have been advanced by scholars in entrepreneurship and other previous studies. These items were refined and filtered through a process of evaluation by experts in the field of entrepreneurship. The original numbers of items as based on literature were 51, but after the evaluation by experts, the items were reduced to 45. The researchers used factor analysis to analyze the items for the purpose of constructs validation and to develop entrepreneurial skills dimensions.

Before collecting data for factor analysis, researchers had underwent a pilot study. The purpose of this pilot study was to ensure that the 45 items measured could be understood and were relevant to the respondents.

The researchers collected the data from the 107 respondent's participants of PS who were running their business under the program. Before performing factor analysis, researchers had ensured that all requirements were met. Next, the researchers performed a correlation analysis on the 45 items. This analysis showed all items had inter-positive correlation. Further, the researchers performed factor analysis on the 45 items by using a 0.55 factors loading with varimax rotation. The researcher dropped any item with a factor loading of less than 0.55, and this resulted in 23 items remaining. According to Hair et al. (2007), for a total respondent's between 100 to 120 a 0.55 factors loading are to be used for factor analysis. After the above filtration, the researcher performed the factor analysis again on the remaining 23 items to verify the validity of the entrepreneurial skills instrument and the dimension of entrepreneurial skills. Finally, the reliability of each dimension of entrepreneurial skills and the overall reliability of the entrepreneurial skills instrument was measured using Cronbach's Alpha.

5.3 Factor Analysis of Entrepreneurial Skills

Table 1 showed the Kaiser-Mayer-Olkin (KMO) test was 0.817, which is more than the standard value of 0.60 (Abu Bakar, 2009, Coakes, 2006). This test describes the dispersion (multivariate normality) and the adequacy of the items to perform the factor analysis test. The Bartlett's Test of Sphericity (Table 1) showed significant (significant at $p < 0.05$), which asserts that the sample was adequate for factor analysis testing. The results of the Measure of Sampling Adequacy (MSA) from Table 1 and the result of the anti-image correlation matrix are high, and exceed the level of 0.50. This explains that all the 23 items used do not have to be dropped from the factor analysis, as all the items have fulfilled the required conditions. The results of the findings from the three tests, namely KMO, Bartlett's Test of Sphericity, and MSA allowed factor analysis testing to be carried out.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.817
Bartlett's Test of Sphericity	Approx. Chi-Square	1422.660
	df	253
	Sig.	.000

After the extraction of factors, the item with the lowest communality (0.571) was item ‘Strategy to distribute the product to the targeted consumer’, while the item with the highest communality value (0.861) was item ‘credits control’. Communality describes the total variance of an item to share with all other items in a single analysis.

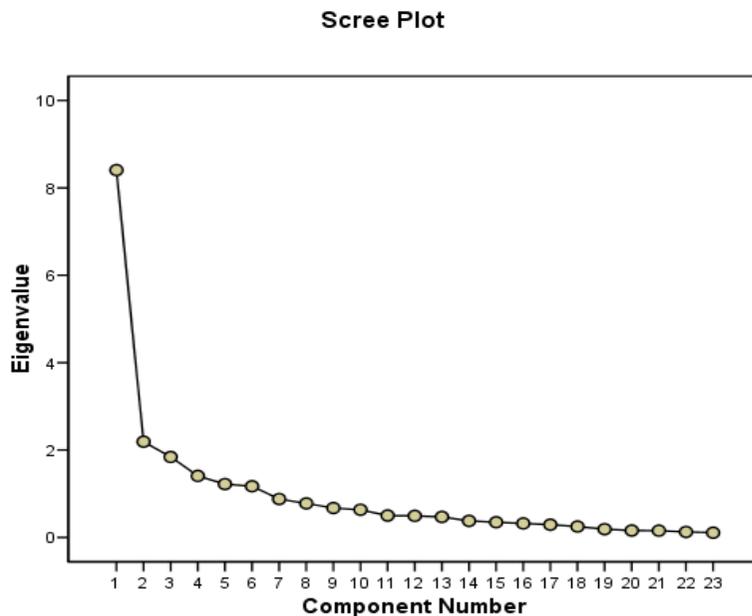
Table 2 shows the extraction formed six dimensions or factors that have eigenvalues exceeding one (1). Eigenvalues reflects the ratio of variance that belongs to each dimension. It is described by the total extraction of sums of squares loading, whereby dimension one has the highest eigenvalue of 8.407, followed by dimension two at 2.191, dimension three at 1.843, dimension four at 1.408, dimension five at 1.221, and dimension six has the lowest eigenvalue of 1.172. These six dimensions explained 70.6% of the total variance of entrepreneurial skills.

Table 2: Total Variance Explained

Dimension	Initial Eigenvalues Loadings			Extraction Sums of Squared Loadings		
	total	% of Variance	Cumulative %	total	% of Variance	Cumulative %
1	8.407	36.554	36.554	8.407	36.54	36.54
2	2.191	9.528	46.082	2.191	9.528	46.082
3	1.843	8.011	54.093	1.843	8.011	54.093
4	1.408	6.122	60.215	1.408	6.122	60.215
5	1.221	5.307	65.523	1.221	5.307	65.523
6	1.172	5.096	70.618	1.172	5.096	70.618
7	.878	3.818	74.437			
8	.779	3.387	77.824			
9	.673	2.925	80.749			
10	.633	2.754	83.503			
11	.502	2.181	85.684			
12	.494	2.147	87.831			
13	.470	2.043	89.874			
14	.379	1.648	91.522			
15	.348	1.514	93.036			
16	.321	1.397	94.433			
17	.292	1.272	95.705			
18	.250	1.085	96.790			
19	.189	.821	97.610			
20	.159	.690	98.300			
21	.156	.679	98.979			
22	.126	.549	99.528			
23	.108	.472	100.000			

The Scree Plot (Figure 1) described the validity of the formation of the six dimensions above.

The scree plot describes the six dimensions as the final solution, that is, if we draw a horizontal line starting from the value one at the eigenvalue axis, we would find six points above this line (Abu Baker et al., 2009). Other points will be under the horizontal line in the scree plot of this figure.



Scree Plot (Figure 1)

When the rotated component matrix was performed using varimax rotation method, the six-dimensional sets of 23 items were built, as shown in Table 3. This indicated that the 23 items in the entrepreneurial skills instrument could be grouped according to six dimensions. Table 4 shows the number of items in each dimension.

Table 3: Rotated Component Matrix

Entrepreneurial Skills Items	Dimensions of Entrepreneurial Skills	
Communicate in English		726
Use computers to manage business information systematically		786
Use business-related software applications		794
Make effective business decisions	762	
Leading business organizations	742	
Operate a business organization	764	
Solve business problems	586	
Control of business organization	643	
Competitive product pricing		622
Strategy to distribute the product to the targeted consumer		687
To provide effective customer service		582
Dealing with customer dissatisfaction		627
Handling of business finance	590	
The preparation of financial statements	745	
Provision of keeping business records systematically	804	
Preparation of cash flow estimates	713	
Calculation of breakeven point		840
Business credit control		864
Stock purchase management		764
Product quality control	584	
Optimum use of human resources	830	
Create a viable business plan	689	
Start-up business	686	

5.4 Validity and Reliability of Entrepreneurial Skills

The process of factor analysis as discussed in the previous section validated the formation of the six dimensions. After the filtration through a factor analysis, the instrument ended with 23 valid items that fell into six dimensions. Table 5 showed each dimension of entrepreneurial skills had Cronbach's Alpha values exceeding 0.70, which is an accepted level of reliability (Abu Baker et al. 2009, Nunally 1978), while the Cronbach's Alpha for the whole instrument of entrepreneurial skills construct was 0.92. Therefore all the six dimensions of entrepreneurial skills and the overall instrument of entrepreneurial skills consisting of 23 items were proved to be valid and reliable.

Table 5: Reliability Analysis of Entrepreneurial Skills

Dimension	No of items	Cronbach Alpha
Dimension 1	4	0.88
Dimension 2	3	0.75
Dimension 3	4	0.84
Dimension 4	3	0.86
Dimension 5	4	0.87
Dimension 6	3	0.75
Overall Instrument of Entrepreneurial Skills (Dimensions 1, 2, 3,4, 5 & 6)		0.92

6.0 Results and Discussion

6.1 Proposed Names of Entrepreneurial Skills Dimensions

Table 4 shows six the dimensions of entrepreneurial skills created among the participants of PS and the proposed name of these dimensions.

Table 4: Proposed Names of Entrepreneurial Skills Dimensions

Dimension	Total No. of Items	Eigenvalues	Variance	Proposed Name
1	4	8.407	36.554	Financial skills
2	3	2.191	9.528	Management skills
3	4	1.843	8.011	Start-up business skills
4	3	1.408	6.122	Operational skills
5	4	1.221	5.307	Marketing skills
6	3	1.172	5.096	Communication and management information skills

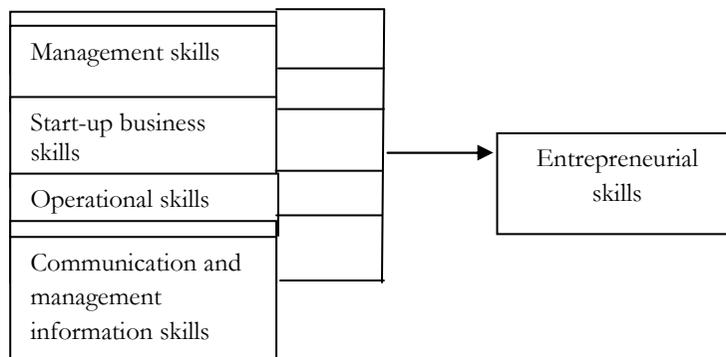
There were six dimensions of entrepreneurial skills among participants of PS, which were financial skills, management skills, start-up business skills, operational skills, marketing skills, and communication and management information skills. The dimension of financial skills explained the largest variance (36.6 %) in entrepreneurial skills, followed by management skills (9.5%), start-up business skills (8.0 %), operational skills (6.1 %), marketing skills (5.3%), and communication and management information skills (5.1 %).

These six dimensions explained 70.6% of the total variance of entrepreneurial skills. Amongst these dimensions, communication and management information skills ranked the lowest.

6.2 Proposed Model of Entrepreneurial Skills Dimensions

Based on the result of the findings, the researcher proposed a model of entrepreneurial skill dimensions as in Figure 2.

Figure 2: Model of Entrepreneurial Skills Dimensions



The results of the study showed that student enterprise who were running businesses on campus possessed more entrepreneurial skills on the “know-how” part, which were financial skills, management skills, start-up business skills, operational skills and marketing skills as compared to “know-who” components which involved networking skills. Parts of the networking skills possessed by these student enterprise could only be seen in dimension 6, which is communication skills. The evidence of the study showed that the major contributions of entrepreneurial skills among student enterprise were explained by “know how” skills, which consisted of financial skills that contributed the highest skills, followed by management skills, start-up business skills, operational skills, marketing skills, and management information skills. The “know-who” components, namely communication skills, explained a very small portion of the entrepreneurial skills among student enterprise. Many previous studies and thinkers in the field of entrepreneurship (Pyysiainen et al., 2006); Gibb, 1993; Mohd. Salleh et al., 2005; Nor Aishah, 2005; Baker 1994; Abdul Aziz, 2003; Hisrich & Peters, 2005; and Chell, 2001) had almost agreed on the components of entrepreneurial skills, which consisted of “know-how” and “know-who”, but most of them did not stress on the contribution of either component or dimensions of entrepreneurial skills.

7.0 Conclusion and Future Research

This study revealed that UUM students who ran their business under the PS were nurtured with entrepreneurial skills. The six dimensions of entrepreneurial skills were important as preparation in dealing with an on-campus business. The preparation was a sound and beneficial pre-condition means for students who want to pursue the field of entrepreneurship as a career choice after graduation. Since communication and management information skills ranked the lowest, students who conducted business on campus during their studies should give more efforts in improving the level of their communication and management information skills and other networking skills to enhance the level of entrepreneurial skills. Meanwhile, universities have to take specific actions in fostering the levels of all dimensions of entrepreneurial skills, which were financial skills, management skills, start-up business skills, operational skills, marketing skills, and communication and management information skills among PS participants.

The implication of the study was that student enterprise possessed more entrepreneurial skills on the “know-how” part as compared to the “know-who” components. Therefore, university and student enterprise should organize relevant programs that could enrich participants with both of these entrepreneurial skills components. Relevant programs that enriched participants with both of “know how” and “know-who” components of entrepreneurial skills using a hands-on basis should be developed. Since networking skills are an essential element for entrepreneurs that contribute to “know-who” component of entrepreneurial skills, universities and student enterprise should organize entrepreneurial activities that could become a hub for entrepreneurial networking among various parties. By nurturing PS participants with both of these entrepreneurial skills would help PS participants to explore the initial stages of business on campus and businesses they wanted to explore after graduation in a more effective and efficient way.

The researchers performed the study via cross-sectional method and focused on respondents from PS students’ enterprise at UUM only. Due to this study limitation, the result of the study could only be generalized for participants of student enterprise of PS at UUM only.

For future research the researchers recommended that the pre-test and post-test should be conducted to gauge whether there were any differences in dimensions of entrepreneurial skills before and after the participants involved in hands-on business under the PS.

Besides, similar study should also be conducted to a wider population of students enterprise at other higher learning institution in Malaysia to examine their dimensions of entrepreneurial skills developed.

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