Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol : 03 , No. 03 , April- May 2023
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.33.35.49

Designing Entrepreneurship Training Ecosystem Model's Components and Items Using the Fuzzy Delphi Method (Fdm)

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Received: 06 January 2023 **Accepted:** 24 March 2023 **Published:** 01 May 2023

Abstract: ***This study aims to determine the appropriate components and items of the entrepreneurship training ecosystem model for the Malaysian Skills Certificate (MSC) training programme. A total of 21 subject matter experts were selected as respondents to the study using the Fuzzy Delphi method (FDM). They are made up of experts in the field of entrepreneurship, the Malaysian Skills Certification System, and entrepreneurship education. This study focuses on the application of FDM by trying to get the consensus of the experts regarding the items that are suitable to be placed under the main components of the model. A questionnaire containing 43 items were given to all experts. These items are located under the 6 main components of the model, namely entrepreneurial competence, curriculum, co-curriculum, competent instructor, pedagogy, and industry partnership. The results of this study found that all the items suggested to the experts exceeded the value of 0.2 threshold value (d), obtained more than 75% group consensus, and surpassed 0.5 for defuzzification a-cut. This application has also determined the priority ranking of items under each model component.***

Keywords: Entrepreneurship Training Model, Malaysian Skills Certificate (MSC), Fuzzy Delphi Method.

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1. INTRODUCTION

Entrepreneurship Education and Training (EET) is one of the important agendas in the country's efforts to achieve its goals as a developed country with high income. For that, community and economic development are always emphasised because the country aspires to improve the number of entrepreneurs among the people in general and increase the interest of young people, particularly students, to enter the field of entrepreneurship. This is because much evidence shows a correlation between entrepreneurs' numbers and a country's economic prosperity. For that purpose, under the 12th Malaysia Plan, human capital development, especially among the youth, has been implemented actively through entrepreneurial activities that have been identified as important. Many funds have also been allocated to carry out all these activities at school and higher education level. Various programs have been planned so that all goals can be achieved. Among them is the system delivery of teaching and learning in educational institutions made more flexible and characterised by entrepreneurship, conforming to local and global needs. All these activities aim to produce holistic, balanced citizens with entrepreneurial minds who can act as job makers as intended in the Development Plan Malaysian Education 2015-2025 (Higher Education). Efforts to strengthen entrepreneurship in either direction, entrepreneurial thinking or the tendency to be a person entrepreneur through education, have also proven to be able to improve the employability of graduates, solve the unemployment issue among young people, improve the socioeconomic level of a person society and reduce the gap between the wealthy and poor. Due to the entrepreneurship importance to the country, EET has been made one of the core agendas for all students in educational institutions, including technical and vocational education institutions or TVET, regardless of field.

1.1 Problem Statement

Several studies have found that Entrepreneurship Education and Training (EET) must be compatible with the education system in an institution (Zairon, 2018; Adeniyi, 2021; Jonathan, 2022). This is to enable entrepreneurial competence to be delivered well and more effectively. However, entrepreneurial practices at Malaysian Skills Certificate (MSC) accredited centres were still low among trainees (Som et al.,2022). This may be due to the curriculum and co-curriculum of this skills training system only focused on producing a workforce (Shamsuri, 2020; Som et al.,2022). This training system based on competency-based training (CBT) also does not issue any entrepreneurial job standards to be embedded in the existing vocational training (Nor Aishah, 2013; Som et al.,2022). It differs from implementing the National Competency Standard - core abilities that must be included once in the training curriculum. In addition, the researcher's experience found that the entrepreneurial competence among instructors still needs to be improved. Their delivery methods must be improved in line with entrepreneurial practices (Shamsuri, 2020; Khuzainey et al.,2021; Som et al.,2022). This situation, coupled with the industry relationship, is also only focused on the production of employees, and no entrepreneurial element from experience is included (DSD,2017). The adverse effects of these problems can be seen with the participation of only a small portion of MSC graduates in entrepreneurship after completing training (DHE, 2022). Based on the abovementioned problem statement, this study focuses on the components and items necessary for an entrepreneurial training ecosystem model at the MSC-accredited centre.

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1.2 Research Objective

This study was conducted to determine the appropriate main components and their items in the entrepreneurial training ecosystem model. This model was developed to be implemented at accredited centres that run the Malaysian Skills Certificate (MSC) training programme.

1.3 Research Question

This study was conducted to design an entrepreneurship training ecosystem model for the Malaysian Skills Certificate (MSC) training programme. Several research questions need to be clarified, and they are:

i. What components must be in the entrepreneurial training ecosystem model tuned to the Malaysian Skills Certificate (MSC) training programme?
ii. What appropriate items are included under the main components in the entrepreneurial training ecosystem model for the Malaysian Skills Certificate (MSC) training programme?

2. Literature Review

Entrepreneurship education means developing individual potential related to all aspects of entrepreneurship through management, curriculum implementation, pedagogy, and assessment in a structured and planned environment. Informal entrepreneurship education can also happen to individuals. This process occurs through exposure and interaction daily with an individual in the environment related to true entrepreneurship that happens unplanned and without realising it. In a formal context, entrepreneurship education aims to form individuals who have never thought of becoming entrepreneurs until interest arises and then choose the career.

2.1 Entrepreneurship Competency-Based Training (CBT)

Competency Based Training (CBT) is an approach in practical training based on the student's abilities and the competency needs of society (Frank et al., 2010). CBT does not emphasise time-based training but prioritises accountability, flexibility, and student-centeredness (Frank et al., 2010). CBT has its philosophy that is oriented to training to produce workers according to industry standards and employer requirements with a training program focused according to job specifications and the party cooperation industry (Mansfield, 1989; Hall & Jones, 1996; William, 1997; Mulcahy, 2000; Tuxworth, 2005). In addition, the characteristics of CBT are using a variety of teaching methods and materials, having sufficient materials, space, and equipment, providing a learning atmosphere that resembles a workplace atmosphere, students informed of the criteria that need to be mastered, each student is assessed individually, immediate feedback is given to the students for each task and state the performance that is evaluated against the students (Stanly Elam, 1971; Norton, 1985; Hall & Jones, 1996; The National Council on Technical and Vocational Education and Training, 2006; Asnul Dahar et al., 2013).

An approach to Vocational Training that emphasises what individuals can do in the workplace due to the education and training they receive. It is a change in teaching style from a trainer-centred style to a trainee-centred style. The objective of CBT is to encourage trainees to be more independent. It is also an opportunity for trainees to learn at their own pace and ability. This means they will determine their skill level before being assessed. CBT can also produce excellent quality trainees and provide more competent trainees in information technology.

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Another advantage of this learning culture is that it can build a culture of knowledge and can form creative and mature trainees. CBT has its characteristics, and among them are:

i. The skills that must be achieved are first identified, validated, and publicised.
ii. Skills take into account knowledge and attitude but require performance as primary evidence.
iii. Evaluation criteria & methods are clearly stated, and achievements are announced in advance.
iv. Learning programs are provided for individual development and assessment of each skill that has been identified.
v. Trainees can improve their abilities by demonstrating ownership of identified achievements.

Before implementing CBT, some changes need to be made. The changes include the management system, changes in teaching and learning culture, the development of teaching materials, and the development of facilities/multimedia. From the point of view of teaching culture, this training system applies the culture of providing information rather than asking questions, asking low-level questions, and using resources in printed media; to providing challenging assignments that require investigation and analysis, more questioning, asking high-level questions and using multimedia resources, especially computers. If viewed from the point of view of a learning culture, it is in the form of depending on the instructor, giving low-level answers, working alone and passive interaction; to dependent on trainees - self-directed, giving high-level answers - global context, working cooperatively and in groups and active interaction. The division of teaching and learning in CBT is according to three domains, namely.

i. Cognitive Domain - Building abilities in understanding/ mental as well as mastery of knowledge
ii. Psychomotor Domain - Build abilities in practical skills and mastery of performance.
iii. Affective Domain - Involves emotions, attitudes, values, etc., and intellectual mastery.

Table 2.1 List of cognitive, psychomotor, and affective domains in entrepreneurship training

Cognitive (knowledge)	Psychomotor (skills)	Affective (attitudes)
1.Mental model	1.Marketing skills	1.Entrepeneurial passion
2.Declarative knowledge	2.Resources skills	2.Self-efficacy
3.Self-insight	3.Opportunity skills	3.Proactiveness
	4.Interpersonal skills	4.Uncertainty/ambiguity tolerance
	5.Learning skills	5.Innovativeness
	6.Strategic skills	6.Entrepeneurial identity
		7.Perseverance

2.2 Entrepreneurship Curriculum

According to Kamus Dewan (2005), the curriculum is a scope or content of a subject in a school or educational institution. It is a learning experience provided as a learning plan (Norlidah Alias, 2010). It constantly changes and develops in line with current demands (Norlidah Alias,

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2010 & Ahmad Subri Shuib, 2009). According to Norlidah Alias, Abu Bakar Nordin, Saedah Siraj, and Mohd Nazri Abdul Rahman (2014), the curriculum is not just a label that refers to or explains an entity of things or actions but is a concept that has gone through several stages of transformation by leaving traces in the form of ideas, models, and activities embodied in projects at schools and other educational institutions. According to Smith (2014), the curriculum is a plan, arrangement, and research written to meet individual educational needs taken as a result of student experience and the views of experienced teachers. In addition, according to Ahmad Subri Shuib (2009) and Ahid (2014), the curriculum is seen as material through activities based on student experience and teacher expertise in drafting a written document so that it can be a guide to achieve teaching goals.

The curriculum of entrepreneurship studies offered either at the school level or in institutions of higher learning has so far been found that it is influenced by the community's understanding of the concept of entrepreneurship itself (Nor Aishah, 2013). The understanding is about the definition of entrepreneurs, their beliefs about the characteristics of entrepreneurs, and others. Until now, the community is still confused about the meaning of entrepreneurship education and business education. For example, once upon a time, local society focused more on entrepreneurship as an ordinary businessman instead of a designer, manager, and creator of added value in an organisation and, finally, as an intrapreneur. Based on this understanding, the impact on the curriculum of entrepreneurship studies can be seen when almost all levels of education focus only on one pillar, business management skills. The pillars of attitude and motivation, entrepreneurial thinking, vocational entrepreneurship, and morals and ethics are insufficiently focused. The pillar of entrepreneurial thinking was found not to receive enough focus or not touched at all due to the understanding concept of entrepreneurs as innovators or creators or leaders of new technology still not being fully understood.

In the Malaysian Skills Certificate (MSC) training system, two elements must be trained to produce quality graduates. They are occupational skills standard (National Occupational Skills Standard-NOSS) and core abilities (National Competency Standard-NCS). Here it can be seen that the principle of the existing curriculum needs to be improved by including the element of vocational entrepreneurship so that this element is clearer in the learning objectives.

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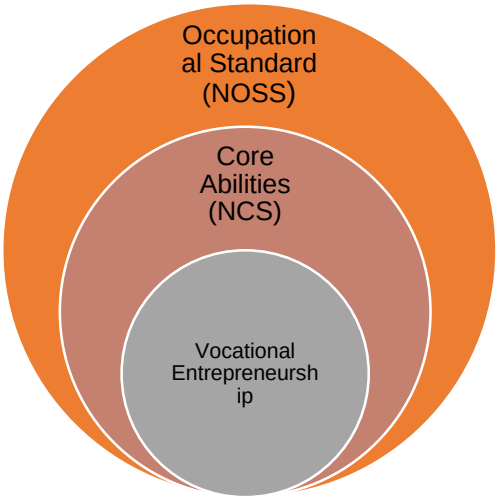

Figure 2.1 Proposed addition of elements in the Malaysian Skills Certificate (MSC) training programme

2.3 Entrepreneurship Co-curriculum

Co-curricular activity means any planned activity other than the teaching and learning process in the classroom (curriculum) that allows students to add, strengthen and practice the skills and values learned in the school (Zainun,2019). Knowledge gained from academic subjects can be supported and practised through extracurricular activities. This activity can also allow students to understand the concept of training in certain fields by using that knowledge in a more meaningful and realistic context. In addition, this method can also provide experiences that may not be available in the classroom.

All co-curricular activities must be planned to be consistent and complement each other with what is taught in the classroom. This can help trainees further improve their performance in their studies. Instructors and trainees can serve the community and vice versa. The purpose is to foster a two-way relationship between the training institute and the community and instil the spirit of serving, cooperating, and helping each other. By engaging in extracurricular activities, trainees can gain knowledge and entrepreneurial skills while filling their free time with benefits and building physical and mental health. This activity can also give pleasure to the trainees. Examples of activities include contributing skills to flood victims, community service such as haircut events for school students, and providing food for the elderly and orphans. These activities cause trainees to practice their vocational skills outside the classroom.

Co-curricular activities can provide the basis for career and entrepreneurship to trainees. It can also help complement teaching and learning, raise awareness, and prepare trainees for future career choices. This knowledge and skills are very useful when they enter the world of entrepreneurship. This activity can be carried out as a group or individually and is not limited to the facilities and equipment or expertise available at the training institute. Institutes with this problem can try to get it from other institutes or the local community. All co-curricular activities can allow trainees to train themselves for personal health and discipline, cultivate interests and talents and build enthusiasm to appreciate the values of unity and citizenship. The following are some of the things that must be included in the co-curriculum involving entrepreneurship at an MSC-accredited centre:

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i) Literacy activities
ii) Physical development activities
iii) Cultivating activities
iv) Civic development activities
v) Social welfare activities
vi) Leisure activities
vii) Excursion activities

2.4 Entrepreneurship Pedagogy

Pedagogy is a way of teaching science in education (James,2019; Sharifah,1983). Locally, the meaning of pedagogy is the teaching method applied by teachers in schools. Pedagogy is included in the Social Sciences and Humanities and relates to other sciences such as Psychology, Sociology, and Anthropology. Pedagogy aims to plan, analyse, develop, and evaluate the teaching and learning process. This aims to improve the reality of education in various areas: family, school, social, and work. Pedagogical effects are long-lasting and can provide positive outcomes for a lifetime. Teachers use teaching skills to deliver teaching and learning, especially in a field. It is the science of education and the art of teaching in schools. The pedagogy involves the study of teaching and learning, classroom management, school organisation, and teacher-student interaction. In addition, pedagogy methods also include developing cognitive, affective, and psychomotor skills in educators and students.

Among the importance of pedagogy is that it can help teachers understand the principles of teaching and learning. Teachers also easily choose teaching methods that suit the level of students. In addition, it will cause teachers to be able to plan more effective lessons. Mastery of pedagogy by teachers can develop students' potential. Pedagogy to produce entrepreneurs has three types, namely, teaching 'about' entrepreneurship, teaching 'for' entrepreneurship, and teaching 'through' entrepreneurship (Johnson, 1988; Heinonen & Hytti, 2010; O'Connor, 2013). Teaching 'about' entrepreneurship means teaching entrepreneurship theory as an introduction and general knowledge. Teaching 'for' entrepreneurship means teaching entrepreneurship in the form of practical work. While teaching 'through' entrepreneurship is teaching entrepreneurship by using real experience.

2.5 Entrepreneurship Competent Instructor

The instructor is a noble profession. Heinz (2010) defines a profession as a worker with special knowledge in his field, forming a network in the community, and delivering learning and certification. Implementation of quality TVET programs is very important for the development of manpower resources in need of competent and qualified instructors to make the process successful teaching. Evaluation of the quality of TVET implementation in an organisation is dependent on the implementation of teaching by instructors in addition to other factors such as organisational management effective, research development, facility facilities provided, and relationships with external parties such as stakeholders, the community, and students (P. S. Majumdar et al. 2009).

Competence indicates the ability of an employee to achieve specific success based on organisational needs (Biemans et al., 2004). Competence is also an indicator of ability level or the ability of an employee to perform a task (Mulcahy, 2000; Volmari & Helakorpi, 2013). Characteristics of a competent employee refer to the described individual criteria by the

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pioneers of competency theory, namely McClelland (1973), Boyatriz (1982), and Spencer and Spencer (1993). Boyatriz (1982) states the characteristics of Competent employees have goals, attitudes, skills, knowledge, and self-image. Spencer and Spencer (1993), competent employees have performance in work and have goals, personal, self-concept, knowledge, and skills.

McClelland (1973) stated that competent employees have goals, attitudes, skills, knowledge, and self-concept formulated by the three pioneers of the competency theory above. Competency elements include knowledge, skills, and attitude (purpose, self-image, personality, self-concept, temperament, and self-concept). A competent instructor is an instructor who has the knowledge and skills and has a good attitude or personality (Khuzainey et al., 2021).

In entrepreneurship training, they need to know the difference between entrepreneurship education and business education. Instructors are also those who are competent entrepreneurs in addition to being competent in teaching entrepreneurship. They need to act as facilitators for trainees in entrepreneurial activities. Instructors need to be open to new teaching methods. In addition, entrepreneurship instructors need to be in direct contact with entrepreneurial activities, and they are lifelong learning practitioners. They need to be smart in playing their role by collaborating with the management of the training institute, colleagues, and industry networks and engaging in professional development.

2.6 Entrepreneurship Industry Partnership

A partnership is a formal agreement between two or more parties to manage a business and share profits. Unlike a joint venture between two or more companies, a partnership only applies to a combination of individuals. Many types of partnerships exist, but the majority are, as explained in the previous sentence. Building together, carrying out daily tasks evenly, and getting equal benefits are the things that are carried out in this partnership. Even so, there is also a type of partnership that makes one party a "silent partner" so that he does not need to participate in daily operations.

Industry partnerships are among the most effective strategies for increasing business growth and success (DSD,2017). Two or more companies can collaborate to achieve common goals and mutual benefits. In the era of globalisation and increasingly fierce competition, partnerships can help companies expand their market reach, develop new products, and strengthen their position in the industry. In a partnership, both parties can utilise each other's expertise and resources to achieve common goals. This can help companies reduce costs and risks in product development or expanding markets. In addition, partnerships can help companies increase credibility and reputation in customers' eyes because they can show that the company has strong relationships with other trusted companies.

A partnership is a form of cooperation between two or more parties, in this case, a company or organisation, to achieve mutual goals mutually beneficial. In a partnership, each party contributes resources, expertise, and experience to achieve common goals that cannot be achieved independently. Partnerships can take various forms, such as business, strategic, marketing, or project-specific partnerships. Each type of partnership has different goals and benefits. But all partnerships have the same goal, which is to achieve a common goal that is mutually beneficial to both parties. This partnership can help companies expand market reach, reduce costs, increase operational efficiency, and strengthen their position in the industry.

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3. METHODOLOGY

The Delphi method has obtained agreement and consensus among expert groups for over half a century. The calculation of the Delphi method is based on the experts' opinion. Therefore, any errors or contradictions in evaluating the opinion affect the results and findings of something discussed or studied. In the traditional Delphi method approach, although efficiency, the mental and expert ability will be used to make the comparison, quantifying, and decision-making. However, sometimes, the experts' opinions don't reflect the style of human thought. Using the fuzzy set theory (fuzzy set theory) in Fuzzy Delphi Method is more consistent with physical and better linguistics in making decisions (Ramlan & Ghazali,2018). Rank accuracy in decision-making can be reduced by using the Fuzzy Delphi method. Compared to the Traditional Delphi method, Fuzzy Delphi methods are more effective and consistent with reduced rounds in seeking expert consensus.

3.1 Sampling

For studies that use the Fuzzy Delphi method, sampling is selected among subject matter experts, and it is intended to get their agreement about the research issue. Things that are evaluated during the selection are such as expertise, certification, individual character, discriminating ability, terms, and experiences (Ramlan & Ghazali,2018). This study has involved 21 subject matter experts who meet the criteria. They comprise three groups: Malaysian Skills Certification system experts, entrepreneurship education, and entrepreneurs.

3.2 Instrument

The researcher has formed the Fuzzy Delphi method research instrument based on several approaches. According to Skulmowski, Hartman & Krahn (2007) formation of questionnaire elements by researchers can be formed based on literature highlights, pilot studies, and experience. While according to Ridhwan, Saedah, Zaharah, Nurul Rabihah & Ahmad Arifin (2014), in forming questions for the method Fuzzy Delphi based on research highlights, expert interviews, and also the focus group method. According to Okoli and Pawlowski (2004), the study's contents' items and elements formation are necessarily made through a literature review related to the scope of the study. Therefore, the formation of elements, items, and The expert questionnaire in the Fuzzy Delphi method is summarised as follows:

i. Literature review
ii. Pilot study
iii. Researcher experience
iv. Expert interview
v. Focus group

3.3 Procedure

Questionnaire instruments were given to 21 experts to answer. The average value was determined according to the set formula value. Here is the formula used in obtaining the average value. Next, the determination of the threshold value. If the d value is $d < 0.2$, then all the experts have agreed. At this step, the researcher has obtained the agreement of the expert group, known as the consensus group. Gaining consensus, if the consensus of the experts taken by the researcher reaches more than 75%, then the consensus group has reached an agreement.

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On the other hand, if the agreement of the experts taken by the researcher reaches less than 75%, then the researcher has to do a second round to ensure that the consensus group is agreed upon. Fuzzy evaluation is one of the methods to determine the ranking for something item/sub-item. Because the process is quite difficult because it involves complex numbering, an alternative method is to use mathematics formulas as a ranking method called the defuzzification process. For the defuzzification process, three formulas can be used to determine the ranking/score for items. Therefore, the researcher has chosen formula (i) to obtain defuzzification. In this step, the researcher can determine the score or position according to expert consensus.

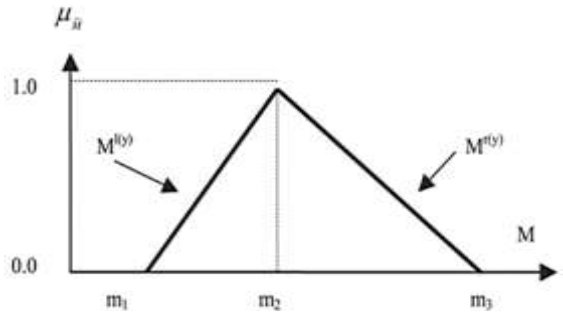

Figure 3.1 Triangular Fuzzy Numbers

$$d(\bar{m},\bar{n}) = \sqrt{\frac{1}{3}\left[(m1-n1)^2 + (m2-n2)^2 + (m3-n3)^2\right]}$$

Figure 3.2 The formula gets the average value

i.	Amax = 1/3 * (a1 + am + a2)
ii.	Amax = 1/4 * (a1 + 2am + a2)
iii.	Amax = 1/6 * (a1 + 4am + a2)

Figure 3.3 Defuzzification process formula

Finding

Most 'expert' definitions begin with a general statement. For example, Donohoe & Needharn (2009) stated that experts are individuals with experience or knowledge that distinguishes experts from novices. The traditional definition limits experts are those who have specialised training, such as academics, scientists, or medical doctors (Needham & de Loé, 1990). According to Booker & Mc Namara (2004), experts are qualified, knowledgeable, and know results from their training, practice, and experience. The expert is usually identified based on qualifications, training, experience, professional membership, and their peers' recognition (Nikolopoulus, 2004; Perera, Drew & Johnson, 2012). According to (Cantrill, Sibbald &

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Buetow (1996), and Mullen (2003), experts are any individual who has experience and knowledge related to a certain topic or field. The experts for this study are as follows:

Table 4.1 A list of experts who have been selected to obtain agreement on model components and items

Code	Certification	Term of Experiences (Year)	Expertise
SME1	Adv.Diploma	16	MSC System
SME2	Master	7	Entre.Education
SME3	Master	18	Entrepreneur
SME4	Degree	12	Entrepreneur
SME5	PhD	11	Entre.Education
SME6	Degree	28	Entrepreneur
SME7	Master	14	Entre.Education
SME8	Adv.Diploma	6	MSC System
SME9	PhD	10	Entre.Education
SME10	PhD	18	MSC System
SME11	PhD	10	Entre.Education
SME12	Adv.Diploma	6	MSC System
SME13	Degree	18	Entrepreneur
SME14	Master	6	Entre.Education
SME15	Master	11	MSC System
SME16	Degree	9	Entrepreneur
SME17	Adv.Diploma	16	MSC System
SME18	Certificate	10	MSC System
SME19	Degree	20	Entrepreneur
SME20	Master	20	Entre.Education
SME21	Degree	10	Entrepreneur

Table 4.2 The main component of an entrepreneurial training model

No.	Item / Element	Triangular Fuzzy Numbers Requirement		Fuzzy Evaluation Process Requirement				Expert Consensus	Ranking
		1)Threshold Value, d	2)Expert Panels Consensus Percentage (%)	m1	m2	m3	3)Fuzzy Score (A)		
1	Entrepreneurship Competency	0.186	95.2%	0.752	0.890	0.952	0.865	Accepted	5
2	Curriculum	0.157	95.2%	0.781	0.914	0.962	0.886	Accepted	4
3	Co-curriculum	0.101	100.0%	0.786	0.933	0.990	0.903	Accepted	3
4	Pedagogy	0.253	85.71%	0.724	0.857	0.924	0.835	Accepted	6
5	Competent Instructor	0.073	95.24%	0.843	0.967	0.995	0.935	Accepted	1
6	Industry Partnership	0.090	90.48%	0.833	0.957	0.990	0.927	Accepted	2

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Table 4.3 Items under the component entrepreneurial competency (knowledge)

No.	Item / Element	Triangular Fuzzy Numbers Requirement		Fuzzy Evaluation Process Requirement				Expert Consensus	Ranking
		1)Threshold Value, d	2)Expert Panels Consensus Percentage (%)	m1	m2	m3	3)Fuzzy Score (A)		
1	Mental model	0.168	95.2	0.705	0.867	0.948	0.840	Accepted	2
2	Declarative knowledge	0.105	95.2	0.795	0.938	0.986	0.906	Accepted	1
3	Self- insight	0.178	90.5	0.705	0.867	0.943	0.838	Accepted	3

Table 4.4 Items under the component entrepreneurial competency (skills)

No.	Item / Element	Triangular Fuzzy Numbers Requirement		Fuzzy Evaluation Process Requirement				Expert Consensus	Ranking
		1)Threshold Value, d	2)Expert Panels Consensus Percentage (%)	m1	m2	m3	3)Fuzzy Score (A)		
1	Marketing skills	0.102	95.2%	0.814	0.948	0.986	0.916	Accepted	1
2	Resource skills	0.134	90.5%	0.719	0.886	0.967	0.857	Accepted	6
3	Opportunity skills	0.102	95.2%	0.776	0.929	0.986	0.897	Accepted	3
4	Interpersonal skills	0.099	95.24%	0.767	0.924	0.986	0.892	Accepted	4
5	Learning skills	0.086	100.00%	0.748	0.914	0.990	0.884	Accepted	5
6	Strategy skills	0.105	95.24%	0.795	0.938	0.986	0.906	Accepted	2

Table 4.5 Items under the component entrepreneurial competency (attitudes)

No.	Item / Element	Triangular Fuzzy Numbers Requirement		Fuzzy Evaluation Process Requirement				Expert Consensus	Ranking
		1)Threshold Value, d	2)Expert Panels Consensus Percentage (%)	m1	m2	m3	Score Fuzzy (A)		
1	Entrepreneurship passion	0.137	90.5%	0.795	0.929	0.971	0.898	Accepted	2
2	Self-efficacy	0.132	100.0%	0.738	0.895	0.976	0.870	Accepted	7
3	Entrepreneurship identity	0.099	100.0%	0.776	0.929	0.990	0.898	Accepted	2
4	Proactiveness	0.114	85.71%	0.805	0.938	0.986	0.910	Accepted	1
5	Uncertainty/ambiguity tolerance	0.081	100.00%	0.767	0.929	0.995	0.897	Accepted	5
6	Innovativeness	0.111	95.24%	0.757	0.914	0.981	0.884	Accepted	6
7	Perseverance	0.099	100.00%	0.776	0.929	0.990	0.898	Accepted	2

Journal of Multidisciplinary Cases
ISSN: 2799-0990
Vol : 03 , No. 03 , April- May 2023
http://journal.hmjournals.com/index.php/JMC
DOI: https://doi.org/10.55529/jmc.33.35.49

Table 4.6 Items under the component entrepreneurial curriculum

No.	Item / Element	Triangular Fuzzy Numbers Requirement		Fuzzy Evaluation Process Requirement				Expert Consensus	Ranking
		1)Threshold Value, d	2)Expert Panels Consensus Percentage (%)	m1	m2	m3	3)Fuzzy Score (A)		
1	Vocational Skills	0.071	100	0.729	0.905	0.990	0.875	Accepted	3
2	Core Abilities	0.111	100	0.767	0.919	0.986	0.890	Accepted	1
3	Vocational Entrepreneurship	0.091	100	0.757	0.919	0.990	0.889	Accepted	2

Table 4.7 Items under the component entrepreneurial co-curriculum

No.	Item / Element	Triangular Fuzzy Numbers Requirement		Fuzzy Evaluation Process Requirement				Expert Consensus	Ranking
		1)Threshold Value, d	2)Expert Panels Consensus Percentage (%)	m1	m2	m3	3)Fuzzy Score (A)		
1.	Literacy activities	0.178	95.2	0.686	0.852	0.948	0.829	Accepted	6
2.	Physical development activities	0.144	95.2	0.757	0.905	0.971	0.878	Accepted	4
3.	Cultivating activities	0.152	95.2	0.705	0.871	0.957	0.844	Accepted	5
4.	Civic development activities	0.107	100	0.757	0.914	0.986	0.886	Accepted	3
5.	Social welfare activities	0.095	95.24	0.757	0.919	0.986	0.887	Accepted	2
6.	Leisure activities	0.239	85.71	0.676	0.833	0.919	0.810	Accepted	7
7.	Excursion activities	0.091	100	0.757	0.919	0.990	0.889	Accepted	1

Table 4.8 Items under the component entrepreneurial pedagogy

No.	Item / Element	Triangular Fuzzy Numbers Requirement		Fuzzy Evaluation Process Requirement				Expert Consensus	Ranking
		1)Threshold Value, d	2)Expert Panels Consensus Percentage (%)	m1	m2	m3	3)Fuzzy Score (A)		
1	Teaching 'about' entrepreneurship	0.250	85.7	0.724	0.862	0.924	0.837	Accepted	2
2	Teaching 'for' entrepreneurship	0.230	90.5	0.710	0.857	0.929	0.832	Accepted	3
3	Teaching 'through' entrepreneurship	0.096	100	0.767	0.924	0.990	0.894	Accepted	1

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http://journal.hmjournals.com/index.php/JMC
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Table 4.9 Items under the component entrepreneurial competent instructor

No.	Item / Element	Triangular Fuzzy Numbers Requirement		Fuzzy Evaluation Process Requirement				Expert Consensus	Ranking
		1) Threshold Value, d	2) Expert Panels Consensus Percentage (%)	m1	m2	m3	3)Fuzzy Score (A)		
1	Understand the fact that entrepreneurship education is different from business education	0.133	95.2	0.776	0.919	0.976	0.890	Accepted	3
2	Competent as an entrepreneur	0.123	95.2	0.748	0.905	0.976	0.876	Accepted	5
3	Competent as an entrepreneurship training instructor	0.188	90.5	0.733	0.881	0.948	0.854	Accepted	7
4	Be open in introducing new methods in teaching entrepreneurship	0.115	95.24	0.767	0.919	0.981	0.889	Accepted	4
5	Competent as a facilitator to the trainees	0.156	95.24	0.714	0.876	0.957	0.849	Accepted	8
6	Practicing the principles of lifelong learning	0.114	100	0.776	0.924	0.986	0.895	Accepted	2
7	Engage directly in entrepreneurial activities	0.160	95.24	0.724	0.881	0.957	0.854	Accepted	6
8	Collaborate with the training environment such as school management, time, colleagues, networking, and continuing professional development	0.086	95.24	0.814	0.952	0.995	0.921	Accepted	1

Table 4.10 Items under the component entrepreneurial industry partnership

No.	Item / Element	Triangular Fuzzy Numbers Requirement		Fuzzy Evaluation Process Requirement				Expert Consensus	Ranking
		1) Threshold Value, d	2) Expert Panels Consensus Percentage (%)	m1	m2	m3	3) Fuzzy Score (A)		
1	Collaboration for the purpose of research and development in various aspects such as curriculum development, competency standards and review period	0.106	95.2	0.748	0.910	0.981	0.879	Accepted	4
2	Pay attention to the training facility aspect	0.167	90.5	0.738	0.890	0.957	0.862	Accepted	6
3	Creating linkages between training centres and industry for human resource development	0.105	95.2	0.795	0.938	0.986	0.906	Accepted	1
4	To increase the recognition of the Malaysian Skills Certification System at the global level	0.158	90.48	0.776	0.914	0.962	0.884	Accepted	3
5	Financial assistance by promoting corporate social responsibility programmes	0.117	95.24	0.776	0.924	0.981	0.894	Accepted	2
6	Support to Career Start-ups and Paths	0.132	90.48	0.757	0.910	0.971	0.879	Accepted	5

The experts agreed upon six (6) main components in the first round of designing the training ecosystem model. As a result of the content analysis, several items have been listed to be placed under each main component. The researcher conducted a second round of data collection to confirm that the items were suitable for all components. This round is done in the same way as the first round. A total of 21 experts, the same as the first round, were selected to

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DOI: https://doi.org/10.55529/jmc.33.35.49

answer the questionnaire. This is to get consistency between components and items for each component. The main goal of FDM is to get the expert agreement in designing this training ecosystem model. In terms of expert reliability, it is obtained based on a fuzzy evaluation of all expert opinions. This method also allows experts to express and convey their opinions until the opinion is agreed upon. This method does not misinterpret the expert's original opinion and can provide a good and quality response.

4. CONCLUSION

Entrepreneurship is accepted as a unique activity carried out by a person individually or in a group. It is an effort to profit through value-added activities for physical and human resources. To succeed, an MSC trainee who wants to become an entrepreneur must be developed with the right ecosystem package. Experts throughout this study have agreed upon six main ecosystem packages. Before deciding to venture into entrepreneurship, the first thing that must be done is the trainees' capital availability, both in terms of money and their abilities and skills. MSC graduates have acquired vocational skills while training at an accredited centre, and these skills are part of the human capital to start up a business. Combining the strengths of the components and elements contained in this model is hoped to open the entrepreneurial mindset of MSC trainees. Overall, the findings of this study have important implications for creating a training ecosystem in MSC-accredited centres. The findings of this study have successfully designed the components and items for a more competitive entrepreneurial training transition in the future.

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