

## Entrepreneurship skills in the curriculum of a selected vocational college in Selangor

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**Abstract:** Entrepreneurship is important in generating economic growth and social capital. Although entrepreneurship programs have been conducted in educational institutions, there seems to be uncertainty on components of entrepreneurship required in the curriculum. In addition, there has been very few successful entrepreneurs from these programmes. Further, there has been few studies on entrepreneurship in Malaysian Vocational Colleges and hence the implementation of programmes related to teaching entrepreneurship needs to be investigated to determine the skills required for entrepreneurship. A survey among 71 students and teachers at a premier vocational college to investigate current practices and EE components required was administered using a questionnaire and analysed using percentages and cross-tabulation while the open-ended responses were analysed according to emerging themes. The findings indicate that although EE was implemented in all colleges, the stakeholders required autonomy to design the curriculum according to the needs of the local community. Lack of resources and teacher preparedness were the main challenges in implementing EE. Marketing skills were required in most of the courses related to technology (Industrial Machinery Technology, Construction Technology and Computer and Networking System) while sales management was important for Computer and Networking System, and Accountancy courses. Innovation was important for Electronic Technology. Further, some suggestions for the improvement of the vocational and technical courses in relation to entrepreneurship skills, were made.

**Keywords:** Entrepreneurship education, entrepreneurship skills, vocational colleges.

## INTRODUCTION

Entrepreneurship is important for economic growth as a country's social and economic well-being is developed when citizens create business opportunities for employment (Deveci & Seikkula-Leino, 2018). Entrepreneurship is believed to be a means of alleviating poverty through the improvement of the welfare of individuals and communities (Sutter, Bruton & Chen, 2019). Besides, economic and social development for equity and employment, entrepreneurship encourages the growth of innovation (Valerio, Parton & Robb, 2014, World Economic Forum, 2009). In Europe and the USA, innovation policies have been developed for job creation from entrepreneurship activities (Deveci & Seikkula-Leino, 2018; Weber, 2012).

In Malaysia, developing entrepreneurship skills is necessary to address unemployment among undergraduates (Din, Anuar, & Usman, 2016). Entrepreneurship is a skill valued by Malaysian employers (Deveci & Seikkula-Leino, 2018; Ismail, Yusof, & Lai, 2011; Shuib, 2005; Ministry of Education, 2013). Hence, entrepreneurship skills training should be provided for potential entrepreneurs (Sutter et al., 2019) and should be included in the education system (Lerman, 2014; Fugate, Kinicki, & Ashforth, 2004).

Most training on entrepreneurship has focused on developing basic business skills. However, newer and innovative approaches which take into account ecosystems for supporting growth of business opportunities may be needed (Sutter et al., 2019). Some also believe that entrepreneurship education should be a lifelong learning instilled from the primary school level through to adulthood in order to develop better trained entrepreneurs with a disposition towards business, to market their services (World Economic Forum, 2009; Galvão, Marques, & Marques, 2018; Walter & Block, 2016).

The current global trend in industry also focuses on entrepreneurship education for training skilled personnel in the service sectors to start businesses (Dobbs & Madgavkar, 2014). Although the content and the components of entrepreneurship in the curriculum are also important, the effectiveness of entrepreneurship programs also depends on personal attributes of the learner (eg. business planning, risk taking, motivation, independence and self-efficacy) (Din et al., 2016; Ng et al., 2019; Omar, Shah, Hasan & Ali, 2019). Hence, this study seeks to investigate the components required in the local curriculum of a high-school level vocational college in Malaysia to develop entrepreneurship skills.

Specifically, for technical vocational education and training (TVET), the need for entrepreneurship has been emphasized by UNESCO (Marope, Chakroun, & Holmes, 2015), the OECD (King, 2012) and the World Bank (Valerio, Parton & Robb, 2014). The National Vocational Training Council of Malaysia identifies entrepreneurship as a core ability for vocational subjects (Alias, DeWitt, & Jamaludin, 2018). Hence, in Malaysia entrepreneurship initiatives has been identified to generate the economy and develop employment opportunities, thus reducing unemployment (Department of Statistics Malaysia. (2009). The Ministry of Entrepreneurship and

Development (MECD) had initiated training in many towns throughout Malaysia through the Entrepreneur Development Board for developing potential entrepreneurs (Majid, Saad, Sharif & Hussin, 2008). Under the 9th Malaysia Plan, 80,000 participants were trained to be entrepreneurs (Majid, et al., 2008). In addition, several strategies were outlined in the Entrepreneurship Development Policy in 2010 for programs related to entrepreneurship education in higher learning institutions which led to universities offering courses related to Entrepreneurship, example the Bachelor of Multimedia (Media Innovation and Entrepreneurship) in Multimedia University (Din, Anuar, & Usman, 2016). Although entrepreneurship programs were conducted in schools and higher education institutions, the number of successful entrepreneurs produced were too few (Abdullah, Mohamad, Bakar, Hashim, & Ooi, 2014; Mamat, Nawang, & Ramli, 2009; Buang, 2013). Reasons for this might be because there was little focus on components of entrepreneurship needed for educational programs, or that these programs need to target entrepreneurs at a much earlier stage, such as primary and elementary school level (World Economic Forum, 2009; Walter & Block, 2016). Hence, identifying the components of entrepreneurship required for the service sectors is necessary and can be integrated in the design of curriculum for local content (Dobbs & Madgavkar, 2014).

Hence, for this purpose, a TVET institution at high school level was selected. The selected college was a premier college which offered most number of courses among the colleges in Malaysia. Vocational colleges were important as they offered courses for the service sectors, which would lead to producing skilled entrepreneurs (Dobbs & Madgavkar, 2014). However, there seems to be fewer studies on EE in vocational schools (Galvão, et al., 2018). This study would investigate the practice of teaching entrepreneurship in a vocational college. At the same time, the component skills for developing entrepreneurship in selected service-related courses was identified. The difference between the opinion of teachers and students on the components required was then tested from a set of null hypotheses to determine if there were any difference in their opinions. An example of the null hypothesis is: There is no difference on the perceived importance of production skills between teachers and students for entrepreneurship education in the Electrical Technology course. A total of 36 null hypothesis was developed for the 4 component skills and the nine vocational courses offered at the college.

The findings determined the component skills needed in entrepreneurship. This would be used to suggest the effective implementation of entrepreneurship education (EE) in the local content curriculum for the service industries. The findings would be relevant to teachers, trainers, curriculum developers as well as college administrators to assist in planning for the needs of Malaysian students in vocational colleges.

The Malaysian education system is structured such that technical and vocational education stream only starts after six years of primary school. After primary education in the government school system, the majority of students spend three years in lower secondary education in national secondary schools (95% of students in a cohort) while others may in junior vocational colleges (5%) (Ministry of Education, 2013). A total of 60% of the students are targeted to enter the academic stream at the upper secondary level (2 years), while the rest would continue in vocational institutions such as vocational colleges (either under MOE or private), or Public Skills Training Institutions (Ministry of Education Malaysia, 2012). Students enrolled in these vocational institutions have more options for continuing their education after Diploma Level as they can apply for polytechnics, technical institutes, or vocational institutes of higher learning (the Malaysian Technical Universities Network) (Alias et al., 2018; Ministry of Education Malaysia, 2012). Students from the academic stream can continue their education after completing their Malaysian Certificate of Education in vocational colleges or polytechnics, and this allows them to continue their studies in the higher education institutes (Ministry of Education Malaysia, 2012). Hence, this study focuses on students who have left the academic school system to further their secondary education in vocational colleges.

There are 5 levels of certification offered by the Malaysian Skills Certification (SKM). Levels 1 and 2 are the Certificate level, normally referred to as SKM 1 and SKM 2. Graduates of the junior vocational colleges would have these certifications. The next few certifications, SKM3 and Diploma can be obtained from the vocational institutions and Public Skills Training Institutions, while the Higher Diploma certification is obtained from graduates of the higher learning institutions. There are also private skills training institutes, government-linked institutes such as Institute Kemahiran Bina Negara (IKBN), GiatMara, Institut Kemahiran MARA and the German-Malaysian Institute, as well as community colleges which offer these certifications (Alias, et al., 2018).

### **Entrepreneurship**

Entrepreneurship encourages innovation and at the same time, the growth in employment and equity for a country's economy (Valerio, Parton & Robb, 2014). Similarly, in Malaysia entrepreneurship ensures the country's development and economic growth (Deraman, Mohamad, Ahmad, Bakar, Mohd Jani & Hashim, 2007). Entrepreneurs are persons who start new businesses, having innovative combinations of products or services, or are associated with the idea of an enterprise (Schumpeter, 1934). The components of entrepreneurship are innovation, important for development of new products and organizing materials for production, as well as sales and marketing for the commercialization of products and establishing the distribution channels to access new markets (Schumpeter, 1934; Buli, & Yesuf, 2015).

In order to develop entrepreneurship skills, one needs to develop the interest and the ability to explore new opportunities, awareness of risk, as well as being innovative and creative for new product development (Weber,

2012). Hence, entrepreneurship intention involves more than cognitive knowledge and willingness to participate in entrepreneurship behaviours, but also the attitude and values of a person. An entrepreneur needs to be able to seize opportunities and take action and transform these strategies into profitable business ventures (Din, Anuar, & Usman, 2016; Galvão, et al., 2018; Bardai, 2000). In educational institutes in Malaysia, entrepreneurship is defined as encompassing the cognitive domain with the knowledge and intellectual skills, as well as the affective domain of interpersonal skills and personal attributes (Malaysian Qualifications Agency, 2017) which are creativity, innovation, and an entrepreneurial personality (Ministry of Higher Education, 2010).

### **Entrepreneurship Education**

Teaching entrepreneurship is complex as entrepreneurship education (EE) encompasses both practical knowledge and skills, and the career attitudes and personality for starting and doing business (Weber, 2012; Galvão, et al., 2018; Ng et al., 2019). Hence, EE needs to involve both formal and non-formal activities to develop the knowledge, skills and disposition for the intention to start business (Liñán, 2004). Some definitions of EE highlight pedagogical strategies to develop the culture of entrepreneurship in society, and not only on the capacities for entrepreneurship in the individual (Aranha, dos Santos, & Prado Garcia, 2018). Hence, EE needs to include the development of one's personal culture, as well as skills for setting up businesses (eg. management and establishment of new businesses) (Jensen, 2014), developing creativity and innovation (Abiogu, 2011) and having an entrepreneurial mindset (Jensen, 2014).

There are three approaches employed in EE: (1) learning for entrepreneurship, (2) learning through entrepreneurship, and (3) learning about entrepreneurship (Jensen, 2014; Gibb, 2005). The former two are related to practical aspects of EE such as creating a company while the latter relates building knowledge, which seems to be more prominent in training (Jensen, 2014). Four categories of entrepreneurship education, and according to him, "learning about entrepreneurship" would fall into the category of entrepreneurial awareness programs, as the knowledge on entrepreneurship does not necessarily create entrepreneurs immediately but may influence career choices (Weber, 2012; Liñán, 2004). On the other hand, preparing individuals to be conventional business-owners involves educating on start-up courses to prepare those who have intentions to be entrepreneurs to develop skills (Weber, 2012, Liñán, 2004). Such programmes emphasize the start-up phase and address practical aspects such as finance and legal matters (Curran & Stanworth, 1989). On completion of the start-up phase, entrepreneurs can take entrepreneurial dynamism courses to learn to develop strategies for opening new markets and sustainable growth (Weber, 2012; Liñán, 2004). Finally, there should be continuous development for education among entrepreneurs as a form of EE for self-regulated adult education for continuous improvement (Weber, 2012, Weinrauch, 1994). However, it is unknown which approach is practiced in vocational colleges.

Studies related to EE have covered curriculum, resources and perceptions of teachers and students. Although there have been studies on the effect of training programmes among students and educators (Deveci & Seikkula-Leino, 2018; Jensen, 2014), there does not seem to be sufficient studies on EE at the school level and especially for vocational schools (Galvão, et al., 2018; Jensen, 2014). In general, teachers and students are positive on EE and consider it to be important (Jensen, 2014) as teachers had to be trained effectively with knowledge and experience in EE to be effective. However, there seems to be less studies involving teachers' perception of EE from vocational schools (Jensen, 2014).

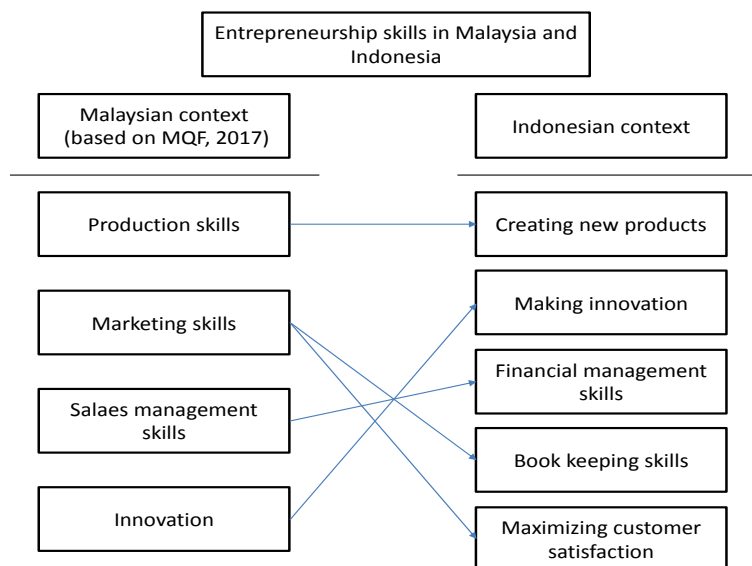
Teachers experience and knowledge in EE influences their understanding and practice of entrepreneurship (Jensen, 2014). Hence, teacher training regarding EE is important. EE has been implemented as extracurricular activities (Deveci & Seikkula-Leino, 2018). Strategies such as working in groups, story-telling, discussion, writing reflections and school visits have been used in EE (Deveci & Seikkula-Leino, 2018). Other approaches such as project -based learning, business plan competitions, business projects and involvement of external mentors enable the learning space to be transferred out of the classroom (Ojastu, Chiu, & Olsen, 2011). More recently, problem-based learning and design-thinking has been used for EE (Aranha et al., 2018).

EE programs introduced early in the schooling years may develop entrepreneurial skills and instil the intention to do business. Entrepreneurship-oriented subjects such as Commerce in Living Skills have already been offered at school at the lower secondary level while Economics and Commerce, at secondary school. Business studies, of which entrepreneurship is a core component is offered at Form Six (Mohamad, Amir, & Che Hassan, 2009). In Vocational Colleges, which offers education at the upper secondary level, entrepreneurship is emphasised through special programs such as the Youth Entrepreneurship Program (Othman, Nazri, & Tarmizi, 2003).

### **Components of Entrepreneurship Skills**

A mapping of the components of entrepreneurship skills in the Malaysian and Indonesian context indicates that there are similarities in the skills. The four domains in the Malaysian context will be used in this study (Mohamad et al., 2009) (see Figure 1 for the mapping).

Production is a skill related to the development of products and services to be marketed. OECD's definition of entrepreneurship is directly related to production through value creation and innovation (Ahmad & Hoffman, 2007). Hence, the product needs to meet the customers' needs and yet be at a reasonable cost (Queensland Government, 2017). Hence, production skills would need to identify customers views and expectations as well as understand their needs to continuously ensure market-innovation (Dhargalkar, Shinde, & Arora, 2016).



**Fig 1. Mapping of entrepreneurship skills in the Malaysian and Indonesian context**

Marketing is the skills to explore and initiate new markets, is an important skill (Barba-Sánchez, & Atienza-Sahuquillo, 2018). A business mindset in a variety of disciplines is needed for success (Welsh, Tullar, & Nemati, 2016). Marketing requires achieving maximum profits while managing and maximizing service (Ojastu, et al., 2011). Both bookkeeping and maximizing customer satisfaction are required for this. Marketing needs to continuously monitor and survey customer reactions on the product and its commercialization (Dhargalkar et al., 2016). Hence, EE should include business plan creation workshop (Barba-Sánchez & Atienza-Sahuquillo, 2018) and emphasize the development of skills in business management for planning and decision-making, marketing, as well as accounting (Ojastu et al., 2011).

Sales management on the other hand, looks at the personal interactions with customers with a new product (Weitz & Bradford, 1999). Sales is regarded as important as for marketing to succeed and maintaining good customer relationships is crucial (Ojastu, et al., 2011). Hence, an area considered important for entrepreneurship is developing networks (Weber, 2012). EE also needs to include obtaining sources of financing from collaborating bodies (Barba-Sánchez & Atienza-Sahuquillo, 2018).

Innovation is important in driving the nation's economy (Aranha et al., 2018). Entrepreneurs need to be creative and innovative in order to be the agents of "creative destruction" (Welsh et al., 2016). Encouraging new ways of doing things, and introducing new processes and products, spurs creativity (Barba-Sánchez & Atienza-Sahuquillo, 2018). Hence, EE should include idea-generation workshops using brainstorming and other innovative methods for development of innovative projects (Barba-Sánchez & Atienza-Sahuquillo, 2018). However, an innovative mindset can be used to encourage skills from ideation in production (Dhargalkar et al., 2016) to marketing (Morrish, 2017). Hence, an opportunity-focused approach encourages one to be aware of opportunities and to take advantage of opportunities when it arises (Morrish, 2017).

Hence in this study, EE involves the components of innovation, production, marketing and sales management.

## METHODOLOGY

There is a total of 1,666 teachers in the 81 vocational colleges throughout Malaysia (Alazam, Bakar, Hamzah, & Asmiran, 2012). Records in 2016 indicate that there were 12,875 students enrolled in vocational colleges. For this study, 71 teachers and students from a premier vocational college in Selangor, were selected.

### Instrument

The Senior High School Entrepreneurship Local Content Curriculum, originally used for schools in Bandung (Mohamad et al., 2009), was adapted to the Malaysian context for this study (Malaysian Qualifications Agency, 2017). The instrument surveyed the demographics and the suitability and potential of entrepreneurship in the implementation of the curriculum in the participants' institution. There were open-ended questions as well as dichotomous (Yes or No) questions investigating the components of entrepreneurship which were innovation, production, marketing and sales management (Malaysian Qualifications Agency, 2017).

### Data Analysis

The rate of return for the questionnaire was high (98.6%) as 71 questionnaires were returned. The survey data was analysed based on frequency and percentages, while the responses from the open-ended questions were first analysed and coded to identify the emerging themes.

## RESULTS AND DISCUSSION

The respondents comprised of students and teachers in different areas of technical education. The distribution of the number of respondents according to gender, and the mean experience of the teachers (in years) is in Table 1.

**Table 1: Distribution of Respondents**

Variables	Students		Teachers		Experience
	M	F	M	F	Year
Welding Technology	4	0	1	3	11
Cooling & Air Conditioning Technology	4	0	1	3	13.25
Computer and Networking System	4	0	0	4	11.75
Industrial Machinery Technology	4	0	1	3	18
Electrical Technology	4	0	0	4	9.25
Electronic Technology	4	0	0	4	6
Construction Technology	2	2	0	3	21
Automotive Technology	4	0	4	0	7.75
Accountancy	0	4	0	4	9.5
<b>Total</b>	<b>30</b>	<b>6</b>	<b>7</b>	<b>28</b>	<b>11.58</b>

M: Male; F = Female

### Standardised EE Module

More than half the respondents (69%, n=49) believed that there was an emphasis on the development of entrepreneurship skills in their institution. They also believed that the activities in their college were similar to other TVET institutions (70.4%, n=50) (see Table 2). EE among the vocational colleges seemed to be a coordinated effort as the analysis from the responses of the open-ended questions showed there was a module for colleges to encourage entrepreneurship which included Carnival Day (Teacher TK3, TSK4, TAU1, TK3), the annual School Enterprise Day (Teacher TK1, TSK2, TSK4, TE1 and Student TSK5, TE5, TE6, TE7, TE8) and Entrepreneurship Challenges (Student TEP4 and Teacher PAK2. Additional activities such as car-booth sales (Student TMI1, TMI2), promotion at special events, example, "JomMasukKolejVokasional" (Student TSK5, TEP4, TEP5) and providing service and repairs for cars in the neighbouring community (Teacher TSK4, TEC1 and Student TAU5, TAU7).

**Table 2: The Similarity of EE Programs and Emphasis on Entrepreneurship.**

	Agree		Disagree	
	n	%	n	%
My institution emphasizes the development of entrepreneurship skills	49	69.0%	22	31.0%
The current activities in my institution is identical to other TVET institutions	50	70.4%	21	29.6%

### Autonomy on EE

On autonomy, half the respondents (54.9%, n=39) preferred that the college be given the autonomy to design the curriculum to needs in the community while most others were unsure (40.8%, n= 29) (see Figure 3). This was because “a sound curriculum that reflect the needs of students (Teacher TK2)” was required. This was because students in the college and the neighboring community may have needs that differed from that in the existing module as “the level of entrepreneurship skills among students in this institution is different from others (Student TEC7).” Hence, allowing colleges to have autonomy to align the programmes to the “needs of the local community needs and the industry (Teacher TE1)” was required.

**Table 3: The Interest and Autonomy of The Entrepreneurship Program.**

Perceptions		n	%
My institution should be given the autonomy to design content for their entrepreneurial needs	Agree	39	54.90%
	Unsure	29	40.80%
	Disagree	3	4.20%
Students' are interested in the implementation of entrepreneurship activities in their college	Agree	35	49.30%
	Unsure	32	45.10%
	Disagree	4	5.60%

In terms of students' interest on the entrepreneurship activities implemented, almost half (49.3%, n=35) felt that students' interest was at an average level while a large portion (45.1%, n=32) perceived it to be high. Students did not seem to see the need for the EE module as some respondents claim “only 20% of the students are expected to be entrepreneurs (Student TK6)”. Some respondents claimed that “students are given less exposure to concepts on entrepreneurship (Student TEP5)” as “very few entrepreneurship activities were available (Student TEP4)”. This reduced exposure and knowledge might have influenced the students' low entrepreneurial interest.

### Challenges in Implementing EE

The main challenge on for the implementation of entrepreneurship programmes was perceived to be lack of equipment and teaching resources (63.4%, n=45), and teacher preparedness (52.1%, n=37) (see Figure 4). However, issues related to infrastructure such as classroom space (47.9%, n=34) and other related infrastructure (45.1%, n=32), followed closely. Analysis of the responses indicated that finance was important as the implementation of entrepreneurial activities needed “financial support, which was required to set up a small business”.

**Table 4: The Challenges on The Implementation of The Entrepreneurship Program**

Challenges	Agree		Disagree	
	n	%	n	%
Lack of equipment/teaching resources	45	63.4%	26	36.6%
Lack of teacher preparedness	37	52.1%	34	47.9%
Lack of classroom space	34	47.9%	37	52.1%
Lack of other infrastructure	32	45.1%	39	54.9%

### Content and Component Skills for Entrepreneurship

The relevant content and component skills important for an entrepreneurship education curriculum specific to the vocational college was identified for the nine courses offered in this college (see Table 1).

Respondents perceived the four component skills to be important for the nine courses with some exceptions. Production skills for Electrical Technology recorded a lower level of agreement among students (47.2%) than teachers (60.0%). However, in the Accountancy course, both teachers and students (40% and 30.6% respectively) viewed that production skills were less likely to be required. Teachers and students from all courses perceived innovation as important, especially for the technology courses (Electronic Technology (93%), Electrical Technology (91.5%), Industrial Machinery Technology (90.1%) and Automotive Technology (90.1%)).

Analysis of the open-ended responses provided more details. The marketing component seemed to be required for the course. Respondents wanted the content of the entrepreneurship curriculum to include procedures for

setting-up a business and management of marketing strategies, as well as accounts management procedures which included financial and profit planning. However, it was not known if there was a difference of opinion between teachers and students on the component skills needed for an entrepreneurship curriculum. Hence, a set of 36 null hypotheses were developed on the relationship between types of respondents (teachers and students) and the perceived importance of the component skills for all nine courses and across tabulation was done to test the hypothesis.

**Table 1: The Component Skills Needed from The Perspective of Teachers and Students**

Course	Component skills	Yes		No	
		T (%)	S (%)	T (%)	S (%)
Electrical Technology	Production	60	47.2	40	52.8
	Marketing	62.9	75	37.1	25
	Sales management	57.1	75	42.9	25
	Innovation	85.7	97.2	14.3	2.8
Electronic Technology	Production	62.9	61.1	37.1	38.9
	Marketing	65.7	80.6	34.3	19.4
	Sales management	54.3	72.2	45.7	27.8
	Innovation	85.7	100	14.3	0
Industrial Machinery Technology	Production	65.7	77.8	34.3	22.2
	Marketing	77.1	94.4	22.9	5.6
	Sales management	57.1	55.6	42.9	44.4
	Innovation	85.7	94.4	14.3	5.6
Welding Technology	Production	68.6	75	31.4	25
	Marketing	74.3	83.3	25.7	16.7
	Sales management	60	63.9	40	36.1
	Innovation	88.6	88.9	11.4	11.1
Automotive Technology	Production	65.7	61.1	34.3	38.9
	Marketing	62.9	77.8	37.1	22.2
	Sales management	65.7	77.8	34.3	22.2
	Innovation	88.6	91.7	11.4	8.3
Cooling & Air Conditioning Technology	Production	65.7	69.4	34.3	30.6
	Marketing	68.6	77.8	31.4	22.2
	Sales management	60	77.8	40	22.2
	Innovation	88.6	88.9	11.4	11.1
Construction Technology	Production	65.7	69.4	34.3	30.6
	Marketing	68.6	91.7	31.4	8.3
	Sales management	54.3	69.4	45.7	30.6
	Innovation	82.9	91.7	17.1	8.3
Accountancy	Production	40	30.6	57.1	69.4
	Marketing	71.4	86.1	25.7	13.9
	Sales management	68.6	91.7	28.6	8.3
	Innovation	68.6	69.4	28.6	30.6
Computer and Networking	Production	51.4	52.8	45.7	47.2
	Marketing	68.6	91.7	28.6	8.3

System	Sales management	51.4	77.8	45.7	22.2
	Innovation	85.7	91.7	11.4	8.3

**Legend:**

T: number of responses from teachers

S: number of responses from students

There were some differences of opinion among students and teachers (see Table 1). Most respondents (93%) agreed that innovation is important for the Electronic Technology course, with all students (100%, n=36) but fewer teachers (85.7%, n=33) in agreement. Therefore, the 8<sup>th</sup> null hypothesis for this case was rejected. This indicates there is a relationship between the types of respondents and the perceived importance on innovation for the entrepreneurship curriculum in the Electronic Technology course.

Marketing is considered an important skill for Industrial Machinery Technology course among the respondents (85.9%). However, it was more likely to be students (94.4%, n=34) than teachers (77.1%, n=27) who agreed. This indicates that there is a relationship between the types of respondents and the perceived importance of marketing skills for the entrepreneurship curriculum in the Industrial Machinery Technology course.

Similarly, marketing was considered important in the Construction Technology and Computer and Networking System courses. For Construction Technology, it was more likely that students (91.7%, n=33) than teachers (68.6%, n=24) agreed on this while for the Computer and Networking System course, it was more likely to be students (91.7%, n=33) rather than teachers (68.6%, n=24). Both the 26<sup>th</sup> and 34<sup>th</sup> null hypothesis, which are related, were rejected. This indicates that there is a relationship between the types of respondents and the perceived importance of marketing skills for entrepreneurship curriculum for Construction Technology and Computer and Networking System courses.

Sales management skills are also considered important for both Accountancy (80.3%) and Computer and Networking System courses (64.8%). In Accountancy, it was more likely that students (91.7%, n=33) rather than teachers (68.6%, n=24) were in agreement while for Computer and Networking System, it was more likely to be students (77.8%, n=28) rather than teachers (51.4%, n=18). Both the 31<sup>st</sup> and 35<sup>th</sup> null hypothesis were rejected. This indicates that there is a relationship between types of respondents and perceived importance of sales management skills for the entrepreneurship curriculum for Accountancy and Computer and Networking System course.

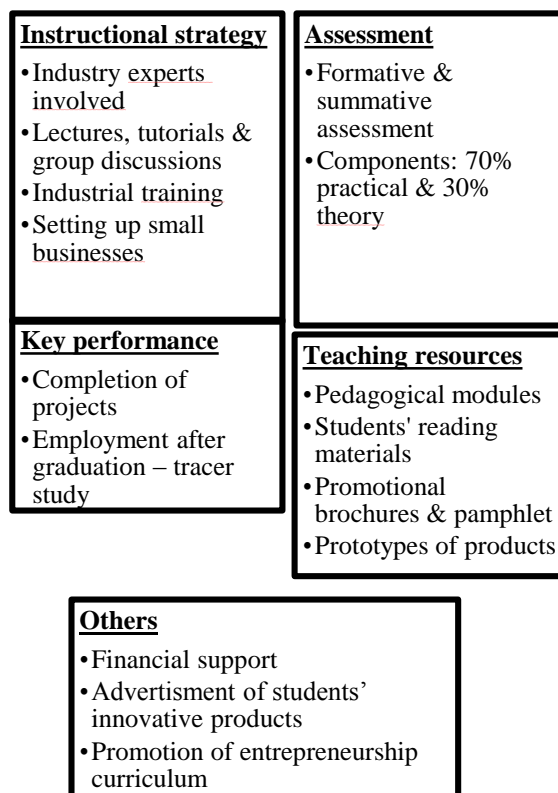
In the Malaysian context, one major drawback of the current entrepreneurship curriculum is that it is too general and may not develop the skills of the local industries. Typically, the courses on entrepreneurship emphasize development of the awareness and intention to be entrepreneurs and less on practical skills and knowledge (Weber, 2012; Liñán, 2004). The current study considers whether the crucial entrepreneurship skills, namely production, marketing, sales management and innovation thinking (Malaysian Qualifications Agency, 2017), needs to be included in the entrepreneurship curriculum in vocational colleges.

Interestingly, the respondents believed that the current curriculum in the college was similar to other TVET institutions. However, there seems to be challenges faced during implementation as there were insufficient equipment and teaching resources, and teachers were ill-prepared to teach entrepreneurship. Teacher's knowledge and readiness are important for the effective development of entrepreneurship skills among students (Galvão, et al., 2018; Jensen, 2014). This was because poor knowledge among teachers affected students' mastery of entrepreneurship skills as well as their intention to be entrepreneurs (Galvão, et al., 2018). Hence, teachers in TVET institutions need to be prepared for a pedagogy of EE so that they can encourage students to be entrepreneurs in the near future. In addition to teacher training, factors such as lack of facilities, resources and funding have also negatively impacted the development of entrepreneurship skills among students (Rahim, Kadir, Zainal Abidin, Junid, Kamaruddin, Lajin, Buyong, & Bakri, 2015). Hence, future studies could focus on whether these factors influence entrepreneurship intention.

The current study also explored the relevant components of entrepreneurship skills needed for the curriculum. The four component skills in the Malaysian context (Malaysian Qualifications Agency, 2017) were relevant to the entrepreneurship curriculum. Although skills such as production were less relevant for Electrical Technology and Accountancy courses, these skills should not be neglected. Production skills related to developing products and services for the market is seen to be irrelevant in electrical technology and accountancy as there did not seem to be products to be marketed. However, as the demand for both these areas of service is high, new services and products need to be marketed to be competitive and production skills become relevant.

Unsurprisingly, innovation was perceived as most important across all courses. This was because entrepreneurs had to continuously ensure new ways of doing things: new processes and products, in order to be relevant (Barba-Sánchez & Atienza-Sahuquillo, 2018; Welsh et al., 2016). In conclusion, the four components of entrepreneurship skills are crucial in developing an entrepreneurial mindset and attitudes (Ministry of Education Malaysia, 2012).





**Fig 2. The Design for Entrepreneurship Local Content Curriculum.**

Hence, based on the findings of the study, it is suggested that the entrepreneurship curriculum designed should incorporate the components as in Figure 2. As the outcomes of EE depends on the content for TVET, occupation-specific skills are required for the students (Buli, & Yesuf, 2015). Hence, curriculum design needs to involve industry experts. Content can be delivered through innovative training programmes and competitions such as student-entrepreneur training and idea-pitching competitions with mentorship and advisory support (Ng, Kee & Khan, 2019). This will enable students to showcase their entrepreneurship skills. Strategies which allow students to set up companies and experience industry-led authentic entrepreneurship activities should be encouraged.

As for assessment, a combination of formative and summative assessment, with 70% practical assessments and 30% assessment of theoretical knowledge, as suggested in the Malaysian Skill Certification Qualification framework for work-based assessment is applied. Similar to the current Malaysian TVET assessment framework, there should be more hands-on assessment for opportunity to practice the skills learnt (Alias et al., 2018). However, strategies such as group work for developing business plans and projects should be considered (Deveci & Seikkula-Leino, 2018). In addition to assessment, the evaluation of the curriculum could be done through tracer studies, an indicator of a course's effectiveness. Tracer studies enable the record of both entrepreneurial attitudes and successes for the evaluation of the curriculum.

Finally, financial support and media exposure should be given for both the entrepreneurship components in the curriculum as well as students' innovative products. There is currently a lack of awareness on the importance of entrepreneurship among young Malaysians (Din et al., 2016). Further, financial support is important to ensure the resources and business capital are readily available for potential entrepreneurs among students and can be a contributing factor for the success of an EE ecosystem in Malaysia.

## CONCLUSION

Currently, the entrepreneurship curriculum in vocational colleges focusses on creating awareness and basic skills for entrepreneurship (Weber, 2012; Liñán, 2004). However, the curriculum needs to be dynamic to prepare students for the future so that they can be successful entrepreneurs. This means that EE need to include marketing skills (Ojastu et al., 2011; Barba-Sánchez & Atienza-Sahuquillo, 2018) and encourage innovation for sustainable growth (Weber, 2012; Liñán, 2004). Entrepreneurship programmes should incorporate components of production, marketing, sales management and innovation in the courses. In addition, the EE curriculum should consider new forms of delivery and assessment. Opportunities for industry experts to share their experiences and expertise may be more effective than lectures. As entrepreneurship intention is influenced by one's attitude, future studies could explore whether students' attitudes in TVET institutions and whether EE promoted

entrepreneurship intention (Ng, et al., 2019). EE is important as developing entrepreneurship skills to ensure a generation of young entrepreneurs in Malaysia. These highly skilled entrepreneurs would develop the nation as they contribute to Malaysia's growth to drive for innovation.

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