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The Development of Entrepreneurial Attributes among Vocational Colleges Students in Malaysia: Explorations of Entrepreneurial Ecosystem Elements

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Abstract

Policy makers and entrepreneurship scholars pay attention to the development of a conducive entrepreneurial ecosystem in educational institutions to develop entrepreneur attributes among students. The entrepreneurial ecosystem represents the economic and social environment in the process of implementing local entrepreneurial activities. However, there are not many studies of the entrepreneurial ecosystem that focus on the education system in vocational colleges. Hence, this article was written to identify and describe the attributes of entrepreneurs who have been successfully developed by vocational colleges through the existing ecosystem in vocational colleges when implementing vocational education transformation starting in 2012. To answer the objectives and questions of the study, data will be obtained by conducting three semi-structured interview sessions to administrators at three selected vocational colleges and focus group to lectures. In addition, data will also be obtained through observation methods and document analysis methods. The result of this study found that there are five elements of entrepreneurial ecosystem that existed in the three vocational colleges studied was able to produce entrepreneur attributes among students covering four attributes, namely attitude towards entrepreneurship, attitude towards entrepreneurship, entrepreneurial thinking and selection towards entrepreneurship career.

Keywords: Entrepreneurial Ecosystem, Vocational College, Entrepreneurship Education Program

Introduction

Entrepreneurship is a catalyst for the economic development of the country (Aaltonen, 2016). Thus, most policy makers in developed countries such as China and America have expanded the implementation of entrepreneurship policies in educational institutions including vocational training and skills educational institutions to strengthen the country's economic situation (Warwick, 2013). The current global economic crisis and the development of digital technology have also affected the planning and implementation of the education policy (Warwick, 2013). Therefore, new methods should be used by policy makers to meet the limitations of resources such as human capital, finance and infrastructure in developing

entrepreneurial skills among students especially in vocational colleges. In addition, the implementation of a more effective policy with cheaper implementation costs needs to be used to ensure the economy of developing countries such as Malaysia continues to thrive (Warwick, 2013). Hence, the implementation of traditional education policy should change to a more economical policy and make the process of implementing education policy more complex (Mason & Ross, 2014).

In this regard, vocational colleges in Malaysia need to establish new implementation mechanisms in order to develop entrepreneur attributes among vocational students. This is because entrepreneurship skills are a necessary soft skill in the 21st century (Azmi et al., 2013) as changes in employment needs occur with the rapid impact of the development of digital technology (Mateu et al., 2018). However, entrepreneurial attributes can be developed when students themselves have the desire to venture into business and entrepreneurship (Newman et al., 2018). According to Newman et al (2018), usually, individuals who choose to engage in business and entrepreneurship are men, who have high desires and needs, as well as have creativity and capacity as leaders. In fact, men are also more willing to take risks when engaging in business and entrepreneurship. Entrepreneurial value development such as identifying entrepreneurial opportunities can be developed in students through an environment that supports entrepreneurial activities in educational institutions (Brown & Mason, 2017) and this is the most important factor in achieving that entrepreneurial aspiration (Terjesen et al., 2016). It is also supported by some western scholars such as Alvedalen & Boschma (2017) who agree that a conducive and dynamic learning environment gives freedom to the creativity and imagination of students. Furthermore, a conducive learning environment is capable of shaping failure as a positive opportunity towards the formation of a more skilled and productive society (Turner-Bowker et al., 2018).

Meanwhile, in the broader context of entrepreneurship, the entrepreneurial ecosystem combines the role of various social, political, economic, and cultural activities that provide support to increase the number of new entrepreneurs and expand existing entrepreneurs (Radinger-Peer et al., 2018). Therefore, the development of the entrepreneurial ecosystem in educational institutions especially in training and skills educational institutions such as vocational colleges should play the role of developing entrepreneurial attributes among students in implementing the direction of a more dynamic and economical education policy (Jansen et al., 2015).

In this regard, a conducive entrepreneurial ecosystem is expected to help startup entrepreneurs address uncertainties, face risks in business, provide financial assistance and face challenges in business. According to Rice et al. (2014); Neck & Greene (2011), the environment of educational institutions can be viewed as an entrepreneurial ecosystem that has the potential to produce entrepreneurs when the ecosystem is community-based consisting of components such as informal and formal networks, academic institutions and government agencies, professional services and support groups, capital resources, talent groups and physical infrastructure.

When applied in the context of education, the key components of the ecosystem also include entrepreneurial education courses and programs, the involvement of alumni

entrepreneurs, incubator students, prototype development services, funding provision to institutions that develop the entrepreneurial ecosystem, technology transfer services, and expanding scientific research at educational institutions (Rideout & Gray, 2013). However, these ecosystems rely heavily on each other to enable them to function effectively. In addition, activities within the ecosystem require coordination and open communication between implementing agents, by sharing their desires, values and common goals (Theodoraki et al., 2018).

Hence, in the implementation of the Vocational Education Transformation plan which aims to produce 10 percent of entrepreneurs among vocational college students, a conducive and dynamic entrepreneurial ecosystem should be established in the institution. Vocational colleges should be able to develop a conducive ecosystem that supports local entrepreneurship as implemented by higher education institutions abroad. This is supported by several economic scholars who explained the importance of the entrepreneurial ecosystem as an important factor in producing entrepreneurs among university students (Isenberg & Vincent, 2016; Stam & Spigel, 2015). This is also supported by Belitski & Heron (2017) noted that the development of the entrepreneurial ecosystem at several business colleges in European countries such as Harvard college and Boston in Boston, Bocconi in Milan, and George Washington University in Washington has enhanced the achievement of entrepreneurship education at the college and has boosted entrepreneurial activities among stakeholders such as policy makers, entrepreneurs, students, scientists, lecturers and industry. In fact, the existence of an entrepreneurial ecosystem in the institution provides space for the local industry to work together to develop the entrepreneurial ecosystem and thereby to accelerate entrepreneurial activities at the institution (Belitski & Heron, 2017). Gladwell (2008) explained that successful entrepreneurs depend not only on themselves, but on understanding the entrepreneur's environment. Gladwell (2008) explains the importance of analysing ecosystems as follows:

"The philosophers often talk about the 'ecology' of an organism: the tallest Oak in the forest is the tallest not just because it grew from the hardest Acorn; it is the tallest also because no other trees blocked its sunlight, the soil around it was deep and rich, no rabbit chewed through its Bark as a sapling, and no lumberjack cut it down before it matured" (Gladwell, 2008, Pages 19-20).

However, the process of developing entrepreneur attributes among vocational college students is an ongoing process that requires a supportive entrepreneurial ecosystem (Isenberg & Vincent, 2016) to the effort. In this regard, the Ministry of Education Malaysia should focus on strengthening entrepreneurship activities in the country through a more dynamic and flexible entrepreneurship education policy by introducing and strengthening the entrepreneurial education ecosystem at the secondary education level, especially in vocational colleges (Bahagian Perancangan dan Penyelidikan Dasar Pendidikan, 2017). Hence, the study wanted to explore and explain the characteristics of a conducive and effective entrepreneurial ecosystem in vocational colleges in order to produce 10 percent entrepreneurs from vocational colleges as desired in the Vocational Education Transformation Plan.

Literature Review

Entrepreneurship Education in Vocational Colleges in Malaysia

The Ministry of Education Malaysia is breathing new life into vocational education by making several changes, which include offering programmes, curriculum, and rebranding vocational schools to change society's perception of vocational education. The Transformation of Vocational Education is gazetted in the Malaysian Education Development Plan 2013-2025 document through two main programmes, namely the introduction to the Vocational Basic Education (PAV) programme in daily secondary schools and the Malaysian Vocational Diploma (DVM) programme at vocational colleges (KV). Both programmes set different achievement targets and action plans. Through this transformation, the Ministry of Education also offers Level 2 Skill Certificates in PAV programmes in daily secondary schools to pioneer vocational education pathways at younger ages between 13+ to 15+ years.

In addition, education programmes at vocational secondary schools offering vocational certificate level programmes in Malaysia have been reviewed and improved to the Malaysian Vocational Diploma Programme. The implementation of educational programs in vocational colleges is more open by giving more space to the involvement of the industrial sector in the training system in vocational colleges. In this regard, the Ministry of Education has restructured the curriculum at vocational colleges to obtain recognition that meets national and international standards. Diploma vocational programmes offered in every vocational college are subject to the Malaysian Qualifications Agency (MQA). In addition, the Malaysian Vocational Certificate offered at vocational colleges is also recognized by the Department of Skills Development (JPK).

The Vocational Education Transformation Policy introduced in 2012 targets the outcome target of 70 per cent of graduates working, 20 per cent of graduates continuing their studies and 10 per cent of graduates becoming entrepreneurs. However, after almost eight years of Vocational Education Transformation, the TVET Graduate Detection Study Report for vocational colleges showed 63.3 per cent of students who graduated from work, 7.9 per cent of students who continued their studies, 0.9 per cent of students were improving skills, 5.3 per cent of students finishing training were awaiting job placements and 22.4 per cent of students who had not worked. In terms of income earned by vocational college graduates who work, 56.8 percent of vocational college graduates earn rm 1001-2000. Meanwhile, 36.9 percent of vocational college graduates earn only RM1000 and below. This shows that the original aspiration of Vocational Education Transformation is still not achieved.

Entrepreneurship Education in Vocational Education Abroad

Developed countries such as Germany, China, Japan and South Korea are more forward in planning and undertaking efforts to develop human capital to meet the more challenging environment impacts of the Industrial Revolution (IR) 4.0 (Xu et al., 2018). The integration of the Internet of Things and Services (IoT) with the industry exudes new dimensions in the operation of industries such as global competition, volatile demand markets, requiring adaptation, and reduced life expectancy and product innovation (Müller et al., 2018). In other words, Muller et al. (2018) also explained that the changes put pressure on the industry to improve the quality and efficiency of the working environment using high technology and using artificial intelligence (artificial intelligent) which reduces the real human energy needs in the industry.

The change also affected the existing pattern of employment requirements to the highly skilled labour market in technology (IT Skills) which reduced the demand for low skilled

labour. Furthermore, the goal of skills training has changed from employment to self-employment which will effectively assist the development of Small Medium Enterprises (Abdeen Badawi, 2013). For example, Atkinson (2006) stated that 20 per cent of Australia's vocational graduates are self-employed and that figure has increased since the late 1970s. In addition, China has consistently exhibited 12.8 percent of vocational school graduates opening businesses. In general, the data proves graduates of vocational education are more confident in becoming entrepreneurs (Abdeen Badawi, 2013). This approach is in line with the strategy outlined by UNESCO 2016-2021, namely entrepreneurship in vocational education (UNESCO, 2016).

Purpose of Study

This study explores the elements of entrepreneurial ecosystems in three vocational colleges to developed entrepreneurial attributes among students.

Method

Qualitative research methods of multiple-case studies will be used in this study to explain in depth the questions of this study, namely what are the attributes of successful entrepreneurs created among students, how strategies used by vocational colleges are studied and what factors contributed to the success of vocational colleges studied in developing entrepreneur attributes among students in the vocational college. The qualitative method of multiple-case studies chosen as the design of this study aims to explore and explain the differences and similarities of the three forms of entrepreneurial ecosystem that exist in vocational colleges. Using the design of various case studies, a comparison of cases can be made to get an overview of the entrepreneurial ecosystem in vocational colleges. Through this study, three (3) entrepreneurial ecosystems in three (3) vocational colleges will be examined to see the differences and similarities between the three ecosystems.

Data collection methods will be conducted using five methods of data collection, i.e., semi structured interview methods, focus group methods, observation methods, document analysis methods, and field note entries. Semi-structured interview method (semi-structured is flexible for in-depth interviews to be conducted (Cresswell, 2009). The purpose of the interview was to open the perspective of the informant (emic) rather than the perspective of the reviewer (etic) (Merriam & Elizabeth, 2016). In this study, a semi-structured interview method will be conducted to three administrators at three vocational colleges. All three interview sessions will be conducted separately according to the time and needs of each informant. The first interview session (TB1) will be conducted at the first vocational college (KV1), then the second interview session (TB2) at the second vocational college (KV2) and finally the third (TB3) interview session at the third vocational college (KV3). Thus, the total number of interview sessions to be conducted are three semi structured interview sessions. Next, focus group discussion methods will be conducted to a group of three sets of lecturer informers. A total of three focus group sessions will be conducted separately in total. The number of informatic lecturers who will be involved in this study is 15 informers set of lecturers. The total number of informants for focus group discussions was 18 informants for six sets of focus groups.

Result

The achievement of Vocational Transformation Programs policy in producing entrepreneurial attributes among vocational students is highly debate by people who are

aware of the entrepreneurial education in Malaysia. Various study had been carried out in various issues related to this policy. This study focuses on elements of the entrepreneurial ecosystems that contribute to the implementation of the Vocational Transformation Programs policy by interviewing the education service officers who have served more than five years and possessed extensive experience and knowledge related to vocational education. Table 1 below is the demographics of the respondents who have been interviewed.

Table 1: Demographic of respondents

Vocational College	Respondent	Gender	Duration of service (year)
VC1	P1	Male	34
	P2	Male	16
	P3	Female	18
	P4	Male	15
	P5	Female	31
	P6	Female	19
VC2	P1	Male	26
	P2	Female	28
	P3	Male	19
	P4	Female	13
	P5	Female	17
	P6	Male	20
VC3	P1	Male	32
	P2	Female	18
	P3	Female	21
	P4	Male	15
	P5	Male	11
	P6	Female	

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All interviews were analysed thematically to identify the appropriate themes to ensure that they are in line with the research conducted. Findings shows there are four categories of entrepreneurial attributes exist among vocational colleges students, which is entrepreneurs' attitude, entrepreneurial behaviour and entrepreneurial thinking and selection of entrepreneurial careers. Below are the explanations of the findings.

Entrepreneurial Attributes that Exist among Vocational Colleges Student

Overall, there are four categories that appear for the attributes of successful entrepreneurs developed in the vocational college surveyed. The categories of attributes of successful entrepreneurs produced among vocational college students are entrepreneurship attitude, entrepreneurial behaviours, entrepreneurial thinking and selection of entrepreneurial careers. The findings showed that 16 informants agreed that through the existing ecosystem in the college they were able to develop attitudes towards entrepreneurship, attitude towards entrepreneurship and thinking towards entrepreneurship among their students.

However, all of the informants are of the view that vocational college students do not choose to become entrepreneurs once they have graduated from vocational college training.

Students are more likely to work payroll to raise capital for business if they do not receive financial support from their parents. However, there are students with a working parent's background starting a business after they have completed their training from vocational college. According to the informant, the intention of producing ten percent of entrepreneurs among vocational college students after they have finished training has not been achieved at this time.

All informers are of the view that the production of entrepreneurs among vocational college students will be achieved in the next four or five years. All informers explained that the outcome of the achievement of ten percent of entrepreneurship among vocational college students has not been achieved since this transformation was only implemented in 2013. There are two informants who agree that most vocational college students do not choose to venture into business because students have financial allocation problems as business capital. However, 18 informants agreed that students had shown entrepreneur behaviours such as starting small businesses using the skills they learned. For example, students in the Cosmetology programme have started small businesses running mobile SPA while they are still undergoing training in the Malaysian Vocational Diploma Programme.

Similarly, students in the Bakery and Pastry Program have also started to run small businesses such as selling torpedo cakes, viral cakes and others. According to the informant, at the time of the 2010 General Financial Statement, they had earned RM300-350 a week. However, students who are in the B40 income parent group have a problem getting a business start-up capital. They are more likely to choose to work in the field they studied in vocational college before starting a business. Students with a parent background or one of the parents involved in the business have a tendency to choose entrepreneurs as careers after completing skills training from vocational colleges.

Obstacles and Challenges Faced by Vocational Colleges Implementing Entrepreneurial Activities

From semi structured interview sessions conducted, there have been several obstacles and challenges faced by vocational colleges to develop entrepreneur attributes among students. Therefore, there are eight obstacles and challenges to vocational colleges that are reviewed when implementing entrepreneurial activities at vocational colleges.

The training curriculum set up at vocational colleges focuses on 70 per cent on vocational education training and only 30 per cent focus on knowledge and academic in the early stages of vocational education transformation. However, after two years of TPV was implemented, there was an issue of vocational college graduates who were not accepted to continue their studies at public higher education institutions even though the graduates received Diploma in Vocational Education from vocational colleges. This has changed the original intention of the establishment of vocational colleges which provided opportunities for academically inclined students to meet the requirements of the MQA for the purpose of diploma certificate recognition.

This change has put pressure on the vocational college to carry out entrepreneurial activities as set out in the implementation guidelines of the Enterprise School Program. Entrepreneurship activities that were previously successfully implemented have been delayed because lecturers are bound by the need to complete the contents of vocational and academic education skills training. The training time for implementing the vocational education curriculum of students is very dense.

In addition, the curriculum content for academic subjects is constantly changing to meet the needs of the MQA. In addition, students should be at the workshop from 8.00 am to 5.00 pm. This is a constraint for students to carry out sales activities in the Enterprise School Program. There are also vocational colleges that were surveyed to carry out sales and services activities on Saturdays to meet the prescribed certification requirements. In this regard, 100 percent of administrator and lecturer informers agreed that they should give priority to the certification set by the MQA as opposed to fostering entrepreneurship culture among students.

Apart from the limited time to conduct entrepreneurship activities in college, vocational colleges are also faced with the issue of implementing the Enterprise School Program. For half of the programs there is no problem to run the Enterprise School Program such as Bakery and Pastry program, culinary and cosmetology. For courses such as Tanning and Cooling Technology, Electrical Technology and Construction Technology are very high risk in terms of student safety. Lecturers are exposed to student safety issues because students are still around the age of 16+ to 19+. In addition, the proposed School Enterprise Program is less attentive than lecturers because the lecturers themselves are not interested in business. Lecturers involved in the Enterprise School Program are not given the flexibility to manage the shop and have to work more than other lecturers. This has strengthened the lecturer's spirit to continue to assist the college in implementing the School Enterprise Program.

When implementing entrepreneurship activities in the School Enterprise Program, colleges and lecturers are also faced with negative perceptions of parents and guardians. The informant explained that there are parents who consider lecturers and the college to use their children to become hawkers. Meanwhile, in the early stages of the implementation of Vocational Education Transformation has been explained about the activities that will be carried out in the Enterprise School Program. The mentality of parents and carers remains unchanged, which wants vocational colleges to focus on preparing vocational college students to continue their studies in higher learning institutions. The original intention of the establishment of vocational colleges was not to focus on furthering education but to provide students with jobs and self-employment. However, the informer explained that in terms of the implementation of Production-Based Education program is successful.

Hence, the college has difficulty building cooperative relationships with industry, corporate companies, local entrepreneurs to carry out entrepreneurship activities together. Such colleges are forced to beg for services and cooperation with industry, corporate companies, local entrepreneurs, not to mention the continued involvement of vocational colleges. To date, all colleges surveyed have established relationships with the industry to conduct On Job Training for final year students.

Although it is difficult to form a cooperative relationship with the industry, the findings show that the vocational colleges surveyed have good relationships with local entrepreneurs and alumni. Local entrepreneurs often come to college to give briefings and sharing sessions with students. Similarly, the alumni have set a good example to other students on the career path that can be chosen after they have completed their training and generate lucrative income other than working for salary in the field of skills that are trained. However, cooperation with the industry in enhancing entrepreneurship activities at the vocational colleges studied is still non-existent and requires continuous efforts to succeed.

Discussion

Writing this article is intended to look at the key elements found in the entrepreneurial ecosystem in vocational education in order to develop the attributes of entrepreneurs among students. Various efforts have been made at vocational colleges to develop entrepreneur attributes among students. However, the effort is not yet comprehensive to achieve the outcome target of producing ten percent of entrepreneurs among vocational college graduates.

As noted in many studies abroad, the development of the entrepreneurial ecosystem in educational institutions requires a mandate from policy makers because the entrepreneurial ecosystem itself is extremely complex (Auerswald, 2015). However, the success of developing the entrepreneurial ecosystem has had a huge impact especially on the creation of new education policies that affect the overall implementation of policies such as change in leadership direction, environment, and more detailed policy implementation process (Auerswald, 2015). Educational institutions not only play the role of developing skills among students, but also function as institutions that should serve to expand these skills to more commercial as a measuring stick to the success of developing entrepreneur attributes among students (Audretsch et al., 2019).

In the context of the role of the vocational college itself, the target setting of 10 percent of students to become entrepreneurs has made entrepreneurship an important element in the education ecosystem in vocational colleges. Although the target set by the Ministry of Education is only 10 per cent, to achieve this, it requires a comprehensive effort from all stakeholders in the vocational education system.

The focus and emphasis that needs to be given in the vocational and training education system in vocational colleges is to develop elements of the entrepreneurial ecosystem that cross all sectors in vocational education. Vocational colleges are seen as a large entity in the country's main education system which not only serves as a training centre for skills to students interested in the field of skills but also as an institution to train entrepreneurs who are able to produce a variety of innovation products that contribute to the country's economic growth.

Conclusion

This study contributed significantly to the development of entrepreneurial theories related to the development of the entrepreneurial ecosystem at vocational training institutions. This study has provided empirical data on the elements of the entrepreneurial ecosystem that exist in the educational ecosystem in vocational colleges in Malaysia. Findings can be used by planners and policy makers to develop conducive entrepreneurial ecosystem in vocational colleges. Some of the entrepreneurial ecosystem elements that have been identified from the findings are vision and mission of entrepreneurship, elements of entrepreneurial across vocational training curriculum, entrepreneurial activities outside the classroom, entrepreneurial enculturation through alumni and successful local entrepreneurs, financial allocation, co-operative colleges roles and counseling and career guidance unit.

In addition, in terms of entrepreneurship education, this study is very much contributing to the expansion of the Model of Entrepreneurship Education implemented in the education system in Malaysia. The combination of several educational theories such as

Planned Behavior Theory and Shapero Model as well as several entrepreneurial theories such as the Entrepreneurial Ecosystem Model in this study is hoped to optimize the development of student entrepreneurship attributes in vocational colleges. With this study, an establish framework of conducive entrepreneurial ecosystem can be produced that can be used by educational planners to strengthen and improve the implementation of entrepreneurial education policies in the vocational training education system in Malaysia. Hence, implementing agents such as leadership and college administration, lecturers and various stakeholders can provide more comprehensive entrepreneurship training to students in vocational colleges. This will then increase the confidence of students in vocational colleges to choose entrepreneurship as a career field after completion of training. At the same time, the successful generation of young entrepreneurs from the vocational education system can contribute to the social prosperity of society and the growth of the Malaysian economy.

In conclusion, studies related to the entrepreneurial ecosystem in vocational colleges should be conducted to provide input to the overall implementation of the Vocational Education Transformation Programs in vocational colleges. Empirical data obtained from the study can help policy makers to propose a more comprehensive and conducive educational entrepreneurship policy framework to be implemented. This study has yet to give a complete overview of the entrepreneurial ecosystem in vocational colleges. Therefore, other scholars can explore other aspects of the entrepreneurial ecosystem in vocational colleges such as elements of college policy and leadership, strategies used by the college in order to develop entrepreneur attributes among students.

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