

Evaluating the TVET Financial Allocation Based on The Polytechnics and Community Colleges Students' Enrolment: A Preliminary Analysis

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Abstract

TVET education sector have provided towards the socio-economic development for both developed and developing countries. Many developed countries have large percentage of skilled workforce and most of them are from the technical sectors. Malaysia has a structured TVET education system which the largest TVET provider in the country is under the purview of the Ministry of Higher Education Malaysia. The allocation of TVET education has steadily increased over the past five years and the introduction of Malaysia Education Blue Print – Higher Education has renewed the interest of TVET in Malaysia. However, the enrollment seen in decline as opposed to the increase of the allocation. There are several factors are discussed in this article, which most of them are likely related the governance and policy of the TVET education system. The TVET students' enrolment under the Ministry of Higher Education are compared with the TVET allocation from 2015 – 2020. The outcome of the analysis is discussed further in the way forward to improve Malaysia's TVET education system. This article is served as a preliminary analysis to provide valuable input to the policymakers to improve the overall perception of TVET education in Malaysia.

Keywords: TVET Governance, Policy, TVET Enrolment, Budget and Allocation, Education Policy

Introduction

Technical Education and Vocational Training (TVET) are often considered a second choice after academic routes to further studies. The main factor that causes this to happen is that the national education system emphasizes academic achievement rather than individual achievement. According to Padzil et al (2011), the academic field emphasizes science and mathematics, while TVET pays attention to obtaining knowledge and skills for work. This situation differs in most developed countries in Europe which pay close attention to the TVET path. In high-income countries, a dual-system concept was introduced to provide flexibility to the implementation of TVET. Applying this concept, job prospects for academic and TVET path are equal to be ventured into. According to Law (2007), TVET in developed countries is

considered the backbone of the education system. For example, in Germany, 60 % -70% of students in the country enrolled in the TVET study program.

Looking at the TVET education system in the region, countries such as South Korea, China and Singapore are allocating a significant amount and are actively working to develop education, especially TVET programs (Padzil et al., 2011). For example, South Korea is quickly recovered from a war-torn to one of the developed nations in Asia due to massive investment in education. Malaysia is also not left behind in ensuring that education remains on par with other countries in the region, providing human capital to develop the economy and industry. Malaysia's commitment is proved through the financial allocation channeled to TVET implementation in the Malaysia Plan series and yearly allocation approved in the parliament. Based on the allocation under the 7th Malaysia Plan (RMKe-7), the Public Skills Training Institute or ILKA received RM1.9 billion and an increase of RM3.8 billion in the 8th Malaysia Plan (RMKe-8) (Malaysia, 2001). In the 10th Malaysia Plan (RMKe-10), new initiatives are introduced to enhance the TVET education to ensure that TVET graduates can compete in the employment sector (Aminuddin, 2011).

Records in 2019 show that only 27.5% of Malaysia's workforce is employed in a highly skilled job sector, with the majority (semi-skilled, 60.1% and low skilled 12.4%) of the workforce has a low academic qualification. The Malaysian government has set a target for highly skilled jobs of 33% in 2015 and 50% by 2020 (Malaysia, 2010). Compared with other developed countries, the highly skilled workforce in Finland stands at 83.84%, Switzerland 83.58%, Canada 82.88% while Singapore reaches 54%, and most of the workforce is working in the high technology sector (Rievajova, 2019). Based on this trend, the country's level of development is guided by knowledgeable human resources and supplemented by a highly skilled workforce. Various public and private TVET institutions offer TVET programs to secondary school leavers to develop a highly-skilled workforce. Vocational education offered under the Ministry of Education through the Vocational College produces graduates with Vocational Certificates (SVM) and Diploma in Vocational Malaysia (DVM) qualification. In addition, there are also TVET institutions under the Ministry of Human Resource, namely the Industrial Training Institute, The Institute of Advanced Labour and Skills Training (CIASST), Japan-Malaysia Technical Institute and The High Technology Training Centre. Under the Ministry of Youth and Sports, TVET programs are conducted at the National Youth Skills Institute (IKBN). IKBN aims to produce skilled youth to meet the needs of the country's industrial sector. Through the Majlis Amanah Rakyat (MARA), the Ministry of Rural and Regional Development managed at least 13 MARA skills training centers and 10 MARA advance skills colleges. The operation of the training centers is placed under the MARA Skills Division. In addition, to meet the needs of the business industry, MARA offered business programs at Poly-Tech MARA Institutes and Academy Infotech MARA.

The largest TVET graduate producers are Polytechnics and Community Colleges, placed under the Ministry of Higher Education Malaysia (MoHE). TVET institution under MoHE consists of 36 polytechnics and 104 community colleges that offer a TVET program at bachelor degree, diploma, and certificate level. The Community College offers certificate level programs and modular courses. In addition, Community College offers short courses to the local community for skill enhancement. The TVET programs offered in Community Colleges comprise agriculture, building, business, electrical, food technology and ICT. During the RMKe-10 period from 2011 to 2015, various efforts were made by the government to enhance and expand TVET education so that it meets the needs of industries that necessitates skilled labor in the country. In addition, various programs have been implemented to improve the

perception of the TVET system. The efforts contributed to an increase of SPM-leavers applying for TVET program by 36% in 2013 compared to 25% in 2010. Among the promotional programs implemented during the RMKe-10 period are exhibitions, media campaigns, and skills competitions at national and international levels. The program, which was held as an annual event, also provided space and opportunities for TVET students to showcase their inventions and innovations. A significant shift in the country's TVET system was the upgrading of 72 vocational schools and eight technical schools to the Vocational College (KV), with newly constructed eight new KV. From 2011 to 2014, 19,747 students were registered in KV, which shows that TVET education has its attraction in appealing SPM leavers to enroll in the TVET program.

While TVET education can entice students to enroll to the TVET programs, there are also challenges faced by the TVET system in the country. Among TVET's main challenges is the inconsistent TVET governance system whereby the accreditation jurisdiction of the TVET program is under two agencies, namely MQA and JPK. The accreditation implementation of the TVET program by two different agencies resulted in an unclear perception of the direction of the TVET delivery system. In addition, there is no clear articulation for TVET graduates to pursue higher education as a result of different accreditation processes. Apart from that, the national TVET education system also does not have a uniform rating system for evaluating the performance of TVET institutions. The rating system is focused only on selected TVET institutions, such as Polytechnic Rating (Polytechnic) for polytechnics and Community College Rating System (MySPEKK) for community colleges. The challenges will result in general negative perceptions of unclear structures concerning the implementation of TVET education. Consequently, the challenges mentioned will negatively affect the enrolment of students to TVET institutions.

Strategy 3 outline the plan for the TVET professional body that regulates the qualification and experience of TVET based workforce. The Malaysia Board of Technologist and Board of Engineers Malaysia currently recognized Malaysia's engineering and technology-based TVET programs. With professional recognition, engineering and technology-based TVET graduates will see their field on par with other professional qualifications such as engineers, accountants, or surveyors. In addition, TVET's professional bodies can also play a role in administering its member's professional conduct to maintain high work ethics. However, professional recognition is limited only to technical and technological fields, with most other TVET qualifications not recognized under the said professional bodies. Supporting Strategy 3 of RMKe-11 in increasing students' enrolment in pursuing the TVET program, the Malaysia Education Blue Print 2015-2025 (Higher Education) (PPPM (PT)) was developed to transform the Malaysian education system to face future challenges. PPPM (PT) is a clear, detailed and ambitious plan to be utilized as a policy to guide higher education in Malaysia. There are ten significant leaps to meet the aspirations of PPPM (PT), and this leap will bring continuous excellence to the country's higher education. The ten leaps mentioned are also the approaches to address related issues, particularly the quality and efficiency of the education system in the global higher education environment. Addressing students' enrolment to TVET, Leap 4 - Quality TVET Graduates outlines several initiatives and strategies so that related issues can be explained. There are four main strategies, Strategy A: Industry-based curriculum, Strategy B: Integrated and coordinated structure of governance, Strategy C: Qualification alignment and Strategy D: TVET rebranding. Strategy D was chosen as an instrument that supports the increase in student enrolment to TVET institution. Strategy D

also describes ways to increase high-tech TVET programs and brand TVET as a critical career path.

In line with this study, the efficiency of this strategy will be evaluated based on the increase in the number of SPM graduates following the TVET program. The target set is 301,000 student enrolments in the TVET programs in 2025, increasing 53% compared to 2012. The annual projected increase in student enrolment is 7.8% per year. Therefore, the main objective of this study is to analyze the efficiency of resource allocated for TVET in relation to student's enrolment and to suggest possible solution for the improvement of TVET program enrolment in polytechnics and community colleges.

TVET Governance: Good Governance Characteristic

An organization's governance refers to a collection of systems and procedures that guarantee that companies are directed and managed to produce value for their owners while also meeting their commitments to other shareholders. Organizational governance systems are complex, and it is not always clear how the complexity of organizational governance systems and the variety of governance mechanisms that interact with one another and the characteristics of situations in which they operate to produce good (or bad) results in work. Governance is a complex concept, and therefore, the definitions used are also relatively varied, depend on the perspectives, and the disciplines used. However, in general, Chhotray and Stoker (2009) defines governance indicates that there are at least three main elements of governance, namely, rules, collectively and decision making. These three elements of governance must deal with the demands of reality, which in turn, not only requires adaptation, but also revival in order to work in line with the context and time.

In the context of financial aspect of national education system, in particularly the TVET system, needed to be carried out to deal with complexity of societal domain, interest groups and the impact of globalization as described by Benz & Papadopoulos (2006). Among the complexity is describing the concept of good governance towards fulfilling organizational mission and vision. Although there is numerous good governance model which can be implemented within organizational context, but according to Chhotray & Stoker (2009) stated that the basis of good governance is specifically emphasizes on the importance of accountability, transparency, decision making and policy implementation. Additionally, Pierre and Peters (2000) defined that the core of good governance practice depends on two major indicators, which is the role of government in society and its transformation capacity to fulfil the interest of internal and external stakeholders.

The definition good governance based on Chhotray & Stoker (2009) and Pierre & Peters (2000) indicated that the good governance includes two foremost characteristics, which is the government and society. The first characteristic defined the bureaucracy and political actors while the second explained the economic and civil society. According to Hyden & Court (2002), the principle of good governance divided into six domain which are participation, decency, fairness, accountability, transparency and efficiency. In spite that the good governance framework has been adopted and implemented in several developing countries in Africa, Asia and South America, there are still challenges to implement the concept especially when applying the domain to inappropriate settings. According to Grindle (2004), the term "one fits all" cannot be applied to the implementation of good governance practice in development reforms in developing countries. Similar note describes by Nanda (2006) which argues the successful of reforms not only depends on good governance

implementation but also need commitment, ownership, support and take cultural and historical perspective into account.

The origin of the problem is not about bad or good governance practices, but the whether the concept is appropriately practiced. Therefore, the successful of good governance concept depends on the social, economic, cultural and politics in a country. Based the stated weaknesses, Hidayat et al (2010) proposed a proper governance concept which refers to the appropriateness of good governance concept in accordance to characteristics of organization or institution. Hidayat et al (2010) outlines the main objective of proper governance concept, which are governance of healthy economic development, democratic life and rights for each individual and social inclusiveness. From the stated objective, Hidayat et al (2010) defined the proper good governance pillars which are developmental, inclusiveness, cultural and historical context and democratic. Technical and vocational higher education may benefit from good governance as well. A successful TVET institution produces competent TVET graduates who are ready to compete worldwide. To produce such TVET graduates, hard work and strict discipline are required to educate and teach global society's cultural values and associations. In reference to the Hyden & Court (2002) Good Governance Characteristic, six indicators listed as a key pillar for implementing good governance in an organization. The indicators are illustrated in Figure 1. Using Hyden and Courts model, the efficiency of TVET budget allocation is analyzed based on the enrolment of student to TVET institution. Additionally, the concept of proper governance by Hidayat et al. (2010) provides a supporting role in this article especially examining the TVET system in Malaysia perspective.



Figure 1: Hyden and Court (2002) Good Governance Characteristics Model

Analysis

The high demand for engineering and technical workforce is parallel with the rapid development in Malaysia. Malaysia needs more highly skilled scientists, engineers, and technical workers, especially in the manufacturing, petroleum, construction and health industries. According to Hamdan (2012), there should be an appropriate mechanism to improve further students enrolling on the science stream, not only at the tertiary level but

also the exact mechanism that should be implemented at the school level. Holtzapple et al (2007) found that students' entry into engineering and technical fields would result in students working in the same field.

According to Cameron et al (2014); Oketch et al (2009), highly skilled workers are now required to meet the demand of the high technology industry around the world. These skilled workers are needed because they are critical to some of the developed countries to increase productivity. Moreover, the shortage of a highly skilled workforce affected the industry and the development of a country. Therefore, there are several methods to overcome this deficiency. Referring to Richardson (2007), among them are restructuring the TVET skills area, establishing collaboration between academia and industry, and providing flexible working hour for the high-tech workforce. According to the ILO (2008), the importance of TVET policy for skills, human resource development, and continuing education has gained international attention as one of the approaches in citizens' active involvement in the national economy. Thus, several countries in the Asian region have recorded increasing momentum of TVET in the last decade.

Based on Shared Prosperity Vision 2030 and PPPN (PT) aspirations, which emphasize education and training to build upon holistic human resources, a strategy needs to be developed to increase enrolment in TVET, especially for SPM school leavers. In addition, TVET also play an essential role in reducing unemployment among graduates, and the government can play this role by developing further TVET programs. According to Cheong et al (2013), in Malaysia, several ministries implemented TVET programs. This shows the characteristics of inconsistency between the ministries involved. Cheong et al (2013) added that TVET programs are also seen as not meeting the requirements and no clear assessment of the impact of the program on the allocation that has been spent.

Furthermore, Mustapha (2013) investigated that the implementation of TVET in Malaysia has a weak industry network and causes the curriculum used is not in line with industry requirements. Mustapha (2013) added that TVET is generally seen as a pathway for students who are not inclined to the academic field, which means brighter minds avoided TVET and could further deteriorate the perception of TVET in the country. The government has implemented efforts to improve the TVET system based on the yearly budget allocation approved in the parliament. However, there are still some issues that plague the country's TVET system. According to Ismail et al (2014); Pang (2011); Zain (2011), among the issues are the diverse TVET certification system, unclear coordination of TVET agencies, limited access to TVET programs for the disabled, the need for skilled instructors, limited option for further study and limited industry involvement.

According to Ayub (2017), the parental socioeconomic position is crucial in developing Pakistani kids' interest in Technical Education and Vocational Training. Parents of poor socioeconomic status (education, money, career) force their children to join TEVT. Students with a family history of entrepreneurship have higher curiosity and are more likely to follow in their family's footsteps (Zain et al., 2010; Ibrahim & Bakar, 2015). Well-educated parents do not want their children to study vocational or technical topics (Azubuike, 2011). For many Ghanaians, TVET is designed for impoverished people and have limited prospects (Ayiah, et al., 2014). Male students consider family influence to be a more critical component in their decision to pursue secretarial education than female students (Igbinedion, 2011).

Self-efficacy, locus of control, and need for accomplishment are examples of personality qualities that indicate a person's belief that he or she is capable of establishing a business. According to Zain et al (2010), personality traits impact people's attitudes and intentions

toward entrepreneurship. The findings show that the TVET students polled are self-assured and can become entrepreneurs (Ibrahim, & Bakar, 2015). According to one research, arts and vocational design course constitute a costly curriculum for the administration (Indoshi et al., 2010). According to research by Yasin et al (2011), a more significant percentage of Malaysian technical students said it was difficult to obtain financial aid to start a firm.

Friends, relatives, classmates, and educators all have a part in shaping people's interests and persuading them to start their businesses (Zain, et al., 2010; Abdullah & Sulaiman, 2013; Ibrahim & Bakar, 2015). A study performed by Ariff et al (2010) found that subjective norms had a significantly favorable impact on Malaysian university students polled (Arif et al., 2010; Yasin et al., 2011; Ibrahim & Bakar, 2015; Mustapha & Selvaraju, 2015). On the other hand, the research found that peer influence did not affect a student's interest in a particular field (Igbinedion, 2011). Village students are more influenced by their 'siblings' when choosing TVET institution (Mahajan and Golahit, 2017).

According to the findings of the Mahajan and Golahit (2017) investigations, female students have a more significant effect on their decision to attend technical colleges than male students. Gender was also discovered to be one of the elements influencing the study of vocational/technical disciplines. Technical issues pique men's interest more than women do (Azubuike, 2011; Lawal, 2012). In another study, Latvian female students rated themselves higher than male students on all specified soft skills. According to the findings, female students like learning more than male students (Lavendels et al., 2012). In contrast, three research (Igbinedion, 2011; Reddy et al., 2011; Mahajan & Golahit, 2017) found no differences in male and female interest in technical and vocational education.

Students from rural and urban locations' technical and vocational education preferences demonstrate that students from urban regions choose vocational education more than students from rural regions (Reddy et al., 2011; Lavendels et al., 2012). In contrast, one study indicated that Nigerian students from rural areas had a more favorable attitude toward technical education than metropolitan areas (Lawal, 2012). People with a business background exhibited more favorable opinions about entrepreneurship than those with an engineering background (Yasin et al., 2011)

Based on the PPPM (PT) policy to solve the problem of lack of student enrolment to TVET, among the problems presented are unclear paths and articulation of TVET route, the perception that TVET is a second-class education and TVET administrative structure in the country seen unstructured as different ministries are implementing TVET Education. The challenges presented in this article with the addition of factors influencing the student enrolment created a negative discernment among the general public. The structuring of these issues can be referenced based on databases from government agencies, indicator systems and related statistics (Hogwood and Gunn, 1984; Hallsworth et al., 2011). Using information from the database is a quick approach in resolving the issues faced to resolve new issues. However, the use of a database alone is not sufficient to perform a complete analysis. Thus, the findings narratively can provide an accurate picture and perception of the problems encountered at the lower level. According to Edelenbos (2011), both methods used to obtain relevant information provide an advantage in the information gathering process in formulating new policies.

Efficiency evaluation of the annual budget for TVET and PPPM (PT) in increasing student enrolment, a linear projection method is used, which predicts policy attainment based on student enrolment data from the beginning of policy implementation in 2015 to 2020. Student enrolment data to polytechnics and community colleges are able to provide a clear

picture of student enrolment data trends. In addition, data on financial allocation through the annual budget for TVET education is also used to measure the efficiency of the level of student enrolment to polytechnics and community colleges. Data on the enrolment of TVET students to polytechnics and community colleges from 2015 to 2020 are as shown in Table 1. The financial allocation through the annual budget to strengthen TVET education is as illustrated in Table 2.

Table 1

Students' enrolment to polytechnics and community colleges

Year	2015	2016	2017	2018	2019	2020
Polytechnics Enrolment	134,040	134,006	133,799	130,619	131,536	109,679
Community Colleges Enrolment	31,368	33,077	34,106	38,445	35,657	21,551
Total Enrolment	16,5408	167,083	167,905	169,064	167,193	131,230

The governance of an institution is governed by a policy that will set a clear path for the institution to realize its goal. Therefore, an analysis of the policy will give some insight into the efficiency of resource spent for polytechnics and community colleges related to students' enrolment. In referring to the methodology, the policy monitoring implemented is based on the policy outcomes, namely policy output; sources of financial allocation to the target group - SPM graduates, and policy impact; changes in student enrolment rates to polytechnics and community colleges in Malaysia. Referring to the stated policy outcomes, the information used to measure the policy's achievement is the target set by PPPM (PT) in ensuring an increase in student enrolment in the MoHE's TVET institution by 53% 2025.

The policy evaluation will describe the relevant information on the differences between the expectations stated on the policy and the performance of the policy implementation. This will assist policymakers in implementing the policy evaluation phase in the policy formulation process. The purpose of an evaluation is to find a solution to the problem, provide clear information, review the figures that drive the policy, assist in analyzing the policy, and provide a basis for restructuring the policy based on the challenges. In evaluating the policy to increase enrolment to TVET programs, the allocation channeled through the annual budget of the Malaysian government will be measured through the level of admission of new students to TVET programs at polytechnic institutions and community colleges under the MoHE. However, there is incomplete information on the actual amount of the allocation given to the MoHE. Therefore, the allocation stated is based on the general allocation to empower the national TVET system. In addition, the financial allocation data to TVET in the year 2019 is not detailed, and if based on the liner projections made on the annual allocation for TVET, the allocation does not reflect the actual allocation.

Table 2

Students' enrolment to polytechnics and community colleges Allocation for TVET tabled in the Parliament

Year	2015	2016	2017	2018	2019	2020
TVET Allocation (RM Billion)	1.2	4.8	4.6	4.9	0.256	5.9

Analysis of data and information related to admission to TVET institutions was carried out to see the current admission trends. As a result of the trend, a linear trend will be produced to see the PPPM (PT) policy implementation from 2015 to 2025 duration. Figure 1 shows student enrolment data for polytechnics and community colleges starting in 2015 to 2020. At the beginning of the PPPM (PT) policy initiation, the student enrolment to polytechnics stands at 134,040 in 2015. There is a slight decrease of enrolment in 2016 where the enrolment recorded a total of 134,006 students registered in the institution. Starting in 2017 until 2019, the total admission rate to polytechnics has remained stable, around 132,000 students a year. However, in 2020, there is a deficit of almost 30,000 students enrolled to polytechnics.

Figure 2 illustrates the rate of student enrolment to community colleges. Starting at 2015, student enrolled to community colleges recorded at 31,368. In 2016 and 2017, the enrolment recorded a slight increase of student with an additional of approximately 3,500 students. In 2018, an additional 4,000 more students registered to enroll to community colleges compared to 2016 and 2017 figure. A downward trend started in 2019, where 35,657 enrolled to community colleges. Further declined recorded in 2020 with 21,551 students admitted in TVET program at community colleges.

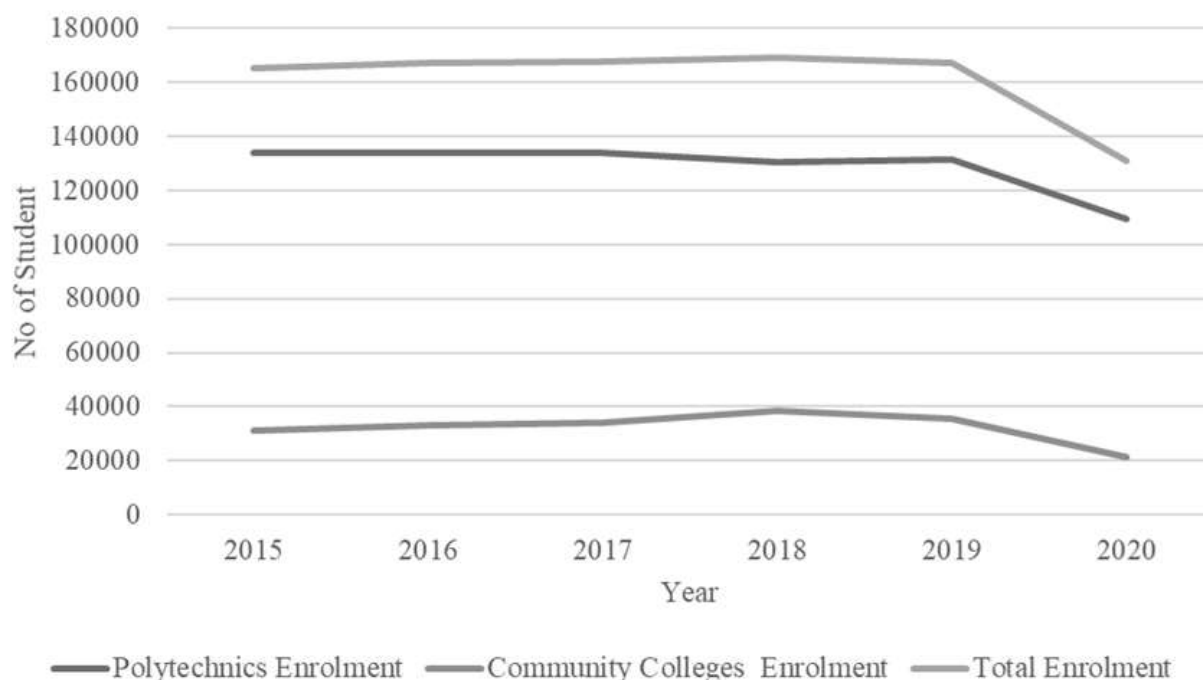


Figure 2: Polytechnics and Community Colleges Enrolment for 2015 – 2020

Looking at the trend of allocation for TVET, the allocation provided is based on the annual budget approved by the Malaysian Parliament. The allocation shown in Figure 3 is the allocation for TVET for all ministries that implement national TVET programs. Although this provision refers to the implementation of TVET in Malaysia, the effect of the stated provision to some extent affects TVET institution under MoHE. At the beginning of the PPPM (PT) implementation, a total of RM1.2 billion was allocated for TVET. In contrast, the allocations in 2016 multiplied to RM4.8 billion, and a similar trend was recorded in 2017 and 2018. In 2019, the allocation for TVET is not explicitly quantified, but some reports show that RM256 thousand is made available only for the TVET improvement program. Based on the 2020 budget, the allocation for TVET recorded a high in 7 years on the data obtained, maxed at RM 5.9 billion.

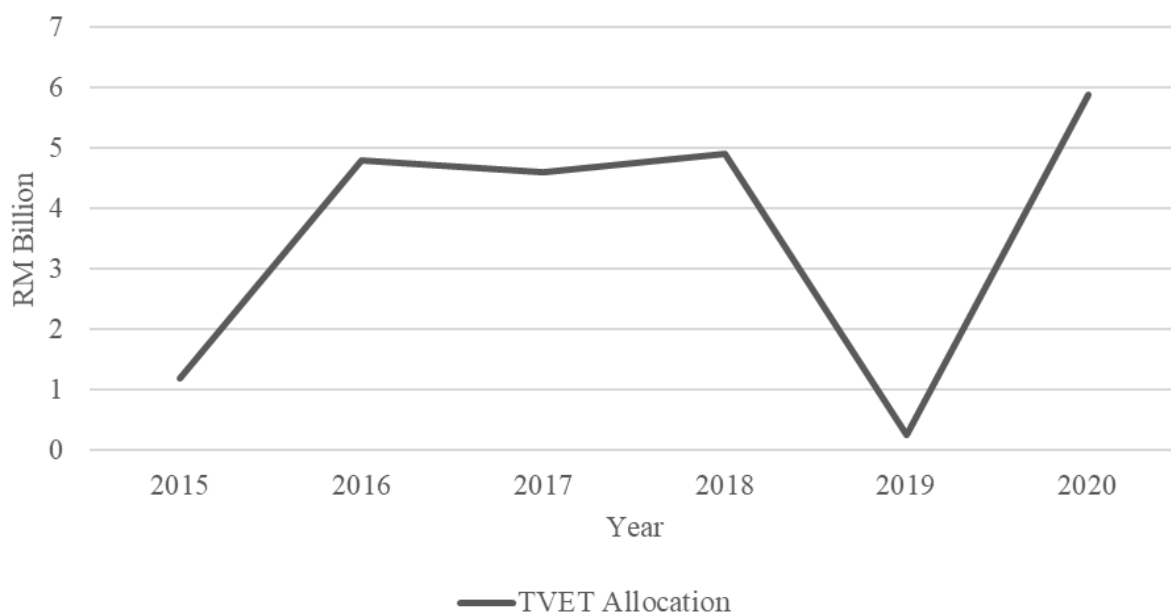


Figure 3: Polytechnics and Community Colleges Enrolment for 2015 – 2020

Analysis of student enrolment to MoHE's TVET institutions compared to TVET allocation is illustrated in Figure 4. Looking at the enrolment and allocation from previous years (before 2015), both parameters are nearly the equivalent to 2015. However, in 2016, 2017 and 2018, the TVET allocation stands at RM4.8 billion, RM4.6 billion and RM4.9 billion, respectively, although students' enrolment rate to TVET institutions under MoHE remained flat, hovering around 168,000 students. Looking at the trend of student admission to TVET institutions under the purview of MoHE, it is found that the admission trend is still not in line with the target trend set in PPPM (PT). Therefore, the authorities and stakeholders, especially TVET institutions under the MoHE, need to take appropriate action to realize the aim and aspirations of PPPM (PT). A comparison of the current number of admissions, admission trends and PPPM (PT) admission targets can be seen in further illustrated in Figure 4.

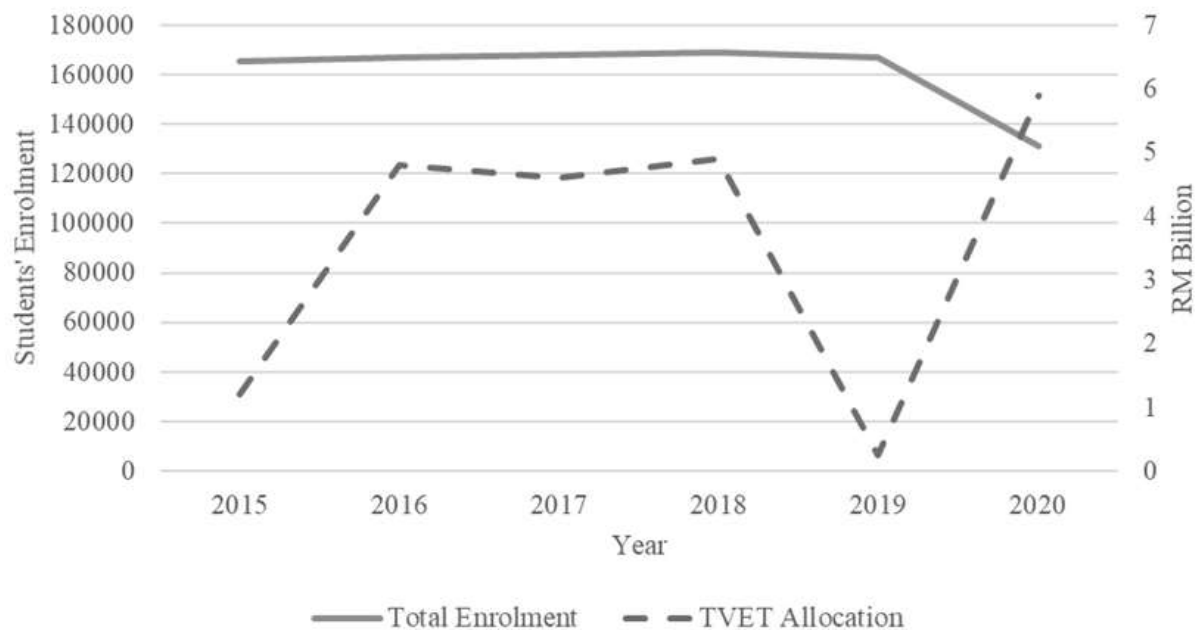


Figure 4: Student's enrolment - TVET allocation from 2015 to 2020

The Way Forward: Improving TVET Enrollment

Various factors can be linked to the allocation to the TVET education sector. The main factor is the capacity of the government budget during unstable world economic conditions. The governments need to make hard decisions to ensure that the effect of world economic uncertainty does not impact government operation, especially on health, education, and security. The reduction in allocations to TVET in 2014 and 2015 may impression that the government is rationalizing allocations toward those areas.

The trend of student enrolment in TVET institutions under the MOHE did not significantly increase starting in 2015. The main factor contributing to this trend may be due to the limited capacity of these TVET institutions. The increase in student enrolment needs to be in line with the increase in facilities, teaching staff, and allocations to institutions (Taylor et al., 2008). Therefore, the enrolment of new students remained flat in the years analyzed. Additionally, the programs offered are also seen as one of the factors in attracting new students. Programs that are no longer popular need to be improved or replaced with programs that are in high demand, especially from the industry (Sally & Soares, 2014).

TVET institutions need to also move towards transforming institutions and programs towards Industry 4.0. This is because, in the future, the sectors of work that are done manually will gradually change towards automation (Guzman et al., 2020). Therefore, TVET institutions such as polytechnics and community colleges need to emphasize the shift towards industry 4.0 so that the supply and implementation of programs remain relevant to the needs of the industry. If not, then the existing enrolment trend will continue to deteriorate, and the PPPM (PT) target will not be achieved. In addition, the technical competencies among TVET lecturers and academic managers also not to be addressed. Marzuki (2021) outlined the competencies needed to lead and managed TVET program which include in the technical and managerial domain. Drastic improvements need to be implemented to ensure that the TVET program has a place among SPM leavers in Malaysia. Based on student enrolment in polytechnics and community colleges, the number of students' enrolment will flat for the coming years. Referring to the improvements to existing policies need to be implemented immediately to meet the intended targets. Among the proposed improvements to the existing policy is that

the government, through the relevant ministries, should set higher salary rates for students with a qualification in TVET. It is likely to attract more highly qualified students to enroll on the TVET program (Paryono, 2017). Several ministries need to work together to ensure the recommendation is implemented with a suitable mechanism.

TVET is synonymous with industrial sectors such as manufacturing, manufacturing, construction, mining, etc. Since the TVET is related to these industries, therefore TVET must have an appropriate mechanism to include the industry in developing a new workforce from the TVET system (Thang, 2019). Through close cooperation between TVET institutions and industries will positively impact TVET graduates, especially in marketability, skills upgrading, application of new technologies, and reducing dependence on foreign labour. Consequently, the perception of industry acceptance of TVET graduates will affect the enrolment of a new student. Collaboration between TVET institutions and the industries produces a highly skilled workforce in the industries involved successfully. Malaysia can apply the policy adopted by Germany to implement the network of TVET institutions and industry. Through the Vocational Training Act (Berufs-bildungsgesetz, BBIG), the industries in Germany participate through the act to cooperatively developed a highly skilled workforce with the German government (Hernandez, 2016). Thus, the cooperation between industries and the German government caused the high-tech industry to develop exponentially, and TVET workers receive higher salaries than other fields.

National TVET education is implemented by both public and private TVET institutions and regulated by various ministries. Each ministry that implements TVET education has different standards, methods of delivery and assessment. Due to this factor, the country's TVET implementation is unstructured and confuses the public's perception of the TVET system. Therefore, the government need to ensure that the TVET education system should be placed under a single agency and standard. This will ensure that all resources can be channeled more efficiently and effectively compared to the existing implementation. Additionally, a more focused TVET organizational structure will provide a much clearer depiction of the country's TVET education system. Improvements to existing policies are seen to increase public confidence of TVET in Malaysia. Subsequently, these improvements will directly increase parents and SPM leavers' confidence to enroll in TVET programs.

The main objective is to discuss the efficiency of TVET allocation based on the enrolment of a student at polytechnics and community colleges. Reflecting on the suggested way forward to increase students' enrolment to the TVET institutions, the other good governance characteristics similarly contribute to the issue. For example, the involvement of the industrial sector and the government institution echoes the participatory in the good governance framework. Apart from that, participatory also illustrates the suggestion for a better wage mechanism for TVET graduates. This shows different ministries working together and participate in solving a common problem afflicting the TVET system.

Industry 4.0 has affected many industries, especially the manufacturing sector, in digital transformation, big data, and cyber-physical systems. These changes caused the current TVET program offered in TVET institution to become irrelevant to the industry (Ahmad & Rahman, 2013). Exploring the issue of changes in the industry based on the pillars of Industry 4.0, higher education providers, especially TVET institutions, need to be responsive toward the industry's need. One of the critical elements in the Hyden & Court's Good Governance Framework is responsiveness, where the TVET institution needs to respond to needs and serve all stakeholders, especially the industry.

Conclusions

TVET education in Malaysia has produced skilled human capital that contributes to the country's development in line with Malaysia's aspiration to become a developed nation. With the programs offered at TVET institutions, skilled human capital can meet the needs of the industry and produce high-income employees. The perception of TVET as a second-class education path needs to be erased from public view so that the government's targets and policies in elevating the TVET as a catalyst for national development can be realized. Existing policies such as RMKe-11 and PPPM (PT) have been formulated to ensure that the national TVET is implemented systematically and based on outcome-based achievements.

In the RMKe-11, three strategies have been formulated to meet the government's aspirations, and one of the strategies is to increase the percentage of SPM graduates following the TVET program. This initiative will reduce the country's industry's dependence on foreign workers and, at the same time, reduce the number of unskilled SPM graduates working in related sectors. In addition to the strategy to uplift the TVET education system under the RMKe-11, the National Education Development Blueprint (Higher Education) or PPPM (PT) has been formulated to drive TVET to a higher level further.

There are a number of factors which influenced the interest of school-leavers opting TVET route. As discussed earlier in this article, among the factors include demographic, location, learning abilities, government policy and family background. Looking at the Malaysia context based on the earlier literature and policy analysis, it shows that the lack of interest in TVET route is due to the absence of coordination between government ministries which conducted TVET programs. Even though the federal government spend billions of Ringgit Malaysia on TVET sector to promote TVET route among secondary school-leaver, the trend of new student enrolment in TVET institution in Malaysia remained stagnant over the years.

The preliminary analysis found that the projected trend of student enrolment to TVET institutions under MoHE will continue to decline gradually until the PPPM (PT) end in 2025. However, this downward trend can be overcome with the suggested solution to overcome the enrolment issue. Apart from that, intervention program such as TVET promotion through media by highlighting the success story, achievement and innovation could change the public perspective for TVET in Malaysia. The intended achievement set by MoHE for TVET enrolment is 301000 students by 2025. However, by looking at the trend of student admission to TVET institutions under the purview of MoHE are might not successfully attain.

According to the student enrolment trend to polytechnics and community colleges, approximately 109,679 students in 2020. Based on the projected achievement of PPPM (PT) for TVET enrolment in 2020 are supposed to be 130,000 students out of a total of 200,000 students. Other ministries implementing TVET programs need to meet the enrolment requirement of 100,000 students by 2020. Even though the government have invested a considerable amount of resource for TVET sector especially during 2016 – 2018 and again in 2020, the students' enrolment numbers are not in line with the yearly target based on PPPM (PT). The government has implemented various initiatives to enhance and raise the TVET sector in the country. Following this preliminary analysis, the authorities can take appropriate action to realize the expectations worked based on the PPPM (PT) expectation in relation to the yearly budget.

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