

TVET EDUCATION FOR STUDENTS IN MALAYSIA: A SYSTEMATIC LITERATURE REVIEW

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Abstract

A promising future lies ahead for Technical and Vocational Education and Training (TVET) in Malaysia and it is part of our educational system. It is not the last resort as many still see it; in actual it's a good opportunity and a way forward in the country. Students and the public should therefore not look down on TVET especially in Malaysia. TVET will play an important role in achieving industry ready workers because it can help to increase the employability rate as well as in reducing crime rate among adults. The objective of this article is to perform systematic literature review on key functions of TVET in not only increasing employability rate but in eliminating poverty and crime rate among adults also. Therefore, the research agendas for this article is to analyze the relationship of TVET with students, policy makers, financial institution and government and How TVET can enlighten students or adult life? Thus, this study reveals the problem statement and importance of TVET knowledge in a society and nation.

Keywords: Technical, Vocational, Education, Training, TVET, Crime, Poverty

Abbreviations: NIL



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INTRODUCTION

In general, everyone is aware that the number of graduates from public universities keep increasing and in parallel the rate of unemployment is also increasing. According to (DOSM, 2019a) there were 162,000 graduates who were unemployed in year 2018

and its combination of those unemployed for less than three months; less than 6 months and more than 6 months. This raises a critical question; if graduates face such problem; what will be the fate of those without any academic qualification? In current era, TVET begins to over right those with academic qualification. Employers are preferring skill qualification instead of academic qualification alone (Najwa et al., 2018). A latest article entitled "Degree Not a Priority; Skills Are Important" published by Kosmawati in "Nadi Mahasiswa Malaysia" emphasized the importance of the TVET among adults. Researches show that poverty, poor entrepreneurship development and unemployment are the key factors of crime activities (Apostolides and Boden, 2005). So, creating job for the unemployed is the main solution to prevent poverty and crime among adults. However, lack of knowledge and skills is the biggest problem among young adults to be employed (Iseselo et al., 2019). Therefore, government, employers and higher education institution have to join hand to produce adults toward 1Person-1Skill concept. It's equally important that all the programs conducted by government is known to the students to ensure that the participation rate increases and thus achieve the main objective.

LITERATURE REVIEW

In year 2018 and 2019, 4043 and 4115 students failed in Certificate of Malaysia Examination respectively (Ministry of Education, 2019). In other hand, every year certain percentage of students stop schooling due to disinterest, poverty, parents who were neglectful, illness, disability, social problems, learning difficulties and underage marriage (Archambault, 2011). Besides that, statistic published by (DOSM, 2019b) shows that 36.1% upper secondary students and 33.4% of lower secondary students were addicted with drug from the 25,267 cases recorded in year 2019. In this survey, the number of drug addicts whom were trained for TVET is really low which is less than 2.8%.

The article written by (Chant, 2015) emphasized about skills job among females to prevent poverty. ICT has the potential not only to improve women's lives by developing their exposure to knowledge while also growing their competitiveness through enhancing their expertise, opening up possibilities for wage jobs and 'techno-entrepreneurship' in the fields of e-commerce and computerized small and medium-sized businesses, as well as creating incentives for 'remote work'. The TVET program targets school dropouts rather than seeing TVET as an avenue for all who are inclined towards applied science and technology. However, Malaysian adults still find TVET as unattractive (Nagaraj et al., 2016). Everyone must accept the fact that TVET is for all regardless of academic background. Those without skills knowledge sooner or later

objective of this research. However, the expected keywords are *skilled labor, labor market and skill/s development* which should have bigger diameter and locate closely to *Vocational Education*. But the network analyzer shows, the other way around. Therefore, it is a proof that the expertise still has to work hard to create awareness about the importance of TVET education among those with poor academic education or qualification.

The second cluster which is dominated by *Engineering education* has various links with *Vocational education, Students, sustainability and education*. Here, it can be concluded that those who have good academic background begin to realize the necessity of TVET to prepare themselves towards a challenging and threatening future.

METHODOLOGY/MATERIALS

In this systematic literature review the function of TVET was analyzed. Data from Scopus was extracted to support the research as it has wide range of database which is in the range of 1993 until present (Fraces Boyle & Damien Sherman, 2006) and it's an appropriate source to perform systematic literature review. Data extracted from Scopus was simulated in VOS viewer software version 1.6.11 to identify the dependent variable and independent variable that give impact to the effectiveness of TVET on young generation (Eck and Waltman, 2016). The search began with keywords *training, vocational, education, training, TVET, student and crime*. As stated in Table 1, 13 out of 947 articles had been shortlisted to support the problem statement and research agenda. Minimum of 5 occurrences of keywords were applied during simulation; so the function of "TVET" in producing quality citizen can be identified.

Table 1. Systematic Literature Review Protocol (*data collected on 18 December 2019*)

Description	Conditions / Results
Objective	To conduct a systematic literature review about the level of crime rate among students and adults. To analyze the existing research on function of TVET in reducing crime rate among students or youngsters To determine the gap and future research direction
Source of Data	Scopus
Area of Interest	Structured Internship Assessment Methodology (SIAM) Framework for Engineering Students' Industrial Training
Search field	Youth, Adult, Population, Unemployment, poverty, Student, Malaysia, TVET, Crime, Discipline
Publication years	1993-2019 Scopus
Covered Period	18/Dec/2019
Preliminary Document Selected	947-Scopus

Research Related Papers screened	17 highly co-cited documents-Scopus (<i>Inclusion made based on recent 10 years with highly cited journals and journal with keyword TVET, Poverty & Crime</i>)
Documents Analysis	Information based on content analyzed with the aid of VOSviewer

RESULTS AND FINDINGS

The Scopus database as in figure 2, shows that number of researches on TVET is increasing for the past 3 decades. The exponential trend shows that the awareness on the importance of TVET among employers and employees is increasing. The sudden increase began since 2008, where many had started to realize the rise of Industrial Revolution 4.0 (IR 4.0) which is going to give big impact to job placement and employability rate.

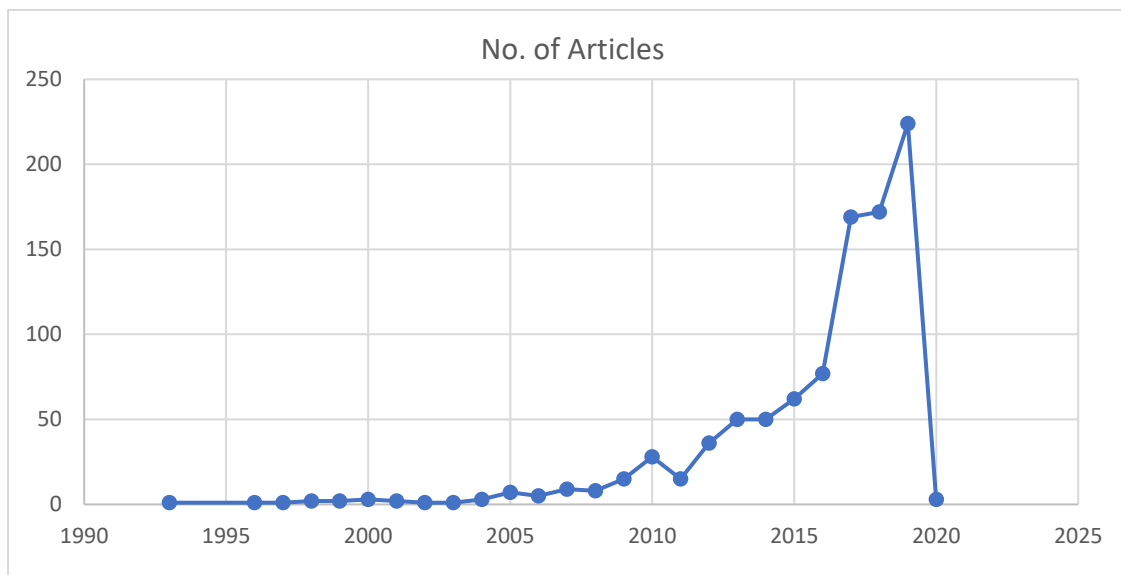


Fig. 2. Total articles published by year

An IR4.0 looks for new set of technical and non-technical skills. Most of the work load in industrial environment is going to be automated and digitalized in near future which requires minimum human involvement (Tapsir and Puteh, 2018). In such cases, TVET knowledge becomes a solution to create job opportunities which will wholly depend on human power. The advantage of TVET is that it is not a required wide range of technical knowledge which is sometimes not even applied in our daily life. But it is more to specific skills which needs deep understanding and techniques. As quoted by "practice makes perfect", those practicing the technical skills can be specialized in that field along the learning process which is based on the student's interest.

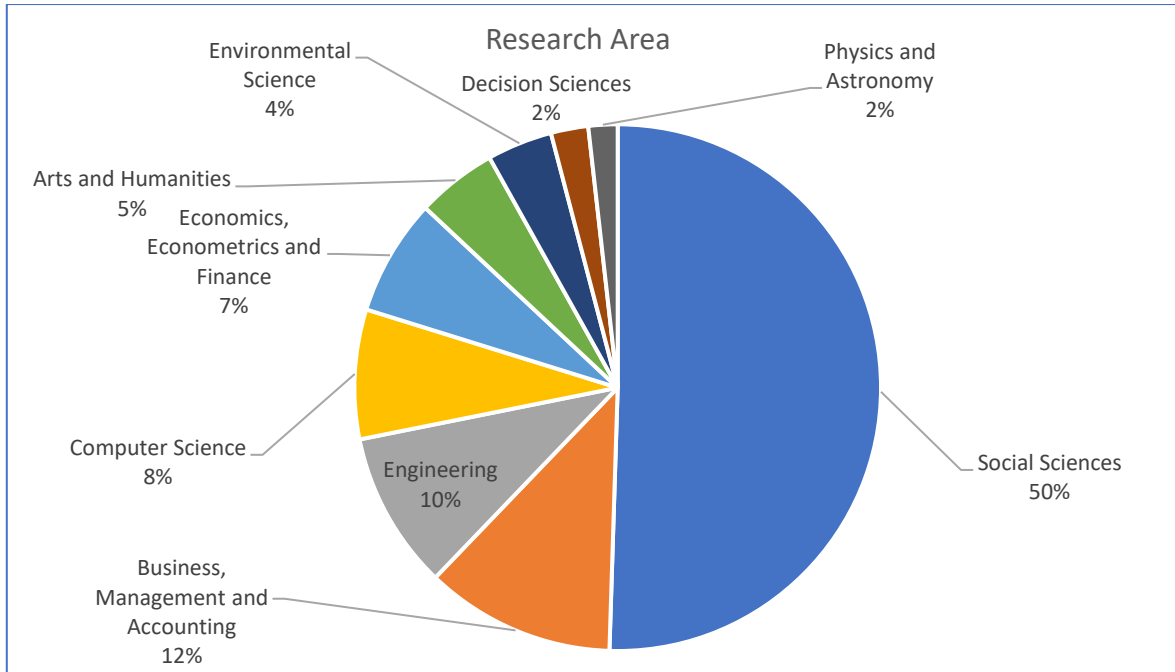


Fig. 3. Total articles published based on Research area

Many think that TVET is something that is related to mathematical, science and engineering knowledge alone; but it is actually a wrong perception because it also involves behavior and hidden talents in the students. This can be seen in figure 3, where it shows that majority of TVET related researches are conducted in the area of Social Science and Humanities; where it is closely tied to behavior, interest, attitude and willingness in learning new skills.

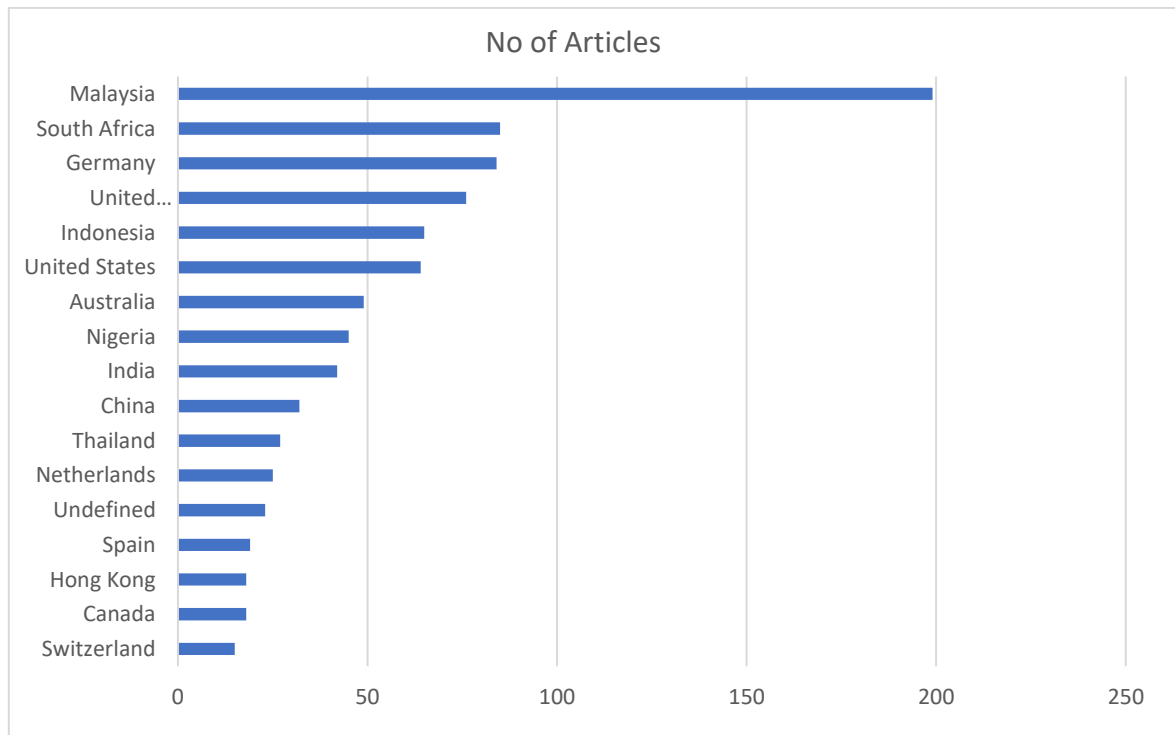


Fig. 4. Total articles published base on Country

Fig. 4 shows the breakdown of countries publishing articles related to TVET and it is really proud to acknowledge our country, Malaysia as a leading nation in TVET researches. This is a proven remark that Malaysia is in the process of preparing their students to overcome future problems that may rise due to IR4.0. Germany which is in third place in terms of publication; is actually far ahead in the practical application of TVET in their country (CHONGHUI, 2019). The Ministry of Higher Education (MOHE) is working hand in hand with industry players as well as German organizations to develop TVET in Malaysia so that it has higher success rate similar to the German TVET system. Germany has given a lot of support and collaboration to help in improving TVET in Malaysia, while Malaysian industry players are also directly involved with MOHE to restructure TVET education in Malaysia now.

CO-CITATION OF REFERENCES

In order to recognize patterns in the literature review on the role of TVET, it is important to know how research on this topic is divided into clusters, and how the study of co-cited sources was carried out on the basis of papers with at least five co-quotes, which culminated in five clusters (see Figure 5) involving fifty publications. The clusters are (1) TVET Skills development policies (2) TVET and Socioeconomic Development (3) TVET at higher education institution (4) TVET and financial (5) Challenges in implementing TVET. In overall, the network visualizer proves that the researchers' interest focus towards how to make TVET as a course that is preferred by choice and not by chance by most of the students. There are many amendment and revision going on in TVET Skills development policies to ensure students realize the importance of work skills to sustain in the labor market.

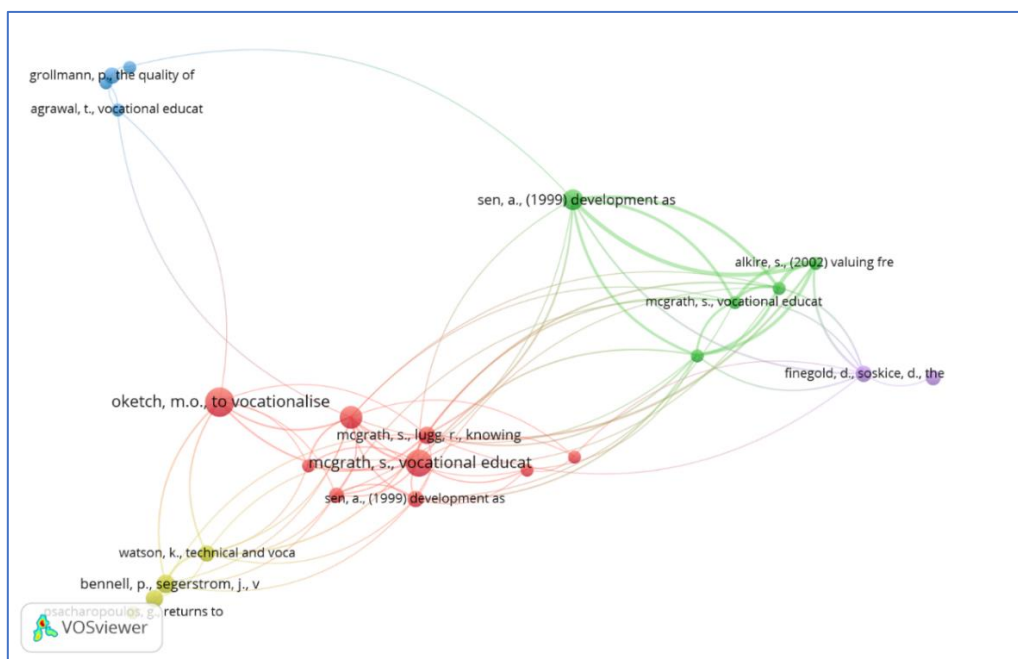


Fig. 5. Clusters network with Co-citation

Cluster one: TVET, Skills, Development and policies

Skills policies have formed as a part of a regulatory structure that has underlined state supervision by curriculum and quality control expansion, with relatively little focus on sustaining procurement chains and improving curricula (Allais, 2012). Clear policy of continuous monitoring and adaptation of strategies and policies with a view to ensure successful employment skills are necessary for the development of skilled workers (Hilal, 2012). According to (McGrath and Lugg, 2012), there is usually a wide gap between the vocational education and training (VET) program and university services. In addition to the complexities of VET policy making, there are wider mechanisms at work in international education decision- making and development planning aimed not just at developing policies on a better evidence based but also at updating scholarly analysis to make it more relevant and sensitive to policymakers' needs. Efficient reform frameworks would insure that VET will provide exposure to more or at least more individuals; where particular populations, such as young people, women or persons living with disabilities support it. (McGrath, 2012). However, youth expectations and policies in the area of vocational and technical education do not seem to be compatible. Policies intended to be of value to vocational education providers and young people in the sense of vocational education (Oketch, 2007). The main objective should be to generate and direct quality skilled workers until they are employed. The professional skill provider should use revenue as a second option.

Cluster Two: TVET and Socioeconomic Development

Based on (Robeyns, 2003), the term "human capability" has been synonym with "Freedom". If the human, optimize the ability or talent, it is considered that the person has specific skill and if the person become much more productive over time, this contributes greatly to the process of economic expansion. In addition, the article written by (McGrath, 2012) emphasize that TVET plays a role in the development of human being towards expanding people's freedoms to lead productive, happy, and innovative lives; promoting certain values that they have cause to value; and consciously guiding growth on a global world in an equitable and sustainable manner. Humans, as people and as communities, are both the recipients and creators of human growth. The word "capability" and "functioning" refer to "opportunity" and "achievement" respectively which explains that employability skills are considered as a capability to learn the skills to reach the achievement such as employed, well-being and live a good live.(Sen, 2009)(Sen, 2005)(Walker, 2008).

Cluster Three: TVET at higher education institution

Technical and Vocational Education and Training (TVET), or Career and Technical Education (CTE) becomes one of the hot debate topic. There are also discussion going on to either vocationalize or not to vocationalize the education system and it is really important to address which focus group has to be trained vocationally and at which stage the vocational education should be implemented (Agrawal, 2013). Besides, students' participation in TVET, is equally important to address the qualification and specialization level of the teachers. To engage well-equipped stakeholders in these processes, it involves a higher degree of comprehensive expertise, competences, and dedication on the part of vocational teachers. Alternatively, very precise information is needed in certain situations, which is very similar to technical innovations and modes of expertise that are connected in their respective fields of employment to particular manufacturing processes and their organization. (Grollmann, 2008). Last but not least, TVET should be made compulsory education and not an option. In future, engineering degree programs would not promise fast job placement unless, TVET education is injected into degree programs. Therefore, hybrid type of tertiary educations need to be introduced which would emphasize TVET skills and Theoretical knowledge in parallel (Ismail and Mohammed, 2015)

Cluster Four: TVET and Financial

In the mid of creating awareness about importance of TVET among students and adults; there is another important factor that need to be taken into consideration, that is the study fee. According to (Bennell and Segerstrom, 1998), financial institution or banks must come forward to support TVET education by providing fund; so the students can learn the skills without any obstacles. In recent decade, education has been commercialized and has become one of the most profitable sector. However, in the list, TVET is still one of the least profit making sector (Psacharopoulos, 1994). This is because, the students and youths' confident level about TVET is still at a very minimal level. Therefore, public and private sector should design compressive TVET courses to attract the students and transform them as an efficient skills worker while making good returns.

Cluster Five: Challenges in implementing TVET

The plus point of skills job is that it can be learnt through formal and non-formal way. It only needs interest and passion. In certain countries, those who fail secondary examination start to learn skill job in practical method by through employment with a very low salary and across time they specialize the skills. This group of people become a threat to those who learn the skill job in formal way. On the other hand, those who

did well in their secondary examination enroll TVET courses at academic institution. Once, they have completed the course it is going to be a tough time to be employed because most vacancies would have been filled by non-formal skill workers (Agrawal and Agrawal, 2017). Besides that, TVET implementation requires continuous education and training because the technology keeps changing rapidly. Therefore, those equipped with old type of skill set must upgrade themselves according to the new paradigms in that particular skills. This shows that government, employers and institution cannot stop with one time training but should continue forever / make it a continuous process (Finegold and Soskice, 1988).

CONCLUSION

TVET is not only an education but it is one of the pillar of a nation which gives chain effect to country's economic growth and political stability. It is able to drive the young generation towards Malaysia's national principles which are *Belief in God; Loyalty to King and Country; Supremacy of constitution; Rule of Law and Good Behavior and Morality*.

The subject "*Living Skills*" or well known as "*Reka Bentuk dan Teknologi*" must be rephrased as TVET education. Current education system only measures the overall grading obtained by students in "*Reka Bentuk dan Teknologi*" during PT3 (Pentaksiran Tingkatan 3). But, this exam should be redesigned into few sections and each section must test the knowledge about specific skills. The results obtained by students must be analyzed to understand the skills that they like most or skills that they excel better in. Based on the data obtained, the ministry of education can channel the students to the right TVET course as early as in form 3.

Ministry of Higher Education must be firm in their decision where students who have failed in their secondary examination should be eligible to receive their certificate after 1 year of TVET course that the students prefer. Ministry of Higher Education should also take drastic action by making TVET a compulsory program for those who fail in their secondary examination. One year of TVET course would not be a time waste but an investment for a better future for the students, family and nation. In the long run, it would become a norm or mandatory for the students who have failed in secondary examination to attend 1 year of TVET course that the student prefers and not some courses that the ministry chooses for them; because the objective can be only achieved if the students learn the skills that they prefer the most and perform well in during their PT3. Besides that, TVET would not only produce employees; but will also produce self-employees and entrepreneurs. Apparently, TVET will also reduce poverty, unemployment and crime issues in a country.

Meanwhile, ministry of higher education should design tertiary education which would hybrid with TVET education. So, students who pass the examination will also get the opportunity to gain TVET knowledge while doing their degree courses or other further studies.

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