

THE DEVELOPMENT OF TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) PROFILING FOR WORKFORCE MANAGEMENT IN MALAYSIA: ENSURING THE VALIDITY AND RELIABILITY OF TVET DATA

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Malaysia is moving toward becoming higher advanced income nation in the near future. Thus, Malaysia is continuing to develop and strengthen skilled workers competencies through education and training suitable to the needs of industry and business. Technical and Vocational Education and Training (TVET) is the solution in achieving the nation goals and now it becomes an important approach that integrate the education and occupational training for TVET student to apply such essential knowledge and skill effectively into the real world of work . In Malaysia, TVET provision is undertaken by different ministries, organizations, or agencies depending on the specific skill sets provided reflected by the visions and directions of the relevant entities. However, the problems often occur arise when TVET experts including researcher, practitioner, policymaker, curriculum developer, and others are having some major problems in gathering the relevant data . Thus, the objective of this paper is to introduce the conceptual framework on TVET profiling development. The TVET profiling is proposed as an alternative to provide important TVET data for researcher, policymakers, practitioners and others. The conceptual framework is built based on a set of concepts linked to the existing TVET system of methods, policies and implementation in Malaysia.

Keywords: Technical and Vocational Education and Training (TVET), Profiling, Competency, Workforce

INTRODUCTION

Malaysia has reached 59 years of nationhood and it marks another high point in its economic advancement. Since its first independence in 1957, Malaysia has moved from agricultural-based economy to a more a diversified and export-oriented one. Yusof (2012) indicated that diversification has reduced the important of agriculture in the Malaysian economy and has raised the manufacturing and service sectors. This situation led to knowledge-economy or k-economy development a main indicator for Malaysia to compete with developed country. Hashim and Taib (2012) argued that k-economy is a major challenge to Malaysia especially in developing the innovative workforce. Overtime, align with the economic globalization, Malaysia is moving toward becoming higher advanced income nation in future. With the ever-growing demand on industrial workforce, Malaysia is looking forward to strengthen the skill workers through education and trainings.

Malaysia's initial move to become an industrial country started in the early 1990's when the Sixth Malaysia Plan (1991-1995) embarked on promoting and developing the diversify of industrial-based human resources. Salleh and Sulaiman

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(2012) posited today's workforce becoming more diversified, especially in multiracial and multiethnic countries that subsequently creates more challenges to develop and train competent workers. Although the Eleventh Malaysia Plan (2016-2020) focuses on improving different aspect of human lives and improved well-being yet human capital development should never been neglected from the national agenda because it is the main determinant of a country's success.

TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) IN MALAYSIA

As Malaysia enters the new phase in nation development, the government has invested substantially in education and various types of trainings or development programs specifically for employees in the public sectors to enhance their job-specific competencies including knowledge and skills as well as changes in attitude and work culture. Likewise, private sectors and training institutions also show tremendous support for contributing government's effort in making Malaysia as equivalent as other developed countries

In order to enhance the economic growth in Malaysia, Technical and Vocational Education and Training (TVET) is one of the main contributors to the national socioeconomic development. According to Bakar, Mohamed and Hamzah (2013), social and economic changes including globalization, reflected in an increasing emphasis on a science and technology in general, have changed the roles given to Technical and Vocational and Training (TVET). Similarly, Salleh, Sulaiman, and Talib (2010) remarked TVET workers seem to be highly demanded in current situation in the arena of globalization. TVET gained recognition and popularity due to the demand for technically-oriented individuals in the labor market. TVET is defined as all forms and levels of education processes involved. In addition to general knowledge, TVET involves the study of technologies and related sciences and the acquisition of practical skills, know-how, attitudes and understanding related to occupations in various sectors of economic and social life for the world of work (UNESCO-UNEVOC, 2010). TVET also covers all programs and contribution towards the development of life skills, knowledge and attitudes which is essential in today's highly competitive world.

In Malaysia setting, one of the major roles played by TVET institutions is to ensure programs offered provide relevant knowledge and skills acquisitions for students to become competent workers in industries. In Third Industrial Master Plan (IMP3), Malaysian Government enhanced institutional capacity for human resource planning, development and management and increased the supply of technically-skilled, knowledgeable and Information and Communication Technology trained workforce (Malaysia Government, 2006). TVET through its orientation and exposure to the education and trainings offers knowledge and technical skills for an individual builds his/her future career. The main aim of

TVET in Malaysia is not only to build highly marketable skilled workers but also to offer sufficient knowledge and skills to secure employment. Today, TVET becomes an important aspect to link the education and training systems more closely to the real world of world or work environment. In Malaysia, TVET makes an improvement by aligning employment needs and country's direction.

TECHNICAL AND VOCATIONAL EDUCATION (TVE) IN MALAYSIA

Technical and Vocational Education (TVE) in Malaysia started in the early 60's with the establishment of Trade Schools. The educational structure in Malaysia comprised the primary, lower secondary, upper secondary and Form 6 levels. In the context of TVE, its orientation of education starts at the lower secondary level with the introduction of a subject, i.e. Living Skills. Based on their performance in the Lower Secondary Examination (PMR), students are channeled into either academic streams (vocational subjects offer) or technical streams (technical or vocational subject offer). At the end of two years of upper secondary education, students sit for Malaysia Certificate of Education (SPM). Student with good grades have the option to further their studies to universities, while the rest will be entering labor market. SPM is an important assessment instrument as it is generally used to determine whether a student should go to Form Six, Matriculation Program, Certificate programs at Community Colleges, Diploma Programs at Polytechnics or University, and degree programs at private universities or colleges. Additionally, students may also choose to leave the education system and jump into the world of work as unskillful workers (Von Kopp, Lai & Spoettl, 2014). Meanwhile, Vocational Colleges offer vocational programs for those who completed lower secondary education. The students enrolled in Vocational Colleges are able to earn a Malaysian Skill Certificate within two years of studies. In addition, a Malaysia Vocational Diploma will be granted to those who are capable of completing a four-year vocational program at vocational college in Malaysia. Sulaiman, Salleh, Mohamad, & Sern (2015) claimed that graduates from TVET institutions have more opportunities in getting high-skilled jobs compared to other institutions with lower levels of technical and vocational skills attainment.

In short, students who are within the national education system will follow the formal education for 11 to 13 years before entering higher education excluded the pre-school education years. The duration of formal schooling depends on the type of education the students choose within the post-secondary education and university programs selected. Comparatively, Malaysia schooling duration of 13 years is the same as some of the developed countries and regions. For example, in Hong Kong and Singapore, A-Levels program can be completed in 12 years. However, in approximately 30 percent of students who are in the flow academics still learning over five years instead of four years before the end of secondary education, making a total period of schooling for 13 years before achieving qualifications equivalent

to A-Levels. Presently, Malaysia has allocated the same amount of teaching time for education at primary, secondary and post-secondary education compared with other national education system. It shows the existing education system is able to allocate sufficient time for students to learn and establish themselves in a holistic practice comparable to high-performing education systems. Entering Malaysia institutions of higher learning provides the student opportunities to gain knowledge, skills and professionalism to meet to needs of national human resource for the national development. Both public and private higher education institutions play important roles to fulfill the national needs especially in TVET.

TECHNICAL AND VOCATIONAL TRAINING (TVT) IN MALAYSIA

In Malaysia, the term of Technical and Vocational Education and Training (TVET) is use as a general expression for different types and modes of education and training at various education levels. Therefore, the usage of abbreviations forms such as TVET, TVE and TVT to represent the principle and context of the acquisition of knowledge, skill and attitude for employment should be clearly defined to prevent TVET paradox. TVET can be associated with workplace as a main role in providing the skills workers.. Also, TVET is associated with in-training, re-training, and up-skilled training workers from various industries. In other word, TVET is different from other training forms, as it aims to equip individual with practical skills. Tovey and Lowlor (2008) claimed training is concerned with the development of knowledge and skills to be used immediately or in very near future and deals with developing people who already have or who are just about to enter a job. Likewise, Salleh and Sulaiman (2016) claimed most employers nowadays become more aware of the importance of training to develop workers competencies. TVET approach of learning and teaching requires the development of progressive interactive collaboration between experience-based workplace and systematic theory-based learning at learning institutions.

National Council Vocational Training (NVCT) under Ministry of Human Resources Malaysia is responsible to coordinate skill development programs in the country. NVTC is focusing on National Occupational Skill Standards (NOSS). NOSS is a document that stipulates the required competency level expected of a skilled employee who is employed in Malaysia in a specific trade. It also defines the level of employment and the path achieved the stated competency level (MLKV, 2005). Currently, NCTV is developing competency standards in a new trade and higher level of skills for the perusal of training institutions in Malaysia. At the end, students will be awarded with Malaysia Skills Certificate (SKM) which is equivalent to certificate, diploma or degree from academic institutions.

NOSS classifies eight levels of qualification, namely Certificate Levels 1-3, Diploma, Advance Diploma, Bachelors, Master and Doctoral degree. The level of qualification are described and differentiated in Figure 1. The qualification levels

indicate the level of capabilities. Basically, NOSS document consists of five levels, which are Level 1, Level 2, Level 3, Level 4 and Level 5. These are levels are inter-linked with the National System of Certification, which mean, an individual who has achieved the Level 1 skills requirement will be awarded with National Skill Certificate for Level 1 and so on showed on Table 1.

TABLE 1: NATIONAL OCCUPATIONAL SKILL STANDARD (NATIONAL VOCATIONAL TRAINING COUNCIL, N.D.)

<i>Level</i>	<i>Task Description</i>
Level 1	Students are competent in performing in a range of work activities, which most are routine and predictable.
Level 2	Students are competent in performing a significant range of varied work activities, performed in a variety of context. Some of the activities are non-routine and required individual responsibility and autonomy.
Level 3	Students are competent in performing a broad range of varied work activities, performed in a variety of contexts, most of which are complex and non-routine. There is considerable responsibility and autonomy and control or guidance of others is often required.
Level 4	Students are competent in performing a broad range of complex technical or professional work activities performed in a wide variety of contexts and with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and allocation of resource is often present.
Level 5	Students are competent in applying a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of context. Very substantial personal autonomy and often-significant responsibility for the work of others and for the allocation of substantial resource feature strongly, as do personal accountabilities for analysis and diagnosis, design, planning, execution, and evaluation.

LIMITATION OF OBTAINING TVET DATA IN MALAYSIA

Malaysia Government is emphasizing on train and develops its workers with relevant traits and attributes so that they are able to play a major part in nation building. The development process is an ongoing process of reframing, reengineering, and reorganizing workforce to become highly competent workers. Salleh, Sulaiman, and Gloeckner (2015) claimed that competency (knowledge, skills and attitudes) is an important criterion in employment and workers should be aware of and be prepared for the transition to workforce competency demand in future.

Consequently, TVET programs are developed promptly to meet the demands of knowledge skilled based economy in this country. However, there are specific issues that need to be resolve to ensure that TVET in Malaysia meet the requirements of global market. All these are based on the following assumptions:

- (i) The lack of data in the respective ministries on the demand for TVET programs skill training is a major constraint to the planning and development of additional facilities.

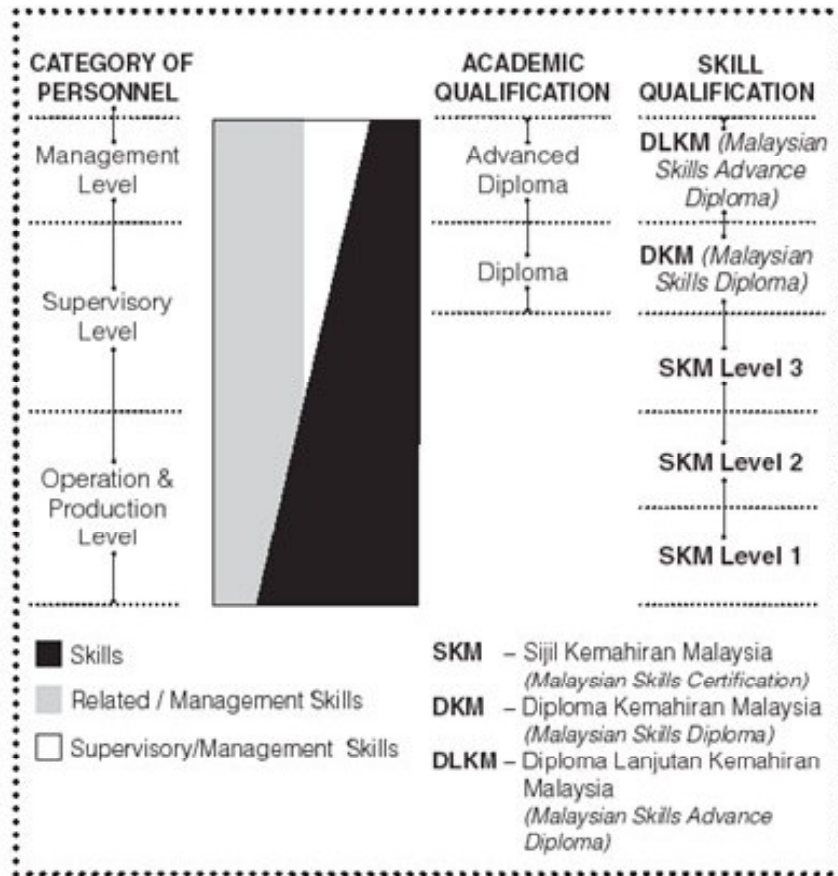


Figure 1: Categories of personnel with relevance to the Levels of SKM qualification (Source: National Vocational Training Council, n.d.)

- (ii) Inadequate data to monitor budget, enrolments, and indicators of educators and trainer performance in TVET institutions agencies.
- (iii) A significant number of TVET providers have inappropriate curriculum guide to follow and only have limited access to these basic support documents.

On the whole, few ministries in Malaysian Government are responsible in conceptualizing TVET policy and setting the direction for organizations involved to enlarge human capital in the technical, commercial, and service sectors. In addition to that, these respective ministries are accountable to provide facts and figures regarding implementation on TVET and updating plus maintaining the relevant data which to be utilized by TVET experts in various purposes. As for

policymakers, practitioners and researchers, the TVET database provide from these ministries are imperative to forecast the future patterns in TVET development correlated in formulating social economy, anticipating market labor and trends as well as revising the existing programs and trainings offered by TVET institutions (Ellis, 2005).

Furthermore, the TVET experts including researchers, practitioners, policymakers, curriculum developers, and others are having some major problems in gathering the relevant data as ministries mainly do not possess accurate data due to improper data management. In addition, the important TVET data are scattered within different ministries, organizations, and agencies which create a bureaucracy and bottom line returns because of secrecy administrative data among them. Although the administrative data are not an ideal source, but for TVET whilst there may be many national or regional studies, there are almost no globally or regionally comparable statistics requirement available (Ellis, 2005). To deal with these shortcomings, serious consideration is necessary to facilitate those who are in search of the reliable TVET data in this country. Hence, the solution may perhaps improve the quality of TVET implementation and broaden the creation of efficient TVET system in Malaysia.

KNOWLEDGE INPUTS AND INNOVATION OUTCOMES: DEVELOPING TVET PROFILING IN MALAYSIA

In Malaysia, TVET provision is undertaken by different ministries, organizations, or agencies, authorities should seriously concerned with the validity and reliability of TVET current data in Malaysia as many studies, which have been put into practice, are related to the area of TVET. Therefore, there is an increasing need to establish statutory body such as Korea Research Institute for Vocational Education and Training (KRIVET), Central Institute for Vocational & Technical Education (CIVTE), and other TVET organizations to profile TVET data. This statutory body will hold high responsibility in coordinating, assessing and monitoring all related data of Malaysian TVET development among authorities and agencies related to any TVET programs, trainings and activities in relevant institutions. It is complex or unfeasible for individuals to obtain in this information readily as TVET system is organized by selected ministries according to Malaysian policies, such as:

- i) The Eleventh Malaysian Plan (11MP) 2016-2020
- ii) Malaysian Education Blue Print 2015-2025
- iii) Third Industrial Master Plan (IMP3) 2006-2020
- iv) New Economic Model for Malaysia (NEM)
- v) The National Vision Policy (NVP) 2001-2010
- vi) Economic Transformation Program (ETP)
- vii) Government Transformation Program (GTP)

In the attempt to address this issue, a proper mechanism called TVET profiling is proposed as an alternative to provide high reliable TVET data for researcher, policymakers, practitioners and others to further investigate the sustainability of TVET development in Malaysia. TVET profiling is essential to improve the overall performance of policies, education and training pathways, initiatives and practices concerning TVET development in Malaysia. The objective of TVET profiling, which is to be practiced in Malaysia, is to provide a comprehensive database to assist in the development, project and research opportunities in accordance to TVET progression in this country.

The TVET profiling scope will cover all qualification levels of studies including certificates, diploma, semi-skill, skill and others for all prioritize public sectors and private sectors in TVET. Statutory body would manage the implementation, while all the reliable data are to be provided by different ministers, organizations, and agencies. A conceptual framework on Figure 2 is a jump-start to outline as possible actions or to introduce a preferred approach to TVET profiling development. The conceptual framework is built based on a set of concepts linked to the existing TVET system of methods, policies and implementation in Malaysia. The process of developing TVET profiling includes 3 steps which are as the following:

- i) Construction of Framework
- ii) Data Collection from ministries
- iii) Comparative Analysis

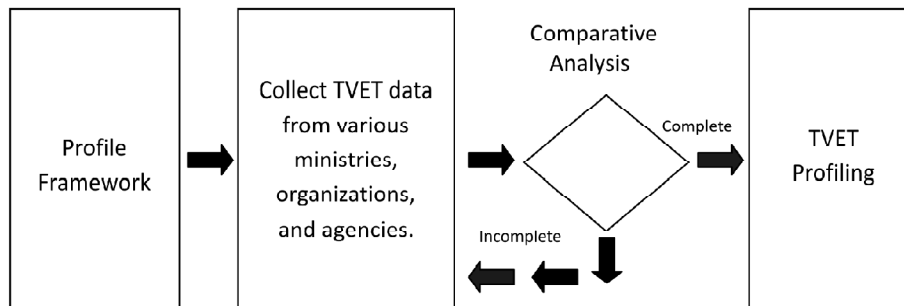


Figure 2: Conceptualization of TVET profiling development

(i) Construction of Profile Framework

An appropriate profile framework is developed in structuring elements of TVET particular in the profiling. The framework description is focused on the frequent requirements from individuals who seek for TVET data as below:

- i) Country basic data.

- ii) Philosophy and policies of technical-vocational education and training (TVET).
- iii) Vocational education and training system—public and private.
- iv) Law relating to employment and labor.
- v) Employment and labor situation.
- vi) Vocational capability development policy and its current implementation.
- vii) Vocational standards, qualification framework, accreditation, and assessment policies

(ii) Data Collection

Raw data is taken from various ministries, organizations, and agencies related to TVET. Cross section and time series data collected are assorted from statistical reports, tracer studies, materials, research paper, and other documents. Charts, graphs, and other visuals shall be avoided whenever possible. The texts and data are written in English or Malay. However, any important changes related to collected data, which are made after submission shall be immediately informed to the statutory body for perusal.

(iii) Comparative Analysis

The statutory body shall compile the information as compact as possible and personal opinions will be avoided to ensure the objective data analysis. Statistical reports, tracer studies, materials, researchers papers, etc. from respective ministries will be promptly reviewed and uploaded on to the database set up by the faculty. Data shall systematically gather and collated into the informative reports for the above-mentioned parties. Without proper analysis, considerable effort on rewriting a function might be expended. Copyright and ownership of the informative shall belong to the statutory body.

BENEFITS OF TVET PROFILING

The development of TVET profiling is an essential initiative as it could provide evidence for monitoring the policy and performance of TVET in Malaysia. The development of TVET profiling also facilitates assessment and conferment of national qualification for TVET recognition and creates awareness of the importance of curriculum management. TVET profiling could unify and link all educational and training TVET institutions and agencies in Malaysia. The statutory body shall administer the TVET profiling in a very objective and proper provision so the quality of TVET and its responsiveness to labor demand conditions can be improvised by responsible bodies.

Profiling, as a part of the policy and the curriculum referral system, helps to endure that:

- i) Referring and evaluating data in TVET profiling could overcome lack of competent people that are critical in TVET institutions.
- ii) TVET can improve bottom line effectiveness and productivity occurring in TVET institutions and agencies. It is an alternative to poorer evidence gathering tools like the paper-based logbooks or paper reports.
- iii) TVET profiling could help in making good decisions appropriately to policy and curriculum referee.
- iv) It shall facilitate, where applicable, the presentation of policy document in forms (e.g. transcript and supplement) that enable to gauge their intended and forecast the possibilities.
- v) It can encourage closer ties between academia and industry in the field of TVET.
- vi) With the existence of TVET profiling, respective ministries could development cooperatively with relevant organizations, the criteria and standards for curriculum development for TVET institutions to continuously update and review curriculum standards in keeping up with current TVET development.
- vii) It articulates links with TVET data with other countries and thus assists in acknowledgement by clarifying the status, comparability and relative requirements and demands of TVET qualifications in Malaysia. UNESCO UNEVOC is the best platform to be the medium of the collaboration with UNESCO UNEVOC members around the world.

CONCLUSIONS

TVET profiling can be seen at all levels of an organization. It is an innovative approach to gather information about the current status on TVET development in Malaysia. It will be used by curriculum reviewer and policy referee, to gain evidence of explicit information for the key sectors of TVET programs and skill trainings offered by respective institutions towards Malaysian economy growth.

Acknowledgements

Thank you and gratitude to Universiti Tun Hussein Onn Malaysia (UTHM) [Vot R041] for the support given in making this study successful.

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