

THE ISSUES AND CHALLENGES OF VOCATIONAL TEACHER EDUCATION PROGRAM

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Abstract- The future in TVET offers tremendous challenges to the TVET stakeholders including the Vocational teachers. The fast developments in technological concepts by the developed nations like Fourth Industrial Revolution and Made in China 2025 influence the performance of Vocational teacher. This paper discusses the challenges faced by Vocational teachers from three points of view namely the governance, finance and training. In governance, the role of the stakeholders plays a crucial role in sustaining the quality of Vocational teachers. The opportunities and facilities for international and local partnerships are necessary to allows for the Vocational teachers' professional development. Regarding financial challenges, the economic climates that do not guarantee any job opportunities require collaborations and partnerships of institutions with industries that will benefit both. As for training, the mapping and sustaining of the ideal and relevant skills for the futures are the main challenge. The changes of skills priority and obsolete of certain skills are the point to consider. Furthermore, a crossed national case study has been done to investigate the challenges faced by the Vocational teachers. The findings have supported all the point discussed in this paper. There are five main findings in the case study which is inclusive of teachers' attitude towards learning; the perception of the society on TVET as the second class education; lack of partnership between the institutions and the industries; lack of pragmatic policies in improving the quality of TVET Teacher Education Program and low input from the industrial sectors in institutional program. Therefore, it is very important for all the stakeholders to work together creating a balance TVET ecosystem that will benefit all and minimize the impact of what future has to offer.

INTRODUCTION

The scarcity of research on Vocational teacher education program in Malaysia can be dictated from the low numbers of finding in the search engine. Although the transformation of Technical and Vocational Education and Training (TVET) has included the development of talent excellent as one of the aim for future, lack of research in this area will affect the transformation process holistically. This scarcity was also reported at the international level as stated by International Labour Organization (2010). For instance, some high-income countries (e.g., Germany and the UK) are faced with the lack of Vocational teachers supply and this problem might be leading to potential shortage of workers in job market. Although the details might be different, similar situation is happening in Malaysia as the numbers of technical teachers in the Ministry of Education Malaysia have decreased from 2013 to 2015. Table 1 shows the number of TVET teachers in secondary education in Malaysia from 2013 to 2015.

Table 1. TVET teachers in secondary education in Malaysia from 2013 - 2015

Bil	2013	2014	2015
Technical School	1593	588	574
Vocational School	6234	516	0
Vocational College	0	6604	7081
Total	7827	7708	7655

Sources: (Ministry of Education Malaysia, 2014, 2015b)

Despite the projection of increment in TVET enrolment from 164,000 to 225,000 by 2020 in 11th National Plan and Malaysia Education Blueprint 2015-2025 (Higher Education), the number of Vocational teachers is decreasing. This might be due to the Strategic Plan for Vocational Transformation that focuses on training and up skilling of incumbent Vocational teachers as their professional development (Ministry of Education Malaysia, 2011) instead of producing more new

Vocational teachers. Nevertheless, this situation has opened up a new avenue for research in this field.

Concurrent with the changes in the students' behaviour approaching the future classroom, the role of the teachers also has to change. Churches (2008) claims that teachers in 21st century are more than being student centric, holistic, teaching about how to learn as much as teaching about the subject area. The 21st century teachers are in fact the adaptor, the communicator, the learner, the visionary, the leader, the model, the collaborator and the risk taker. These eight characteristics require teachers to be creative and dynamic with the technologies.

The transformation of TVET in general calls for action from all the stakeholders within TVET ecosystem. This includes the development and transformation of the talent excellent to achieve high quality performance in all aspects. Vocational teachers either in pre-service or in-service has to know the characteristics of future vocational educations. This will help them in preparing themselves with proper skills, knowledge and attitude in order to play the role as the agents of change for a sustainable future. Through teacher training program, the competency of Vocational teacher can be moulded into maintainable skills, advanced knowledge and positive attitude.

Governance and Management

Governance as defined by Richardson (2014) refers to the rules, incentives, institutions and philosophies for coordinating, controlling and supervising behaviour. In Vocational teacher Training program, the governance factors linger around the role of the stakeholders in managing the program, partnership among the institutions and governments at the local and international levels and also the involvement of community in the programs. The report for discussion at the Global Dialogue Forum on Vocational Education and Training by International Labour Organization (2010) points out that in facing the governance challenges, TVET institutions are given more authorities in managing the institutions, thus create an operational autonomy that challenges the creativity of the manager to achieves objectives and maintain long-term institutional viability in a resource-poor and highly competitive environment. It also creates a new sense of institutional ownership that will enlighten the Vocational teachers to improve and sustain the quality of the institutions. Moving decision rights from the Ministry to the leadership of public universities, improving the governance effectiveness of Higher Learning Institutions (HLI) , and building the capacity and capabilities of University Boards and institutional leaders to take on these increased responsibilities (Ministry of Education Malaysia, 2015a).

Industry engagement and collaboration is seen as an important feature to improve TVET performance, both in terms of the content and relevance of programmes (UNESCO, 2015). This has been mentioned earlier by International Labour Organization (2010) where teaching and training materials are often outdated and not relevant to what is needed for specific skills development for TVET Teacher Training Programme. There is no argument that the participation of industries can help overcoming the mismatch of demand and supply in skills. By having DACUM for instance, the industries and other stakeholders can be involved in the curriculum development process.

Among the other issues in governance is the role of the stakeholders in improving the professional development of the Vocational teachers. One of the common elements mentioned in the previous framework is the connection among the teachers themselves. In order to prepare the teachers for future challenges, the connection among themselves should be improved and utilized well. Different terms have been used to label this connection, for instance, action learning (ASEAN University Network, 2013) and professional development (SEAMEO INNOTECH, 2010). Cranton (2012) reported that for professional development, community college teachers need to have the opportunity to talk about teaching with colleagues and others as to strengthen their personal growth and development. Research has found out that there are gaps between novice and expert teachers in evaluating the teaching and learning outcomes in classroom (Hammerness et al., 2005). This gap indicated the importance for expert teachers to share their knowledge with the novice teachers in order to assist novice teachers to accomplish their teaching tasks efficiently and effectively. As stated by the Department of Education and Training (2004) teachers develop their knowledge, skills and practices throughout their professional lives. With this experience, they become experts and well verse with the system. Therefore, the institution needs to provide the opportunity and space for this social interaction among the Vocational teachers. An internal seminar by the faculties, for instance,

may provide this socialization opportunity. The students also can take part thus wipe out the barrier between the stakeholders.

The roles of stakeholders are also important in providing the partnership and collaboration at international level. Multistakeholder partnerships with the involvement of gigantic bodies such as UNEVOC Network as facilitator are important to sustain TVET resource. Within the Sustainable Development Goal (SDG) by UNESCO (2016), it is clearly stated that international cooperation for teacher training in developing countries are the mean to increase the supply of qualified teachers by 2030. According to Sharma (2015), the government has to play a crucial role in monitoring this

partnership. Through the enforcement of related policy, the involvement of private sector towards education system should be control so that the principal of social justice and equity can be ensured throughout the partnership. Government may refer to the work done by the international agencies like the World Bank, UNESCO and ILO in developing related public policies.

Therefore, for the future development of Vocational teacher, the stakeholders especially the government and the institutions has to play their parts in creating collaboration and partnership so that the knowledge and skills sharing can be transferred effectively among the experts. The involvement of the leadership at the implementation level is also important as monitoring factors to make sure the collaboration happens in sustainable ways thus benefit all. In research wise, UNESCO (2015) reported an interesting finding where there was less discussion on a 'vision' for TVET. This is crucial as with proper vision, the equity issues such as gender can be addressed properly.

Financing and Business Challenges

It is a common perception that TVET is an expensive educational program as highlighted by International Labour Organization (2010). The cost in managing TVET institutions escalates every year due to the raw materials needed for skills learning process are expensive and with the rapid changes in technology, the teaching and learning materials may become obsolete within several years. Apart from that, the operational autonomy system that is gaining attention within the educational system has led TVET institutions to be released financially from the government gradually. Nevertheless, this situation, however, opens up more windows for partnerships and collaborations with third parties and gain revenue for the TVET institutions.

Many researches had mentioned the need for demand-driven TVET program. This is based on what the industries need from the educational sectors. The skills and knowledge provided has to match with the industrial requirements. The industrial global phenomenon now such as the fourth industrial revolution calls for different set of skills several years ago. According to this FIR, the technical skills are no longer major skills for the industries. This is because, the technical skills is now mainly taken over by the machine. What a talent needs to have is the skills to operate and repair the machine. In FIR, the gaps between human and machine in doing work are gradually being merged. Therefore, future Vocational teachers must be able to deliver these skills to the graduates. Especially for the international industries that are moving very fast each day.

The economic climate as termed by UNESCO (2015) influences the sustainability of TVET in general. The availability of job does not depend on the stability of the economic as new job does not necessarily emerge even if economy is getting stable. TVET has to be able to create the job demand for the graduates. UNESCO (2015) had listed the issues that has to be considered in developing the agenda for future TVET from the economic perspective namely (1) the connections between skills and jobs;(2) the need to 'develop' the TVET market, by growing the demand for TVET amongst learners, non-learners and employers; and (3) stronger employer engagement, both in respect of TVET institutions relationships with employers, and in terms of TVET policy development and decision making. As for Vocational teachers, they have to be able to be more independent in getting a job. The job market for Vocational teacher in future will not only within the TVET educational institution. The partnership with industries will open up the opportunity for Vocational teachers to be the trainers at the industries as well.

Partnership in TVET has been studied tremendously across the globe. The term Public-Private Partnership (PPP) has been used to indicate this partnership. The sustainability of the technical skills and qualifications requires TVET educators to have a different preparations and medium in doing so. This is the reason why most of the TVET TE programme sustainability requires the partnership with

industries and collaboration internationally (Goodine, 2010; Khambayat & Majumdar, 2010; Majumdar, 2011; Razzaly, 2010; Spöttll, 2009; Yunos, Esa, Jamil, & Rosli, 2010). The knowledge transfer among all stakeholders in TVET TE programme will eventually help in maintaining the dynamic and sustainability of the programme. The collaboration will also allow the industries to use the institutions' laboratories for experiment and research and improve the quality of the teacher training in return (Razzaly, 2010). This will also influence the sustainability of the economic. Okoye & Chijioke (2013) stated the importance of PPP for technical advancement and economic growth. Through this, the production of skilled workforce will be ensured.

Vocational teacher Training for Talent Empowerment

According to World Economic Forum (2016), by the year of 2020, changes in technical jobs will happen due to the advanced robotics and autonomous transport, artificial intelligence and machine learning, advanced materials, biotechnology and genomics brought by the Fourth Industrial Revolution. As a consequence, some skill might be obsolete and those that are uncommon nowadays may become common by the time. One of the issues that should be taken to consideration by Vocational teachers in future is how the automatic will replace the talent to do the technical job. Due to this, the important skills to be mastered by the teachers is more on how to operate the machine rather than the basic skills of the technical aspect. Report by World Economic Forum (2016) that asked the chief human resources and strategy officers from leading global employers had listed top 10 skills in 2015 and 2020. Based on the list, some skills will become obsolete because the automatic takes over it. Skills that cannot be done by machine for instance creativity will survive in the future and those that are not related with machine like active listening will disappear completely. All this is depending on how the industry is changing and technology play a crucial part in it. Therefore, future Vocational teacher must know and involve with the development of technologies as much as they can for their sustainability. Table 2 shows the top 10 skills proposed by World Economic Forum (2016).

Table 2. Top 10 skills in 2015 and 2020

In 2020	In 2015
Complex problem solving	Complex problem solving
Critical thinking	Coordinating with others
Creativity	People management
People management	Critical thinking
Coordinating with others	Negotiation
Emotional intelligence	Quality control
Judgement and decision making	Service orientation
Service orientation	Judgment and decision making
Negotiation	Active listening
Cognitive flexibility	Creativity

Source: World Economic Forum (2016)

Meanwhile, based on the document analysis done, several skills have been identified important for Vocational teachers. The skills include ICT skills (ASEAN University Network, 2006; National Council for Teacher Education, 2009; Yunos et al., 2010), community/social accountability (National Council for Teacher Education, 2009; SEAMEO INNOTECH, 2010; Yunos et al., 2010), life-long learning, higher order thinking (SEAMEO INNOTECH, 2010) Green Technology, Soft Skills and Sustainable Development (Burmeister & Eilks, 2013; Karpudewan & Ismail, 2008; Khirwadkar & Pushpanadham, 2007; Umar & Jamiat, 2011).

Soft skills within technical training are now started to be taken seriously by all training centres globally. Parallel with the future requirement, the soft skills for future teachers are linger around the technology. According to Churches (2008), as the communicator, teachers has to know how to use the media for communication which is the ICT. In the meantime, they also have to initiate and monitor the communication in class since another flaw of the technologies is it unconsciously suppress the tangible connection among the students. Therefore, teachers must know how to initiate this tangible communication among the students so that they are able to negotiate and make themselves presentable to the industries in the future. This indicate the role of future

teachers as the moderator between the technology and the traditional method in teaching and learning so that students will not lost their identity to the technology or incompetence to perform in the industries.

Another significant element for future Vocational teachers where technology is developing rapidly is dealing with the flaws of technology. This can happen due to many technical reasons and as mention by Churches (2008), the show must go on. The chalk and paper method that is no longer applicable in the future might be an alternative way in case of any technology failure in the classroom. On the other hand, while the borderless classroom such as e-learning has become more and more trendy, in approaching different type of student for instance the elders or the rural area, Vocational teachers have to be creative with higher order thinking (HOT) skills in delivering the knowledge and vocational skills. Not only the vocational skills and technical skills that require HOT skills, the pedagogy skills also call for creativity of the Vocational teachers. Teachers have to keep on learning and up skilling themselves. For that, the imagination of future teachers cannot be suppressed. Imagination, creativity and dynamic are the elements for future teachers to be more interesting and relevant in the future classroom.

Nevertheless, the soft skills is also important as part of building and sustaining the relationship with the community. Khambayat & Majumdar (2010) term this as social constructivism which refers to learning as the result of active participation in a "community" where new meanings are co-constructed by the learner and his/her "community" and knowledge is the result of consensus. The knowledge mention is known as community knowledge. According to National Council for Teacher Education (2009) the community knowledge may include technology, local occupations which include farm and nonfarm for local perspective, local folk culture including songs, festivals, fairs and games. The community knowledge should be considered in developing any Vocational teacher Education model so that the demand from the community can be fulfilled. It is important for the Vocational teacher to have the local vocational skills as it will contribute to the economic development. By strengthening the community partnership, there will be more demand on the Vocational teacher education program thus sustaining the lifecycle of the program.

The year of 2015 has been marked as time for global action for the people and the planet as well. The sustainable development concept has been developed to cater the need of the resources and human. Subrahmanyam (2014) stated that in improving the quality of sustainable development in TVET, the teachers have to be train with environmental issues added with green techniques. This includes the green job matching and green entrepreneurship promotions. The greening of TVET as a whole including the policies and programmes not only will improve the quality of sustainable development, it also contribute to the advancement of the youth employability. However, (Libunao & Peter (2013) reported that sustainability practices (i.e., go green campaign, implementation of the 3R practices) are still in its infancy stage among the Polytechnics in Malaysia. They also noted that there is no indication that polytechnics are trying to promote sustainable development among faculty and staff, through staff activities, recognition, research and development. This has point out the importance of awareness on sustainable development among the stakeholders. Despite various international efforts on Sustainable Development, local sustainable development should be emphasized and monitored religiously.

Meanwhile, the soft skills of Vocational teachers in future are also important for the entrepreneurship. Considering that tomorrow's economy does not guarantee a job for any graduates, self-employment has become a choice as economic development and job creation especially for the youth. Therefore, Vocational teachers has to prepared themselves with entrepreneurship skills including critical thinking, decision-making, leadership, teamwork and innovation (UNESCO UNEVOC, 2016) in order to help TVET graduates being one's own boss. In fact, it is easier for the Vocational teachers to teach entrepreneurship to the students because vocational skills provide more opportunity for the graduates to market their skills. The element of entrepreneurship that overlaps with most of the soft skills allows to it to be taught simultaneously with other vocational skills. As for the Vocational teachers, the experience and knowledge in entrepreneurship will help the Vocational teacher to enlighten this easier to the students. One of the soft skills that involved would be how to communicate with potential industries and how to sell themselves in terms of quality and trustworthiness. This include the command of several different languages especially English.

Case Study on Malaysia by UTHM

A case study in Malaysia has been done to investigate the real situation faced by the Vocational teachers from the point view of TVET experts. The data collection process comprised four semi-structured interviews with the experts in TVET Teacher Education Program. The experts are from various stakeholders including from the Ministry of Human Resource and leadership of TVET institution. The findings from the case study indicated five challenges faced by the stakeholders. The first challenge is inclusive of teachers' attitude towards learning. This include reluctant to move out from their comfort zone i.e. the institutions, reluctant to use the social media to connect with the students and reluctant to be more innovative, more creative and more resourceful. Experts also mention the lack of soft skills among Vocational teachers especially in communication and lack of self confidence in being an expert in TVET field. This characters of Vocational teachers will not contribute to the success of their future as Majumdar (2011) in his research had clearly emphasized on the importance for teachers of the 21st century to have the ability to flexibly learn new key issues quickly, such as ICT skills and generic skills that increase employability and mobility of graduates.

The second challenge is the perception of the society on TVET as the second class education including by the academicians as well. Most second class perception comes from the community especially the parents. The aim to shift perception towards the first class perception has been included in the 11th National Plan and Malaysia Education Blueprint 2015-2025 (Higher Education). Experts also mention on the double standard treatment between the academic achiever and TVET achiever. This can be said as the effect of the second class perceptions that lingered among the teachers as well.

The third challenge from this case study is the lack of partnership between the institutions and the industries. Experts has emphasized on the lack of trust between institutions and industries that lead to non-collaboration between the educators and industries. Without good partnerships, the quality of TVET outputs will be affected as TVET requires input from both the institutional as the theory side and input from the industries for practical portion. This lead to the fourth challenge faces by Vocational teachers which is low input from the industrial sectors in institutional program. As mention by Grollman & Rauner (2007), work experience is a compulsory component in the teacher requirement for several countries namely Brazil, Denmark, Japan and United Kingdom. Those without this experience are required to undergo an internship in an enterprise as what is happening in Germany. Hassan (2010) termed this as a bi-polar nature where the programme itself require two different processes which is more cognitive process for academic courses and more on practical or psychomotor processes for skill courses. This was explained by Carnielli, Gomes, & Capanema (2007) as a principle that state those who teach must first know how to do and those who know how to do and want to teach must also learn to teach.

The last finding in this case study is lack of pragmatic policies in improving the quality of TVET Teacher Education Program. Among the comment given by the experts are related to the involvement of the industries itself. The lack of policy to enforce the partnership of educators and industries and too many different policies has complicated things. The changes of policy in the middle of implementation also have been dictated as ruins to the implementation itself. One of the suggestions by experts for this challenge is to have a certain Key Performance Index (KPI) for the educators to have collaboration with industries.

The finding of this case study had supported the discussion above. These challenges faced by TVET Teacher Education Program can be resolved by strong cooperation among the stakeholders and also changes of attitude for Vocational teachers. The concept of lifelong learning will eventually encourage an up-skilling among the Vocational teachers thus improve the quality of future Vocational Teacher Education Program.

CONCLUSION

The future offers challenges that are vital to the survival of Vocational teacher. Not to mention the obsolete of certain skills, the evolution of existing skills and technology had become a threat to the Vocational teachers towards the future. The Fourth Industrial Revolution and Made in China 2025 are the examples of how fast the industries are changing currently and it challenge what TVET could provide for the future. Those who cannot adapt will be left behind making adaptation is the only option to survive. In order to sustain the quality of Vocational Teacher Education Program,

changes must be made along the time. The changes are important for the system to adapt with the changing economic and societal requirements and other socioeconomic trends (Busian & Schroder, 2015). Hence, the development of Vocational teacher in terms of knowledge, skill and attitude is necessary to achieve national development plans.

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