

The Development of Engineering TVET Instructor Standard Teaching Competency Framework for Vocational College

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Individual competency consists of a set of knowledge, skills and personnel characters to execute specific responsibilities and designated tasks. A competent person upholds the highest integrity and ensures perfection to fulfill self-satisfaction and meeting the standard. Competency can be classified into myriad components, known as generic and specific skills. In light of the daunting issues on lack of skills among graduates claimed by the industries, Technical and Vocational Education and Training (TVET) educators have been pointed out to resolve the issue. The key aspect discussed on TVET instructor competency components is to empower graduates' employability. Thus, TVET instructors are requested to comply with the necessity to upgrade their theoretical and practical knowledge content and become adroit to compensate for the 21st-century teaching and learning environment. Emphasizes are from the development of teacher professional characteristics and specific competency traits in pedagogical aspects as well as soft skills training to synchronize with the ever changing educational milieu. This research employed a qualitative strand of a case study by compiling the narrative collected from the structured interview to obtain research data. The participants were selected among teachers, students, and vocational college directors in Selangor, Malaysia. The objective of the study is to explore the required competency components of the TVET instructors in engineering-related courses. The data was compiled using NVivo software and thematically analyzed by extracting and determining the 'meaning-making process' of participants to answer the formulated research questions. The findings of the study incited personality and values, ethics and professional practices, knowledge-development, professional skills, effective management, socializing skill, and pedagogical skill as pivotal themes emerged from the analysis. It is hoped that the findings will initiate a significant impact particularly to the



Engineering TVET instructors at the vocational colleges. More importantly, it is to execute the competency components and drive instructors' motivation to remain in the teaching profession and enhance the quality of TVET education as well as demonstrate professionalism among instructors.

Key words: *Competency, Technical and Vocational Education and Training (TVET), Engineering TVET instructor, Vocational College*

1.0 INTRODUCTION

According to the 10th Malaysian Plan 2011 to 2015 report, efforts have been made to implement and expand the access to the quality of the Technical and Vocational Education and Training (TVET) educational sector to optimize the nationwide industrial needs. Following this blueprint, in the 11th Malaysian plan from 2016 to 2020, on the other hand, empower the mission to strengthen TVET governance, to embolden the quality and delivery approach, and improve TVET brand and image among the grassroots as one of the chosen curriculum programs among students and educational stakeholders. In line with these missions, the competency of the teachers has become one of the main agendas to ensure the quality of the program is served to the stakeholders. Part of the initiative, the assessment of the professional competency of TVET teachers has become one of the significant factors in determining the effectiveness and excellency of the program and the quality of the teachers (Saedah & Mohammed Sani, 2012). The notion was also supported by Abdul Sukor, Razali, and Azman (2015) stated that the teachers' competency will become the determinants to ensure the success or failure towards teaching and learning environment and developing teacher's professionalism. Therefore, it is pivotal for TVET teachers to become competent and play effective roles in training the hard skills, transmitting knowledge and develop the employability skills as preparation to develop skilled and competent graduates for future employment (Ali, 2015). However, there are rooms for improvement due to the barriers and weaknesses of the TVET teachers when it comes to executing the best teaching and learning practices as well as quality TVET curriculum to be served, indicating the profile of the TVET system in Malaysia (Chua & Jamil, 2012).

The TVET division under the umbrella of Malaysian Ministry of Education has taken proactive measures to strengthening the TVET system by providing the infrastructures and continuously provides qualified TVET teachers who knowledgeable, skillful possession of professionalism values to ensure the TVET graduates are competent in technical and soft skills (Ghazali @ Hassan Sulaiman & Abdul Said Ambotang, 2017). TVET teachers are responsible to cascade in realizing the vision and mission of the ministry to make sure that the TVET graduates possess knowledge, skills, highly valued by industries, and equip with professional values and positive attitudes towards their career (Ab Rahim & Ivan Hanafi, 2007). The TVET institution in Malaysia is hoped to develop quality graduates and it is, therefore, the quality of the graduates will mirror the quality of teaching and instruction delivered by the TVET teachers (Ahmad et



al., 2015; Kamaruddin, 2010;). On another note, TVET teachers are also encouraged to be competent in pedagogical approach (Tasiam, Kustono, Purnomo & Elmunsyah, 2017) whereby, the knowledge of pedagogical skills of teachers have been highlighted in one the competency traits as a professional teacher (Gómez, Barbera & Fernandez, 2017).

The scarcity of the lack of competence among teachers is evident. Research by Ahmed in 2010 found the most problematic issues of TVET deliverables in Bangladesh are due to the low-quality aspect of TVET teaching experience, the limited professional and induction program for teachers' development in curriculum and pedagogical techniques. The concern was also portrayed by Ehler (2010) claimed that the lack of pedagogical aspect in teaching TVET-related subjects was due to a lack of awareness to implement in the early teaching career among novice teachers consequently the teaching and learning become monotonous and stagnant. This whole scenario has contributed significantly to the gap between the quality of the graduates supplied by the TVET educational providers and the skilled graduates that the industries want (Chua & Jamil, 2012).

1.1 RESEARCH BACKGROUND

Vocational colleges in Malaysia have been performing well in several aspects for several years. This institution is responsible to produce skilled and semi-skilled to fulfilling employment in the industrial sectors (i.e., manufacturing, services, hospitality, and automotive), particularly in engineering-related based industries (Technical and Vocational Education Division, 2012). According to the transformation plan of vocational college, it is estimated that 70 percent of the graduates will fulfill the employment sector, about 20 percent will continue to higher education degree, and the rest 10% will venture entrepreneurial sector or businesses (Technical and Vocational Education Division, 2012). The instruction process is based on the structured vocational college curriculum standard which consists of 70 percent of skilled-based learning and another 30 percent theory-based learning. The process of evaluation includes theoretical and practical based assessment.

The fact that vocational college has highly emphasized skilled-based competency to their students, hence the TVET teachers are requested to be updated with related skilled competency components for example knowledge, skills and attitudes whether in the classroom or lab and practical session. The evidence suggests substantial implications for teachers to imply professional competence throughout their careers (Mohd Ridhuan, 2016). The credibility of the TVET teachers must be demonstrated frequently to prosper the relationship between teachers and educational stakeholders. Abdul Muqith (2017) supported the notion that the TVET teachers must be grappling with the complexity of competency traits such as knowledge, skills, and professionals values to overcome the future challenges in teaching professions. The substantial components of generic skills and strong ethical beliefs will assist TVET teachers to encounter the challenges and barriers especially meeting the demand form the industries.

According to Zawawi and Syahirah (2011), the background and profile of the TVET teachers significantly influence the possession of knowledge, skills and teaching experience. It can be portrayed from the nurturing process of the TVET teacher educational journey whereby some of them were not given the major they learned during their undergraduate teaching program. Some of the teachers who come to the vocational college system are those who left out the regular secondary school system and non-technical and vocational stream. These reasons contribute to the problems were some teachers fail to master the knowledge and skills elements that are required in the vocational college system. Often the process of retraining and reskilling the teachers has fallen into a drawback where the motivation and time factors are always a challenge to them. As a result, these encumbrance situations have become the major cause and issue of low teacher's quality, lack of teaching experience, incompetent in the vocational college system.

Indeed, the instructional plan and teaching assessment can evaluate teacher performance to alleviate teachers' competency in teaching because students are more likely depending on their teacher knowledge and skills to be transmitted during the teaching and learning process (Ali & Jaafar, 2014). According to Hanapi and Nordin (2014) condensed that teacher competency will determine the quality of the graduates. Therefore, the quality of the TVET teachers is pre-determining factor to determine the quality of the graduates who completed the TVET program in selected institutions (Hanafi, Kamis, Kiong & Hanafi, 2016). Mohd Ridhuan (2016) added that basic competency and soft skills of teachers is necessary to develop marketable graduates for employment. The teaching methods for disseminating industrial experience implies more than giving the students conventional chalk and talk teaching method. Experiential-based learning is vital in constructing students' intrinsic values towards industries. The teaching and learning process must impose positive values that upbringing student's attitudes, strong mental development, self-confidence, integrity, cooperative, social collaboration, and volunteerism stir the holistic human capital development (Hashim, 2016).

Researchers urge educational stakeholders to scrutinize the teaching and learning process in TVET institutions to realize the government's mission to become one of the 21st-century advanced countries (Khairul Anuar, Mohd Syukri, Yusri & Norazrena 2015). The knowledge and skills of the teachers will determine whether or not the TVET institution is effective as one educational provider in the country (Scheerens, Luyten & Ravens, 2011). Besides, this is comparable with the needs of the 4th Industrial Revolution seems to be perceptive of the future grassroots who can demonstrate creativity, critical thinking skills, problem-solving skills and analytical skills for the new trend in the economy and business world.

The teacher competency framework is relatively limited and less being researched in the Malaysian TVET context, it is, therefore, becoming the factor of the study being carried out. It is apparent that the systematic competency standard will benefit TVET teachers in uplifting their professionalism in teaching (Ghazali, 2008). Further, Goh (2011) and Ibrahim (2011) also

argue that in the absence of such guidance, many negative things affect teachers and create a variety of conflicts and issues among educators that affect quality and professionalism.

1.2 Problem Statement

Previous studies have indicated the weaknesses and deficiencies of some of the TVET programs and curriculum that being delivered TVET institutions (Ismail et al, 2017; Hanapi, Safarin, & Kamis, 2015) among of the most critical problem is the pedagogical skills of the teachers. In Hanapi, Safarin, and Kamis (2015), the disposition of Engineering TVET teachers has become the major concern. The lack of resources, technological tools, teaching and learning materials are the main reasons for the lack of effectiveness in curriculum implementation as well as student's development of soft-skills and employability. It is interesting to note that most TVET teachers are indicated at weak possession of generic skills (Minghat & Yasin, 2010), making the missing transmission of skills to students. Chua and Jamil (2012) on another study, found that the professional knowledge among TVET educators in Malaysia is at a moderate level, consequently becoming a reason why most TVET students have not met the industry requirements. The lack of professional knowledge is also a major factor in determining the quality of the TVET system in Malaysia. This finding is also corroborated with a study by Ali (2015) that the perceived weaknesses in the quality of TVET educators in the competition have mirrored a negative impact on TVET education in Malaysia. This issue should not be taken lightly and the educational stakeholders, as well as the educational policymakers, should generate new ideas, implement initiative plan and be sensitive in addressing this issue to enhance the skills of TVET educators to ensure effective teaching and learning process being served in the TVET institutions (Ghazali @ Sulaiman Hasan & Abdul Said Ambotang, 2017).

Myriad efforts have been made from the execution of the Pelan Pembangunan Pendidikan (PPPM 2013-2025) to improve the quality of the Malaysian TVET teachers. Yet, there are still issues and issues related to the service, work stress, disposition and burnout from the teaching role, as well as lack of top-down social support in TVET that cause TVET teachers to leave their teaching profession and resigning from teaching service (Saedah & Mohammed Sani, 2012). The absence of appropriate guidelines and references to the TVET teachers regarding the competencies traits that are required to be mastered has made the teachers wrest for uncertainty (Saedah & Mohamed Sani, 2012). The polemic and vague on the required competencies have worsened the situation. The number of the competency requirement which has been reported in previous shows inconsistency and inattentive. For example, Wardana (2013) has listed ten components of competency. In another study, Long, Kassim and Mahbar (2013) listed only five components of competency. While studies by Jamil and Ridhuan (2007) as well as Abd Aziz (2007) have listed six components of competency that TVET teachers need to learn. Based on the various components of competency identified throughout different studies, it is clear that TVET teachers are still unclear and further research is recommended to determine the exact competency requirements for TVET teachers. Hence, action towards



minimizing the gap between teacher and student competencies as well as employment requirements set by the industries (Jamil, Said, & Azeez, 2014) can be realized. Goh (2013) argues, to date, there is still a lack of research in understanding teacher's professionalism. To add with, most studied previously was based on the perceptions of TVET teachers involved which were carried out deductively using quantitative methods rather than qualitative inquiry approach by gaining the meaning-making process of the TVET teachers.

Therefore, this study can be regarded as a new approach in developing a competency standard framework for TVET teachers, especially in the engineering field as a guide and reference to improve the quality and increase teacher professionalism.

1.3 Research Objective

The research intends to explore the competency traits possessed by the engineering TVET instructors and develop the standard competency framework as guideline and reference to educational stakeholders when it comes to policymaking or teachers training program module and curriculum development.

1.4 Research Question

One question was formulated to ascertain the research objective: what are the competency components required by the Engineering TVET instructors in Malaysian Vocational Colleges?

1.5 Theoretical Framework

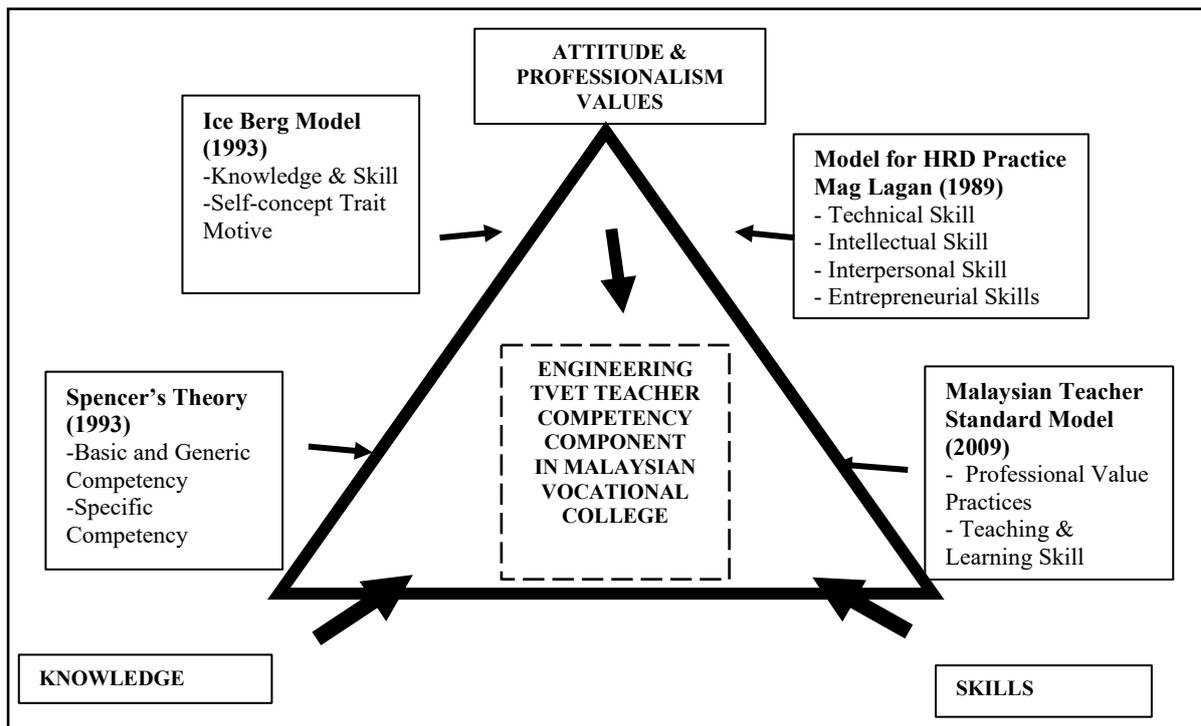


Figure 1. Theoretical Framework

Figure 1 shows the theoretical framework in describing the relationships between several factors to answer the formulated research question. The theories that were adopted in this study include Spencer's Theory of Competence, the IceBerg Model, the Model for HRD Practice Mag Lagan (1989) and the Malaysian Teacher Standard Model (2009). The focus of the study is to explore the required competency and suggest the right competency component to be utilized in developing a teacher's professionalism in the teaching profession. The overall mission is to pursue a holistic educational experience for students and develop better human capital for the nation who are capable, knowledgeable, skillful, and prepared for future employment. The theories were encapsulated in a framework to justify the relationship of selected factors to determine the competency component and triangulate as part of the qualitative analysis.

2.0 LITERATURE REVIEW

Vocational college was established in 2012 to fulfill the needs of TVET and vocational education stream in Malaysia. At the moment, there are 81 vocational colleges under the purview of the Malaysian Ministry of Education. The curriculum orientation was produced from the Malaysia National Occupational Skills Standards (NOSS), Malaysian Skills Certificate also known by *Sijil Kemahiran Malaysia* (SKM) recognized by the industry players. Currently, there are three programs offered at the vocational college: (a) Malaysian Vocational Diploma Program (DVM), the Malaysian Skills Training or Certificate Training Program



(SKM) and the National Dual Training Certificate (SLDN) Apprenticeship Program (BPTV, 2017). The Engineering major at the vocational college comprises three areas: Electrical and Electronic Engineering, Mechanical and Manufacturing Engineering and Civil Engineering (BPTV, 2017).

Competency is a euphemism for knowledge, skills and personal characteristics, and the integration of these factors warrants for an individual to perform well in specific tasks (Ibrahim & Razak, 2015). Competent teachers demonstrate a certain extent of knowledge possession, skillful in managing personnel, proficient in using teaching aids, and excel in classroom and workshop management (Mustafa, 2013). TVET teachers are recommended to inundate as much as they can with the competency aspect besides knowledge deliverable and pedagogical skills. They should be kept on developing themselves with professionalism and having the right attitudes, as well as good personalities, moving in-line with students' academic performance and mastery of skills (Goliong, Abdullah, & Talin, 2016).

This notion was also supported by Noor Rosmawati, Abdul Razak and Mahzan (2018) who pointed out the importance of continuous improvement and putting responsibility towards portraying professionalism as an integral element in dealing with issues and challenges among teachers. While teachers have been overwhelmed with interminable issues such as students disciplinary and behavioral problems, family problems, relocations, and ethics and teaching misconduct (Billingsley, 2004; Boe, Cook, & Sunderland, 2008; Brill & McCartney, 2008) which subsequently resulted in the high dropout rate among teachers. Thus, in improving the quality of teachers and assisting them to strive in the teaching profession, the course and training to professional development are necessary. On another note, Wu, Huang, Kao, Lue and Chen (2018) suggested that teacher professionalism competency can be assessed through teaching skills, classroom management skills or workshops, engagement in student counseling and referrals, student family relations, good relationship with the administration, personal characteristics amidst some salient factors to become effective teacher.

2.1 Competency Requirement for Vocational College Engineering TVET instructor

Education is a platform to ensure the success of one nation and the growth of the grassroots. The success of the educational system had notified the stakeholders that include students, parents, and the society to broadcast Malaysia as one the best educational hub and bring forward for the betterment of the nation. With the mission to bring excellent educational experience to the recipient, the country has strategized numerous plans to execute the vision. Although the challenges are evident, Malaysia has moved forward to bring TVET as one of the preferable learning choices due to the garbled employment situation. To uphold the spirit, the TVET system requires teachers who are competent, skillful, enthusiastic and motivated to execute the plan (Ramlan, Abdullah, & Hussin, 2017). To rectify the mission. The Malaysian Ministry of Education and Technical and Vocational Division, have imposed drudgery of filling out several initiatives and comprehensive action plans since 2012.

One of the initiative's action plans is to strengthen and import public skills institutions. The vocational college has gone for rebranding and reenergizes the role including to make compulsory for TVET instructor employment to possess a first degree or any equivalent qualifications that include previous industrial experience, retraining and reskills to update their knowledge and skills. This is in line with the vision to subjugate competent teachers like the one who are knowledgeable in the subject-matter, mastering the content of pedagogical knowledge and skills, possess positive image and attitude, proficient in the preparation for teaching materials and highly effective in classroom and workshop management, and thus qualified teachers will be able to provide the students with high competency level and eventually able to wrest with challenges and the rapid changes in industrial settings (Nur Mustafa, 2013).

Adding to the mission by the Ministry of Education, vocational college is importuned to produce competent graduates in meeting the needs of the skilled and semi-skilled workforce in the local and international industries. MOE designated a target that approximately 70 percent of the graduates are able to enter the employment right after the completion of the program, while 20 percent of the graduates will pursue a higher degree, and the other 10 percent will venture into entrepreneurial and businesses (BPTV, 2012). To achieve that goal, the competency of vocational college teachers is a key requirement in realizing the mission. Also, TVET instructors are hopeful to emit and commit with their profession as one who truly masters the competency components to ensure the quality and learning experience of the student can be optimized. Gaining better responsibility for teaching assignments and high levels of professionalism in conducting their duties and responsibilities are those important competencies traits to become a successful teacher. Idris and Hamzah (2013) also pointed out that the quality of the teaching demands excellent level of competency in the practice of religious beliefs, demonstrates leadership and interpersonal skills as well as having interpersonal skills. The holistic experiences and accumulation of competency components practiced by the TVET instructor would help them strive and survive in their teaching profession and serve quality teaching and learning processes (Chua & Jamil, 2012).

TVET instructors could eventuate in a sentiment of shortage of skilled graduates in the industry. Their role goes beyond the teaching and learning process, they need to ensure that the graduates can emanate the skills needed by the employer. By drawing those responsibilities, TVET instructors need to meet the standard and quality of what is defined as an experienced educator. When the challenges in the industries, especially with the IR4.0, take place in shaking how the economy is driven, a viable solution to graduate unemployment should be worked out concurrently. Othman et al. (2010) added that TVET instructors are required to strengthen their competencies to assist the graduates' employment opportunities and responsible to produce the graduates that are able to meet the industrial demands. In that manner, the need to establish standards for reference and guidance for TVET educators is essential for the general competency level as well as the specialty to always be in the best position of fulfilling the

responsibilities of teaching (Saedah & Muhamed Sani, 2012). TVET teachers need to be competent in managing and constructing the students' talent (Omar, Ahmad, Hassan & Roslan, 2017) and motivate the student to excel in the learning process.

2.2 Competency Component

Competency component is defined as individual aspects to perform an excellent and effective job. As the work experience grows, so does the competency component. The experience will move and accelerate off an individual to perform better in their job because the experience will be proceeding to the premise that the success will require time and learning from doing a mistake will mature an individual. Blanchard and Thacker (2007), defined competency as a set of knowledge, skills, and attitudes that elevate employees in performing their tasks well. Saedah and Mohamed Sani (2012) opined competency as an individual's ability to perform tasks by mastering the competency components; knowledge, skills and personal characteristics. In addition to being linked to outstanding performance, competency is also associated with personal and organizational development. Knowledge is an individual's ability and efforts to continuously improve his or her level of cognitive to a greater degree. Skill, on another hand, is a person's ability to transmit the knowledge into practicality and performing a specific task as well as one responsibility to achieve a specific goal or objective in the organization. Whereas personality traits are personal values and behaviors that drive individuals to portray positive action and reflect what is good and bad and understand the consequences of a chosen reaction. Spencer & Spencer (1993) stated that competence is divided into two main parts: (a) generic competencies, comprises possession of knowledge, skills and personal characteristics that is intrinsic in nature and self-development, and (b) functional competencies are related to possession of knowledge, skills and specific personal characteristics to perform tasks and responsibilities.

Previous studies (see Mimi Suhana & Muhaini, 2007; Jamil & Ridhuan, 2007) enunciated the key component of competency traits lies knowledge, skills, ethics and professionalism, social processes, social accountability, and entrepreneurship. Wahba (2013) also proposed that knowing what criteria are being evaluated and how the assessment takes place in measuring an individual competency would execute the objectivity process and preliminary assessment as a reflection for the TVET instructor. There have been several studies (see Abu Hassan, 2014; Bunimin, 2016; Syed Jaafar, 2014) who studied specifically the element of knowledge, skills, and attitudes as measurable variables to determine engineering TVET teacher competency. Adding to the element of professionalism practice, Saedah Siraj and Mohamed Sani (2012) also pointed out the professional knowledge and professional skills as those elements of incompetency that is highly regarded to possess by Malaysian teachers. An attempt has been made by Mohd Hafiz (2016) to discover the competency component needed by the Engineering students and found entrepreneurial and soft-skills are the salient factors to increase the quality of Engineering graduates. Zainal (2016) in his research found interesting competency traits for

example Vocational knowledge, Professional Functionality, Values and Professionalism based on the sustainability model and practice on TVET based competency and among vocational college instructors. Most of the aforementioned literature was focused mainly on different traits of competency. In addition to these primary data, systematic studies on the fixed competency component are still needed for better understanding the profile of competent Engineering TVET teachers which is essential for synchronizing the need of the engineering-based students.

Referring to the lens of teachers' perspective, Rusman (2012) identified four specific competencies for teachers: pedagogy professional, social and individual. Furthermore, Selvi's (2010) groundwork on specific suggested four specific measurable competencies namely; professional competency, curriculum, lifelong, social and emotional competencies. It is interesting to note that Danielson (2014) also pointed out four major competency components that need to be comprehended by teachers: preparation, classroom environment or workshops, teaching as well as teaching responsibilities or assignments play a very important role. While Goh, Yusuf, and Wong (2016) identified five key competencies for educators such as classroom management and behavior, teaching method preparation, facilitator learning (pedagogical skills), students' understanding and capabilities and ready and responsible profession. All in all, it is safe to conclude the numerous factors to determine teachers' competency which sparks further inquiries to examine the accurate competency components for Engineering TVET teachers in Malaysia.

3.0 METHOD

We employed four phases as suggested by Gupta (1999) as a systematic approach to developing a standard competency framework for engineering TVET teachers at the vocational college:

Phase 1: Identify the suitable candidate for the research subjects (instructor, director, and student). We filtered the subjects according to teaching experience, the field of expertise, and field of study.

Phase 2: Job analysis identification that includes job scope and responsibilities need to be mastered by the instructors according to their field of expertise. The identification process also including instructors' collaborative tasks need to be carried out in group coordination with other instructors.

Phase 3: Identifying teacher competency components according to the fields of teaching

Phase 4: Fix the criteria for the competency and develop the competency framework.

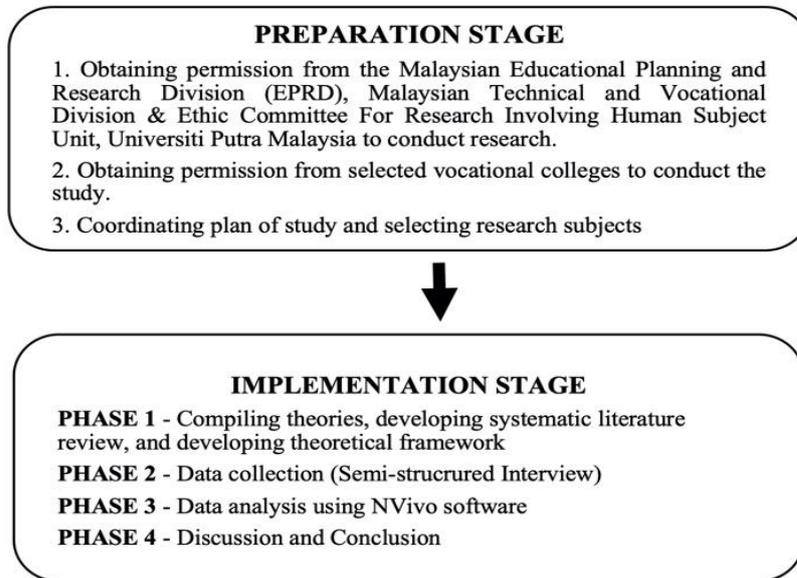


Figure 2. Research Framework

Figure 2 indicates the research framework. The research process involved two stages specifically preparation and implementation. The planned stages were developed to ensure the systematic process of carrying out the research being smooth. We employed a semi-structured interview to gather the narrative from the subjects. This approach was chosen due to flexibility and systematic approach in exploring and driving the narratives from the subject who participated in the study (Seidman, 2013). The interview questions were formulated in an open-ended form and probing was employed to gain a deeper understanding and obtain accurate information based on the given questions. A face-to-face interview technique was selected to gather qualitative data to gain detailed experiences and information from the research subjects (Rubin & Rubin, 2012). Meaningful information is gained through experience and expertise in the field that participants after being immersed in the studied phenomena for a long time (Seidman, 2013). A set of interview questions was developed for the data collection phase. Interviews were the main data collection process to obtain answers for the research questions. The interview questions were validated by the panel of experts. This validation process is important to ensure that the interview process runs smoothly and well-organized way to access information from the research subjects (Seidman, 2013). Once the data collection from the interview session completed, we transcribed the data using NVIVO software from the recorded voice which was recorded earlier using a digital audio recorder. Each word and feedback of the subjects were transcribed carefully without making any changes to the words including a specific tone of voices during the interview session. This process was to ensure that we clearly understood the meaning and intention of the subjects' feedback compiled during the transcription process.

We observed the instruction process based on the observation protocol and jotted some notes to enrich the triangulation process, We analyzed teachers' documents, for example, the teachers'



portfolio, lesson plan, teachers; profile, meeting minutes, the students On-Job Training file, and students profile. Thematic analysis methods were used to drive the meaning-making process based on the research questions formulated for the study. The coding process took place right after we completed transcribing the data. Lebar (2006) stated that the coding process is important to segregate the category and generate specific themes based on the transcripts or narratives with the confirmability of the field notes and documents. The encoding process consists of three processes: open coding, vertical code (axial coding) and selective coding. We utilized the NVivo-12 software to perform data encoding processes to find the meaning of keywords or phrases in answering research questions.

According to Creswell and Poth (2017), eight strategies are invalidating and increase the trustworthiness of the research data. However, we chose the best three approaches which we believed suffice the requirement to ensure the reliability and validity: *member check*, *triangulation*, and *peer review*.

4.0 FINDINGS

The findings were derived from the instructor, the director and the student's narrative involving the triangulation process of document analysis and note-taking during observation. The following subsection discusses the findings in the form of themes.

4.1. Excerption from Narratives

Theme 1: personality and values, effective management, socializing skill, and pedagogical skill

Furthermore, I think teachers should have a good personality and persona, this will determine that the teachers have possessed certain good quality factors and set an exemplary position to others (Instructor 1)

To me, teachers should possess self-belief, virtuosity, be independent, and set a good example, especially to students. Students observe their teachers every day (Student 1)

An exemplary teacher is those who have a close relationship with a student, they spend a lot of time with the student. Therefore, whatever the instructor demonstrates or teaches in the classroom, students would be able to imitate and practice. A simple instruction is that when teaching, teachers always show caution and emphasize cleanliness and safety precaution during lab work, so teachers will always remind the students and be practical. (Director 1)

Theme 2: ethics and professional practices

Our responsibility towards employers is clear, we must be able to perform the assigned tasks and maintain good work ethics as well as cultivate good values and be professional in the workplace (Instructor #3)

A teacher should be in charge of teaching, educating, mentoring and developing students' skill for future employment, for example, like us who are in the air-conditioning course, hence we need to master the skills related to our course (Student #2)

Furthermore, the values and attitudes of the teachers include the awareness and responsibility of the duties, the appointment for certain position in management as well as administrative work (Director #1)

Theme 3: knowledge-development

Also, teachers must be proficient in their field of study and pedagogy, that's the key point. So teachers need to possess a certain degree of knowledge in their field of study and workforce skills because it has become a factor in many engineering related jobs that requires practical skills in a workshop. Therefore, teachers need to get prepared for both theoretically and practical approaches in specific courses. (Instructor #3)

To me, the most important thing is that teachers must be knowledgeable and skilled in both theoretical and practical work related to their teaching course.....subject that they want to teach...of course they need to know. (Student #2)

The instructor needs to be competent in knowledge and skills and they need to be proactive in seeking new knowledge and get updated with new technology due to demand from industries (Director #1)

Theme 4: professional skills

The instructor should be competent in knowledge and technical skills and other related skills that will smoothen and assist in the teaching and learning process. (Instructor #3)

To me, teachers need to have the knowledge and technical skills..erm... because without specific knowledge and skills, how the teachers deliver the knowledge to student..we need to comprehend the knowledge Teachers need to explain the content clearly and demonstrate the practical work and know-how techniques on practicalities...therefore, it is necessary for a teacher to master the topic first..... (Student #3)



Theme 5: effective management

Managerial skills are essential to exist, teachers, since they are responsible for all management and administrative works at our institutions. Too much work on administrative tasks.....as well as teaching loads..there are so many things to do...(Instructor #1)

A teacher is requested to be proficient in managing students profiling and filing system..A teacher also needs to equip themselves in preparing exam question and summative as well as a formative assessment to the students and keep their grading results in student's file and place them in the file room (Student #3)

Vocational college instructors must possess the knowledge of student-related management and administration works. They are also requested to get used to the out-of-classroom pedagogical approach. What do I mean here, they must be able to manage certain tasks like managing files and documentation of student's profile as well as the instructor's profile...Also, the process of purchasing, setting up equipment and machines for teaching and learning purposes and managing related documentation processes such as the warding process of skill certificate and diploma program (Director #1)

Theme 6: socializing skill

To me, social interaction skills are important skills for an instructor. This skill requires an instructor to collaborate and work with others, especially with the industry...So, having all skills related to social interaction like communication, build connection, collaborate, managing collaborative matters are vital (Instructor #2)

In my opinion, teacher need to have a good relationship and collaboration with industries...especially when it comes to students' industrial and field trips..therefore, students would be able to gain the most-up-to-date knowledge within industrial experts ...besides that students can also and learn about the real-life experience on industrial practices and create a network with them.... (Student #3)

The instructor may need to enroll in certain courses to enhance their knowledge and skills in light of the technological changes in the industry. As I mentioned earlier, we need support and cooperation from the industry...A teacher needs to be skillful in maintaining relationships with industries with good communication skills and others....(Director #1)

Theme 7: pedagogical skill

To me, we need to master pedagogical technique as an instructor, because when we are competent in pedagogical technique, it will make our teaching job easier. The pedagogical knowledge so broad, from planning to implementation as well as evaluation..we need to



have pedagogical knowledge such as teaching technique that includes questioning technique, evaluating, and other instructions method (Instructor #2)

Teachers also need to be capable in delivering the instruction process in class and the workshop, they need to be good at using machines and equipment so that they can teach us effectively using those technologies..let say the equipment is damaged and broken, they would be able to repair and make it function again (Student #3)

Besides than the conventional teaching and learning process, teachers are also advisable to become subject matter experts in pedagogical approaches like how to handle class and workshop session through the process of delivering knowledge and ensure the process is smooth and student able to comprehend the knowledge and practice the knowledge and skills for life (Director #1)

Observation Findings

We observed the instruction process in the classroom and at the workshop. We found that most instructors are motivated and exhibited a good attitude and imposed values in fulfilling their responsibility as a teacher. They instill a value-based educational approach during the instruction process and portray the best exemplary personalities to their students, The instructors were also demonstrated professional work ethics by following the guideline which was more emphasized on ethics values. We also indicate that most instructors possess good pedagogical knowledge and the ability to manage students and other related administrative works of student profiling. Likewise, it seems that students were comfortable learning the classroom and they enjoyed doing the assigned tasks and the instructor possessed a well-rounded teaching technique that assists in running the class smoothly. In addition to that instructors are also able to carry out tasks involving student and classroom management. By establishing a good relationship, rapport and effective communication with students and colleagues, the teachers were found to be happy working in the vocational college environment. We also found that instructors were committed to their job scope during the teaching and learning process, especially in teaching and learning techniques where the instruction process was well-structured and the learning objectives were achievable.

Document Analysis Findings

We enjoyed the privilege that we had to analyze the document to enrich the findings by triangulating to generate the ideal themes for this research. We reviewed the teaching plan documents teachers portfolio. Meeting minutes and other related files such as Malaysian Qualification Accreditation (MQA) files, on job training (OJT), and the skills development department files. We conclude that the knowledge, skills, positive attitudes and values, adhere to good work ethics, manage all planned activities and capable of carrying out activities and programs well, and to perform great responsibilities in certain tasks are ethos competency traits



being addressed in the documents. Furthermore, teachers are valued if they are knowledgeable theoretically and practically and skillful in handling instruction in classrooms and as well as practical sessions in workshops by using effective teaching pedagogical methods and techniques.

5.0 DISCUSSION

We obtained suitable themes based on the triangulation process of data-driven from director, teacher and student narratives as well as observation and document analyses which were carried out before the interview session. We agreed that personality and values, ethics and professional practices, knowledge-development, professional skills, effective management, socializing skill, and pedagogical skill are the competency components possessed by the instructors. We draw our consensus-based upon the competency components competency are indispensable factors in ensuring quality and strategies to enhance the professionalism of the instructors. After the trajectory of data analyzed from interviews, observations and document analysis, it is clear that all the required competency components in TVET program are increasingly needed by TVET educators as a guide and reference to improving whole quality of the program as well as the graduates to objectivity in the pursuit of improving the professionalism of instructors.

Suggested Engineering TVET Instructor Standard Teaching Competency Framework for Malaysian Vocational College

Table 1 depicts a set of competency standards consisting of subcategories, categories, and themes developed from the data analysis. The competency framework serves as guidelines for educators as well as vocational college management in enhancing the quality and professionalism of engineering TVET educators in the institutions.

Table 1. Suggested Framework for Competency development of Engineering-based instructor in Vocational College

Theme	Category	Such-category
personality and values	personality and attitudes positive values	positive personal behavior motivation good practices
ethics and professional practices	work ethics professionalism	responsibility
knowledge-development	technical knowledge general knowledge	knowledgeable
professional skills	technical skills competitive soft skills	skillful at practical work industrial skills entrepreneurship teamwork skills problem-solving information technology
effective management	collaborative management managing students workshop and classroom management managing teaching materials activity and program management documentation and reporting management	managerial skill
socializing skill	communication collaboration	relationship with the administrator relationships between friends relationships with students industry cooperation
pedagogical skill	pedagogical techniques methods of teaching application classroom and students control teaching preparation supervision assessment	teaching skill pedagogical skill

6.0 CONCLUSION

Instructor competency is crucial and highly emphasized in the TVET system. The effective teaching and learning performance will validate the capability of the instruction and eventually will reassure the graduates' quality and preparedness to enter the employment sector. Due to the rapid change in technologies and equipment in industries has called upon a necessity for instructors to be knowledgeable about the usability and application of the facilities. On top of that, the characteristic and student behaviors are also a challenge for instructors. Due to skeptical beliefs of TVET stream as the second choice in education, student intake has been pointing out on low-performance students and students with some disciplinary problems,



making it difficult for some instructors to take control of students behavioral problems. Therefore, TVET instructors are required to get adapted to the challenging scenario in dealing with such problematic students. With myriad competency traits, TVET instructors carry out a huge responsibility to ensure the vocational college graduates are able to fulfill the industrial demands. Effective and competent instructors should be able to motivate the learners through the teaching and learning environment and able to share their industrial experience to demonstrate professionalism in their careers. The development of the framework is substantial as it will be utilized as a guideline to other TVET instructors from other fields to demonstrate the competence traits. The Vocational College administrators and Technical and Vocational Education Division at the ministry level would be able to assess the performance of TVET teachers concurrently using these competency guidelines and plan specific training programs and competencies workshop to assist teachers to need in improving their competencies elements and ultimately empower the teaching and learning process at TVET institutions. Future research is predicting the competency traits possessed by novice teachers; those who just enter the teaching profession based on the teachers' training program provided by the public universities and other teachers licensing programs. It is hopeful that the development of the model will help teachers to synchronize the well-trained competency traits at the teachers' training level, therefore, they can execute with the teaching career once they graduate from the program.

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