



ENHANCEMENT AND IMPROVEMENT OF COMPETENCY IN  
SUSTAINABLE DEVELOPMENT FOR INSTRUCTOR  
PROFESSIONALISM IN OIL & GAS TVET TRAINING CENTERS

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**Abstract.** One of the main initiatives in developing human capital is improvement in the domain of professional employment. It is essential for the growth of people or identity, society, and nation. The main aim of this research paper is to confirm the level of work efficiency in producing a workforce in the field of professional teaching staff in Technical and Vocational Education and Training (TVET) for Training Centers in the oil & gas industry. The level of professionalism of the teaching staff studied involves matters related to the readiness of this group in the teaching process which includes knowledge, skills, and competence in the subjects taught. It also includes an individual's identity or attitude. The professionalism of the teaching staff will also be measured by preparation for the teaching process, related to the planning in teaching, practicing the planning, and using the method in the teaching method as well as the evaluation process for the teaching. For TVET Training Centers in the oil & gas industry to build professional teaching staff, all these factors must be investigated and evaluated.

**Keywords.** Professional development, Teaching preparation, Institute of Technical Training Based TVET, Teaching readiness

## 1. Introduction

Significant duty and responsibility that aids in the growth of people, society, and the nation is the professional development of the teaching staff (Syed Ismail and Ahmad Subki, 2021). Additionally, according to Noriati et al. (2012), the philosophy of professionalism serves as the foundation for service. It entails developing teaching staff who are consistently optimistic, rational, persistent, dedicated, responsible, enthusiastic, willing to make significant sacrifices, prudent, far-sighted, and dynamic. Educators will be in charge of passing along knowledge and assisting their learners in achieving success and excellence in accordance with the professional concept behind this education. The advancement of teaching staff professionalism is crucial for serving as a catalyst for the growth of human capital, as well as serving as an agent of social change, an executor of newly implemented policies, and someone who contributes to the achievement of the nation's aspirations (Abd Rahim, 2005). The process of educating people to serve as teaching staff, as defined by Abdul Rahim (2000) research study, is known as the development of teaching staff professionalism. It involves professional growth with more experience, and management will thoroughly assess the teaching staff.

The teaching staff's own formal and informal experience contributes to their level of professional development. The enhancement and development of the teaching profession is a long-term process that calls for well-designed job opportunities and experiences. The 10th Malaysia Plan's educational system has placed a strong emphasis on creating highly-skilled, top-notch, and globally competitive human capital that is built on cutting-edge technology. The goal of transformation in technical and vocational education is to create a new system by reshaping the current system. It is referred to as Technical and Vocational Education and Training (TVET), and it can support Malaysia's transformation objective as a high-income nation.

The personnel in charge of this new technical and vocational education system, or TVET, will be receptive to numerous government efforts. It will work with the current sector to innovate teaching and learning, which is thought to be able to create a workforce that is skilled and enterprising. The workforce that is generated should be competitive, possess credentials and abilities that are acknowledged by the business, possess a professional demeanor, and be recognized on the job market. According to the Malaysian Ministry of Education (2011), the growth of professionalism is one of the key components of any educational revolution (teaching staff's professional development) (Kementerian Pelajaran Malaysia, 2011). This is due to the fact that the teaching staff is not only a variable that may be modified in an attempt to boost the education quality, but it also has a significant impact on how education is transformed. W. Mohd Rashid W. Ahmad (2004) holds the opinion that the main function of teaching staff is as the object and subject of change, making the development of teaching staff professionalism a growing field and challenging the authority of teacher professionalism in skill training centers across the nation. The workforce will also notice an increase in pressure as a result of the changes that occur in the educational system.

There will be pressure on the job as a tutor from factors including student behavior, professionalism standards, and the workload issue. W. Mohd Rashid (2004) also claims that interactions between coworkers and pay scale also have an impact on how happy teachers are in their jobs. To ensure that all preparation and execution will yield the appropriate results as intended, the management in the technical and vocational education department must emphasize the professionalization of the teaching staff in skill training facilities across the nation (G. Lokanadha Reddy and R. Vijaya Anuradha, 2007). In order to succeed in the professional field of teaching, one must be dedicated and willing to take on difficult responsibilities (Sabrina Laine, 2011). In teaching rooms, there should be opportunities to help to teach professionals to boost their professionalism (professional growth). The teaching team at the skills training facility needs to improve their approaches and teaching quality. To generate quality workforce resources to satisfy the needs of the country's industry, skills training centers must adapt to the evolution of the country's educational system.

## **2. Overview of Technical and Vocational Education**

A profession is a line of work that calls for knowledge, education, competence, high skills, and specialized training, according to the *Dewan Bahasa* and Pustaka (2009). The teaching staff at skill training facilities practice a sort of profession, and they are experts in their field (Noriati et al. 2012). Technical and vocational education is changing in an effort to reshape the current educational and vocational systems and give a newly envisioned technical and vocational education system that can support Malaysia's transformation strategy as a

high-income nation (Ministry of Education, 2011). A teaching and learning system that is up to the task of developing skilled and entrepreneurial workforce resources must be formed in conjunction with the established industry. This new vocationalization should be supported by human resources that are flexible to the diverse initiatives offered by the government. The workforce that is generated should be competitive, possess industry-recognized credentials and abilities, be competent in occupations, have a professional demeanor, and be accepted on the job market. According to Ministry of Education (KPM, 2011), one of the efforts in building and reforming the curricula, institutions, teaching and learning, assessments, governance, and existing human resources are made to establish the education system with new techniques and vocational opportunities. The changes made to the educational system must be able to work as a medium that educates students for career excellence, having human capital resources that are either available as skilled workers or as competitive and professional entrepreneurs. With the help of this transition in the educational system, high-quality services in technical and vocational education and training will be provided in order to address the needs of people or students, current society, and industries centered on knowledge and skills.

Human capital with high marketability and industry recognition that is skilled and qualified is required in order to mobilize human resources that can become knowledgeable and skilled. Additionally, it will be able to promote the hiring of a greater proportion of qualified teachers in an effort to create a human capital base that values lifelong learning. Transformation to vocational-technical education, as per KPM (2011), seeks to advance the teaching profession and attain excellence (Ministry of Education, 2011). The growth of this educational model will make people feel satisfied and will ultimately result in the success of the educational system. It is also possible to define quality as the degree of excellence, growth, and quality. The teaching staff must take the initiative to create and broaden a world-class quality education system using the idea of transforming it into a skills training center system. The teachers themselves must exhibit excellent teaching practices in their careers. High-quality teaching staffs are those who have a career vision and set goals for themselves. The degree of competence and skills in numerous sectors of knowledge, skills, appreciation of values, and attitudes and identities will continue to be improved by result-oriented teaching staff (Syed Ismail and Ahmad Subki, 2021).

According to research by Philip Van Hooser (Philip Van Hooser, 1998) there are three key factors that are crucial in assessing the success of teaching staff. The three components, known as the "triangles of success," include skills, attitudes, and knowledge. They are interconnected. Real knowledge, in his opinion, is understanding the job. If the teaching staff's expertise is solely based on their diplomas, certificates, and degrees, it is impossible to assess their level of knowledge. A measure of knowledge based on average grade points is not accurate either. Knowledge will also not be sufficient if it is determined by seniority and how long a person has worked at a certain job. Understanding what is required and should be communicated to students by teaching staff is a very effective teaching skill in an effective and high-quality teaching system. Moreover, Sulaiman Ngah Razali (Sulaiman Ngah, 1997) asserts that instructors providing the information is crucial for readiness and preparation in the classroom. A teacher needs to possess vital qualities such as knowledge, skills, excellent skills, and a professional work ethic. Teaching theory that needs to be put into practice and applied comes after planning in the teaching process, content in teaching, delivery to students, and teaching assessment (Dale H. Schunk, 2008).

In an attempt to address the needs and wants of individual students, current society, and skills and knowledge-based industries, surveys and studies have revealed that a huge proportion of teaching staff is still not prepared to provide services in programs based on high-quality Technical and Vocational Education and Training (TVET). This is due to the fact that the majority of these students have been taught by a range of educators that come from various academic backgrounds with various goals (Sharifah Alwiyah, 1985). This situation will undoubtedly have a severe effect on the professionalism level of technical and vocational teachers as well as their ability to effectively convey knowledge to students. The key issue is determining how willing the teaching staff is to advance their expertise in delivering technical and vocational abilities in skill training centers. There is a severe lack of knowledge in the disciplines of chemistry, petrochemistry, and oil & gas since the transformation of technical and vocational education necessitates new syllabus revisions. The new curriculum offered in this area is completely unsuitable for teaching students. In this domain, knowledge and skills are both crucial. These two elements are essential and required for applying a theory. Competence and application go hand in hand (Khodori, 2008). According to Syed Ismail and Ahmad Subki (2011), an educator has an advantage if they can put an idea into practice.

Teaching staff at any skill training center has an advantage in having job skills in particular industries requiring TVET. For TVET-based skills training centers, the teaching staff's knowledge and skills must be tailored to meet the plan's criteria. For example, Syed Ismail and Ahmad Subki (2011) believes that the task, accountability, and commitment of teaching staff will increase in comparison to the past. In order to create a transformation strategy for TVET-based skills training centers, a new mentality is needed. The teaching staff must be very conscious of this goal and self-aware of the necessity to change methods, approaches, tactics, and ways of thinking to advance professionally in order to overcome any challenges.

Additionally, a review of prior studies revealed that some teaching staff in skills training centers based on TVET are afraid to make changes and have a lazy attitude to move using and referring to the transformation plan in skills training centers. This type of teaching staff's mindset is most likely a result of previous transformation initiatives that were deemed unsuccessful and frequently happened in exchange for new initiatives. The implementation of teaching engineering subjects in technical secondary schools using English, the transformation of vocational secondary schools into technical secondary schools, and the application of the *Mata Pelajaran AliranVokasional* (MPAV) program in vocational secondary schools are some of the programs that can be viewed as failures. In-service training for teaching staff at vocational skills training centers is mandatory from 2011 to 2015, per the Ministry of Education (MoE) (2011) Vocational Education Transformation Plan. The Malaysian Education Development Plan 2013–2025, as per MoE (2013), specifies that the path from teaching staff should have attained competence in knowledge, skills, and teaching, as well as expertise in the field of specialization relevant to TVET (Ministry of Education, 2013). Additionally, educators must be ready to increase student access to excellent instructional strategies.

According to the point of view given by Zohar and Marshall (2000) the characteristics of high-quality teaching staff are that the teaching staff must accommodate the needs and preferences of the students in a variety of areas, including readiness for the teaching process, preparation for teaching, attitude, and knowledge and skills needed. All TVET-based skills training centers around the nation employ teaching staff that is experts in technical and

vocational education. As part of the nation's plan for technical and vocational transformation in accordance with the National Education Philosophy, experienced and professional teaching staff play a critical role in developing a generation of knowledgeable, knowledgeable, and skillful individuals.

Based on the views in the study conducted by XinglinJin et al. (2021), the technical and vocational curricula required that all professional teachers possess an in-depth understanding of the curriculum and its development. The teaching staff must strive to accomplish the goals outlined in the established curriculum. Starting with teachers who work hard to improve themselves with information, knowledge, and skills, as well as high competency, and are relevant to the field in order to develop their capacity to cope with changes and difficulties more effectively and efficiently, the professional teaching staff is formed. Undoubtedly, a group of high-quality teaching staff will produce excellent students and contribute to the creation of an exceptional and magnificent nation (Noraini, 2009).

### **3. TVET-Based Program**

Amir Omar's (2008) reported when he said that the Malaysian Teachers' Convention and parliament regularly address topics pertaining to the professional development of teaching employees. According to Ragbir Kaur's (2007) study, this issue has grown to be serious because there are still teachers who are below average in terms of their knowledge, abilities, and negative attitudes. Those factors contribute to the growth of the professionalism of teaching staff. However, teaching staff at technical skills training centers, especially vocational ones, are still not ready to improve their knowledge, abilities, and attitudes. This is vital in order to effectively shape and direct students' whole mental, spiritual, emotional, and physical development while engaging in teaching (Anuar, 2008).

Referring to a study conducted by Khodori Ahmad (2008), where he claimed that the teaching staffs at technical and vocational skills training centers (part of the TVET system) still lack the necessary knowledge and skills for their professional careers. Khodori Ahmad (2008) also discovered that more than 50% of the teaching staff at technical and vocational skills training institutes were not yet prepared to implement this TVET-based transformation concept through a preliminary survey performed in late 2012 and early 2013. Those teaching staffs are not yet fully equipped to teach using the new curriculum in teaching and learning patterns, to fully embrace the brand-new evaluation system, or to take the method of re-engineering the new curriculum system of the vocational skills training center. The level of professional development of this teaching staff at the vocational skills training center will be impacted by all the elements related to their lack of preparation. Plus, it will indirectly have an impact on the Malaysian Ministry of Education's Vocational Education Transformation Plan. As per pertinent agency figures, 6,297 instructors were required in vocational skills training institutions in 2013, 16,789 instructors in 2015, and 31,530 instructors in 2020. Given this circumstance, instructors at skill training centers across the nation need to receive formal model training in professional growth. For example, SulaimanNgah Razali (1997) believes that teaching by teaching staff in the classroom and on the job is essential for teaching preparedness and preparation.

According to Noraini Kaprawi's(2015) study, teachers working in a TVET-based system need to possess certain knowledge, abilities, and attitudes. Teaching theory that needs to be put into practice comes after lesson planning, lesson content in instruction, delivery strategies,

and teaching evaluation. According to the results of his survey, many instructors are still hesitant to provide services based on high-quality TVET in order to satisfy the needs of individual students, today's society, and the knowledge-based industry. To satisfy the need for teaching in a TVET-based program, there is a need for facilitation support in the training of new teaching staff in vocational skills training centers (Dale H. Schunk, 2008). In reference to Amir Omar (2008), the author claimed that the preparation of the entire teaching staff, in terms of knowledge, abilities, and attitudes for raising the first class in national education, is still not fully prepared. The demand for teaching in this TVET-based curriculum, which is tied to the Malaysian Skills Certificate Level 1 to Level 5, cannot be met by the current output rate of academic staff from local universities. This data was acquired from interviews with long-serving personnel of the teaching staff for the TVET-based program. The level of professionalism and quality reduction in the field, as evidenced by this TVET, should worry and challenge the teaching staff (Ahmad, 2009). He then asked how well this TVET-based skill training center can build certified and trained instructors. Students must be equipped with the knowledge, skills, and spirit of employability to create skills and comprehend the criteria of the required skills field when learning according to the concept of skills based on TVET (Iowa Department of Education, 2002).

Methodology in research is a systematic method to solve problems in research. It is an important instrument to ensure that the data gathered and processed comply with the study's goals. The research methodology is typically developed in 5-8 stages, including identification of the research study, literature review, setting of the research objectives, questions, and hypotheses, selection of the study design, selection of the sample design, data collection, data processing, and analysis, as well as conclusions and recommendations or final report.

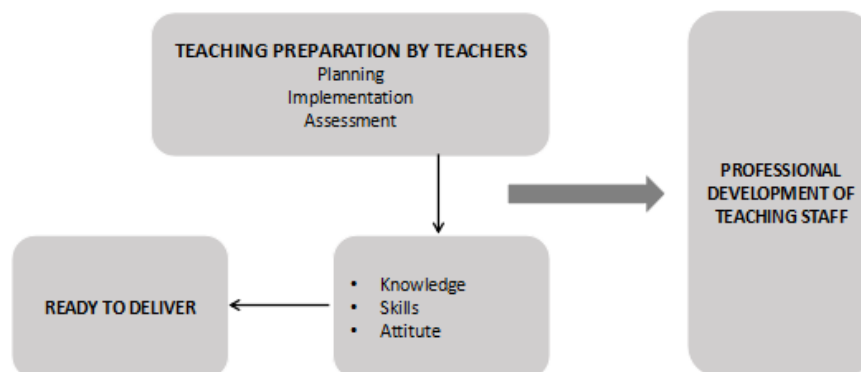
Based on the study of Pandey and Pandey (2015) a methodology is a mechanism to systematically organize and manage content (rules, procedures, notions, etc.). A set of guidelines will be provided by the framework for the content's development. A framework describes how the content may be organized, managed, or overseen rather than the content itself. It would imply that, as long as the fundamental guidelines and criteria are followed, some flexibility and exercise of discretion are permissible when putting the framework into practice.

#### **4. Conceptual Framework Research**

The framework when forming the Technical and Vocational Education and Training (TVET) program concept is based on competency assessment. Instead of only emphasizing theoretical knowledge, it will concentrate on what participants are anticipated to achieve in the job. As a result, it is a training course that will guarantee students obtain the knowledge, abilities, and attitudes or values required to succeed in the workplace. The conceptual framework will outline the goals and procedures for the research. This will identify the important aspects of research and study and show how all the data will be related to one another. Before gathering the data, the researcher should first create a conceptual framework.

There will be a variety of approaches, patterns, and evaluation styles used to determine a person's level of job competence. This is done to make sure that all of the criteria, including the ones for results, performance criteria, knowledge, and scope, will be more effectively

included in the standard. We also provide the statements for every Employment Standard field type. For each form of job standard area, the methodology for the work efficiency assessment process and the documentation requirements have been outlined in detail.



**Figure 1.** Professionalism development of training model

### ***Constructive Teaching Theory***

A pattern or method of instruction regarding ways humans will learn anything that will be taught is the definition of constructive theory predicated on studies. The majority of earlier scholars believed that each person would acquire knowledge independently rather than from others (Mc Brien and R.S. Brandt, 1997). Students will generate their own knowledge by evaluating theories and methods based on previously acquired information and experience, putting those methods to use in novel contexts, and incorporating newly acquired knowledge obtained via intellectual construction (Briner, 1999).

The constructive theory is a theoretical idea that serves as a guide in the educational system, as per Mok Soon Sang (2010). There are some fundamental ideas that must be understood in order for a system of education to be constructive. These ideas include the fact that students will build their own knowledge, that each student has fundamental concepts and knowledge, that the process of building knowledge involves social factors, and that the teacher will serve as a facilitator in developing this knowledge for students. The teaching staff will serve as leaders to assist and direct students. At the same time, they carry out learning activities, and this teaching style will encourage students to participate actively in their learning activities. In order to help students assess their experiences and become more accountable and self-directed, educators must explain the student-oriented approach to them.

### **5.The Interconnected Model of Professional Growth**

A frequently cited model of teacher learning is the interconnected model of professional growth (IMPG). Clarke and Hollingsworth (2002) built this model based on Guskey's model of the process of teacher change (Guskey, 1986) and stated that teacher learning occurs in a mediating process of 'reflection' and 'enactment' through four distinct and also interrelated domains: 1) the personal domain (teacher knowledge, beliefs and attitudes); 2) the domain of practice (professional experimentation); 3) the domain of consequence (salient outcomes); and 4) the external domain (sources of information, stimulus or support). Change in any domain will result in changes in other domains, as shown in Figure 2.

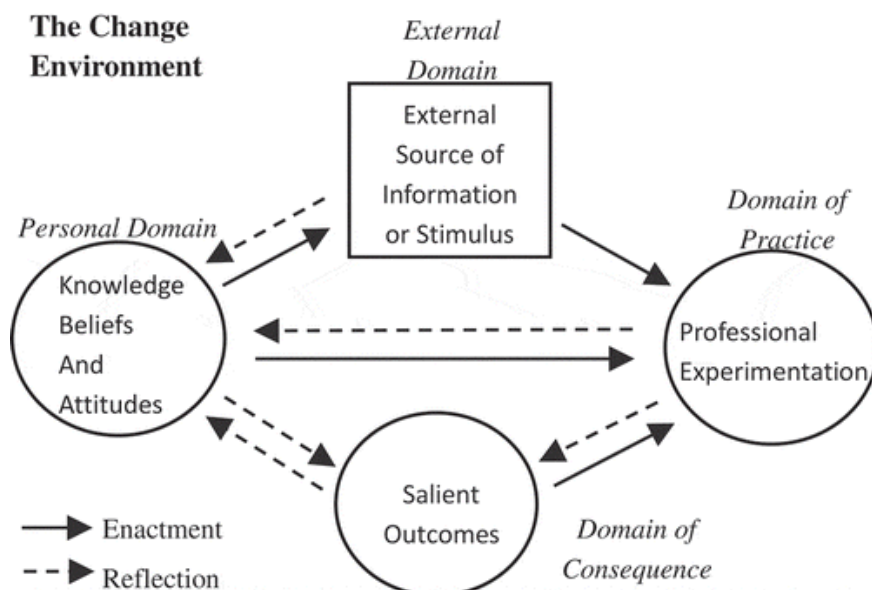


Figure 2. The interconnected model of professional growth (Clarke and Hollingsworth Citation2002)

Students will acquire knowledge by active participation in the conceptual to constructive learning process, using methods to compare new information with prior knowledge to aid in problem-solving and develop a comprehension of new material. This implies that students entering the classroom will no longer be viewed as empty cans waiting to be filled but rather as individuals prepared to bring a range of experiences and prior knowledge to the learning environment. The construct notion is based on the idea that students would create, deconstruct, and rebuild their own knowledge.

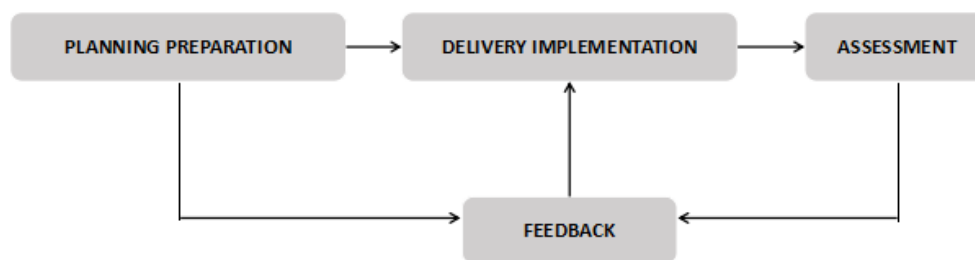
When students dismantle something and reconstruct it, they reorganize existing knowledge by connecting new knowledge to previously held knowledge. The constructive theory is likewise concerned with learning that occurs from building knowledge based on prior experience. Combining new information with preexisting knowledge will create learning. An understandable example is that humans constantly need and desire to survive. Humans require information in order to categorize their basic necessities for survival, like food. For survival, humans require nourishment. This theory will center on the notion that students will pick up new information depending on their prior knowledge.

As a result, the teacher must offer tasks that are appropriate for the students. Outcomes of the constructive theory in teaching and learning, where the student takes the lead in learning activities, and the teacher serves as an assistant, facilitator, and planner. Collaborative and cooperative learning is the most effective teaching-learning strategy to employ. Students' interaction needs to be encouraged by instructors. Moreover, students' ability to build their knowledge will be facilitated by interaction and idea sharing. It is important to provide classrooms with a variety of teaching aids and resources that can motivate and promote student learning. For students to acquire knowledge, learning materials must be sufficient and



demanding. The effects of constructive teaching and learning will be centered on the students' prior experiences and their capacity to connect those prior experiences to the learning that will shape who they are as individuals. The knowledge that the students will acquire is the outcome of their own activities, not by passively absorbing information from the teaching staff. Facilitators who aid students in learning and problem-solving are instructors.

The underlying nature of the students' prior knowledge will help instructors determine their teaching strategies. The instructor creates the teaching materials and offers an opportunity for students to gain new knowledge. Through the acquisition of knowledge, teaching aims to transform students' identities and behaviors. While teaching strategies, such as indoctrination, can help students pick up new information and views, training activities or conditioning are one approach and effort to modify student behavior [10].



**Figure 2.** Teaching and delivery processes

## 6. Discussion

An action intended to facilitate learning is known as teaching. Teaching strategies are pre-planned programs or techniques that support students' learning. To deliver effective, significant, and high-quality teaching results, teaching at a skills training center demands knowledge of a number of skill teaching strategies. Therefore, it is crucial for teaching staff to be aware of the abilities that will be employed to instruct students. Instructors at skill training centers must be equipped with a variety of instructional methods. Since they must ensure that students are headed on the right path at the end of each lesson, instructors must be skilled in lesson planning procedures and objective identification. Educators must first understand the backgrounds of their students before commencing any teaching. Certain instructional methods should be familiar to instructors. Additionally, instructors must be able to connect lessons to prior knowledge in order to effectively transmit their message. The usage of skills should be something that instructors can practice, assess, and talk about among themselves.

A skilled teacher should be capable of communicating effectively while delivering lectures and adopting the simple language. Teachers must be able to control their movements whether teaching in a classroom or on the job. In order to effectively teach their students, teachers must also be able to analyze the subject material, offer precise justifications, and use relevant instances. To ensure the efficacy of their teaching and learning, instructors must be capable of mastering the abilities of questioning, providing reinforcement, analyzing and assessing, receiving feedback, directing the class, and effectively using teaching aids. When conducting learning activities, instructors must establish a proper environment. Teachers must also be capable of making judgments and assessing the effectiveness of their instruction.

## **7. Conclusion**

The Malaysian Ministry of Education, in particular the Malaysian Technical and Vocational Education Division, will benefit from reviewing papers on the Professionalism Development of TVET Instructors at the Technical Training Institute. The use of management level to skill training centers in TVET-based areas, particularly emerging fields like oil & gas engineering, petrochemistry, and refining, will be beneficial from this study. Suppose course objectives at the skills training center are met in accordance with the demands of the Technical and Vocational Education Transformation Plan. In that case, it will be based on information from these findings. The standards of the Technical and Vocational Education Transformation Plan must be met by every educational program and strategy. All input findings will aid in the improvement of current weak points as well as the identification and reinforcement of each dimension's strength in all areas, such as teaching readiness from qualities to attitudes, knowledge, and skills. Technical and Vocational Education Transformation Plan will be able to identify the strengths of each dimension in all aspects of teaching preparation in TVET-based skills training centers in terms of teaching planning preparatory work, teaching implementation preparation, and teaching assessment readiness of teaching staff with the aid of all input findings that were attained. This is helpful for the Malaysian Ministry of Education in developing improvement plans, particularly in preparing teachers' lessons for future activities and programs based on TVET instruction at skill-training centers.

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